We have a fundamental challenge confronting us in the future, and we have to respond to it. And the response is going to require some active policy decisions. It’s not going to go away by itself; it’s not going to take care of itself.

So here’s where we start. Figure 1 shows Canada’s population growth rate. The bulge is when Canadians were having a fair amount of successful and unprotected sex, back in the early 1950s — this is the baby boom. You had a lot of people being born between 1946 and 1962, roughly, and we had a very high fertility rate and a very high population growth rate. And over the next 50 years, not completely smoothly, but inexorably, the population growth rate declined, largely, because of a decline in the fertility rate. Today’s fertility rate is 1.6 children per woman, but 2.1 is typically viewed as the replacement rate. So, even to maintain zero population growth, you need 2.1. Well, we’re below that.

The way we have population growth is with immigration. With today’s immigration policy and the continued decline in fertility, however, population growth in Canada is expected to decline. But notice that as long as the population growth rate is positive, the population is still growing. So we will have a growing population, but its growth rate will decline.
Now, take a look at the equation at the bottom of Figure 1. It's pretty obvious. What changes population in any given year? Births plus net immigration minus deaths. There's something about the way people are born. Everybody is born with a common characteristic: they are young. They are age zero. Nobody’s born at 40, nobody’s born at 60. Well, if we have population growth that is declining because of a fertility rate that is declining, then, unavoidably, a decline in population growth means an increase in average age. Because what’s happening is there’s a decline in the number, not just of people, but also in the number of young people. So the population has to get older.

Figure 2 shows three population pyramids: 1970, 2008, 2040. The left-hand side of each diagram is men, the right-hand side is women. There are lots of differences between men and women, as we know, but there’s no fundamental difference in the numbers between men and women. The darker shaded part is the baby boom generation, born between 1946 and 1962, and you see is that, as we go from 1970 to 2008 to 2040, the shaded part shifts up. This is sometimes referred to as “the pig in the python,” I think for obvious reasons.

Now, the baby boom generation is bigger than any generation before it or after it, which is why it is so important, not just in economic issues but in social issues. It has shaped society and will continue to do so. So the population pyramids change to being like cylinders as this population generation moves through the python.

You’ve heard about the dependency ratio? I have made up a term called the “providing ratio”. This is basically the inverse of the dependency ratio, and is the ratio of people of traditional working age, 15 to 64, relative to people over 65. Right now, there are five people of traditional working age for every senior. And by 2040, there are going to be two and a half people of working age for every senior. Just think about why that matters. Everybody consumes stuff, including seniors — the lucky seniors. But only people of traditional working age, in general, are producing stuff. So the number of people who are producing stuff relative to the number of people who are consuming is falling. This is leads to questions such as “Who’s going to pay for the seniors’ pensions in 40 years?”

Now, what happens as people get older is that they change their labour force attachment. Figure 3 shows labour force participation by age category. Of those ages 25 to 54, about 85 percent are in the labour force. People are not just in the labour force until age 65 and then drop out. There’s a gradual decline in their labour force attachment. So, from 55 to 59, it falls by about ten percentage points; 60 to 64, it falls by about another 15 percentage points; and then 65 and over, it falls quite a bit. So as people approach their typical retirement age, there is a reduction in labour force attachment.

Figure 3 shows that with a little bit more precision. In some sense, this is the most important slide. It shows the labour force participation rate, and a lot of important implications about population aging come from that. Over the past 40 years, what we have seen is the maturing of the baby boom generation. Most of them, of course, entered the labour force, so we see a rise in the labour force participation rate from about 62
percent up to about 68 percent. And then our forecast for the next 40 years is that these people will drop out of the labour force. So the labour force participation rate will go from about 68 down to about 60 percent.

Although this talk is about the fiscal implications for governments that follow from this trend, let me just pause and talk about the implications for living standards, because they’re rather crucial, too.

Now, a typical measure of average living standards is income per capita — GDP per capita. But there are a lot of things that doesn’t measure. It doesn’t tell us anything about the distribution of income. It doesn’t tell us anything about the cleanliness of the air. It doesn’t tell us anything about political and religious freedoms. There are all kinds of things that we care about that are not captured by GDP per capita. But GDP per capita is a pretty good measure of average stuff per person, so I think it will continue to be used as a pretty good measure of average income.

