

## **I. Summary**

This paper measures the economic costs and contributions of immigrants and Canadian-borns to the public finances in Canada between 1997 and 2015. To do so, the authors use the National Transfer Accounts method and find that on average and relative to Canadian-borns, immigrants received \$1710 more (in terms of different benefits they received) than they contributed to (in terms of different outflows). They also find that this difference in net transfers is mainly driven by higher benefits received by immigrants since both groups made similar contributions to the public finances.

To examine the extent to which this difference in per-capita net transfers is driven by differences in age structure between immigrants and Canadian-borns, the authors apply a decomposition method called the Model of Continuous Changes. The decomposition results suggest that differences in age structure between the two groups (which the authors refer to as demographic effects) mitigates the difference in net transfers between the two groups. In other words, if immigrants and Canadian-borns had a similar age structure, the per-capita difference in net transfers would have been much higher (around \$3640).

Examining the decomposition results for different cost and contribution accounts also suggests that for immigrants and Canadian-borns of the same age, differences in sales taxes and personal income taxes paid are the two most important sources of disparity in per-capita net transfers between the two groups (it accounts for 85% of the total age-adjusted difference).

## **II. Major Comments**

1. Providing a reasonable understanding of the fiscal effects of immigration is a challenging task since it requires careful assessment of many of the complexities involved (more on this below). This remains a difficult undertaking partly due to serious data limitations that have haunted this literature for years. I believe that failing to address these complexities results in estimates that remain highly sensitive to all sorts of assumptions and limitations imposed by the data and therefore highly debatable. In my opinion this study is no more successful than many previous studies in addressing these challenges and providing more reliable estimates.

In addition, while the authors attempt to acknowledge some of these complexities and limitations (e.g. in Section 6.1 of the paper), this is not a very successful attempt in my opinion since (1) some of these important limitations are not acknowledged at all (see below), and (2) they gloss over the significant importance of the limitations raised, especially when it comes to their implications for their study and estimates. The authors should be more transparent about the fact that addressing these limitations could significantly change the numbers they have produced and reported (in some of these cases we can reasonably predict the direction in which the estimates are likely to change). Instead, the language they use is that taking X or Y into account “would be worth investigating.” I would rather argue that those issues are significantly important to investigate if one wants to paint a reasonable and fair picture about the fiscal effects of immigration and provide estimates that are not likely to be biased, inaccurate, or misleading.

The following are examples of some important issues which in my opinion this paper does not (adequately) acknowledge/address (I recognize that some are perhaps difficult to address, but at least should be appropriately acknowledged and discussed). For a more comprehensive discussion of such complexities I suggest Preston (2014) and Rowthorn (2008).

- a. In their calculations, the authors do not seem to account for the fact that tax payments by immigrants lower the average cost of public goods for Canadian-borns. This is due to the fact that expenditures on the provision of public goods are for the most part independent of the number of people they serve (or at least do not increase on a *pro-rata* basis). Findings from Javdani and Pendakur (2013) seem to suggest that accounting for public goods contributions of immigrants has a very large impact on the fiscal effects of immigrants.
- b. Related to my previous comment, if I understand correctly, when the authors calculate education and health expenses for immigrants and Canadian-borns, the implicit assumption is that increases in the number of immigrants proportionately increases total education and health expenses. If my understanding is correct, then I am not sure if such an assumption is reasonable. I think it is more appropriate to assume that part of the government expenditures on services such as education, health, recreation and culture, regional planning and development, environment, resource conservation and industrial development goes toward the provision of public goods in those sectors. Therefore, more immigrants actually bring down the average cost of those services for Canadian-borns and this needs to be taken into account in the authors' calculations. This is important since it is likely to change their estimates significantly.
- c. Discussion around fiscal effects of immigrants, including providing estimates for their costs and contributions, is supposed to inform public policy as the authors also acknowledge. It seems to me therefore that the proper approach to produce estimates that could appropriately inform public policy should be forward-looking and focus on long-term fiscal effects of immigration. This would in turn require a dynamic analysis rather than a static analysis which is what the authors have adopted in their paper. This is an important issue that should be at least clearly acknowledged by the authors. As Razin and Sadka (1999) suggest, "in a static set-up one cannot fully grasp the implications of migration for the welfare state."
- d. Who is an immigrant? The authors define immigrants as those who were born outside Canada, and natives<sup>1</sup> as those born in Canada. If we are measuring fiscal effects of immigrants, shouldn't the fiscal contributions of their next generations (at least the second-generation immigrants) be attributed to immigrants as well? Clearly without those immigrants, their children and their contributions to Canada's public finances would have not existed. It therefore seems like a methodological

