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NOVA SCOTIA HOUSE OF ASSEMBLY

COMMITTEE

ON

ECONOMIC DEVELOPMENT

Thursday, June 12, 2014

LEGISLATIVE COMMITTEES OFFICE

Department of Finance and Treasury Board
Tax Policy and the Economy

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ECONOMIC DEVELOPMENT COMMITTEE

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Director, Economics and Statistics

In Attendance:

Mrs. Darlene Henry
Legislative Committee Clerk

House of Assembly
Nova Scotia

HALIFAX, THURSDAY, JUNE 12, 2014

STANDING COMMITTEE ON ECONOMIC DEVELOPMENT

9:30 A.M.

CHAIRMAN
Mr. Joachim Stroink

MR. CHAIRMAN: Before we start today's gathering, I just want to ask if anybody has any objections to this session being videotaped for the purpose of training for future MLAs. If anybody has a problem, please say it now and we'll stop the taping. If you are okay with it, then we'll proceed. Are we all in favour of it? Perfect, thank you.

Good morning everyone. I would like to call this meeting to order. I would like to remind those in attendance to please turn your phones off, make sure they are on vibrate if you need to answer them.

I will now have the members of the committee introduce themselves.

[The committee members introduced themselves.]

MR. CHAIRMAN: Today we have the following item on the agenda: Tax Policy and the Economy. We have Mr. Thomas Storring, director of Economics and Statistics who will be doing the presentation. Yes, Ms. Rafuse.

HON. DENISE PETERSON-RAFUSE: Before we get started, if I could have your patience to bring forward a motion.

MR. CHAIRMAN: Regarding?

MS. PETERSON-RAFUSE: The motion is actually regarding the issue that we're facing in the province presently with the potential closure of the rail system on Cape Breton Island. So I wanted to bring forth this morning to encourage our committee to approve coming together in another two weeks, to bring in ERDT to have a discussion on an emergency basis.

The purpose behind this is the fact that, as we know, it's extremely important that that rail service continue in some type of manner. I know, as the Department of Economic and Rural Development and Tourism Critic, when I have been speaking with businesses, the issue and challenge facing our business in the province - whether you're small, medium or large - is with respect to transportation costs and transportation availability.

Certainly, on the heels of the Ivany report and the changes that we need to address, we feel it is important at this point to have a discussion about that - that we set in motion some activity, brainstorming and discussions together. It is something that the Liberal Party supported greatly.

MR. CHAIRMAN: Can we just have a little recess to collect ourselves on your comments and then we will proceed from there?

MS. PETERSON-RAFUSE: Certainly.

MR. CHAIRMAN: So if we can just break for five minutes and then we can figure out how we're going to move forward on this motion.

MS. PETERSON-RAFUSE: Thank you, Mr. Chairman.

MR. GORDON WILSON: Can I say something before we break?

MR. CHAIRMAN: Go ahead.

MR. GORDON WILSON: I appreciate these motions that have come forward at a couple of committee meetings now, that we've seen this happen at the start of the committee meetings. I'm just wondering, in the essence of being more productive if these could be sent to the chairman a day or two before so we could at least be prepared when we come to these meetings to discuss them.

There's one principle that I really have to stand firm on, it's that I don't think anybody should come to a meeting and have a topic dropped for them to discuss without really being informed before that. It's not in the fairness of the subject or the item to be able to give good comment on it without first having a heads-up on it.

MS. PETERSON-RAFUSE: I understand your point, but the fact is this just happened. It was just in the news and part of our responsibility here is to be proactive and react to the timeliness of the news. I totally agree with you if it's an issue that has been before us for a period of time and we've had that knowledge base, and certainly I agree that the practice should be a little bit different, but because the opportunity that we're sitting here today and all the members are together and this is just - as you know, things happen within minutes in our province and this is just very new. That's why we decided today that we needed to bring it forward - because of the urgency and the devastating effect that will happen in Cape Breton if we lose that rail system, and it is something that . . .

MR. CHAIRMAN: Okay, Ms. Peterson-Rafuse, we understand. So we can get moving, let's have our recess - five minutes - and then we will reconvene. Thank you.

[9:38 a.m. The committee recessed.]

[9:40 a.m. The committee reconvened.]

MR. CHAIRMAN: I call the meeting back to order. I'll turn it over to Mr. Wilson.

MR. GORDON WILSON: I believe, from what we understand and actually I also read that article in the paper, this is something that is being handled by the department at this time. I believe the minister made some comments in there and I don't really think it would be appropriate for us to discuss this at the committee level while the minister and the department are actually working on it themselves. So if we could give them some time maybe to work things out, that would be even more appropriate, I think. I call the question to a vote, please.

MR. CHAIRMAN: Yes, Ms. Peterson-Rafuse - keep it short, please, because we do have a guest and we don't want to be disrespectful to his time.

MS. PETERSON-RAFUSE: I won't be disrespectful. The reason this is brought forward is the urgency. I do respect and understand the fact that the minister and the department is working on it but we have a significant role here, in terms of a committee that is an all-Party committee and you know that the theme of the Ivany report is talking about collaboration and co-operation and working together to brainstorm on positive results for our rural communities and assisting them going forward.

I believe that part of the role of this committee is to address those needs and to help the minister and the department along in supporting the efforts, in terms of if we are going to make an approach federally, to have the rail system taken over by CN for example, I think that it is a much stronger ask if it is coming from all Parties of a province.

The reason this is important is that it has been important for the Liberals in the past; Manning MacDonald has expressed that in many different ways, as the critic in the past and there is documentation to show that. That's what we're saying if we're talking about collaboration and the Ivany report. This is another good example that we can show the people of Nova Scotia that we are working together for the benefit of our people in the province.

MR. CHAIRMAN: Thank you, Ms. Rafuse. Mr. Wilson, do you want to call it to a vote?

MR. GORDON WILSON: Yes, please.

MR. CHAIRMAN: Would all those in favour of the motion please say Aye. Contrary minded, Nay.

[The motion is defeated.]

MR. CHAIRMAN: Okay, now we'll go on to the day at hand. One thing I do want to address before we start, for the future, Ms. Peterson-Rafuse or any other Party members, if you can give us 24 hours' notice before bringing anything to the floor, and from here on forward any of these motions will be done at the end of our session with the committee business, not at the beginning, so that we're not disrespectful to our guests.

Now I will turn it over to our guest. Thank you very much.

MR. THOMAS STORRING: Thank you, Mr. Chairman. Members of the committee, I thank you for the opportunity to appear before you today. This is my first appearance before a standing committee of the Legislature, and I'm going to seek the chairman's guidance and the members' indulgence just on the rules and practices of the committee. Please, if I stray, feel free to let me know.

I believe that I am unknown to most of you so I'll just give you a quick introduction to me. I'm Thomas Storring, the director of Economics and Statistics at the Department of Finance and Treasury Board. This is a position that I've held for just about five years. Prior to this I worked as an economist for 10 years, primarily in Finance Departments both here in Nova Scotia as well as in Ontario. I've also had some time working in the manufacturing sector.

I have a Bachelor's Degree in Economics from Acadia University and a Master's Degree in Economics from the University of Oxford. In my spare time in the evenings I teach economics to both graduate and undergraduate students. I am the president of the Atlantic Association of Applied Economists and I am Statistics Canada's official focal point for liaising with the provincial government.

In my current role at the Department of Finance and Treasury Board I lead a team that produces a number of core products that are quite widely used across a diverse group of clients. This includes demographic and economic forecasts that are used in budget fiscal planning purposes and for government policy analysis. We report current economic conditions from the latest statistics every day through the daily stats email, to which I assume you are all subscribers. If you're not, you can provide your email addresses to the secretary of the committee and I'll get you signed up.

We also conduct analysis of the economic consequences of major economic events and changes to our economy and government policies. Possibly another product with which you might be more familiar is our Community Counts website that provides detailed community information from the census and National Household Survey that is widely used for community, government, and business planning throughout the province.

Doing all of this keeps our team very busy, but it also gives us - and forgive my jargon here - economies of scope. Doing that actually gives us the capacity to do other things. So our team is very intensively focused on examination and understanding of the economy in our daily activities - and for me this even stretches into my evening hobbies. We are uniquely positioned to advise the government, the Legislature, and the public on how the provincial economy works and the factors that influence its evolution over time.

It's in this role, as experts on the economy, that we've provided our insights and information to the Ivany commission to help in its deliberations. I know that is a subject of some interest to this committee. As a result of their work, I certainly see more focus on economic conditions in the public discourse - whether that is happening in the Legislature, the media, coffee shops, workplaces, boardrooms or, indeed, in the classroom.