Over the past 40 years, there have been two fundamental reasons why living standards have been rising. One of them is shown in slide 8: there has been a rising fraction of the population that’s working and producing stuff. The other thing that’s been driving average living standards is productivity growth. Productivity growth, presumably, is going to continue growing and increasing our living standards over the next 40 years. But the increase in the labour force participation rate that was contributing very importantly to rising living standards is not only going to stop rising, it’s going to fall.

So productivity will become even more important in the future. In fact, more than 100 percent of our rising living standards over the next 40 years will come from productivity growth. What does that mean — more than 100 percent? Because the labour force participation rate is going to decline, it underlines the importance of thinking of things to improve productivity growth.

So, over the past 40 years, labour productivity has been going up, but the unemployment rate has done nothing. Why? Well, the unemployment rate is very cyclical, but over long periods of time the unemployment rate tends not to do anything because the economy returns to some notion of full employment. And the labour force participation rate has been going up, and living standards have been going up. Well, for the next 40 years, the labour force participation rate is going to go down, the
unemployment rate is going to do nothing, and labour productivity is going to continue to go up. But whatever benefits we’re getting from productivity will be cut away by the negative growth in the labour force participation rate.

Let me now turn to the fiscal side, which is really the value here. What I call part one of the demographic “fiscal squeeze.” What are the fiscal implications of this slowing labour force participation rate? Well, if we’re going to have a declining labour force participation rate, then there’s going to be reduced growth in real per capita GDP, or, to be a little less abstract, we’re going to have lower growth than we’ve had in the past 40 years. And that means reduced growth in the tax base. The tax base is basically GDP: corporate taxes, a fraction of GDP, more or less; income taxes, a fraction of GDP, more or less; consumption taxes, GST, a fraction of GDP. So GDP is a rough-and-ready measure of the tax base. And we’re going to have a reduced growth in per capita GDP.

Figure 4 shows you what I mean. Per capita GDP growth has been roughly 2 percent per year for the past 40 years. Where did it come from? Well, it came from those three components: productivity growth, about 1 percent; changes in the employment-to-labour-force ratio, zero, exactly to be expected; and an increase in the labour force participation rate. So, slightly more than one-half of our rising living standard has come from productivity and slightly less than one-half has come from the maturing and the entry of the baby boom generation into the labour force.

Now, what do the next 40 years look like? Well, productivity is going to be about the same. We don’t know where productivity is going to be, so we assume that the past ten years of productivity performance gets repeated in the future. As important as productivity is for driving living standards — in the long run, it is the number one determinant — it’s the biggest black box in macroeconomics. We don’t really know where it comes from. We’ve got some good stories, and some of them are really quite good. But we don’t really know what drives productivity in the same sense that we know what drives inflation.

So, we have productivity growth, we have the unemployment rate doing nothing over long periods of time, and we have negative growth in the labour force participation rate. And what we expect in the next 40 years is roughly 1 percent annual per capita GDP growth. Productivity minus the declining labour force participation rate. Well, the difference between the past 40 years and the next 40 years is big. The former is 1.9 or 2 percent, the latter is 1 percent. It may sound like a small difference, but if somebody’s income is growing at 2 percent, it doubles in 36 years, and if it grows at 1 percent, it doubles in 72 years. So, small differences in rates of growth sustained over many years have big differences in final outcomes.

That’s the uplifting part of my talk, because the really nasty stuff is coming on the expenditure side of the fiscal squeeze. An aging population has a double whammy: people drop out of the labour force, which has fiscal implications, and they
also get more expensive as they get older. But we’ve got commitments that I assume we are going to maintain. If we are prepared to dump these commitments, then we could solve the problem. But I’m going to assume that we will maintain our commitments to provide health care and elderly benefits. And both of those things, not surprisingly, are going to go up when people get older.

Now, there’s an offsetting effect that, as the population shifts toward being older, then it must be shifting away from being younger. So, we will spend less on younger people, on day care, primary education, national child benefits. The problem is that this effect just gets blown out of the water by what we spend on people as they age.

