

# Fiscal Effects of Immigrants in Canada\*

Mohsen Javdani  
Department of Economics  
University of British Columbia – Okanagan

Krishna Pendakur  
Department of Economics  
Simon Fraser University

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## Abstract

In this paper, we present estimates of the *fiscal transfer* to immigrants from native-born Canadians. The fiscal transfer is the amount of money that immigrants absorb in public services less the amount that they pay in taxes, suitably adjusted for scale effects in public provision of services, life-cycle effects in tax payment, and so on. Our work builds on previous work in the literature, updating from the last scholarly work in this area by Akbari (1989) with new and richer data. Akbari found on the basis of 1981 Census data a small fiscal transfer from immigrants to the native-born amounting to about \$500 per year per immigrant. Over time, the composition and income attainment of immigrants has evolved somewhat unfavourably for immigrants, and we find on the basis of 2006 Census data a small fiscal transfer from the native-born to immigrants of about \$500 per year per immigrant.

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\* Javdani: mohsen.javdani@ubc.ca, 3333 University Way, Kelowna, BC V1Y 9M5, Canada.

Pendakur: pendakur@sfu.ca, 8888 University Drive, Burnaby, BC V5A 1S6, Canada.

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## **1. Introduction:**

Canada has the highest per capita immigration rate in the world (Statistics Canada, 2013). As of 2011, estimates from the National Household Survey indicate that more than 20 per cent of the Canadian population was born abroad, which is the highest proportion in 75 years (Statistics Canada, 2013) and the highest proportion among the G8. Moreover, immigration has significantly contributed to Canada's population growth, and it has been suggested that immigration could be the only driving force behind Canada's population growth by about 2030 (Statistics Canada, 2007). Without a doubt, immigration plays an important role in Canada's economy. One of the common questions contested by analysts and policymakers is to quantify fiscal effects of immigrants on Canadian-born people, and consequently to assess whether or not immigrants fully pay for the public services that they receive through the taxes that they pay.

In this paper, we present estimates of the *fiscal transfer* to immigrants from native-born Canadians. The fiscal transfer is the amount of money that immigrants absorb in public services less the amount that they pay in taxes, suitably adjusted for scale effects in public provision of services, life-cycle effects in tax payment, and so on. Our work builds on previous work in the literature, updating from the last scholarly work in this area by Akbari (1989) with new and richer data. Akbari found on the basis of 1981 Census data a small fiscal transfer from immigrants to the native-born amounting to about \$500 per year per immigrant. Over time, the composition and income attainment of immigrants has evolved somewhat unfavourably for immigrants, and we find on the basis of 2006 Census data a small fiscal transfer from the native-born to immigrants of about \$500 per year per immigrant.

### **1.1 The Literature**

Using data from 1981 Canadian Census of Population and considering consumption of major public services and payment of major taxes by the average immigrants and Canadian-born households, Akbari (1989) measures the fiscal effects of immigration in Canada. He finds that the net transfer is positive (that is, flows from immigrants to the native-born) for all post-1946 immigrant cohorts.<sup>1</sup> Examining the extent to which Canadian immigrants are relied on social safety nets, Baker and Benjamin (1995) find that immigrants are less likely to use

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<sup>1</sup>Net transfer is the difference between net tax payments and net consumption of public services.

Unemployment Insurance and Social Assistance than natives, even after controlling for observed characteristics. Due to lack of data, however, these studies are unable to look at all the different types of taxes paid and services received by immigrants and Canadian-borns.<sup>2</sup> Moreover, since the composition of immigrants entering Canada has changed significantly in the last couple of decades, these studies are unable to provide any insights into whether more recent cohorts of immigrants have different fiscal impacts on public resources compared to older cohorts.

Although Akbari (1989) was the last scholarly work on immigrant fiscal transfers in Canada, this area has attracted attention from think tanks and other non-scholarly outlets. Recently, Grubel and Grady's (2011) Fraser Institute think-tank study produced new estimates of the fiscal transfer. They found very large transfers from native-born residents to immigrants, amounting to about \$20 billion per year. Unsurprisingly, this research garnered a lot of media attention, and formed the initial stimulus to our taking on this research question.

Grubel and Grady use 2006 Canadian Census data and 2005/2006 consolidated government revenues and expenditures to measure the fiscal effects of more recent cohort of immigrants who entered Canada between 1987 and 2004. The central finding of this study is that “in the fiscal year 2005/2006 the immigrants on average received an excess of \$6,051 in benefits over taxes paid [from all Canadian residents]. Depending on assumptions about the number of recent immigrants in Canada, the fiscal burden [imposed by recent immigrants on all Canadian residents] in that year is estimated to be between \$23.6 billion and \$16.3 billion.” Based on these numbers Grubel and Grady conclude that “to curtail this growing fiscal burden from immigration”, Canada’s immigration selection process should be reformed. They suggest that “all current channels for getting immigrant visas should be terminated. Limited entry into Canada for settlement will be granted only to those with a valid offer of employment in Canada in certain occupations”. They further suggest that the number and the composition of these individuals entering the country on a work permit should be determined by market forces within a framework set and managed by the government. They point out “the policies proposed are not opposed to immigration but rather are intended to replace the judgment of civil servants on who

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<sup>2</sup>Measuring the consumption of public services, Akbari (1989) only looks at government transfer payments, educational services and health care services.

is to be admitted into Canada with judgments made by private employers in Canada.” However, they also point out that the recommended policies would most likely decrease overall immigration level significantly.