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<sup>1</sup> I believe Canadian-born is a more appropriate term to use since Canadian aboriginals consider themselves the natives of the land and everyone else is an immigrant of a certain generation.

error to count the cost of educating those children as inflows to immigrants, but their contributions as outflows by Canadian-borns.

- e. Fiscal effects of immigrants cannot be fully understood without considering the indirect impact immigration can have on public finances through its potential impact on economic equilibria in different markets. The analysis done by the authors implicitly assumes that the economy can absorb immigration without experiencing any impacts that could also affect public finances. For example, immigration could indirectly affect public finances through its potential impact on factor prices which could also impact different inflows and outflows for Canadian-borns such as their personal or business taxes.
- f. The authors suggest that taxes on products are calculated from a single wave (2010) of the SHS. I find it very problematic to use one year of data to estimate something for an 18-year time period. How is it reasonable to assume sales taxes paid by immigrants and Canadian-borns during a period of 18 years is the same as taxes paid in 2010? This is especially problematic since the authors highlight sales taxes as one of the two most significant contributors to age-adjusted differences in net transfers between immigrants and Canadian-borns. I understand that this was done since the authors could not identify immigration status in the SHS in other years, but that does not settle the issue and undermines the reliability of their estimates.

In addition, I wonder how reliable self-reported numbers on such taxes are. If I was asked to estimate the amount of tax I paid on products/services I purchased over the course of a year, whatever number that comes out of my mouth will be a very wild guess and highly unreliable. More details on how these numbers are reported and how reliable they are will be helpful.

- g. I find using the number of medical consultations to estimate individual health care costs problematic for obvious reasons. The authors suggest that “no better proxy for public health care expenditure that is easily accessible to our knowledge.” That might be true, although I am not sure what they exactly mean by “easily accessible,” but that does not justify the use of unreliable measures that are likely to bias the final estimates. My skepticism about their approach is estimating health care costs is accentuated given the results reported in Figure 4 which suggest despite immigrants more favourable age structure, their health expenses are higher than Canadian-borns (more on this below).
- h. When measuring different outflows in a given year, how do the authors account for the fact that some immigrants might appear to contribute less because they have recently arrived in the country and have spent less than a year in Canada?
- i. There exist other important inflows and outflows (such as housing subsidy, property tax, capital income tax, etc.) that do not seem to be included in the authors’ calculations. These excluded measures and the potential bias they can introduce should be clearly discussed in the paper.

2. In my opinion the paper has not situated itself appropriately within the relevant literature on the effect of immigration on public finances. As a result, it is not clear what this study adds to the current literature and why its results are different from previous ones such as Javdani and Pendakur (2013) or Grubel and Grady (2012). Is this the first study that uses the NAT method? If yes, then what are the methods used by other studies? what are the advantages/disadvantages of the NAT method compared to those used in other studies? Are there factors that this study considers in estimating the fiscal effects of immigration that other Canadian studies don't?

On a related note, the authors provide a very brief review of the literature which in my opinion is not balanced. For example, they assert that "much empirical research also supports the idea that immigration is costly for receiving countries." Contrast this with the comprehensive review of Rowthorn (2008) who concludes "most empirical studies find that the fiscal contribution of the immigrant population as a whole is quite small."

3. I find the explanation/description for some of the calculations, variables used, and the terminology/notation used unclear and confusing at times.
  - a. Explaining different variables in Equation (2), the authors talk about "crude value of transfers" and "crude readjusted transfers," but explanations provided are not very clear. The authors should clearly explain the difference between the two, and the assumptions underlying Equation (2) to go from "crude value of transfers" to "crude readjusted transfers".