Figure 5 provides a sobering picture: per capita public health care spending — not private, not public plus private — by age category. Notice that people up to about age 55 cost about $2,500 a year, on average, to the public health care system, and then it starts rising. As we get a little bit older, we get a little bit more frail, we recover from falls a little bit more slowly, and so on. I think everybody would expect per capita spending to go up, but you might not have expected it to go up this much. Above age 75, it’s $12,000 a year; above age 85, it’s about $20,000 a year. A third of per capita health care spending happens in the last year of your life. And a third of that is in the last day of your life. Lesson? Die a day earlier.

So, as the population is going to age inexorably, we’re going to spend more. That’s the dark blue part of the bars in slide 13 — the forecast of the increase in health care spending as a share of GDP from 2020 to 2040. The figure doesn’t show the first ten years from now to 2020 because, although the population is already aging, the real change takes place between 2020 and 2040, so that’s what I focus on here.

The light blue part of the bars in figure 6 is the other factors that are going to drive up health care expenditures. As people get richer — and we do have rising living standards throughout this whole projection period because we have rising productivity — they tend to demand more of all “normal goods,” as economists call them, and health care is a normal
good. Health care might even be a luxury good, where a 10 percent increase in income leads to a more than 10 percent increase in the demand for the product. There’s some debate in the literature about how big that income elasticity is, but it seems to be pretty clear that it is positive. So, as income rises, we demand more health care.

Another thing that’s going on is technological advance in the health care sector. Technological advances in the manufacturing sector typically drive down costs and prices. But with technological advances in the health care sector, although sometimes we come up with new ways to do old things and to do them cheaper, very often we come up with ways to do things that we never could do before. And those ways are quite expensive. So, confronted now with the ability to do a new operation we could never do before, do we choose to do it? Absolutely, because we can. And it’s expensive. So that is part of what’s behind the rising relative price of health care services.

So, what you see in the light blue part of the bars in figure 6 is those two things combined: rising income driving the demand for health care, and rising relative prices of health care. The light blue part, in fact, is the most controversial part of my discussion. The demographics, for the most part, are uncontroversial because these things don’t change on a dime. We know what the population was yesterday, we know people age one year per year, and we know pretty well what their labour force attachment is. The problem is that, while there might be disagreement about the light blue part, even if it’s only half a percentage point of GDP higher or lower, what I have to say is still depressing.

What we have here is an increase of 2.9 percentage points of GDP in public health care spending. Just coming back to that income-elasticity argument, over the past 35 years public spending on health care in Canada has increased as a share of GDP from 5.4 to 7.5 percent. So it’s consistent with the idea that there is this positive income elasticity.

As Figure 7 shows, elderly benefits — basically, Old Age Security and the Guaranteed Income Supplement — will rise sharply as the baby boom generation hits retirement age. And then they just grow gently over time. We actually assume they will be indexed to wage growth. Wages are expected to rise, partly because of the demographics. So the forecast for elderly benefits over the next 30 years is that they will go up by 0.5 percent of GDP.

Add these two together and you have 3.5 percentage points of GDP. How big is that? GDP is $1,600 billion right now, so three and a half percentage points of GDP today is $56 billion. Just imagine if governments today were confronted with this $56 billion, which is roughly 10 percent of government spending. A big change.

So, here is a way to think about this fiscal squeeze I’ve been talking about. Think about it in terms of per capita spending versus per capita revenues. I want to think about a baseline. What would be going on in a hypothetical economy that didn’t have this aging baby boom bulge? Well, we would still have rising per capita spending and rising revenues. Why? Because we’re getting richer over time. We still have rising GDP per capita. And typically, taxes per person would be going up, and spending per person would be going up.

Now, I’m going to hold taxes as a share of GDP constant as a policy variable, and ask what this aging of the population now really does. Well, relative to this baseline, slowing labour force growth is going to slow down the growth of our tax base. So taxes per person are going to grow, because GDP per person is still
growing, but it’s going to grow more slowly than before. That’s the declining labour force participation rate. But the double whammy is that not only will people be dropping out of the labour force, they will also get sick.

So spending is going to be rising more quickly relative to this baseline case. We’ve then got tax revenue growing more slowly and spending growing more quickly. That’s what I call the “fiscal squeeze.” So, as figure 8 shows, what we’ve got is a gap that we’ve somehow got to fill. We’ve got to raise this or lower that or do something to make it go away, because it’s not going to go away by itself.

