# DISCUSSION PAPER SERIES

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# ABSTRACT

# Macroeconomic Impacts of Immigration in the Canadian Atlantic Region: An Empirical Analysis Using the Focus Model*

We simulate the impact of an increase in immigration into the Atlantic provinces based on the FOCUS macro-econometric model at the University of Toronto. That national model was adapted to reflect the regional dimensions of the Atlantic provinces. We find robust evidence of positive outcomes for the Atlantic region so long as it is part of a broader increase in immigration for the country as a whole. The positive outcome encompasses higher GDP and GDP per capita, higher consumption, and improved government fiscal balances at both the federal and provincial levels that could in turn be used for tax reductions or the enhancement of government services. These benefits could be enhanced further by carefully targeting new immigrants for needed skills and for their likelihood of remaining in the Atlantic region.

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# MACROECONOMIC IMPACTS OF IMMIGRATION IN THE CANADIAN ATLANTIC REGION: AN EMPIRICAL ANALYSIS USING THE FOCUS MODEL

## 1. Introduction

Immigration is a major issue for Canada.  Immigrants constitute about 23 percent of its current population[1] (Statistics Canada, 2022) and almost 100% of its net labour force growth in recent years (Immigration, Refugees and Citizenship Canada, 2021) (as domestic new entrants to the labour force are largely offset by retirements).  Immigrants account for about 80 percent of its current population growth, and by the early 2030s, it is expected to constitute all of its population growth (El-Assal and Fields, 2018),

Such immigration is crucial to compensate for an aging population and workforce, and declining fertility as well as for filling the growing labour and skill shortages, and ameliorating fiscal imbalances associated with a declining tax base and increased public expenditures for an aging population (El-Assal and Fields, 2018). Immigration can be particularly appropriate for filling skill shortages because having specific skills that are in shortage is a factor for immigrant entry in Canada's skill-based point system. Immigration can be used to fill such specific skill shortages faster than doing so through human capital development given the lags in the education system.   Immigration can also increase growth and productivity through its complementarity with the Canadian-born workforce and thereby reducing labour and skill shortages and fostering innovation and technology adoption (Akbari and Haider 2018; Gu, Hou and Picot 2020; Ostrovsky and Picot 2020).  Immigrant owned firms also create more jobs than do Canadian-owned firms (Picot and Rollin 2019)**.**

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[1] https://worldpopulationreview.com/country-rankings/immigration-by-country

Regional development is also a major issue in Canada. Canada is the second largest country in physical mass in the world, next only to Russia. Its population is unevenly distributed with 90 percent living within 100 miles of the U.S. border. As Krugman (1991, p.71) stated "Canada is closer to the United States than it is to itself." The regional development has been very uneven, with the Atlantic provinces of Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick having the highest unemployment rates, lowest wages and greatest labour shortages in Canada (ACOA 2019). The Atlantic provinces also suffer from having had low rates of immigration as well as the lowest immigrant retention rates in Canada, losing the youngest and most educated who otherwise would be crucial in fostering development (Haan and Prokopenk 2016; McDonald, Cruikshank and Liu 2018; van Huystee, 2016). After five years from arriving in Canada, only about 50 percent of immigrants remain in parts of the Atlantic provinces (APEC 2017; Emory et al 2017). Increasing immigration into the Atlantic provinces has the potential to reduce outmigration of immigrants by establishing the immigrant networks that foster retention as well as creating the enclaves that encourage new immigrants.

Clearly *each* issue of immigration and regional development is crucial in their own right. The intersection of *both* immigration and regional development compounds that importance. That intersection is the focus of this analysis, with particular attention to the effect of immigration into the Atlantic provinces. Such immigration into the region is often regarded as crucial to offset its out-migration of young persons and its aging workforce, as well as to foster the productivity gains and innovation and technology adoption that has been discussed previously for the rest of Canada. The potential for immigration to enhance the economic performance of Atlantic Canada is reinforced by the fact that immigrants have higher labour force participation rates, lower unemployment rates, and earn higher labour incomes than non-immigrants (Akbari 2011). Survey evidence also indicates that 88 percent of employers in the Atlantic provinces who hired immigrants have a favorable impression of them, and the low cost

of living should attract immigrants (Fang, Zhu and Wells 2021; Fang, Na, Zhu, and Hartley 2022). Immigration is also regarded as a means of spreading the immigration throughout the country that is otherwise concentrated in immigrant enclaves in large cities like Toronto, Vancouver and Montreal that are already congested and with high costs of living especially with respect to housing (Haan and Prokopenk 2016).

Importantly, immigration into particular regions is under a degree of policy control. Under the Provincial Nominee Program [2] potential immigrants who want to become permanent residents apply to a particular province and are matched to employers with specific needs. Applicants who have the skills, education and work experience to contribute to the economy of the province are then fast-tracked through the regular federal immigration program. Each province has its own requirements, geared to the specific needs of the province.

Of particular relevance to our study, the Atlantic Provinces have their own Atlantic Immigration Program where designated employers are matched with potential immigrants who specify one of the four Atlantic provinces for settlement. Employers are required to not be in violation of related regulations, not to recruit for purposes of subcontracting the workers, to be in continuous, active operation under the same management for at least two years in the Atlantic Region, and to be committed to work with settlement agencies as well as to provide onboarding training and intercultural competency training.

Canada's regional immigration approach has attracted interest in the United States, as a possible way to disperse immigration settlement to bolster growth in cities and regions with dwindling populations.

The purpose of this paper is to analyse the intersection of immigration and regional development by examining the impact of an increase in immigration into the Atlantic provinces.

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[2] https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada.html

The outcomes we examine are detailed later but include the usual macroeconomic indicators of GDP, GDP per capita, consumption, investment, residential and non-residential construction, exports, imports, population, unemployment rate, labour force participation, inflation, wages, productivity, and federal, provincial and local government revenues and expenditures.