There is so much focus on the economy in public conversations so I'm very pleased to offer the perspective from our professional team of economists to the committee and to the public. I should be clear though about one of the limits of my role. As an economist, I advise the government about current economic conditions, how that affects the government's fiscal outlook and, indeed, how the government's fiscal choices affect the economy.

I advise on potential impacts of new development and changes to our economy, simply describing what the implications are for the economy. However, it is not my position to judge whether these changes and developments and economic consequences are good or bad. To me, they simply are economic consequences.

I should say that there are many uncertainties, ambiguities and risks in an economic analysis that we don't have a full handle on. That's why you'll often hear economists use equivocating phrases like "on the other hand." It's simply a reflection of those kinds of uncertainties.

Obviously it is your difficult task as elected legislators to ultimately judge what direction is the best course for the province and the even more difficult task of the electors to themselves judge whether the directions chosen were actually the best.

In the invitation that I received, there were some specific questions asked and in the next few minutes I'm going to give you some brief answers to those questions. You'll note that my presentation is much longer than what I actually intend to discuss in my opening remarks. However, I thought it might be helpful to share some of that information with you in advance. Possibly we can use that if necessary to illustrate some answers to the committee's questions as they come up, so this will be a test of whether I was actually able to guess what your questions were.

With that, I'm going to move into the presentation. The title is Demography, Taxation and Economic Growth. The request specifically provided to me was to talk about projected demographic challenges as expressed in the Ivany report and what can be done to mitigate it, as well as how the tax regulations and/or structure of Nova Scotia impacts on job and business markets, labour and investment markets, and other demographic statistics. It's a fairly broad area and so I'm obviously not going to be able to give that full treatment. We'd have to schedule a few more meetings if you want to do that.

Certainly I hope to give you a bit of an introduction to how an economist examines these things and sees these things. I'm going to start off - I've prepared research on the following questions: the basics of how economies grow in the long run, and you'll see that in the appendix material; what's the role of demography and other factors in long-run growth; what's the role of taxation in growth of the economy; and simply, what taxes does Nova Scotia collect as a provincial government? This is reflected in some of the appendix material.

I'm going to focus in the upfront in my remarks about answers to the specific questions, as well as a couple of broader conclusions about the economy. As I say, not all of the evidence will be presented. I'll bring it up as necessary.

At the risk of spoiling the surprise of the presentation - and there isn't any surprise here - I'll just take you right to the important conclusions at the beginning. Short-run economic activity - the results we see in the monthly, even in the annual figures that are reported from Statistics Canada - is primarily driven by factors that are outside of our control. I mean it's the functioning of not just business operations within the province but also global economic conditions.

Government - provincial government or federal government - has some influence. It is limited on the determinants of long-run growth but those tend to be the things that are extended over multiple business cycles. I really would encourage the committee to be paying attention to the factors that drive long-run growth; in the parlance of Statistics Canada, "they discourage focusing on the last wiggle in the data." It's looking at the long-run trends and long-run conditions and averages - that is actually the area where government has its influence on the pace of growth in the economy.

The demographic outlook, the size and age composition of the population, is critical to labour supply and output, or GDP. Our history has not been favourable in demographic conditions over the last 20 years and the projections that we produce in the budget assumptions and schedules every year suggest that future conditions could indeed be worse. Reversal of these trends, however, would be as unprecedented as the baby boom itself was an unprecedented expansion of our economy. So while I don't mean to say that it's not something that should be done, we also need to think over the long term about being able and ready to adapt to those long-run conditions in the economy.

How do you adapt to that? Well future economic growth ultimately - economic growth does not solely come from growth in population and demography. There are other factors that influence that - the use of capital resources as well as adding the elements of productivity, whether that's improved value-add through trade, skills in the labour force, technology, and innovation as embodied in the capital and skills that are in our system of production.

Taxes do play a meaningful but limited role in influencing economic growth. I only say that in relative terms, given all the other determinants of economic growth, but as I will show you in the opening remarks that I have, a lot of the major levers of growth in taxation have already been pulled or they are not exclusively in the control of the provincial government.

Nova Scotia's taxes are concentrated in areas of low distortion, and I'll explain what I mean by distortion, that's another piece of jargon. It's primarily that we get our revenues from consumption and sales taxes, as well as income taxes. We do tend to have - it's just a phenomenon of our tax system that we place a higher tax effort, and that's what we mean, it's higher taxes as a share of GDP, but ultimately we have lower per capita yield. So if a tax system is combined of the size of the tax base multiplied by the tax rate, while we have concentrated effort in certain tax bases, it actually doesn't yield a lot in terms of revenue relative to the national average.

Moving on to the projected demographic outlook that is presented in the Budget Assumptions and Schedules, you can see the aggregate population at the top, the population aged 18 to 64 is the red line, the forecast period is in dash lines, blue is zero to 17, and green is 18 to 64.

The key phenomenon here is that as the baby boom population ages and we see persistent out-migration of population aged 20 to 34, which is something that has been going on for decades here, we're going to see a very significant decline in the share of our population that is aged 16 to 64 - that's the prime working age - and a significant increase in the share of our population that is over the age of 65.

What can be done to mitigate it? I've run a few scenarios through our demographic model and the actual baseline that I'm showing you here on the alternate scenarios, the baseline is actually different from what I've shown you on the previous slide. I've just carried forward historical trends and then made adjustments to our assumptions about internal migration - that's migration that happens within Canada.

This scenario, that internal migration, is actually something we've already factored into our budget economic outlook - what I presented on the previous page. You can see that it's that critical 18 to 64 population. While it does cause some improvement in the 18 to 64 population, it is far from reversing that trend that's going to happen as the baby boom simply ages into the 65 and up, which they are doing now. Just the leading edge of the baby boom is there.

Added fertility is another scenario. You can see, obviously, the impact of that - similar on the 18 to 64 group, but very much concentrated towards the end, and you see the growth in the zero to 17 population doesn't do much obviously to the 65-plus population in this time frame.

Finally we added immigration, and the scenario for added immigration is simply Nova Scotia receiving its national share of immigrants relative to the size of our population and retaining them. This is the one that does have the biggest impact, but still we see a fairly significant decline in the population that's aged 18 to 64.

Now before everyone gets their hopes up about this, it's worth pointing out that strong internal migration or international immigration at our share of population has never happened recently on any kind of sustained basis. So these scenarios are quite artificial. Replicating a baby boom - I choose my word carefully - is difficult; capricious maybe? There were a lot of circumstances, I think, that go beyond economy that were historical, cultural, and social that led to that, so it's well outside my purview as an economist to suggest how that could happen.

So what does all of this tell us? It's not whether the aggregate population declines that's the issue; it's the share that is available for labour supply. Conventionally that's the population that is aged 18 to 64, and we see a shrinking cohort there and that's very hard to reverse as the baby boom cohort ages. It would take extraordinary changes to our population growth factors like we've rarely seen before. You'd have to go way back in history to look at defined changes on that scale back a hundred years or more.

Moreover, it's too late for another baby boom, at least in the 25-year horizon that I've presented here. We're just going to be seeing them coming into that population, and we're not sure that they - I didn't incorporate any factors here that 20 to 34 is also the peak age for migration out of the province. They may not stay.

Internal migration - so movement within the country - it has never stayed positive for more than a couple of years at a time on a net basis. This is a long-standing phenomenon in Nova Scotia. Immigration has been disproportionately low in Nova Scotia for generations. Although that's not the case in other provinces, obviously - if it's disproportionately low here, it has to be disproportionately high somewhere else.

To offer some hope here, economic growth does not come from demography alone. The economy - and we're talking over long time frames here - and by that I mean businesses, communities and workers can ultimately adapt production to this change. So other factors of production like capital, resources or even just simply increased hours worked by the labour that remains, as well as productivity, which is determined by trade, skills, technology, innovation - these can also drive growth outside of demography. I think the challenge for us looking over these long time frames is how this adaptation is going to happen.

There is a big uncertainty here though around productivity and demography. So as the baby boom ages, we're going to see a shrinking of the labour force, and indeed we're certainly seeing that in some of the recent numbers. If you look back over the previous year, you see employment decline from May 2013 to May 2014, but you also see equivalent declines in the size of the labour force. So the question is - is it declines in employment that are driving the labour force down or is it declines in the labour force that are just taking employment away with it?