So, you bring this to the finance minister and you say, “Okay, Jim, we’ve got a challenge. You’re looking for a challenge? Here it is.” And the first thing he might say is, “Couldn’t some other minister deal with this?” Okay, let’s get Jason Kenney at Immigration to worry about this. Well, a paper came out from the C.D. Howe Institute a couple of months ago that asked exactly this question. The answer was sobering: you would have to have double or triple the annual immigration numbers to put a dent in this problem. Immigration works in the right direction, but the problem with immigrants is that they get older, too, as we all do. So it doesn’t fundamentally solve the problem. Even doubling the immigration rate — a huge policy change — is not nearly big enough.

What about increasing the fertility rate? I come from Quebec, which actually tried this. My third child, had we had one, would have earned us $9,000, which is what the Quebec government was offering for third babies back in early 1990s. We decided not to have it, but not because of money reasons: I’m just one of those crazy people who thinks that people have babies for reasons other than to receive cash from the government.

Could more productivity make this problem go away? This is a classic one in Ottawa. People say, “Oh, we’ll just have some more productivity.” Quite apart from the fact that there is no productivity lever, at least that I’ve witnessed. You said that I see things that the public doesn’t see — they haven’t shown me the productivity lever. I think it might be in a locked room someplace. So I don’t think there is a productivity lever, but even if you could find it, may not help. It will
help some things, it will help drive living standards, but it may not help on the fiscal squeeze.

So what are the choices of the minister of finance? And this is not just the federal minister; this is provincial ministers, too. Well, let’s restrain spending growth, especially in the non-age-related items. Again, I’m thinking that we’ve got this commitment on health care. Health care is maybe a little bit more important than some other components of government. So maybe what we should do is restrain spending in other things to make room for health care.

Restrain spending. Well, it looks easy. It’s two simple words. But few things are more challenging for governments than restraining the growth of spending. Milton Friedman once famously said, “There is nothing so permanent as a temporary government program.” Just write that one down. Take that one with you. Once you start, you create a bureaucracy, you hire people, you have money starting to flow to some set of people — it’s really hard to turn that off. Important to try, but really hard to turn it off.

Well, let’s go to something easier, unless you’ve got an election coming up. Which tax rates are we going to increase? If you increase some tax rates, it will retard growth. You don’t want that: we want more growth, not less. So the choice between the corporate income tax, the personal income tax, and the GST is going to be very important. Of course, any tax increase is politically unpopular, for obvious reasons. So governments don’t really like this.

Well, our government has said it will do number one, restrain spending, if necessary, over the next five years. It will not do number two, increase taxes. Or the government might just choose number three, defer the problem by increasing borrowing, because three just looks a lot easier than one and two. But, of course, borrowing has to be repaid. Being repaid in the future means you do either one or two. There’s only one or two. Three isn’t a solution.

Be that as it may, let me look at number three, because it feels good, and because it’s an obvious place for governments to start. How much of the problem could we solve through debt? A perfectly reasonable question. How much of this fiscal squeeze could we absorb by borrowing?

Figure 9 shows how big the problem is. We don’t want to increase taxes, because that’s too difficult, so between 2020 and 2040, suppose we keep the tax burden — taxes as a share of GDP — constant. Spending — on health care and elderly benefits — as a share of GDP would go up by 3.5 percentage points.

What’s the area of that triangle? Twenty years times 3.5 — that’s 70 divided by two to get the area of the triangle, which is 35 percentage points of debt, federal plus provincial.

Could we do that? Well, here’s why I think we couldn’t. The next figure (Figure 10) shows the debt-to-GDP ratio, federal plus provincial. In 1995 it was 90 percent. This was when Canada hit the debt wall and the provinces plus the feds went on a deficit-reduction strategy, and they were quite successful.

They reduced deficits. Deficits turned into surpluses. The debt-to-GDP ratio fell from 90 percent, where Canada was the fiscal laughing stock of the G-7, down to 40 percent, where Canada is the fiscal good boy. But now we’re going to have to go up.
My guess is it’s not going to end up being perfectly smooth, and it’s probably going to go up and then down. But I assume that, by 2020, the debt-to-GDP ratio is basically where it’s going to be next year, which is above where it was two years ago by about five percentage points.