We build upon the earlier analysis by Dungan, Fang and Gunderson (2013) which examined the impact of a hypothetic increase in immigration to Canada on the Canadian labour market and the macro economy in general using the FOCUS macroeconometric model[3]. In the present paper we drill deeper into the regional aspect and examine the impact of immigration on the economy of the Atlantic Region of Canada (the provinces of Newfoundland and Labrador, Prince Edward Island, Nova Scotia, and New Brunswick) using an adaptation of that simulation model to reflect the regional dimension. The next section below outlines how the basic simulations were set up and how the national model was adapted to capture impacts for the Atlantic Region. This is followed by a discussion of our simulation results. An appendix sets out some of the model inputs and changes in more detail.

## 2. Setting up the Focus Model Simulations

The preparation of the simulations proceeded in a number of steps:

For the first step we determined how to use the national FOCUS model to simulate the impact of increased immigration into the Atlantic provinces. We used a procedure based on the national model with the amount of immigration hypothesized for the Atlantic provinces scaled up to a national level but with all inputs calibrated so that they embody features of the Atlantic provinces' economy. As an example, the increase in immigration that we enter into the national model was disaggregated by age and gender according to proportions we calculated for recent

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[3] Detailed documentation for Focus version 21C used in this study can be obtained from the Policy and Economic Analysis Program, Rotman School of Management, University of Toronto.

years for the Atlantic provinces and not the country as a whole. This procedure has been followed for a number of key inputs as listed in the Appendix, including participation rates, unemployment rates and usage of Employment Insurance.

Next, we adjusted the parameters of the FOCUS model so that the key macroeconomic relationships are representative of those relationships in the Atlantic provinces, as opposed to the country as a whole. For example, the Atlantic provinces, have somewhat lower productivity (GDP per employee) relative to Canada as a whole. Using an historical average for the last 10 years we built into the model a ratio of GDP to employment that reflects the average productivity of the Atlantic provinces. Another example of this type of adjustment is that the Atlantic provinces have a somewhat higher marginal propensity to import from the rest of the world as well as a tendency to import more than they export from the rest of Canada. Further such changes are detailed in the Appendix.

Once these adjustments had been made, we conducted a simulation (Table 1), which we call the central case, of an increase in immigration to the Atlantic provinces of an additional 10,000 persons per year. Note that this figure of 10,000 is the net addition and is assumed to cumulate forward. Some immigrants who come to the Atlantic provinces may, in subsequent years, leave for other parts of Canada or other countries, but the assumption is that year-by-year the population of new immigrants in the Atlantic provinces grows by 10,000. The figure of 10,000 is effectively arbitrary, but the model simulation results are largely linear so one could, within limits, scale the amount of immigration up or down and adjust the simulation results in the same proportion. While 10,000 of net immigrants to the Atlantic provinces was about the maximum extent of actual immigrants to the Atlantic provinces up to 2019, the figure has been surpassed in years post the Covid pandemic (29,045 in 2022, IRCC 2023).

We also assume that the productivity and earnings of immigrants are slightly above 90% of the non-recent-immigrant workforce in the Atlantic provinces based on national data of the last ten years. This is similar to the adjustment that were made in the national simulations of 2010 in Dungan, Fang and Gunderson (2013) to allow for an estimate of immigrants' earnings and productivity being lower than that of the non-recent-immigrant population. But the figure used for this set of simulations is based on data of the last ten years for the Atlantic provinces only and, fortunately, is much closer to the productivity level of the non-recent-immigrant population than was the case in the national study of 2010 (where the relevant proportion was about 75%). Note that this assumption is relatively conservative; estimates by Akbari (2011) indicate that earning by immigrants actually exceed those of the non-recent-immigrant population by some measures. A first alternative simulation (Table 2) that we conduct assumes that new immigrants have the *same* productivity and earnings as the existing or 'base-case' population in the Atlantic provinces.

The first two simulations were conducted on the assumption that there is a similar increase in immigration occurring in the rest of Canada. This is extremely important because it implies is that monetary policy can adjust to generate on the demand side an increase matching with the increase in incipient supply that is provided by new and higher immigration. We have assumed, as was done in the 2010 simulations, a type of 'Taylor rule' whereby monetary conditions are set to target the base-case unemployment rate and the base-case inflation rate. Under these monetary conditions, most of the increase in immigration translates into an increase in employment and GDP with only a brief period at the beginning of somewhat elevated unemployment.

If we wish to consider the impact of higher immigration in the Atlantic provinces *without* an equivalent increase in immigration in the rest of Canada, then this kind of monetary response, except in very mild form, cannot be equivalently assumed. In this case the corresponding

increase in demand in the Atlantic provinces to meet the increased potential supply from additional workers must come directly from the stimulation of demand from the presence of the immigrants themselves (see Table 3). This does not occur totally on its own, especially given the high propensities to import of the Atlantic provinces. Therefore, this simulation shows the importance to the Atlantic provinces, if immigration is to be increased, of doing so in tandem with the rest of the country or of finding additional stimulus to aggregate demand other than what can be provided through nationwide monetary and exchange-rate policies. Effectively this would mean some type of fiscal response.

### 3. Model Simulation Results:

Simulation results are reported in the attached Tables 1 through 3.

**Table 1** shows the results of a simulation of an increase in immigration to the Atlantic provinces of 10,000 per year together with a proportionate increase in immigration in the rest of Canada. As this is a nation-wide impact, monetary policy can respond to help increase aggregate demand in the economy to match the new higher level of aggregate supply due to higher immigration. Note that there is a gradual reduction in interest rates (relative to the base case) throughout the simulation period and a corresponding depreciation of the Canada-US dollar exchange rate. Both elements help to incentivize investments, both residential and non-residential, and to increase aggregate demand through net exports – note that real exports rise much more than real imports. Of course, some demand would have been forthcoming simply because of the additional population (note especially the increase in residential investment) but with a Taylor Rule target of jointly minimizing the effects on both the unemployment rate and inflation, some reduction in interest rates occurs (and with the corresponding exchange-rate depreciation). Note that the rule is largely successful in limiting any change in the

unemployment rate and, because this is done with an increase in aggregate supply, real GDP increases but the inflation rate actually decreases marginally.