Over the coming years, as we see the possibility of the retiring baby boomers putting us in a position of relative labour shortage in certain parts of the province, that could lead to wage pressure - so pressure for wages to go up. What the economists would say to you in response to that is that businesses will move away from labour-intensive production into capital, more natural resources, more imported inputs, more skills, more technology, more innovation and the remaining workers become more productive and, therefore, highly rewarded, justifying the wage rises that happen under the labour shortage. That's a good possibility and one that I think would be supportive of growth in the province. However, it's also the case that you could simply see business activity contracting in the province and that is not the preferred - I know I said I wouldn't get into judgmental statements but I think it's widely agreed that this is not the preferred way to solve the labour shortage.

If you look at economic growth in Nova Scotia - this is the history from 1990 to 2012, the period in which we've had consistent monetary trade and fiscal policy in this country, whether you measure it on a nominal or a real basis - Nova Scotia is the one in blue there, Canada is in red - whether you measure it on a real or a nominal basis, Nova Scotia's growth as a province has been slower than any other province in the country. But is that necessarily a case of slower economic growth or slower demographic growth? I mean this slower demography has been a condition.

If we look at growth in GDP per capita, so how much income is generated by our system of production for each member of the population, you actually see that Nova Scotia's GDP per capita has been growing faster than the national average. Indeed, it has been comparable to what has happened in Alberta - I put it to the second decimal place to say that we are actually faster than Alberta - when you layer on top of that - so you are multiplying growth in real GDP per capita, you have to add on the growth of the population itself to get total economic growth. Notice that Newfoundland's population growth is negative so that dot there tells you the net growth for Newfoundland and Labrador.

With Nova Scotia having the third slowest demographic growth in the country, this is what is leading to our slow pace of overall growth and, indeed, you see strong demographic growth in the western provinces contributing to some of their growth. Newfoundland and Labrador is an unusual circumstance there.

So what does all of this tell us? Okay, we've grown more slowly than any other province since 1990, well known, commonly heard in the public discourse. The amount of output that our system of production generates per capita has actually grown more quickly than the national average - same pace as Alberta, so it's the slow demographic growth that is actually limiting our economic growth. I don't want to necessarily say that the causal factors are so clean to say slow demography means slow economic growth, they are interrelated, but certainly persistent net out-migration to other provinces, as it has been going on for decades and slower immigration contributes to that.

The way to interpret that strong per capita GDP growth is that the population is adjusting to economic circumstances but also the economy is adjusting to the demographic circumstances. For those who remain here, the system of production is actually growing at a pace that is consistent with the national average.

I'm going to move on to the second question here, how the tax regulations and/or structure of Nova Scotia impacts job and business markets, labour and investment markets, and other demographic statistics - that's a long question. I believe the committee or the Legislature did supply you with selected readings from Rosen et al's *Public Finance in Canada.* Actually that's sort of the basis for my introductory comments here.

So you've asked an economist to talk about taxes, here's the way an economist - just add a theoretical level - sees taxes. As economists, we assume that price signals send important messages about what to produce, how much, using what factors of production, where to deliver it and so on, so that system of prices is very important to the intellectual paradigm of economists. We assume that rational economic agents respond to the price signals optimizing their own conditions. So people, businesses, households, communities - they are making decisions based on the price signals they see. I'm sure that is something that you can all see, you probably do that all in your own personal affairs every day and for those of you with experience as entrepreneurs or business participants, you see that happening in business as well.

What taxes do is they introduce a wedge in the price signals, so there's a difference between what consumers pay and what producers receive based on sales tax. There is a difference between what employers receive and what employees take home, based on personal income taxes. There is a difference between take-home pay and purchasing power of household income, also based on sales tax. There is a difference between corporate profits and after-tax returns on investment, based on our system of corporate taxation.

What happens is that taxes alter the decisions that are informed by those price signals, and when consumers, producers, workers - when behaviour changes about the quantities of what's supplied or what's demanded, when that changes as a result of taxes, this is what economists call a distortion of the price signal. I'm trying not to load you on with too much jargon here - but that distortionary taxation is important.

In general, economists would argue that when there are distortions that lead to changes in quantities supplied and quantities demanded, it generally reduces welfare - again, another piece of jargon; welfare has a very specific meaning to economists. I'm not going to go into the definition of it here - but simply the welfare that is generated by the system of production. The one exception to that is when taxes correct for an existing distortion like an externality; tobacco taxation and smoking and health costs is sort of a classic example of that.

Now when we talk about distortions, we talk about the distortion of economic welfare per dollar raised, it indicates how efficient the tax system is. So it's a very specific definition of efficiency for economists - so less distortion means more efficient.

It's also worth pointing out here though that taxes fund public services that have value and generate their own welfare. Economists side-step that issue by always assuming that when we talk about changes in taxes, we talk about something that is revenue neutral. There's a theoretical way you can raise taxes without actually distorting the economy. I'm not going to get into that. It's just an assumption they make here.

Let's talk about tax distortions in the economy. This is very much per what you'll see in Rosen's text. I'm just looking at how taxes influence economic output. I'm not talking about how taxes are distributed amongst groups, so just looking at that aspect of it.

Those taxes with the least distortion on quantity supplied and quantity demanded are going to be the ones that have the minimal level of influence on the quantity of activity taxed. This is the conclusion of what we call optimal tax theory. Like I say, it means that things that are less responsive to changes in prices are the ones that are going to have the minimal distortion on the economy. Either quantity demanded is not responsive to price or quantity supplied is not responsive to price - or both.

That's why you'll generally hear from economists that broad taxes with few exemptions have the least distortions, because - and by that we mean taxes on consumption, taxes on labour income - because quite simply there is less opportunity to substitute out with non-taxed activities, so there is less impact on quantities supplied or quantities demanded.

If you think in terms of broad consumption taxes, what are your alternatives to consumption? Savings - that's it. So broad consumption taxes in general are not seen as having a large influence on the overall amount of consumption that takes place - it does influence the real value that it has to households, but that's not what we're talking about here.

Limited responsiveness to crisis - just some general guidance on tax distortions. Broad household consumption taxes have the least distortions and I'll show you some evidence of this on the next slide, simply because there are few alternatives to consumption.

Labour income taxes also have relatively less distortion because labour seemed to be less mobile as a factor of production. Although, the migration data that we see does possibly create an ambiguity in that, but in general the empirical evidence in the literature says that labour supply as a whole is less responsive to prices - whether that's at the extensive margin where people are either choosing to work or not work - or the intensive margin, they're choosing the amount of hours that they work. There are certain groups, however, where we do see - particularly the evidence among married women - there is greater elasticity to the after-tax wage so it does have some influence.

Taxation - just a comment on migration, though - taxation is one of many factors that plays a role in migration decisions. I don't want to overstate the role that it plays relative to all other things, like employment opportunities, family, climate matters, and the level of government services matters. There's a whole separate theory of whether you've got fiscally-induced migration based on the tax and service combinations, versus economically-induced migration. Tiebout wrote about that, I don't think we do that chapter of the text.

Just a comment about income. The taxation of income that is generated by ownership of capital, whether that is personal or corporate, there is capital income taxation in both. In general, this is seen to have higher distortion simply because capital itself is seen to be globally mobile, it goes wherever the business conditions seem to be most favourable and it can move rapidly, quickly, and very long distances.

So which taxes impose distortions? Well the best image I can give you on this comes from the federal Department of Finance, using a general equilibrium model - you don't need to know why that's the best version of how to analyze taxes but it is. This was done in 2004 and it was simply a comparison of the broad categories of taxes. What we're showing here is when we replace existing taxes in each of these categories with that theoretically non-distortionary tax - it's called a lump sum tax. It's a poll tax, it actually isn't theoretical but as someone who travelled in England in the 1990s it is generally not well received. It tells us how much gain in economic welfare you get for every dollar of reduction in taxes that you undertake. So it's revenue neutral but you are reducing the specific taxes. The higher bar indicates the larger impact on the economy.

One of the biggest ones we see here is the sales tax on capital goods. Well, we've done that. In 1997 the province adopted the HST which replaced our retail sales tax and so we no longer tax capital goods at the provincial level in this province.

Some of the next highest is capital tax, so tax on the financing of businesses itself, done. The province eliminated its general capital tax in 2012.

Some of the other high ones: personal capital income tax and capital cost allowances, because Nova Scotia, like most provinces, shares its tax base with the federal government, we actually don't have independent scope to influence these things. It is determined basically under federal legislation and we just follow along with it. To change that would simply mean adopting a new, independent provincial tax system.