Now the question is: starting from 2020, could you absorb it all in debt? Well, that would mean going up by 35 percentage points, which would put us back in the ballpark where we hit the debt wall in the 1990s. So, we’ve got a problem here that we presumably want to avoid. I’m not giving you official government policy here, but what I think is a sensible view of the world. Then let me be completely arbitrary and pick a number that we don’t want to go beyond: 60 percent. Where did I get that number from? Out of the air. It’s a nice number, it’s lower than 90, it’s above where we are now. Canada’s in good shape fiscally right now in terms of public finances. So I think we probably can afford a little bit more.

Suppose we say we don’t want to let public debt get beyond 60 percent. Well, it follows that we cannot do this all through debt. So we’ve got to come up with something else. We’ve got to go back to the spending-restraint or the tax-increase approach: two approaches to stay under the debt ceiling. One is what I call a front-loaded debt reduction strategy. Basically, it means you do all the heavy lifting in the next ten years. You adjust spending, you adjust taxes — for the purposes of explanation, it doesn’t matter how. You reduce the debt-to GDP ratio for the next ten years to make room to absorb debt later.

The second strategy is not to do much for ten years, and then adjust a bit of everything. You adjust some spending, you adjust some taxes, you do some debt — kind of a balanced approach. And, of course, those are just two; there are all kinds of others. The point is that these two require some hard work. And any other combinations you can come up with require some hard work.

A front-loaded debt reduction strategy: we solve this from the back and then we come forward. Well, if we are going to absorb these 35 percentage points but we want to stay under this 60 percent, then we’ve got to start from something that allows us to do that. So, we work back and we need to get to 25 percent by 2020.

Well, here’s what we have to do. This has the scenario of not offending people who are sensitive about the government’s current fiscal position. We have a big deficit, all governments combined, but in the grand scheme of things it doesn’t matter much because once you get back to balance, the job’s not over. Then you’ve got to run six or so years of surpluses. And the size of the surpluses you need, not surprisingly, depends on the GDP growth rate. The exercise here is to reduce the debt-to-GDP ratio, so the faster the growth the smaller the surpluses have to be. Well, one of the problems with the financial crisis and the recession is that they probably affected the level of our potential GDP, maybe even the growth rate. Quite apart from that, the demographics is suggesting a slowing down of the potential, because the labour force participation rate has peaked and is now starting to fall.

So, two percent going forward for the next ten years is not a bad estimate of potential, whereas even five years ago we were thinking three percent was a reasonable estimate of potential growth. Well, two percent of potential GDP and two percent of inflation gives us four percent GDP growth. Which means we need $36 billion surpluses at all levels of government combined, the federal plus the provinces, for six years.
Well, let’s just think about that. The federal government’s share would be $20 billion. Is a federal surplus of $20 billion a year for six years doable? Absolutely. By then, that’s one percent, maybe 1.2 percent, of GDP. Well, we’ve had surpluses of 1.2 percent of GDP. We had a surplus of three percent of GDP five years ago. We’ve had deficits of 8 percent of GDP. But look at the headline number: a $20 billion surplus for the federal government. The challenge then is to maintain public support for a federal government that’s collecting $20 billion too much. After a year or two, people start saying, “Hey, why are you collecting all that money that you don’t need? You got to lower the taxes or increase our services or something.” So, maintaining public support for six years of large surpluses requires a public re-education program. Well, this is just getting too difficult, so let’s try an easier strategy: the back-loaded fiscal adjustment strategy.

This strategy has the political appeal that, for the next 10 years, we do nothing, but in 2020 we start doing some heavy lifting. We raise taxes — no statement here about which taxes; My personal preference would be to raise the tax that was most recently cut. I won’t name that, but it starts with “g.” So we increase taxes as a share of GDP — the tax burden — we cut the growth of spending, and we absorb the difference in debt. It’s a pretty balanced package: about 30 percent on T (tax increases), 30 percent on G (government spending cuts), and 40 percent on debt.