For the Atlantic provinces at the end of ten years total population is up 3.6% and the source population is up 3.55%. (There are slightly more children in proportion for the immigrant population than for the base-case population.) However, note that employment is up 4.41% (with there being no change in the aggregate unemployment rate). Reasons for the higher impact on employment include the higher participation rate of immigrants, and their lower tendency for unemployment. Note too that the impact on real GDP by year ten is 4.22% - that is, it is lower than the impact on employment. The reason for this is the lower assumed productivity of new immigrants based on the past ten years of earnings differentials. The lower productivity is somewhat offset by an increase in the capital stock (note the positive impacts on non-residential investment) but the increase is not sufficient to offset the assumed lower productivity of new immigrants. Much of the GDP increase of course goes to the new immigrant population that helps generate that increase, but note that real GDP *per capita* is slightly above the base case in all years, and by 0.6% by the tenth year. Although we cannot model detailed income impacts, combined with the lower assumed productivity and labour income return relative to the pre-immigration population, this almost certainly means that the incomes of the pre-immigration Atlantic population are higher than they would otherwise have been – and this is *before* potential benefits from increased government revenues (see below) are considered.

Reviewing the components of real GDP, we see a large impact from Personal Consumption, as would be expected. Real government spending is also up as we increase it in proportion to the increase in population (but at less than a 1-1 ratio as there are 'economies of scale' in government spending covering new population). Residential investment responds strongly to the growing population (and to somewhat lower interest rates) and there are more modest increases in non-residential investment. The enhanced supply of labour has a small

negative effect on real wages (which is part of what keeps the unemployment rate from rising) and this in turn increases somewhat the profit share of income, which is part of the reason for the increase in non-residential investment. Finally, on the trade side we can see an increase in international exports over imports. Note that restraining some of the positive impact on the GDP of the Atlantic provinces is an increase in net imports from the rest of Canada of almost $600 million dollars (in real terms) by the tenth year; this figure should be compared with the $6.5 billion increase in Atlantic GDP in real dollars, indicating the leakage of some demand into net interprovincial imports.

For federal and provincial governments (in the Atlantic region) the impact of the simulation is a steady improvement in balances. All levels of government see an increase in revenues from the larger population and GDP. For local governments these are largely matched by an increase in expenditures and for the federal government expenditures actually fall somewhat (but recall that there is an overall decline in the price level – the fall in real expenditures is quite small and there is also a reduction in interest payments on debt). At the provincial level expenditures do not rise as much as revenues and there is an improvement in government balances, but not as large as at the federal level. Of course, governments at both the federal and provincial level might choose to use some of this increase in their balances to increase expenditures or cut taxes, with further benefit to individuals in the Atlantic region – from which the pre-immigrant population would certainly benefit.

**Table 2** shows the results of a simulation otherwise very similar to that of Table 1, but this time assuming no difference in productivity between new immigrants and the base-case population. The impact on GDP in the tenth year is now 4.64%, and this is above the 4.41% for employment; the new immigrant workers are as productive as the base-case employed, and there is an additional improvement in productivity through greater accumulation of the capital stock. In this case there is no doubt about an improvement in the incomes of the pre-immigration

population, even before considering possible increased government spending or reduced taxation. With the still-higher GDP impact, the improvement in government balances is further increased.

**Table 3** shows the results of a simulation in which the Atlantic provinces 'go it alone' with the 10,000 increase in immigration – that is, there is no equivalent increase in immigration in the rest of the country. In this case, the main problem is that aggregate demand cannot rise fully to meet the incipient increase in aggregate supply. Although new immigrants generate some demand by their very presence (see the increase in residential investment) there is an overall lack of sufficient demand to employ all the new immigrants.

First, and likely most important, because the immigration increase is only in the Atlantic provinces, and only a relatively small 10,000 per year (in terms of the country as a whole) there is relatively little room for stimulative monetary policy – which must, of course, work for the entire country. The modest decline in the interest rate shown, and the equivalently modest depreciation of the exchange rate, come from a simulation of the impact of an increase of 10,000 per year in immigration for the entire country. The changes in monetary conditions would have been sufficient to absorb an increase of this amount in immigration had it been spread evenly across the country, but gives nowhere near sufficient stimulus to the Atlantic provinces who need to absorb the entire immigration increase.

A second factor limiting the absorption of new immigrants is the large import leakage from the Atlantic provinces. There is a net import leakage from international trade but, even more important, a very large leakage from trade with the rest of Canada. As noted above, the Atlantic provinces import a significant amount from the rest of the country as a share of GDP. They also export a lesser amount. In the two simulations above the leakage is the net of imports less exports, amounting to about 9% of GDP. But with no immigration increase in the rest of Canada, there is no offsetting increase in exports to partially mitigate the effect of the import

leakage to the rest of Canada.  Note in Table 3 there is a net import leakage of over $600 million real dollars, as compared to an increase in total GDP of just over $2 billion real dollars.

A third factor limiting the response of aggregate demand is the relationship between unemployment, wages and labour demand.  In a 'classical' sense, if unemployment moves higher for a spell, real wages ought to fall until employment increases such as to eliminate the excess unemployment.  However, this depends on the responsiveness of, effectively, the Phillips Curve. In this simulation we have followed the pattern that is evident in a model of the Ontario economy that is maintained alongside the FOCUS national model[4] and have the wage response to unemployment be less than it is at the national level.  Indeed, it stands to reason that the labour market is partly national as well as partly local.  A higher local unemployment rate in parts of Canada does not automatically generate real wage declines at the same rate as would be true nationally.  An alternative simulation (available on request), with a more responsive wage equation found that a greater fall in wages so weakened consumption demand that it still could not absorb the additional immigrant population.