So what does that leave? It leaves the remaining provincial tax policy levers in areas that do have less impact, relative to those - corporate income tax; the average personal income tax, which is the average of personal capital income tax and wage tax; wage tax itself; and consumption tax. We can see them in nice order there, that corporate income tax does have the largest of those influences but it is even half the magnitude of impact of the capital tax and one-third of the impact of sales tax on capital goods; wage tax about half of that, and consumption tax half of the wage tax. So it's very much consistent with the story I told you from the literature here.

What does all this tell us? Taxes on capital goods and financing impose the greatest distortions and costs to economic welfare and we've made improvements in this area. Other levers in that area shared with the federal government - wage and consumption taxes - impose less burden on economic welfare and we do have levers over these taxes. Among the remaining levers that the province does have, corporate income tax has the larger impact on economic welfare but that is still smaller than the capital taxation we've already eliminated.

I want to sidestep the comment about whether this distribution of taxes between businesses and households or between income groups is fair. Fairness is not something an economist can optimize with a formula. Ultimately that's something that is in the judgment of elected officials reflecting on your impressions of the subjective values of what's fair in the eyes of the electorate.

I'm going to leave my presentation there and suggest that maybe if the committee has questions, I can address those directly.

MR. CHAIRMAN: Thank you very much. That was quite interesting. I quite enjoyed that. I will now open the floor up, starting over here, Mr. Lohr.

MR. JOHN LOHR: Thank you, that was an extremely interesting presentation. There are a lot of theoretical questions that jump to mind - particularly some of your comments about demographics. I would like to ask first off a more concrete question and maybe later on we'll get to the theoretical.

I'm just wondering about one of the recent things we've been talking about in the province is the gasoline tax on tax. What would your comments be on the process for removing that tax on tax that is currently in place on fuel in Nova Scotia?

MR. STORRING: It has been several years since I've actually worked in tax administration and so I'm probably not the appropriately qualified person to talk about administrative processes for changing taxes like that. I wouldn't want to mislead the committee on that. I can certainly ask my colleagues to give a description of the sort of legislative and regulatory steps for the committee.

MR. LOHR: If you wouldn't mind doing that, I'd appreciate knowing if you could table that.

MR. STORRING: I'm just going to make sure that's getting noted.

MR. LOHR: Can I follow up with a theoretical question? I'm just wondering about your presentation on demographics and where we saw increasing fertility rate had one impact, increasing immigration had the other, and what I think I heard you saying was that we should plan for the current reality - that either outcome was fairly unlikely actually - that we were unlikely to change, and the current sort of projected realities are what we needed to plan for. I'm just wondering what types of steps do you see us needing to take to plan for that current reality, or did I read that right in your comments?

MR. STORRING: We do provide, in the Budget Assumptions and Schedules document - which I believe was also forwarded to you by the Legislative Library; I'm sure you've all read that as well - in the back of that, we do provide our demographic assumptions and we do sort of say that this is actually what we assume as the most likely case. Obviously when you're doing a projection over 25 years there are all sorts of different scenarios that can change. I don't want to pretend that I have any special insight into what's going to happen 25 years from now. It's very much based on if current trends unfold as we see them.

I didn't want to leave the committee to say well, there's nothing that should be done to mitigate these population changes. Obviously, every bit of intervention that moves those scenarios - and in particular the population aged 18 to 64 - is going to have an impact on our economic growth. I don't want to say that it's something where we should simply abandon all hope of influencing that. However, what I wanted to do was put in perspective that even if we do have the influence on that, there will still be additional adaptation to that circumstance that's necessary.

In terms of what actual adaptations will need to take place, and when I speak of these adaptations, these are adaptations that the economy as a whole - businesses, workers, communities, and governments all together - will need to make. I think I'll try to go forward. I'll use this as an opportunity to go into some of my comments about how economies grow in the long run.

In the short run, our output is determined by the business cycle, and if you think about all the workers, all the capital equipment, all the technology, all the natural resources that are available to us, the proportion of them that are in use tells us how our economy is performing in the short run. But there's sort of a theoretical amount that we could produce if we were using all of them at the normal pace that they were being used. We call that our potential to produce.

In the short run, factors of production are fixed, our potential output is fixed, and the prices of our factors of production are pretty inflexible so when demand falls in the short run, that's what causes fluctuations like we've seen over the past couple of years. So it's over the time frame of those couple of years that's the short run.

In the long run, prices of factors of production can change; quantities of factors of production can change. Typically what we see is that potential itself can fluctuate and output generally adjusts to follow what that potential is. So you get adjustment in wages, adjustment in the cost of capital, adjustment in the costs of natural resources that keep our output at potential.

In the long run it's what can we do to influence our potential output. That includes the amount of natural resources that are available for use in the economy. To put that in a much more concrete term, should we be so fortunate as to develop further offshore resources based on the exploration projects that are happening now, that will add tremendous amounts to the potential for our economy to produce and generate income. Should we add more capital and embody greater technology in that capital, that will add to our potential, possibly replacing the decline that would be observed from a shrinking labour force.

We could also grow our output based on improving technology but also improving skills amongst the workforce that is there, so that simply they are able to generate more output per hour worked and also doing smarter trade - importing cheaper inputs to production such that we can add more value to them or indeed, changing what we produce to produce more valuable things. These are the elements of productivity. Those are some of the things that could happen that could change that and offset some of those demographic conditions.

MR. LOHR: I was wondering if you were going to say - I was thinking about the focus on the 18 to 64 age bracket, and I know people are becoming increasingly productive, say, in that 65 to 70 age bracket. I see that in my own life how people are working longer. I wonder if you have any comment on the impact on that type of thing.

MR. STORRING: I do. Although I don't have the evidence here, I can certainly provide it to the committee. Over the past few years, when we talk about the size of the labour force - I should actually define that term. The labour force is the population aged 15 and up that are either working or looking for work, so they are participating in the labour force. There's a sizable portion of the population that is simply not in the labour force; retirees are the biggest group of them. Certainly when you look at the participation rate in the labour force by age group, we have seen fairly strong growth over the past, I'll say five to eight years, in the participation rate of Nova Scotians aged 55 to 64 and, indeed, 65 years and up. So your observation is absolutely backed up by the data, although recently we have seen some erosion in that participation rate in the 65 years and up crowd.

I think we could be seeing that although the baby boom cohort is demonstrating that it is indeed working longer than previous generations did, it would be unrealistic to think that they're going to work forever but certainly that is a phenomenon. That would be another phenomenon that could offset some of the decline in the 18 to 64 population, is if you actually see increases in the participation rate, either at 18 to 64 or 65 and up. Overall, Nova Scotia's participation rate in the labour force is lower than the national average.

MR. CHAIRMAN: Thank you. Ms. Zann, do you have a question?

MS. LENORE ZANN: Sure - I wasn't going to go next, but I will. Thank you so much for that very interesting presentation. Have you ever read *Boom, Bust & Echo*?

MR. STORRING: It's on my shelf but I haven't cracked that in a long time. (Laughter) I believe, if I recall it correctly, it's consistent with the story we're seeing here.

MS. ZANN: Yes, I remember I read that years ago when it came out and everybody was shocked at the fact that the baby boomers were going to get old and that there was nobody to replace them. I seem to remember a big shock in the nation.

One of the statistics I've read over the last few years is that in Nova Scotia, and perhaps reflectively across Canada, there is a smaller generation of 18- to 28-year-olds, except for First Nations, and that in Nova Scotia the largest demographic of youth in the province by the year - I believe it was 2015, or something coming up quite soon, is going to be First Nations people of 18 to 28 years old. Do you know anything about that?

MR. STORRING: I don't have that information here with me. Just to address a couple of your comments, I think some of the phenomena you're describing though about there is faster growth in that youth cohort amongst Aboriginal populations - I don't know the specific data for Nova Scotia itself - that's very much a national phenomenon.

I should say that a lot of what I've described here about the aging of the baby boom cohort, as you've rightly pointed out, is a national phenomenon. It's simply that Nova Scotia happens to be getting there first, that's all. Indeed, we're not the first place to experience that. Japan is well through this demographic change, based on their own particular timing of their demography. I believe some of the Scandinavian countries went though it several years ago so it's not unprecedented.

MS. ZANN: That was going to be my next comment - Japan, for sure, has already gone through it. I didn't know about Scandinavia. Can you make any comments about what those countries have been doing in order to try to mitigate this problem?