What does that look like? Well, up until 2020 you don’t do anything on the debt-to-GDP ratio, and then you just cruise into that 60 percent ceiling. Just showing the debt-to-GDP ratio, the path looks easy. But it hides the fact that you’ve actually got to do some serious work on restraining the growth of spending and increasing taxes. Is that stuff doable? Absolutely. Just imagine what a GST increase would do. Consumption is slightly less than 60 percent of GDP, so a three percentage point increase in the GST gives you a little bit less than 2 percent of GDP. But I don’t advocate that in public.

Looking at Figure 11, what are the key differences between these two strategies? Well, they both honour the debt ceiling. They both involve tough decisions. The first path involves some very tough decisions up until 2020, and then it’s kind of easy. The second path involves basically no tough decisions for 10 years, and then you’ve got to restrain spending and increase taxes. But they have quite different implications for intergenerational equity. And when we start thinking about dealing with this coming fiscal squeeze, implicitly or explicitly, we’re going to be asking, who should be paying for the health care of the baby boomers? Because that is fundamentally what’s going to be happening.

The front-loaded debt reduction strategy puts more of the burden on the baby boomers. The back-loaded debt reduction strategy puts more of the burden on the generation after the baby boomers, on their kids. Of course, you could mix and match these, but this is going to be a key issue. And whether or not we choose to talk about it in those terms is another matter, but that question is going to be there. What is going to be the intergenerational burden of paying for what is fundamentally the health care and the elderly benefits of the baby boomers?

To sum up, these demographic forces are going to lead to higher spending and slower growth in taxes — age-related items, in particular. And we have to adjust.
Now, I want to emphasize that none of this is evidence of an economy that’s not functioning, markets that aren’t working, the end of capitalism. There’s nothing wrong with the economy. We had a lot of sex in the 1950s, and for the next 40 years we got the demographic benefits of that. But now we are living the second half of that population structure. The baby boomers are going to drop out of the labour force and then they’re going to die. So there’s nothing wrong with the economy here. The economy’s working just fine in this context.

This is also not evidence that governments in the past screwed up. And that’s one reason why I say this is a non-partisan issue. You can’t look at this and say the Conservatives screwed up in the eighties or the Liberals screwed up in the nineties or the Conservatives screwed up last year. But it will be a screw-up if we don’t deal with it.

You can’t make this problem go away. You can’t freeze people at some age. If you could, that would be fabulous, though it would probably create other problems. But it’s a fact of life that there’s going to be a declining labour force participation rate. It’s a fact of life that there’s going to be rising spending associated with health care and elderly benefits. So we have to adjust, period.

So how do you want to adjust? If you care about intergenerational equity, then we probably want to do some of the work — I’m not suggesting necessarily my option number one — in the next ten years. That means caring about the debt-to-GDP ratio and getting back to balance pronto. The federal government’s saying, “We’re trying to get back there in five years.” Kevin Page says, “You’re not going to make it.” But my emphasis would not be on whether you get there in four years or in five but that once you get there, don’t think you’re done, because then you’ve got to run a bunch of surpluses.

Now, my number one has you running $36 billion surpluses. There’s nothing magic about option number one. But if you want to do a significant amount of work before 2020 because you care about intergenerational equity, you’ve got to run some surpluses. But how do you maintain public support? That’s tough.

Apart from debt reduction, there are other things that we should think about. Restraining spending, absolutely. Increasing taxes, absolutely. If you want to commit yourself not to increase taxes, that’s fine, but then the same amount of work has to get shifted to reducing spending. If you can increase the labour force participation rate, great. If you can increase the fertility rate, great. If you can do something on immigration, great. But don’t think you’re going to solve the problem with these things. It’s just not going to happen. These are too small, but they can all work in the right direction. They can help, but they can only delay what is inevitable.

Christopher Ragan is an Associate Professor in the Department of Economics at McGill University in Montreal. From January 2009 through June 2010, he is the Clifford Clark Visiting Economist at the Department of Finance in Ottawa where he serves as a senior advisor to the Minister and other senior Finance officials. In the 2004-05 academic year, he served as the Special Advisor to the Governor of the Bank of Canada, also in Ottawa. This Commentary is an edited transcript of his remarks to an AIMS' briefing on 24 November 2009.