The net result of these factors is that the simulation generates a rising unemployment rate as the new immigrants are added to the labour force with each passing year.  As indicated in Table 3, employment is up 2.1% in year 10, but the labour force has increased by 4.4% and the unemployment rate is over 2 percentage points above the base case.  Naturally, this lower impact on employment generates a much lower impact on GDP than in the previous two simulations. With lower tax take, and with some increased transfer expenditures due to higher unemployment, there is almost no improvement in federal government balances in the Atlantic provinces, and the provincial government balances are actually worsened.

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[4] Detailed documentation for the Focus-Ontario model can be obtained from the Policy and Economic Analysis Program, Rotman School of Management, University of Toronto.

## 4. Conclusion

As we noted at the start, Canada is both an immigrant-dependent economy and a highly regionalized one.  While there are many lenses through which immigration can be analyzed, the macroeconometric model approach we have used in this study is unequivocal in determining that enhanced immigration yields a positive outcome for the Atlantic region so long as it is part of a broader increase in immigration for the country as a whole.  The positive outcome encompasses higher GDP and GDP per capita, higher consumption and improved government fiscal balances at both the federal and provincial levels that could in turn be used for tax reductions or the enhancement of government services.  While it is outside of our model's capabilities to quantify, it should be notes that these benefits could be enhanced further by carefully targeting new immigrants to the Atlantic provinces for needed skills and for their likelihood of remaining in the Atlantic region.

**Appendix: Greater Detail on the Model and Simulation Inputs**

1) The simulations use a FOCUS base case from October 2021 and proceed from 2023 through 2032. The simulations were started in 2023 in order to avoid the period of recovery from the pandemic – for example, interest rates in the base case were very low in 2022 and it would have been difficult to lower them further relative to the base case to accommodate additional immigration. As it happens, the base case already featured significantly higher interest rates for 2023 compared to 2022. While the base-case interest rates are not as high as they are (temporarily) likely to be as a result of the surge in inflation (in great part due to the invasion of Ukraine and global supply chain constraints due to COVID-19) that occurred following October 2021, this is unlikely to result in a major change in the simulation impacts. In fact, were rates to be higher in the base case, then the positive impacts on government balances from the simulations would lead to larger reductions in government interest payments, further magnifying the positive impacts of the simulations.

2) Most of the changes made to the model to do the previous 2010 study have been continued in the current simulations – adjusted, if need be, to reflect conditions in the Atlantic provinces. For example, a number of government payment mechanisms, including Old Age Security (OAS), the Guaranteed Income Supplement (GIS) and the Canada and Quebec Pensions Plans (CPP/QPP), require roughly a ten-year residency to begin being paid out, so these items, while normally responding to population changes, do not do so in the ten-year simulation horizon. Another example is that calculations are made in the model for increased immigrants' funds brought from abroad and for remittances sent home by new immigrants.

3) In the 2010 study it was important to reflect any difference in earnings and productivity between new immigrants (those being introduced into the economy in the simulation) and the base-case or 'established' population (which would of course also include existing immigrants

and Canadian-born).   This difference was large in the 2010 study – with new-immigrant earnings and productivity being roughly 70% of the established population.  We have altered the mechanism whereby this difference is reflected in the model, using an adjustment to the employment equation to reflect lower productivity and an adjustment to total earnings to reflect lower earnings.  Detailed data from the Labour Force Survey (LFS) indicate that for the Atlantic provinces in recent years the ratio of new-immigrant to established population earnings and productivity is about .909, so this differential is much smaller than in 2010 and at the national level.

4) For the present study, it was important to enter the immigration increase to reflect immigration into the Atlantic provinces.  We therefore entered the increased immigration using the average of the last three years for the age and gender breakdown from data for the Atlantic provinces.  Using LFS data we calculated the difference between new-immigrant and established population participation rates for the Atlantic provinces and set the participation rates of new immigrants in the simulations at these new-immigrant levels.  On the whole these were higher than the participation rates of the established population for the Atlantic region.  We also made an adjustment for the different unemployment rates of new immigrants and the established population in the Atlantic region.  New immigrants have lower unemployment rates than the established population (with a ratio of about .865).  Finally, we adjust EI usage for new immigrants; using Census data it was determined that about 9.2% of new immigrants used EI vs. 16.5% for the established population.

5) The above were changes needed to have the immigration inputs properly reflect the nature of immigration into the Atlantic provinces.  There were a number of additional changes needed to properly reflect impacts of these changes as they would occur in the Atlantic provinces.  Using multiple data tables from the annual national-provincial economic accounts released in

November 2021 (these data extend through 2020) we made the following adjustments to model responses (usually relying on 10-year averages, but also making some judgement calls):

a) GDP per employee is lower in the Atlantic provinces than in Canada as a whole, and the relationship of employment to GDP was adjusted to reflect this.

b) A number of tax categories had their impacts adjusted to reflect the Atlantic rather than the national tax sensitivity. For example, corporate tax receipts at both the federal and provincial level are much lower as a share of GDP in the Atlantic region relative to the country as a whole. Personal tax receipts are slightly lower while EI contributions are higher as are alcohol, gasoline and tobacco taxes. Provincial sales taxes are higher, but municipal taxes are lower. There were also adjustments made to a number of transfer programs.

c) As a share of GDP, international exports are somewhat higher for the Atlantic region than for Canada (5%), and international imports much higher (22%). For simplicity, the impact on imports was increased by the difference (17%).

d) The Atlantic region is also a net importer from the rest of Canada. (Exports to the rest of Canada are 24% of Atlantic GDP and imports are 33%). We have reflected this in an exogenous component of GDP. When running simulations under the assumption that Canada as a whole is increasing its immigration in proportion to the Atlantic increase, we have a 'leakage' from the Atlantic economies of the difference between the two (roughly 9% of GDP). However, when we are trying to simulate an 'Atlantic-only' immigration increase, there will be no additional activity in the rest of Canada for the Atlantic to export to, so the import leakage is run at 30% (not 33%, allowing for some stimulation of the rest of Canada from the exports to the Atlantic in turn generating some exports from the Atlantic.)