Our study also measures the fiscal effects of immigration, but we follow the standard measurement strategies used by Akbari (1989). We contrast our results to those of Grubel and Grady by highlighting some of the issues related to internal and external validity of their study.<sup>3</sup> We calculate the average per capita fiscal cost/benefit of immigration using a more appropriate sample and more accurate estimates. Our results suggest that once a more appropriate cohort of immigrants is used and the right comparison group is selected, and once we use more accurate estimates of per capita taxes paid by immigrants and adjust for the contribution of immigrants in provision of public goods, the average per capita fiscal cost/benefit of immigration ranges from \$1,414 (cost) to -\$397 (benefit). Our preferred estimate lies in the middle of this range with a fiscal transfer from native-born Canadians to immigrants of about \$500 per year per immigrant.

The wide range of estimates emphasizes the sensitivity of cost-benefit analyses of fiscal effects of immigration to different assumptions and use of different estimates, especially in the absence of accurate data regarding different types of taxes paid and benefits received by immigrants and Canadian-borns. We also highlight some of the issues related to external validity of such cost-benefit analyses to measure contribution of immigrants to Canadian economic performance. The sensitivity of these estimates to different assumptions, and the one-sided picture they provide, should warn researchers and policy makers against drawing strong immigration policy proposals. We also suggest that the solution to the fiscal burden imposed by immigrants (if any) is not reducing or eliminating the flow of immigrants into the country, as suggested by Grubel and Grady, but rather improving the labour market potential and performance of immigrants to Canada.

The remainder of this paper is organized as follows. Section 2 describes the data and the choice of reference and comparison groups. Section 3 uses aggregate data on government revenues to

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<sup>3</sup> There are also a number of errors and inconsistencies in their analysis, and this study presents a corrected estimate of the fiscal transfer that they sought to estimate.

measure different types of taxes paid by an average immigrant and Canadian-born. Section 4 uses aggregate data on government expenditures to measure different types of services received by an average immigrant and Canadian-born. Section 5 considers how to aggregate these numbers, while accounting for the funding of public goods, into estimates of “fiscal transfers” to immigrants. Section 6 assesses the value of fiscal transfer estimates in order to understand the place and value of immigrants in the Canadian economy. Section 7 discusses the external validity of the cost-benefit analysis of immigration and suggests that, while interesting, fiscal transfer estimates reveal only part of the contribution of immigrants to Canadian economic performance. Finally, section 8 concludes.

## **2. Methodology and Data**

Methodologically, we follow standard practice on measuring fiscal transfers as did Akbari (1989). The objective is simply to 'add up' all the taxes paid by immigrants and compare that to the cost of providing them public services. If this is a negative number, then we say that there is a fiscal transfer from Canadian-borns to immigrants. The relevant issues are in adding up all taxes paid over the life-cycle (rather than some subset of taxation sources, e.g., just contemporaneous personal taxes), adding up all publicly funded services (rather than, e.g., just the observable ones like child tax credits) and adjusting for the fact that public services have scale economies in provision.

There is no individual-level data that provides information about all different taxes paid and services received by natives and immigrants. Thus, we use aggregate data on consolidated federal, provincial, territorial and local government revenue and expenditures, for 2005/2006 fiscal year provided by Statistics Canada, to estimate the per-capita amount of different taxes paid and services received by Canadian-borns and immigrants. To do this, we also use data from the Public Use Microdata Files of the Canadian Census 2006 which provides information about individual total income, income tax paid, investment income, school attendance, value of dwelling and gross monthly rent. As it is explained in more detail below, this information helps us provide estimates of per-capita amount of different taxes paid and services received by Canadian-borns and immigrants, which will in turn enable us to measure the per-capita fiscal transfers from immigrants to Canadian-borns.