MR. STORRING: I'm not an expert in Japanese economy and demography although we do cover it in the daily stats. Certainly the reading that I've done about Japan has been - and as the member for Kings North indicated - that increased labour force participation amongst older workers is definitely a circumstance there.

There is also in Japan, at least from my read of the anecdotal evidence around it, there is a lot of evidence that it is very community-specific and that's certainly a phenomenon that exists here in Nova Scotia as well, that the urban centres have very much a different profile than rural locations. That has certainly been the case in Japan as well.

MS. ZANN: Thank you. I know when we were in government, we were oftentimes briefed on different things with immigration. One thing that came to my mind was that they said that even if we bring in a whole lot more immigrants very quickly, it's still not going to actually completely deal with the problem of the aging population here in Nova Scotia. Do you know the amount of people we would need to bring in as immigrants in order to change it up?

MR. STORRING: It's somewhere up here - now I regret putting all these animations in, it makes it really slow to go backwards. Sorry about that folks. I just have to get back to that chart where I showed the scenarios. There we go.

If you look over here at the panel on the right, this is adding immigration at our share of the national population with full retention. So that's adding, I believe - I can't remember the exact number but it's somewhere between 7,000 and 8,000 per year, with 100 per cent retention, which we do not have.

MS. ZANN: Exactly, plus we're not allowed to bring in that many anyway at this point in time.

MR. STORRING: It is one of those levers that is not fully in our control.

MS. ZANN: You also mentioned that Nova Scotia has less immigration than other parts of the country, but I would say that part of that is because the federal government only allows certain provinces a certain amount of people to be immigrating, and some provinces are allowed more than others.

MR. STORRING: That is my understanding of it as well, but that's probably about the extent of my understanding of it.

MS. ZANN: Thank you - that's it for right now.

MR. CHAIRMAN: Mr. Wilson.

MR. GORDON WILSON: Mr. Storring, first I want to say it's comforting to know that we have staff such as you working for us, and I must say if you probably continued with your presentation to the very end you would have answered all the questions I imagine that we would have had and made it a little bit easier on us. I was told before I came here that this would be very enlightening and it has certainly held up that expectation.

One of the questions actually - if I could maybe get two because they sort of asked the one that I was very curious about - has there been any work done to look in other areas of the country or the world, in fact, that's experiencing the situation that Nova Scotia is - state-wise in the United States? I know Northern Ireland, in particular I believe, has some very similar experiences that we have in out-migration.

In saying that, I only ask the question, if it has already happened somewhere - although it's not apples and oranges in any sense of the word - are there lessons that you know that have been looked at to learn from that to circumvent that problem of out-migration?

MR. STORRING: In answer to your specific question, have we done specific research on that particular subject, the answer is no. I can't give you a briefing note or report where we've examined alternatives in particular. That being said, we devote a lot of our time researching - just basic research and reading about these conditions.

We do tend, in particular, to focus on the data itself, so certainly looking at other provinces that have experienced this, probably the one - if your focus is on migration, the one that I would really direct everyone's attention to is Newfoundland and Labrador. You can see it on this chart here. From 1990 to 2012 - and in particular that's also an important watershed for that province because the groundfish moratorium had a very strong impact on migration from the rural and coastal communities of Newfoundland in particular. You can see that they experienced a sharp population decline.

Interestingly, in Newfoundland and Labrador, if you look at the last inter-censal period from 2006 to 2011, that has turned around, and Newfoundland's population is, indeed, growing again.

I don't know if this is a particularly helpful answer to your question, but actually it may be instructive for Nova Scotia. Finding oil offshore certainly has an influence. I guess if we've looked at it from a research perspective - we've looked at what the literature says about the determinants of migration itself, rather than adaptation to the migration. The Bank of Canada, actually the regional office here in Halifax, has done quite a bit of extensive research on this. What they're trying to examine is what they call what the border effects are. So when you think about all the other determinants of migration, whether that's family circumstances or climate or the level of government services, the level of taxation - what's the difference in after-tax income that actually gets people to move?

I mean, you'd all agree that it would be unrealistic if you approached someone working in Halifax and said, well if I offered you an extra dollar an hour would you move to Fort McMurray? Most people would probably say no to that, but if you imagined offering an extra $40 an hour, some people may think about that. Figuring out where that threshold is that sort of, all else being equal, drives people from one region to another is what we call - it's that border effect.

One of the things that the Bank of Canada research has found - I think it was Ross Finnie's paper from 2004 at the University of Ottawa - is that the big determinants of migration - I mean economic considerations are a huge factor in migration decisions but it's not necessarily income-related so much as employment rates, but also breadth of employment opportunity. Certainly that's why over the long run in Canada's history, you've seen a strong trend to urbanization simply because urban areas have a breadth of employment opportunities that rural communities don't necessarily offer.

This is one of the things that makes Nova Scotia, and Atlantic Canada in general, unique. I believe there's a good chart of it in the Ivany report which I presume you've all got. It shows from 1851 through to the last census, the proportion of the population that is rural in Canada, and we see that there was a declining rural share in Canada and all the provinces and an increasing urban share from the pre-Confederation period right up until the 1950s. Then something different happened in Atlantic Canada. In Atlantic Canada, the share of the population that was rural stabilized at about 40 per cent to 50 per cent - depending on which province you're looking at - whereas in the rest of Canada it continued to decline to the point that the national average is about 80-20 and in some larger provinces like Ontario and British Columbia, it's actually 85-15.

So one of the things you need to remember when you're looking at sort of what distinguishes Nova Scotia uniquely is that 43 per cent of our population lives in what Statistics Canada defines as rural areas. That's why if you're looking for other examples to compare us to, you should be looking at provinces that have more rural populations like ours.

MR. GORDON WILSON: Excellent, thank you.

MR. CHAIRMAN: Mr. Lohr.

MR. LOHR: I just wonder, and this is not my question, is that a failure of the city to grow versus the rural areas - you know what I mean? That's my immediate reaction to that comment - did the city fail to grow then?

MR. STORRING: I mean Halifax has grown a lot so I wouldn't say it's a failure to grow here. I would say that certainly the evidence we see is that the migration that we see - you know, we actually have data on migration across all of Nova Scotia's counties - in my parlance, census divisions. I mean that's where the out-migration to other provinces is primarily coming from. So you could make a case, although I don't have the details on this, that the urban growth that's happening in other provinces may be coming at the expense of our own rural counties or, indeed, at the expense of migration into Halifax. I should say that there is also substantial migration from rural communities in Nova Scotia to Halifax itself.

MR. LOHR: So my question, just to leave that topic - I was interested in your comments on tax, and distortion of taxes and all that. I was wondering if you could comment on tax credits in general, like the film tax credit. What impact would that have or what impact do you see that having on that particular sector, and something like a tax credit for the film tax credit, is that distorting or not distorting? I'm just wondering what your comments are on that.

MR. STORRING: In terms of - I want to separate out tax credits because there are two kinds: refundable and non-refundable. A non-refundable tax credit is something that simply reduces your tax liability, but if your tax liability reaches zero, that's it - your tax liability is zero.

A refundable tax credit is something where even if you've reduced your full tax liability to zero, if the value of the credit exceeds what your tax liability is, you receive a refund. So administratively the way to think of a refundable tax credit - and our Film Industry Tax Credit is a refundable tax credit - is more to think that because it's not actually calculated with respect to the tax liability itself, it's effectively using the tax system as an administrative vehicle for a subsidy.

Indeed the accounting standards around this are changing and I believe - I'm just going to pull out our Budget Assumptions and Schedules document - the standard is now saying that these - again, forgive my jargon here - we call these tax expenditures, that we are actually supposed to be reporting tax expenditures separately and not actually taking them as a net from the revenues that are earned. I'm not sure of our exact treatment of it here, but we do actually report them separately.

To get back to the comment just in general about tax credits - when you talk about tax credits, in one sense you can say that they reduce a tax liability, and if a tax liability constitutes a distortion in economic activity then they have reduced the overall level of distortion, but at the same time they are introducing a further wedge in the price signal to say the difference between non-credited activities and credited activities and the tax itself.

So it's really difficult to unpack that relative scale of distortion. I don't want to speak specifically about the Film Industry Tax Credit itself just because I'm not fully acquainted with the particular economic dimensions of that industry and its tax treatment.

MR. LOHR: Then you raise that question to me, there are also several types of tax credits that we have: the research and development tax credit, the Equity Tax Credit, the Digital Media Tax Credit. Are those refundable or non-refundable? I didn't realize that distinction existed.