6) With all of these adjustments in place, we then run the FOCUS model with the national equivalent of 10,000 additional immigrants per year. At the national level this translates into an

increase in just over 155,000 immigrants a year (the Atlantic provinces have roughly 6.45% of Canada's population and 10,000/.0645 = 155,000).  Assuming that the rest of the country has a proportional immigration increase, we allow monetary conditions to lower interest rates, with an accompanying depreciation of the dollar, so as to bring aggregate demand up to absorb the new supply capacity of the economy.  (This is the money rule we also followed in the 2010 study).

We report FOCUS model per cent changes in GDP, employment and other variables as equivalent to the per cent changes that apply to the Atlantic region given all the adjustments described above.  Where we need to report a change in levels (for example, the increase in employment in persons, or changes in government revenues or balances) we adjust the FOCUS numbers by ratios obtained from the national and provincial economic accounts (or the Labour Force Survey) for the Atlantic vs. the national level.

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TABLE 1: FOCUS Model - Policy & Economic Analysis Program
Atlantic Immigration - Impact of additional 10,000 per year
Assumes Immigrants are .909 to non-immigrants in earnings/productivity
Assumes national immigration rise - Interest rate and exchange rate respond

Summary of Projection
(Percentage Change unless otherwise indicated)

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|
| Real Gross Domestic Product | 0.61 | 0.94 | 1.43 | 1.83 | 2.20 | 2.62 | 2.98 | 3.41 | 3.79 | 4.22 |
| Real GDP ($2012 Mill) | 778 | 1229 | 1910 | 2504 | 3071 | 3724 | 4326 | 5060 | 5744 | 6529 |
| Real GDP per capita | 0.21 | 0.15 | 0.26 | 0.30 | 0.30 | 0.36 | 0.37 | 0.46 | 0.51 | 0.60 |
| | | | | | | | | | | |
| Expenditure on Personal Consumption | 0.46 | 0.76 | 1.06 | 1.41 | 1.68 | 1.99 | 2.25 | 2.55 | 2.82 | 3.11 |
| Expenditure by Governments | 0.27 | 0.54 | 0.81 | 1.06 | 1.31 | 1.56 | 1.80 | 2.03 | 2.26 | 2.49 |
| Investment Expenditure | 1.88 | 2.50 | 3.55 | 4.01 | 4.47 | 5.27 | 5.95 | 6.90 | 7.56 | 8.39 |
| Residential Construction | 2.92 | 3.97 | 5.75 | 6.55 | 7.26 | 8.52 | 9.47 | 10.88 | 11.75 | 12.92 |
| Non-Residential Construction | 1.25 | 1.72 | 2.43 | 2.79 | 3.23 | 3.87 | 4.55 | 5.39 | 6.13 | 6.96 |
| Machinery and Equipment | 1.25 | 1.72 | 2.43 | 2.79 | 3.23 | 3.87 | 4.55 | 5.39 | 6.13 | 6.96 |
| Exports | 0.04 | 0.16 | 0.39 | 0.71 | 1.04 | 1.34 | 1.62 | 1.91 | 2.21 | 2.53 |
| Imports | 0.13 | 0.33 | 0.26 | 0.25 | 0.23 | 0.30 | 0.37 | 0.41 | 0.42 | 0.42 |
| Net Imports from ROC ($2012 Mill) | 70 | 111 | 172 | 225 | 276 | 335 | 389 | 455 | 517 | 588 |
| | | | | | | | | | | |
| Nominal Gross Domestic Product | 0.56 | 0.85 | 1.26 | 1.61 | 1.91 | 2.24 | 2.50 | 2.81 | 3.05 | 3.31 |