I also think the terms used could be improved. What do the authors mean by "crude"? What would be a "non-crude" value? Also, the term "readjusted" is confusing because it suggests the variable has already been adjusted somehow and is now being readjusted. Later on Page 8 the authors talk about "non-readjusted variables". Is this the same as "crude variables"? If yes, it is a good idea to use a consistent terminology.

Moreover, I found the notation and the use of "hat" in Equation (2) confusing. For example, they use  $\hat{T}_a^{IMM}$  for crude value of transfers and  $T_a^{IMM}$  for readjusted transfer but "hat" is usually used when we are referring to an estimate as opposed to a population parameter. I suggest dropping the hat and using appropriate super-/sub-scripts. Finally, I think there is a typo in Equation (2) as there is an extra  $\hat{T}_a^{IMM}$  on the right hand side.

- b. The authors suggest that their public inflow transfers include "education, health, cash transfers, and other inflow variables."
    - i. Are all different types of "cash transfers" included in the calculations? If yes, what are they?
    - ii. What about the category of "other inflow transfers" which I assume includes things such as housing, transportation and communication, etc.? Unless I

somehow missed it, I could not find any discussion of how this category is measured?

- c. The authors use SLID (1997-2011) and CIS (2012 and 2015) to measure some of the inflows and outflows. What do they do for years in which the surveys are not available? This is not clear in the paper. In addition, I think the authors should include the survey questions used to solicit and measure different inflows and outflows. For example, I would like to know how contributions to social insurance plans are reported and measured.
  - d. The authors should provide more explanation for how the NTA age profile for the population is calculated. Simply saying that it comes from Merette and Navaux (2019) is not sufficient in my opinion.
  - e. On Page 17, the authors suggest that “while the surplus for inflow decreased slowly and steadily, the surplus for outflow *increased* drastically between 1997 and 2015.” However, shortly after this statement they suggest that “From early 2000 however, the surplus in outflow dropped significantly.” These two statements seem to contradict one another.
4. I am not clear about the decomposition method used in the paper to decompose the difference in per capital net transfers between immigrants and Canadian-borns into a fiscal component and a demographic component. I think discussions around this method and how it is applied need to be improved. Here are some questions/suggestions:
- a. The authors need to show clearly that their measure of per capita immigrant surplus can be in fact decomposed into a fiscal component and a demographic component using the method they adopt. Currently, this is done in Equation (9) in a way that I find not very clear using general functional forms that do not spell out clearly how the decomposition works. More specifically, the authors need to start from Equation (5) and show exactly how their measure of per capita immigrant surplus can be written as the sum of the two components and how their method allows them to separately identify these two components. Using  $f(.)$  functions the way it is currently done in Equation (9) masks things that ought to be clearly spelled out in my opinion.
  - b. The authors suggest that “the decomposition assumes that changes in the covariables happen continuously, or gradually, along a dimension rather than discretely.” Is this a reasonable assumption for their study? It seems to me that their covariates change discretely rather than continuously. Has the MCC model been used in a similar context before?
5. I also have several questions/comments regarding the results of the decomposition method presented in Figure 4:

- a. To better understand their decomposition results, especially the demographic effects and their potential underlying factors, it is important for the authors to establish clearly using their data what they know about differences in age structure between immigrants and Canadian-borns. I find it odd that there is virtually no discussion of differences in age structure between the two groups in the paper despite the emphasis put by the authors on the importance of these results. For example, it would be a good idea to include a graph in the paper that presents the age distribution of immigrants and Canadian-borns and how it has changed over time. As I have mentioned in my other comments below, currently it is difficult to understand why the age structure effects operate the way they do in Figure 4 since the authors do not provide any discussion about differences in age structure between the two groups.

Related to this issue, I was surprised by the authors' suggestion that "the immigrant population in Canada is older than the population as a whole." The source they cite to support this is in French (Malenfant et al. 2011) which I don't understand unfortunately. Why don't the authors use their own data to shed light on this issue? Moreover, I did some quick search and came across a figure by Statistics Canada which shows in 2011 the age pyramid of the immigrant population in Canada was much younger (see [here](#)). I also came across another study by Beaujot and Matthews (2000) which suggests since 1945 the median age of arriving immigrants in Canada has been younger than the Canadian population (initially by about a year, and later in 1991-96 by five years).