MR. STORRING: It depends, and if you'll bear with me a moment I want to find - for those of you who have your copies of the Budget Assumptions and Schedules with you, it's on Page 15, Schedule 1E that actually documents the specific credits that are there. I don't want to say I have a mastery of which ones are refundable and which ones aren't. I'll comment on the ones that I'm aware of and leave it at that.

MR. LOHR: I would be interested in your comments on the impact of those tax credits. I know you said you weren't that familiar with the film industry, but what impact do you feel these tax credits have on these particular sectors?

MR. STORRING: Other than it provides a subsidy to the industry because it's refundable, I can't really comment about how it impacts the industry itself. I would say that's more of a question to ask our experts in the film industry itself or ask the film industry. I do know the Film Industry Tax Credit is a refundable tax credit.

The Affordable Living Tax Credit is another refundable tax credit. It's delivered to households with less income. I mean, it's very much parallel to the Goods and Services Tax Credit. Again, it's more of an administrative vehicle. It's called a tax expenditure, but it's an administrative vehicle for delivering income to a particular group.

Some of the other measures that are indicated - the Volunteer Firefighter and Ground Search and Rescue Credit - I can't remember the details on whether that's refundable or not. I'll actually, for purposes of the committee, ask that we provide a list of which ones are refundable and which ones aren't so you've got that in your information.

In terms of the impact that tax credits have, from the sort of theoretical framework that I've described here, they do reduce the distortion associated with the wedge between the price signal between, say, corporate profits and after-tax investment returns. However, they also change the relative price signals among industries themselves. So where you have one industry or activity that is being treated differently from other activities, all else being equal - which is a big assumption - you'll get activity flowing into that particular sector regardless of what the underlying price signals say.

MR. CHAIRMAN: Ms. Peterson-Rafuse.

MS. PETERSON-RAFUSE: Thank you very much for your presentation and the work that you do for the people of Nova Scotia. I want to talk about the issue and the challenges of out-migration and what the province can do in terms of a number of initiatives to tackle that issue. I know it would be more of a multiple approach.

One of them that was important to us when we were in government was the Graduate Retention Rebate program. I know that if you look at the actual numbers from 2009 to the time that it was cut, there were 500 people who actually stayed in the province and did not leave because of having the advantages of utilizing that tax credit.

I'm just wondering, I know from your expertise and professionalism and being an economist that often decisions are made by looking at data and research, was there a review process looking actually at the Graduate Retention Rebate program to analyze if it was working? If not, could things be massaged?

MR. STORRING: It's not something I was part of so it's sort of outside my remit. I can say that in general we did see, through the recession period in 2009, a slowdown of migration flows overall in Canada, amongst all provinces, whether they have initiatives like this or not. So if you were to look at, say, Newfoundland and Labrador, you also saw where they don't - I don't think they have similar mechanisms - you also saw a similar pattern there.

It speaks to one of the things that we look at in terms of what the determinants of migration are. The level of capital investment that takes place in other provinces is a strong determinant of migration and because it creates opportunities for project-specific work and project-specific work does tend to attract - I'll call them a footloose labour pool.

We saw a significant slowdown in investment activity happening in Alberta in 2009 and there was a slowdown in the migration activities across all provinces.

MS. PETERSON-RAFUSE: So that was in a one-year period. The figures of 500 came from over a number of years, from when it was initiated in 2009 and over to last year. From your opinion as an economist, what I'm hearing is that you're saying it's how attractive another province may be in terms of those opportunities and the range of opportunities. If the opportunities aren't great enough for an individual or a young family to make that major move from the province, then their decision is typically probably not to go.

What do you recommend in terms of what a small province, as Nova Scotia, could do to start turning that around in terms of a long-range strategy? I know it's not going to happen overnight but we could still be talking about the same thing 10 years from now.

I think that in your presentation you spoke about that this has been an issue for many decades. It's not something that occurred overnight. There are many factors in the economy that we do not have control over but those that we do have control over, do you have recommendations of - is there a path that we could start to be on now, and if we stay on that path it could have a positive effect in keeping our youth here in the province? What are your personal and professional thoughts on that?

MR. STORRING: I'll offer a couple of observations on that. I should say, by the way, my comments about the determinants of migration are very much my read of the literature. I don't want to necessarily characterize that as my wholehearted endorsement and opinion of it, but that's certainly what I see as the evidence in the literature. I haven't done the studies myself.

To get to your specific point about what are the things that actually could influence migration - and we actually do look to capital investment and the opportunities that are created there. I bring this slide up here. This is the demographic outlook that is presented on Pages 63 and 64 of the Budget Assumptions and Schedules. This is the demographic outlook that we put together when we're putting together the budget. We do this every year - we update it with the latest data. In this case, it was a fairly big historical revision to our population that came out of Statistics Canada. We do this projection forward.

I'll take you a bit in the inside of how we do our modelling and forecasting at the Department of Finance and Treasury Board. I have two modellers; I have an economic modeller and I have a demographic modeller, and we don't have their two models integrated. Some provinces do that - we don't.

When we were putting together our medium-term economic outlook, there are a number of major investment projects that are coming up - whether those are non-residential projects you see around Halifax - but the big one obviously is the work at the combat vessel construction at the Halifax Shipyard. We make specific provisions for that and for the labour demand that is going to be associated with that project in our economic forecast.

I'm shorthanding the conversation that went across the cubicles between the economic and the demographic forecaster, but the economic forecaster said, "I need more people. I don't have enough people here. I'm getting perversely low unemployment rates." So in our assumption that we built in here, we actually have - it's kind of hard to see it in this particular presentation of it - and it's disclosed in the Budget Assumptions and Schedules document, actually, it was a similar assumption, this was from two years ago; we disclosed it in the 2013-14 assumptions as well - we've turned our net interprovincial migration from its historical average at about negative 1,300 to negative 1,700.

During the period of major construction of vessels at the Halifax Shipyard as we understand it - and we use the same assumptions that the Conference Board used back in 2012 when they put it together, just shift it out a couple of years - as we understand it. We actually turned our migration positive to about 500. It ramps up to about a peak of 500 net immigrants. It carries on that way for a few years and then goes back down to its historical trends and that's what's underlying that.

A specific answer about what would turn that - capital investment projects, that's what we're assuming here. I should say though - and we do disclose this as a risk and have disclosed it consistently as a risk in our budget assumptions - that if that doesn't happen, then we'll sort of be following more historical trends of our population out-migration. If that doesn't happen, then we said that - and I'll use the exact phrase here - "Without positive interprovincial migration (or potentially greater immigration), the economic impacts of these major investment projects may not materialize as currently estimated."

That doesn't mean to say the economic impacts are not going to materialize. It just means they're going to be different than what we're currently anticipating. Maybe the ships will be built with greater use of capital and technology than they have been in the past, or perhaps economic activity that would otherwise have taken place in other businesses will not take place because there will be a strong draw for labour at the shipyard.

MS. PETERSON-RAFUSE: So an investment into a capital project such as the ships contract is really the light at the end of the tunnel in terms of addressing issues with the out-migration, similar to the CEO of the Bank of Canada I believe yesterday was encouraging at a federal level that this was the time, because of the low interest rates, for both provincial and more so at a federal level, to look again at major stimulus projects in order to stimulate the economy. Is that a similar thing we're talking about here, in terms of when you have a major capital project like that people are going to want to stay in the area and come back also?

MR. STORRING: I'm not sure that I would necessarily attribute that specifically to - and I have my own sort of definition in my head of what a stimulus project is, which is sort of an extraordinary level of investment in public capital projects, publicly-owned and publicly-financed capital projects. I would hope that what I am saying is interpreted more just generally that capital investment, particularly in the business sector where it's leading to acquisition of new means of production in the future, certainly that's what we saw in Alberta and that's what we're assuming here in this particular instance.

MS. PETERSON-RAFUSE: So it can be a balance between provincial or government investment and investment solely by business or major corporations, but they have to see a reason why they want to come to a small province and put those investment dollars in.

MR. STORRING: You've opened the door for me to talk about some of my capital investments information.

MS. PETERSON-RAFUSE: Go right ahead, I'm interested in hearing it, thank you.

MR. STORRING: Actually that is an area where Nova Scotia, if you think about the determinants of economic growth, I mean the supply of labour you have available for production is one of the key determinants.

In terms of long-run growth, add more factors of production, improve factors of production, or do better things with factors of production. Let's talk about employment - I won't go into the changes in employment here.