| Implicit Deflator for GDP | -0.05 | -0.09 | -0.17 | -0.22 | -0.29 | -0.36 | -0.46 | -0.58 | -0.72 | -0.87 |
| | | | | | | | | | | |
| Total Population ('000) | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| Total Population | 0.40 | 0.78 | 1.16 | 1.53 | 1.89 | 2.25 | 2.60 | 2.94 | 3.27 | 3.60 |
| Source Population ('000) | 8 | 15 | 23 | 31 | 39 | 47 | 56 | 64 | 73 | 82 |
| Source Population | 0.36 | 0.72 | 1.08 | 1.44 | 1.79 | 2.14 | 2.50 | 2.85 | 3.20 | 3.55 |
| | | | | | | | | | | |
| Unemployment Rate (pc pts) | 0.08 | 0.02 | 0.03 | -0.04 | 0.00 | -0.02 | 0.01 | 0.00 | 0.01 | 0.00 |
| Employment ('000) | 5 | 11 | 16 | 22 | 28 | 34 | 39 | 45 | 51 | 57 |
| Employment | 0.38 | 0.87 | 1.31 | 1.80 | 2.21 | 2.67 | 3.09 | 3.53 | 3.97 | 4.41 |
| Labour Force | 0.45 | 0.89 | 1.33 | 1.78 | 2.22 | 2.66 | 3.10 | 3.54 | 3.97 | 4.41 |
| Participation Rate (pc pts) | 0.05 | 0.11 | 0.16 | 0.22 | 0.27 | 0.32 | 0.38 | 0.43 | 0.48 | 0.53 |
| | | | | | | | | | | |
| Consumer Price Index | -0.07 | -0.12 | -0.23 | -0.31 | -0.41 | -0.52 | -0.64 | -0.79 | -0.96 | -1.15 |
| CPI - Inflation Rate (pc pts) | -0.07 | -0.06 | -0.10 | -0.09 | -0.10 | -0.11 | -0.13 | -0.16 | -0.17 | -0.19 |
| | | | | | | | | | | |
| Real Annual Wages per Employee | 0.00 | 0.02 | 0.03 | 0.06 | 0.05 | 0.02 | -0.04 | -0.09 | -0.16 | -0.22 |
| Productivity (GDP/Employee) | 0.22 | 0.06 | 0.10 | 0.01 | -0.03 | -0.07 | -0.13 | -0.14 | -0.19 | -0.21 |
| | | | | | | | | | | |
| Finance Co. 90-Day Paper Rate (pc pts) | -0.27 | -0.20 | -0.35 | -0.25 | -0.32 | -0.35 | -0.43 | -0.51 | -0.55 | -0.62 |
| Exchange Rate (US $/Cdn $) | -0.47 | -1.01 | -1.94 | -2.59 | -3.24 | -3.76 | -4.30 | -4.90 | -5.49 | -6.09 |
| | | | | | | | | | | |
| Federal Gov't Revenues (NA Basis)($ Mill) | 140 | 225 | 347 | 453 | 555 | 675 | 783 | 915 | 1029 | 1160 |
| Federal Gov't Spending (NA Basis)($ Mill) | -1 | 6 | -7 | -26 | -44 | -84 | -133 | -208 | -303 | -424 |
| Federal Gov't CCA (NA Basis)($ Mill) | 0 | 1 | 3 | 5 | 8 | 11 | 14 | 17 | 20 | 24 |
| Federal Gov't Balance (NA Basis)($ Mill) | 142 | 221 | 358 | 484 | 607 | 770 | 930 | 1140 | 1353 | 1608 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Prov'l Gov't Revenues (NA Basis)($ Mill)** | 193 | 311 | 472 | 612 | 740 | 893 | 1022 | 1178 | 1307 | 1454 |
| **Prov'l Gov't Spending (NA Basis)($ Mill)** | 92 | 196 | 289 | 392 | 499 | 599 | 692 | 770 | 841 | 896 |
| **Prov'l Gov't CCA (NA Basis)($ Mill)** | 1 | 3 | 7 | 12 | 18 | 25 | 33 | 42 | 51 | 61 |
| **Prov'l Gov't Balance (NA Basis)($ Mill)** | 102 | 119 | 189 | 232 | 259 | 319 | 363 | 450 | 517 | 619 |
| | | | | | | | | | | |
| **Local Gov't Revenues (NA Basis)($ Mill)** | 21 | 42 | 60 | 81 | 101 | 121 | 140 | 156 | 171 | 183 |
| **Local Gov't Spending (NA Basis)($ Mill)** | 22 | 44 | 65 | 88 | 112 | 135 | 158 | 178 | 197 | 214 |
| **Local Gov't CCA (NA Basis)($ Mill)** | 0 | 1 | 3 | 5 | 8 | 11 | 15 | 18 | 23 | 27 |
| **Local Gov't Balance (NA Basis)($ Mill)** | -1 | -1 | -1 | -2 | -2 | -3 | -3 | -3 | -4 | -4 |