- b. Looking at the top row in Figure 4 and the contribution of different accounts to the total per capita immigrant surplus, it seems that differences between immigrants and Canadian-borns in the "Others" category is the largest contributor to total differences between the two groups. However, the significant contribution of this sub-account is not discussed at all by the authors as far as I can tell and is completely ignored. In fact, this category is left like a black box by the authors since there is virtually no discussion of it in the paper except on Page 21 which suggests "The Other sub-account of transfer includes public goods, services, deficits and debts. The NTA method distributes these costs evenly, making no difference between immigrants and natives by design." This raises other questions:
- i. What do the authors exactly mean by "public goods, services, deficits and debts"? Where do these numbers come from and how are they measured?
  - ii. Does this category only include inflows (costs) as the authors suggest, or outflows as well? I ask this because on Page 8 the authors suggest that their public transfer outflows include "other taxes" as well but they are not reported in Figure 4.
  - iii. How are these costs distributed across different ages? I am puzzled as to why differences in age structure between the two groups creates such a strong demographic effect when it comes to this "Other" sub-account as evident in Figure 4.
  - iv. If these costs are evenly distributed between immigrants and Canadian-borns, shouldn't the age-adjusted difference in net transfers between the two

groups be zero? The difference appears not to be zero in the middle row under the last column.

- c. If I understand correctly, the middle row graph under the “Health” column suggests that Canadian-borns and immigrants of the same age have very similar health expenses. The bottom graph however suggests that immigrants’ more favourable age structure results in higher health expenses for this group. I find this puzzling and counterintuitive since I think immigrants have a younger age structure as I suggested before. Even if immigrants are slightly older on average, I find it difficult to believe that the difference is large enough to justify such big differences in health expenses. In my opinion this casts more serious doubts on the appropriateness of using the number of medical consultations to estimate individual health care costs. I have a similar question/concern about the results presented under the “Cash” column.

### **III. Further Comments**

1. The authors discuss trends and changes in their main measures such net transfer, immigrant surplus and net surplus over time. However, they do not spend much time discussing potential underlying factors driving those changes. I think their data allows them to examine the age groups and/or sub-categories of inflows and outflows that are responsible for these changes, and I believe highlighting those underlying factors is important to better understand forces behind these changes over time. Here are some examples where more detailed examination/discussion will be helpful:
  - a. Rapid increase in net transfer for immigrants between 2011 and 2013
  - b. Net transfer becoming negative for Canadian-borns since 2003
  - c. Decrease in immigrant surplus for inflows between 1997 and 2005
  - d. Changes in immigrant surplus for outflows over time
2. The authors claim that not taking into account differences in age structure between immigrants and Canadian-borns results in “bias in analyzing the transfer differential between the two populations.” I am not sure however if “bias” is an appropriate term to use. In my opinion differences in age structure between immigrants and Canadian-borns is one of the driving factors behind the per capita difference in net transfers between the two groups, and as the authors have shown it can explain some of the difference. This is however different from arguing that the difference in age structure will bias the analysis.
3. On Page 17, the authors argue that their results “suggest that the labour prospect of immigrants has degraded compared to natives during the studied period, especially during and after the 2008-2009 economic crisis.” Is this borne out in the literature on the labour market performance of immigrants in Canada? I would like to see more discussion on this issue where the authors provide more evidence and cite some studies that support this claim.
4. I remain confused about the claim made by the authors that introducing age into the System of National Accounts “takes into account inter-generational transfers made through the state or the family.” My understanding of an inter-generational approach is to be able to

account for the fact that transfers (inflows) made to one generation could have positive impact on public finances through the next generation. For example, while immigrants might receive more benefits than what they contribute to, this could result in large positive effects on public finances through their next generation. As far as I can tell this is not something this study is equipped to account for.

5. The authors should clarify what they mean by “private inflow transfers” and “private outflow transfers”.
6. What does the negative value for “other outflows” mean in Table 1?
7. I think it is a good idea to also report share of contributions for each category in Table 1, so they are more easily comparable to the last two columns.
8. On Page 16, the second paragraph under Section 4.2 is similar to the first paragraph in some of its discussions.
9. On Page 18, the word “biais” should be “bias”.

#### **IV. Reference**

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