Capital stock, so this is real capital stock per worker and it's measured from 2000 up to 2013. So I've got it for Canada and all the provinces, so for each jurisdiction you sort of read the left-hand side is what it was in 2000 and the right-hand is what it was in 2013. This is measured in constant dollars so there's no sort of growth that's just associated with prices going up for capital equipment, this is real capital stock.

The situation in Canada is quite, I mean there are some really stark differences here. You see the major resource-producing provinces, Newfoundland and Labrador, Saskatchewan, Alberta, and to a lesser extent British Columbia, exhibiting much higher levels of capital stock per worker. This is in the industrial sector - which reflects only 16.4 per cent of Nova Scotia's workers, this is in the industrial sector; much higher levels associated with those resource-producing provinces. Indeed, you can probably - if you draw a circle around this particular group here, from P.E.I. through to Manitoba, those are also the equalization-receiving provinces and these are the non-recipient provinces.

In Nova Scotia in particular, and I know it's kind of hard to see at the end of it, in our industrial sector our net capital stock per worker is declining. What that says is the amount of new investment that is taking place, real new investment, is less than the amount that is being written off to depreciation.

That is not the case with, say, the extraordinary growth we've seen in Saskatchewan and Alberta and the extraordinarily high levels that are observed in Newfoundland and Labrador, although the industrial sector is a relatively small number of workers in Newfoundland.

MS. PETERSON-RAFUSE: So I can quickly ask, you are talking about those who are doing really well are, of course, resource-based, so what do you do when you're challenged with the resources declining? Like when we had the hit on the fisheries and now we face issues with the forestry industry and the production of newsprint and all those - those are things that have been hard hits for the province over the last number of years.

What do you start relying on then if those resources are declining, whereas you can see in Alberta their resources are going up? They have more opportunities there.

MR. STORRING: In the framework that I've sort of introduced here where you say the amount of potential GDP that could be produced in the population depends on the size of the labour force, the amount of capital equipment that happens, the amount of resources that are available for production. Some of the challenges we've experienced in some of our resource sectors are not necessarily a challenge to the resource itself. It's more those are challenges of global markets and it's a matter of the economy's adjustment to the demand for things like newsprint on global markets.

What I would say is, as the resources that we happen to have here in Nova Scotia, if global markets are turning against them again, it's a similar phenomenon to what I described in terms of the shrinking of the sizeable labour force that we may be facing, and so capital accumulation is certainly one of the opportunities for that.

I do want to add - I have another chart here - Nova Scotia, 69 per cent of the national average and falling; that's in the industrial sector - a much higher concentration in energy-producing provinces, I've already talked about that. If you look at the non-industrial business sector, however, the situation still - it's different but a stronger favour to - and that accounts for the majority of Nova Scotia workers, primarily in the private sector service industries. You can see much stronger levels of capital accumulation in Ontario and western Canada than you see in Quebec and eastern Canada.

I should also point out that if you look at the scale on the vertical axis here, it's also, in order of magnitude, smaller for those industries. In this respect, Nova Scotia still not a - we've had some accumulations in recent years in that sector, but not like what we've seen growing in New Brunswick. Although you look at declines in Ontario, stable in British Columbia, but even in the resource-producing provinces like Alberta and Saskatchewan, outside of the industrial sector, they're still seeing additional capital accumulation probably spilling over from the industrial sector itself.

MR. CHAIRMAN: Mr. Jessome.

MR. BEN JESSOME: Is there smoke coming out of my ears? Your passion is incredible and thank you for coming here today. I'm going to ask a question before I ask the question that I'm leading to and maybe it will get rid of my secondary question, but here we go. Is it okay to assume that enhancements to technology will lead to more efficiency and perhaps less need for labour in a given organization?

MR. STORRING: It's an assumption, and I'll say it's a fair assumption, but I also don't want to say it's a guarantee either. Business and economics is scattered with examples of investment in technology that didn't pan out that way, so it's not a guarantee. That's why it's important that there is a great deal of sort of - in the economist's paradigm - market scrutiny on whether this is the right risk to be taking.

MR. JESSOME: I'll ask my follow-up question anyway. Assuming that enhancement to technology is important and will consistently continue the way that it has to date, how do we in the province balance the importance of keeping up on the times, modernizing technology, mitigating out-migration, and ensuring that we're keeping in line with modern technology while still creating enough jobs to keep people at home?

MR. STORRING: By the way, in my previous remarks, I didn't want to suggest that it is not unreasonable to assume that technological improvement can indeed be a source of economic growth. In fact, I brought the *Principles of Macroeconomics* textbook with me here and the chapter on endogenous long-run growth actually focuses extensively on the role of improving the technology in your capital as one of the critical means for long-run growth. You're absolutely right to ask questions in that area.

In terms of your question about, okay, so if we invest in capital technology, which may lead to labour-saving amongst Nova Scotia's businesses, how do we square that with needing to create opportunities for those businesses to employ people? What I would say in that regard is that with increasing what we call technology-deepening investments by our businesses, what we will see is that the value added generated by the workers who remain will be much higher and if labour markets function as they are supposed to, then the remuneration that they earn will also be higher.

If you are an employee and you are using greater equipment and technology, then the amount of value that you can create as an employee will increase and your compensation will grow in proportion to that. That, arithmetically, is what an economist would say is higher productivity. That's our definition of productivity.

To take it back to maybe a more concrete example, let's say we have an enterprise that currently employs labour and let's say they've got three baby boomers on sort of the leading edge of that cohort who are rightly looking at retirement. It may be the case that in the future their employer, the business operator, would say, well you know I'm going to have a hard time finding people to replace every one of those baby boomers as they retire. Instead, what I am going to do is invest in new technology that's going to save some of that labour and maybe I'm only going to replace those three with two but each of the two remaining employees - because that's all I'm going to find right now - is going to be equipped with better technology and possibly equipped with greater training and greater skills so they are going to generate more value as employees individually, which means I can afford to pay them more.

Remember back when I said that would be the good way for the economic adjustment to take place to the circumstance - that's what it might look like.

MR. JESSOME: At least some more, I guess, productivity versus multiple job opportunities is kind of what you're getting at.

MR. STORRING: It can get more complicated than that because as you get greater productivity you can get - particularly with greater use of technology, greater use of technology is one of those things that tends to have - jargon warning here - positive external spillovers. So when you get greater use of technology by one business and then the sales of that technology become common in the area, then it becomes more widely available to other businesses. They use it, they start to take advantage of it, they see the opportunities to serve and develop that technology itself, and it can foster growth that way. It extends beyond the business actually making the investment.

MR. CHAIRMAN: Thank you very much. Mr. Lohr.

MR. LOHR: Thank you, Mr. Storring, it has been very interesting. You paint sort of a stark picture of the provinces, from P.E.I. to Manitoba versus Saskatchewan, Alberta, B.C., and Newfoundland and Labrador. I guess what our committee is - I mean what we control is government policy. So what would you say maybe generally would characterize differences in provincial government policy between the provinces that have been successful lately and the ones that haven't, in general? What sort of differences do you see in government policy or how those governments have approached various issues compared to the east?

MR. STORRING: Probably the biggest government policy determinant of why you see such a disparity in the economic outcomes across provinces can be traced back to Chapter 3 of Rosen et al, the Rowell-Sirois Commission from 1937 in which provinces were given the right to revenues from natural resources, particularly subsurface natural resources. So in some respects a lot of the differences that we're seeing across the country are simply geological good fortune.

It does suggest a government policy intervention. I mean it's not to say that allocating resources to provincial governments is an invalid policy choice to make; it isn't. It's very much the driving factor behind the equalization program we have in this country. It's why you see even large economies like Ontario and Quebec being recipients.

In terms of specific government policies that differentiate those provinces, I would probably say it's not really a differentiation, based on government policy so much as the resources that are there for development. I'm not an expert in how the resources are developed in Newfoundland and Labrador, Saskatchewan, and Alberta, apart to say that obviously they are being developed, so that's certainly having a very strong impact on the economy and provinces do have a significant role to play in the development of resource economies.

MR. LOHR: And I do recall maybe about 10 years ago Saskatchewan celebrating their one-millionth resident and then having that resident move to Calgary. (Laughter) I mean Saskatchewan was not doing all that well, really, until recently - you may be aware of that - so obviously there were government policy changes at a provincial level that they made. I'm just wondering if you could comment on them.