TABLE 2: FOCUS Model - Policy & Economic Analysis Program
Atlantic Immigration - Impact of additional 10,000 per year
Assumes Immigrants are same as non-immigrants in earnings/productivity
Assumes national immigration rise - Interest rate and exchange rate respond

Summary of Projection
(Percentage Change unless otherwise indicated)

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|
| Real Gross Domestic Product | 0.67 | 1.03 | 1.57 | 2.02 | 2.43 | 2.88 | 3.28 | 3.76 | 4.17 | 4.64 |
| Real GDP ($2012 Mill) | 851 | 1352 | 2101 | 2760 | 3385 | 4107 | 4767 | 5570 | 6319 | 7174 |
| Real GDP per capita | 0.27 | 0.25 | 0.40 | 0.48 | 0.52 | 0.62 | 0.67 | 0.80 | 0.88 | 1.01 |
| | | | | | | | | | | |
| Expenditure on Personal Consumption | 0.53 | 0.89 | 1.27 | 1.69 | 2.05 | 2.44 | 2.79 | 3.17 | 3.53 | 3.90 |
| Expenditure by Governments | 0.27 | 0.54 | 0.81 | 1.06 | 1.31 | 1.56 | 1.80 | 2.03 | 2.26 | 2.49 |
| Investment Expenditure | 2.00 | 2.62 | 3.67 | 4.07 | 4.45 | 5.20 | 5.82 | 6.74 | 7.34 | 8.13 |
| Residential Construction | 3.12 | 4.19 | 6.01 | 6.77 | 7.41 | 8.67 | 9.59 | 11.03 | 11.89 | 13.05 |
| Non-Residential Construction | 1.34 | 1.79 | 2.48 | 2.77 | 3.11 | 3.67 | 4.26 | 5.02 | 5.67 | 6.41 |
| Machinery and Equipment | 1.34 | 1.79 | 2.48 | 2.77 | 3.11 | 3.67 | 4.26 | 5.02 | 5.67 | 6.41 |
| Exports | 0.05 | 0.18 | 0.44 | 0.80 | 1.17 | 1.51 | 1.82 | 2.13 | 2.45 | 2.79 |
| Imports | 0.13 | 0.34 | 0.26 | 0.25 | 0.22 | 0.30 | 0.38 | 0.44 | 0.47 | 0.48 |
| Net Imports from ROC ($2012 Mill) | 77 | 122 | 189 | 248 | 305 | 370 | 429 | 501 | 569 | 646 |
| | | | | | | | | | | |
| Nominal Gross Domestic Product | 0.61 | 0.93 | 1.38 | 1.77 | 2.10 | 2.48 | 2.77 | 3.12 | 3.39 | 3.69 |
| Implicit Deflator for GDP | -0.06 | -0.10 | -0.19 | -0.24 | -0.32 | -0.39 | -0.49 | -0.62 | -0.75 | -0.91 |
| | | | | | | | | | | |
| Total Population ('000) | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| Total Population | 0.40 | 0.78 | 1.16 | 1.53 | 1.89 | 2.25 | 2.60 | 2.94 | 3.27 | 3.60 |
| Source Population ('000) | 8 | 15 | 23 | 31 | 39 | 47 | 56 | 64 | 73 | 82 |
| Source Population | 0.36 | 0.72 | 1.08 | 1.44 | 1.79 | 2.14 | 2.50 | 2.85 | 3.20 | 3.55 |
| | | | | | | | | | | |
| Unemployment Rate (pc pts) | 0.10 | 0.03 | 0.04 | -0.04 | 0.01 | -0.02 | 0.02 | 0.01 | 0.01 | 0.01 |
| Employment ('000) | 4 | 11 | 16 | 22 | 28 | 34 | 39 | 45 | 51 | 57 |
| Employment | 0.37 | 0.87 | 1.30 | 1.80 | 2.21 | 2.67 | 3.08 | 3.53 | 3.97 | 4.41 |
| Labour Force | 0.45 | 0.89 | 1.33 | 1.78 | 2.22 | 2.66 | 3.10 | 3.54 | 3.97 | 4.41 |
| Participation Rate (pc pts) | 0.05 | 0.11 | 0.16 | 0.22 | 0.27 | 0.32 | 0.38 | 0.43 | 0.48 | 0.53 |
| | | | | | | | | | | |
| Consumer Price Index | -0.07 | -0.14 | -0.25 | -0.34 | -0.45 | -0.56 | -0.69 | -0.85 | -1.03 | -1.22 |
| CPI - Inflation Rate (pc pts) | -0.08 | -0.06 | -0.12 | -0.09 | -0.11 | -0.12 | -0.14 | -0.16 | -0.18 | -0.20 |
| | | | | | | | | | | |
| Real Annual Wages per Employee | 0.00 | 0.04 | 0.07 | 0.13 | 0.17 | 0.18 | 0.16 | 0.14 | 0.11 | 0.08 |
| Productivity (GDP/Employee) | 0.28 | 0.15 | 0.25 | 0.19 | 0.19 | 0.19 | 0.17 | 0.19 | 0.17 | 0.19 |
| | | | | | | | | | | |
| Finance Co. 90-Day Paper Rate (pc pts) | -0.30 | -0.23 | -0.39 | -0.27 | -0.34 | -0.37 | -0.45 | -0.53 | -0.58 | -0.65 |
| Exchange Rate (US $/Cdn $) | -0.54 | -1.15 | -2.18 | -2.91 | -3.63 | -4.20 | -4.78 | -5.42 | -6.05 | -6.69 |
| | | | | | | | | | | |
| Federal Gov't Revenues (NA Basis)($ Mill) | 149 | 241 | 372 | 487 | 597 | 728 | 846 | 990 | 1116 | 1261 |
| Federal Gov't Spending (NA Basis)($ Mill) | -2 | 4 | -9 | -26 | -37 | -69 | -108 | -170 | -254 | -361 |
| Federal Gov't CCA (NA Basis)($ Mill) | 0 | 1 | 3 | 5 | 8 | 11 | 14 | 17 | 20 | 24 |
| Federal Gov't Balance (NA Basis)($ Mill) | 152 | 239 | 385 | 517 | 642 | 808 | 967 | 1178 | 1390 | 1646 |
| | | | | | | | | | | |
| Prov'l Gov't Revenues (NA Basis)($ Mill) | 210 | 343 | 520 | 679 | 826 | 1002 | 1153 | 1336 | 1491 | 1667 |
| Prov'l Gov't Spending (NA Basis)($ Mill) | 91 | 194 | 287 | 390 | 500 | 606 | 705 | 790 | 868 | 932 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Prov'l Gov't CCA (NA Basis)($ Mill) | 1 | 3 | 7 | 12 | 18 | 25 | 33 | 42 | 52 | 62 |
| Prov'l Gov't Balance (NA Basis)($ Mill) | 120 | 152 | 241 | 301 | 343 | 421 | 481 | 588 | 675 | 797 |
| | | | | | | | | | | |
| Local Gov't Revenues (NA Basis)($ Mill) | 21 | 42 | 60 | 81 | 103 | 124 | 145 | 163 | 180 | 195 |
| Local Gov't Spending (NA Basis)($ Mill) | 22 | 44 | 65 | 88 | 113 | 138 | 163 | 185 | 207 | 227 |
| Local Gov't CCA (NA Basis)($ Mill) | 0 | 1 | 3 | 5 | 8 | 11 | 15 | 19 | 23 | 27 |
| Local Gov't Balance (NA Basis)($ Mill) | -1 | -1 | -1 | -2 | -2 | -3 | -3 | -4 | -4 | -4 |

Atlantic Immigration - Impact of additional 10,000 per year
Assumes Immigrants have lower earnings/productivity than non-immigrants
Assumes Atlantic-only immigration rise - Small monetary response

Summary of Projection
(Percentage Change unless otherwise indicated)