MR. STORRING: And I think he's back, by the way. (Laughter) The extraordinary growth that has happened in Saskatchewan in particular is a bit of a lesson of the kind of variability you can see when you are a resource economy. Saskatchewan's economy in 2008, in nominal terms, grew by 29 per cent in one year. That's primarily attributable to high prices associated with their participation in a potash cartel.

It very much is getting into how those specific resources are being developed. You actually have to go resource by resource and look at what their policy is for developing that particular resource.

I would say that if you look at some of the gains reported in New Brunswick's industrial sector, again, construction of a major potash mine in Sussex, it's visible in that data there. Again, you have to look at, okay, what were the policies around developing that particular mineral resource? I think you have to look at it circumstance by circumstance, province by province, and sector by sector.

MR. CHAIRMAN: Thank you. We have 10 minutes left so I ask that one question from here forward, so that we can have as many as possible in the next 10 minutes. So please keep them short and try to keep the answers short too. Thank you. Ms. Zann.

MS. ZANN: Thank you. I just have a question, I don't know if you've seen KPMG's Competitive Alternatives report that came out.

MR. STORRING: I haven't seen the latest one, but I'm certainly familiar with the product.

MS. ZANN: It's kind of interesting because it says that, in fact, Nova Scotia and Moncton, Fredericton, Halifax - we were in the top four competitive rankings for similar municipalities right across North America, showing that we are very highly competitive. Would that possibly mean that our tax rates are actually just a small part of what makes a place competitive and, therefore, we don't need to cut our taxes to be competitive?

MR. STORRING: If you look through the determinants of those costs - I mean, that particular report, that's peculiar to the scenario that they've constructed. Yes, Nova Scotia and New Brunswick do have lower costs. There are some unique features about the tax structure of Nova Scotia and you've given me the opportunity to bring them up here.

The marginal effective tax rate, this was put together by Professor Jack Mintz from the University of Calgary and Duanjie Chen from C.D. Howe Institute - this is for 2013 - and it measures the marginal effective tax rate on capital investment. Marginal effective tax rate here is defined as the percentage of return on a marginal investment whose rate of return is just sufficient to attract savings from investors in international capital markets. You see that we actually have a strongly negative marginal effective tax rate on manufacturing investment.

I'm not sure about the actual calculation of how negative that is for that particular year, but in general we've had a negative marginal effective tax rate on capital investment and that's because of the federal Atlantic investment tax credit that is available for capital investment in manufacturing equipment here in this region. This is a tax credit that has existed since the 1970s. It gives a reduction in tax liability in the amount of, I believe, 10 per cent - don't hold me to that specific here, I have to read the legislation - of the amount of capital investment that you buy. That's applicable to your federal tax liability, so it's the tax liability you generate for your entire enterprise.

So it's a very generous incentive and we can see the marginal effective tax rate is negative and it brings Nova Scotia's aggregate marginal effective tax rate across all sectors down to among the lowest in the country. But then when you look at the capital investment figures, it's not showing up there. So there is definitely more going on than just capital investment.

At a federal level there have been substantial reductions in tax rates on investment in general. We certainly haven't seen outside of the energy sector - the reason for investment in the energy sector is obvious - we haven't seen a boom in capital investment associated with that. We've had strong currency - and much of the capital equipment we buy is imported - low interest rates, and falling tax rates, but that in itself isn't sufficient for necessarily spurring a boom of investment.

MR. CHAIRMAN: Thank you. I'll turn it over to Ms. Lohnes-Croft.

MS. SUZANNE LOHNES-CROFT: Just one question - gosh, how do I narrow that down? Can I sign up for one of your classes next year? (Laughter) When you do your stats with rural Nova Scotia versus HRM, does that work in the number of people who are commuting to Halifax and actually working in Halifax?

MR. STORRING: No, it doesn't.

MS. LOHNES-CROFT: You don't have any stats on that at all?

MR. STORRING: No, we don't. Actually, in a broader sense, Statistics Canada in co-operation with my counterpart in Alberta have recently done a study of the longer commuters - the ones whose substantial residential ties are in another province, especially in Atlantic Canada and who are working in Alberta. Again, that's a fairly significant phenomenon.

In a smaller sense, the sort of broader commuter shed of Halifax, no, we don't have a good sense of that, other than being able to assess - I believe the National Household Survey does report commuting time at a fairly detailed geographic level for 2011. In some respects we're getting it because when we look at, say, income that's being generated in - I'll pick Kings County, there are probably a lot of people commuting in from Kings County. We will see that showing up as household income in Kings County even though the activity that generated the income is actually taking place in Halifax. So that is a complexity to the data that we see, but we're not actually able to determine how much of the income that's generated in Kings County was actually generated from working in Halifax.

MS. LOHNES-CROFT: And consumer-ship as well. They tend to shop in Halifax.

MR. STORRING: Likewise, we don't track people who are shopping outside of their home communities.

MR. CHAIRMAN: Mr. Lohr is going to give up his question to Ms. Eyking.

MS. PAM EYKING: Thank you. Thanks so much for your engaging presentation this morning. It was very interesting; I think I could sit and listen to you all day.

I heard some statistics that seasonal employment in Canada makes up 24 per cent of the job market, yet it contributes roughly 40 to 45 per cent to the GDP in the country. I was wondering if you would attribute Nova Scotia's slower demographic growth, but yet its ability to maintain a fairly positive contribution to the GDP, to seasonal employment. If not, what would you attribute to their ability to maintain a fairly positive contribution to the GDP?

MR. STORRING: I'm not sure I have an answer for that. I know where to get it. It's something I can put my hands on in terms of looking at the seasonal patterns of employment.

In terms of seasonality of industries though, when you look at the GDP that's generated in Nova Scotia, historically around 75 per cent was generated by service sectors, whether that's public or private. Private tends to be about twice the size of public in terms of the service sector. It has actually grown as our goods output has fallen with the number of closures of major facilities that we've had, so it's actually running around 80-20.

Those service sectors outside of things like accommodation and food, so associated with the tourism sector and even accommodation and food, it tends to be relatively small. So the contribution of seasonal industries is very much concentrated in the goods sector: agriculture, fisheries, resource sectors, and construction - although seasonal patterns in construction are also changing with technology. I have not seen evidence that the contribution of industries that you might call seasonal to the GDP is that high.

MR. CHAIRMAN: Ms. Peterson-Rafuse, you have about five minutes.

MS. PETERSON-RAFUSE: I'm fine, thank you.

MR. CHAIRMAN: Mr. Lohr, did you want to ask a question?

MR. LOHR: I've had a lot so if someone from that side wants to ask a question.

MR. CHAIRMAN: Ms. Zann.

MS. ZANN: Thank you again for your presentation. With regard to film and television tax credits, now we hear there are going to be tax credits for the mining association as well?

MR. STORRING: I can't speak to the details on that, sorry.

MS. ZANN: Would you say though in particular with the film and television tax credits, it's also about economic spinoff, which I believe that most economists don't really pay much attention to - they just pay attention to the bottom line of how much is going out, is that correct?

MR. STORRING: Oh no, that's our jargon. We pay a lot of attention to that.

MS. ZANN: So do you pay attention to the economic spinoff then that these industries create in a province?

MR. STORRING: In general, yes. In this specific circumstance, I don't have an answer about that, but in general, yes.

MS. ZANN: But the film and television credit, as you know, has been part of our system for some time now. Would you say that would also be an industry that could attract more people to our province - as well as, for instance, the shipbuilding contracts - if there is, in fact, more investment in that kind of knowledge-based economy?

MR. STORRING: I don't have a sense of that, so I wouldn't want to speculate. That would be a new speculation for me as opposed to some of the speculation I've already made, so I don't want to make a new speculation to say that would have that kind of impact.

MS. ZANN: I'm just looking at some of these statistics here again from KPMG. Digital entertainment for Canada is 76.2 per cent and in the United States it's 100 per cent. I'm thinking that video game production, software design . . .

MR. CHAIRMAN: Order, please. We're going to bring this meeting to a close.

I would like to thank our guest, Mr. Thomas Storring for coming today. It was very enjoyable.

Just on some committee business, everybody has a list of the upcoming committee meetings, the next one being September 4th at 9:30 a.m. - for those people who came at 9 a.m., we're at 9:30 a.m. This is Comprehensive Economic Trade Agreement and our guest will be Mr. Frazer Egerton.

I do have a list going here for email addresses for the daily stat, so if you'd like to add your name to this, please do so right over here. Thank you very much and we'll call this meeting adjourned.

[The committee adjourned at 11:26 a.m.]