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|
| Real Gross Domestic Product | 0.21 | 0.40 | 0.56 | 0.70 | 0.83 | 0.95 | 1.06 | 1.17 | 1.27 | 1.37 |
| Real GDP ($2012 Mill) | 263 | 519 | 747 | 959 | 1158 | 1350 | 1538 | 1728 | 1921 | 2118 |
| Real GDP per capita | -0.19 | -0.38 | -0.60 | -0.82 | -1.04 | -1.27 | -1.50 | -1.72 | -1.94 | -2.15 |
| | | | | | | | | | | |
| Expenditure on Personal Consumption | 0.21 | 0.39 | 0.54 | 0.67 | 0.77 | 0.85 | 0.91 | 0.96 | 1.00 | 1.03 |
| Expenditure by Governments | 0.27 | 0.54 | 0.80 | 1.05 | 1.30 | 1.55 | 1.79 | 2.02 | 2.25 | 2.48 |
| Investment Expenditure | 0.60 | 1.28 | 1.85 | 2.32 | 2.72 | 3.09 | 3.42 | 3.71 | 3.97 | 4.22 |
| Residential Construction | 1.09 | 2.38 | 3.50 | 4.43 | 5.19 | 5.85 | 6.40 | 6.87 | 7.25 | 7.59 |
| Non-Residential Construction | 0.23 | 0.47 | 0.66 | 0.81 | 0.99 | 1.19 | 1.42 | 1.67 | 1.91 | 2.17 |
| Machinery and Equipment | 0.23 | 0.47 | 0.66 | 0.81 | 0.99 | 1.19 | 1.42 | 1.67 | 1.91 | 2.17 |
| Exports | 0.00 | 0.01 | 0.03 | 0.07 | 0.11 | 0.15 | 0.20 | 0.26 | 0.32 | 0.39 |
| Imports | 0.11 | 0.33 | 0.52 | 0.68 | 0.80 | 0.89 | 0.96 | 1.00 | 1.02 | 1.03 |
| Net Imports from ROC ($2012 Mill) | 79 | 156 | 224 | 288 | 347 | 405 | 461 | 519 | 576 | 635 |
| | | | | | | | | | | |
| Nominal Gross Domestic Product | 0.21 | 0.40 | 0.55 | 0.66 | 0.74 | 0.78 | 0.80 | 0.80 | 0.77 | 0.74 |
| Implicit Deflator for GDP | 0.01 | 0.01 | -0.01 | -0.04 | -0.09 | -0.17 | -0.26 | -0.37 | -0.49 | -0.63 |
| | | | | | | | | | | |
| Total Population ('000) | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| Total Population | 0.40 | 0.78 | 1.16 | 1.53 | 1.89 | 2.25 | 2.60 | 2.94 | 3.27 | 3.60 |
| Source Population ('000) | 8 | 15 | 23 | 31 | 39 | 47 | 56 | 64 | 73 | 82 |
| Source Population | 0.36 | 0.72 | 1.08 | 1.44 | 1.79 | 2.14 | 2.50 | 2.85 | 3.20 | 3.55 |
| | | | | | | | | | | |
| Unemployment Rate (pc pts) | 0.33 | 0.52 | 0.75 | 1.00 | 1.25 | 1.52 | 1.80 | 2.08 | 2.37 | 2.66 |
| Employment ('000) | 2 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 |
| Employment | 0.19 | 0.49 | 0.76 | 1.01 | 1.24 | 1.47 | 1.69 | 1.90 | 2.11 | 2.31 |
| Labour Force | 0.45 | 0.89 | 1.33 | 1.78 | 2.22 | 2.66 | 3.10 | 3.54 | 3.97 | 4.41 |
| Participation Rate (pc pts) | 0.05 | 0.11 | 0.16 | 0.22 | 0.27 | 0.32 | 0.38 | 0.43 | 0.48 | 0.53 |
| | | | | | | | | | | |
| Consumer Price Index | 0.00 | -0.01 | -0.05 | -0.11 | -0.19 | -0.29 | -0.41 | -0.54 | -0.68 | -0.83 |
| CPI - Inflation Rate (pc pts) | 0.00 | -0.01 | -0.02 | -0.03 | -0.04 | -0.05 | -0.06 | -0.07 | -0.07 | -0.08 |
| | | | | | | | | | | |
| Real Annual Wages per Employee | -0.01 | -0.03 | -0.07 | -0.12 | -0.20 | -0.32 | -0.44 | -0.58 | -0.72 | -0.87 |
| Productivity (GDP/Employee) | 0.01 | -0.10 | -0.20 | -0.31 | -0.41 | -0.52 | -0.63 | -0.73 | -0.83 | -0.92 |
| | | | | | | | | | | |
| Finance Co. 90-Day Paper Rate (pc pts) | -0.02 | -0.01 | -0.03 | -0.02 | -0.02 | -0.02 | -0.03 | -0.04 | -0.04 | -0.04 |
| Exchange Rate (US $/Cdn $) | -0.04 | -0.08 | -0.15 | -0.19 | -0.24 | -0.28 | -0.32 | -0.37 | -0.42 | -0.46 |
| | | | | | | | | | | |
| Federal Gov't Revenues (NA Basis)($ Mill) | 68 | 121 | 167 | 207 | 240 | 267 | 288 | 304 | 314 | 318 |
| Federal Gov't Spending (NA Basis)($ Mill) | 45 | 94 | 137 | 174 | 201 | 216 | 218 | 208 | 182 | 143 |
| Federal Gov't CCA (NA Basis)($ Mill) | 0 | 1 | 3 | 5 | 7 | 9 | 11 | 14 | 16 | 19 |
| Federal Gov't Balance (NA Basis)($ Mill) | 24 | 29 | 32 | 37 | 46 | 60 | 82 | 110 | 148 | 193 |
| | | | | | | | | | | |
| Prov'l Gov't Revenues (NA Basis)($ Mill) | 93 | 174 | 242 | 297 | 337 | 362 | 372 | 369 | 351 | 320 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Prov'l Gov't Spending (NA Basis)($ Mill) | 122 | 250 | 378 | 504 | 628 | 745 | 857 | 963 | 1066 | 1164 |
| Prov'l Gov't CCA (NA Basis)($ Mill) | 1 | 3 | 6 | 11 | 16 | 22 | 29 | 36 | 44 | 53 |
| Prov'l Gov't Balance (NA Basis)($ Mill) | -28 | -73 | -130 | -197 | -275 | -361 | -456 | -558 | -670 | -790 |
| | | | | | | | | | | |
| Local Gov't Revenues (NA Basis)($ Mill) | 24 | 47 | 69 | 90 | 109 | 126 | 141 | 155 | 166 | 176 |
| Local Gov't Spending (NA Basis)($ Mill) | 25 | 50 | 74 | 97 | 119 | 139 | 157 | 174 | 190 | 204 |
| Local Gov't CCA (NA Basis)($ Mill) | 0 | 1 | 3 | 5 | 7 | 10 | 13 | 16 | 20 | 24 |
| Local Gov't Balance (NA Basis)($ Mill) | -1 | -1 | -2 | -2 | -3 | -3 | -3 | -3 | -4 | -4 |