When we use the 2006 Census data, we restrict the population of interest to Canadian-borns and immigrants older than 15 with valid reported total income and income tax paid.<sup>4</sup> We also exclude the sample of immigrants who arrived in Canada in 2005 because their annual income might be biased downward due to the fact that they might have spent less than a year in Canada. As the reference group, we believe the appropriate cohort of immigrants for the analysis of fiscal cost/benefit of immigration is a cohort of all immigrants who entered Canada after 1967, the year the point-based immigration system was introduced. However, since in the 2006 Census data the year of immigration is reported in intervals for years before 1980, we are unable to identify immigrants who entered Canada between 1967 and 1970. Therefore, we end up using the sample of immigrants who entered Canada after 1970.<sup>5</sup>

It should be mentioned that our choice of reference and comparison groups is different from Grubel and Grady. They use the sample of all Canadians as the comparison group, which is in our opinion confusing and inappropriate for the purpose of their analysis. It includes Canadians by birth, immigrants, and non-immigrant residents. In all of their calculations, they use a sample including all of these individuals, defined as all Canadians, as the comparison group. Since recent immigrants are also included in the sample of all Canadians, the correct interpretation of their estimated fiscal transfer is the average per-capita fiscal transfer received by recent immigrants from all Canadian residents, including recent immigrants themselves. Grubel and Grady also restrict the sample of immigrants to those who have entered Canada since 1987. We believe this is not an appropriate reference group because this sub-sample of immigrants is younger than the immigration population as a whole. To the extent that their youth results in lower incomes, and their lower incomes result in lower tax revenues, it would be more revealing to examine the entire immigrant population, so as to capture their entire life cycle of incomes. If

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<sup>4</sup> Total income refers to total money income received from the following sources during calendar year 2005 by persons 15 years of age and over: wages and salaries (total); net farm income; net non-farm income from unincorporated business and/or professional practice; child benefits; old age security pension and guaranteed income supplement; benefits from Canada or Quebec Pension Plan; benefits from employment insurance; other income from government sources; dividends, interest on bonds, deposits and savings certificates, and other investment income; retirement pensions, superannuation and annuities, including those from RRSPs and RRIFs; other money income.

<sup>5</sup> This is likely to overestimate (underestimate) the fiscal cost (benefit) of immigration because older cohorts of immigrants on average have higher incomes relative to more recent cohorts.

one investigates the taxes paid by immigrants who entered Canada between 1970 and 2004 (instead of between 1987 and 2004), we see a difference of \$2,470 per immigrant.

### **3. Taxes**

Column (1) of table 2 shows Canadian government's different sources of revenues through different taxes. Column (2) provides the aggregate amount for each type in 2005/2006 for all levels of government, while column (3) reports the contribution of each type to government's total revenue. Column (4) calculates the per capita amount of tax paid by Canadian residents based on the country's estimated population of 31.6 million in 2006. Column (5) reports the amount of tax paid by immigrants (1970-2004) as a percentage of Canadian-borns, while column (6) provides the same measure for non-immigrant residents and pre-1970 immigrants.<sup>6</sup> To the best of our knowledge, except from the income tax, the information about the amount of other types of taxes paid by Canadian-borns and immigrants is not publicly available, and therefore we need to make some assumptions for the numbers reported in columns (5) and (6). These assumptions are laid out below. In places where we cannot use more reliable and accurate estimates of these tax ratios, we use the same assumptions as Grubel and Grady (2011) for comparability.

For the personal income tax, the ratio was obtained directly from 2006 Canadian Census data, which reports the amount of income tax paid by individuals. We follow Grubel and Grady to calculate the immigrant-native ratios for health and social insurance levies, general sales taxes, and corporate income taxes. We assume that the immigrant-native ratio for health and social insurance levies is 100%, on the grounds that most immigrants have reached the maximum level of income to pay these taxes. For general sales taxes, since they are levied on consumer expenditures, which are in turn related to individual's income, we assume the immigrant-native tax ratio is the same as the average income ratio (calculated in column (1) of table 1). Grubel and Grady (2011) assume that the per capita corporate income tax paid is disproportionately related to investment income (provided in 2006 Canadian Census data and reported in column (3) of table 1) because immigrants are "likely to hold only small amounts of common stocks that bear the burden of the corporate tax income." We adopt the same assumption to calculate the

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<sup>6</sup> This column is needed to calculate the numbers in column (7).

corporate tax paid by immigrants as a percentage of all Canadian-borns. Using the 2006 Census, the ratio of investment income between these two groups, as calculated in table 1, is equal to 74%. We discount this proportion by the same amount as Grubel and Grady and calculate the corporate tax paid by immigrants as a percentage of all Canadian residents to be equal to 55%.<sup>7</sup> For the category of “other taxes”, we also assume the immigrant-native tax ratio is similar to their income ratio.

Regarding Property and related taxes, we believe we can use a more accurate estimate than Grubel and Grady. They assume that the amount paid as property and related taxes by immigrants, compared to all Canadian residents, is related to their ratio of total income. Since the 2006 Census data provides measures of the value of dwelling for owners and measures of the gross monthly rent for renters, we are able to investigate this issue further to check the reliability of this assumption. We use the following regression analysis to estimate the average percentage difference in value of dwelling, and the average percentage difference in gross monthly rent, between immigrants and Canadian-borns. For home owners, we regress the natural logarithm of value of dwelling on an indicator for immigrants, controlling for province of residence and Census Metropolitan Areas within each province (33 indicators). For renters, we use the same regression specification and we use natural logarithm of gross monthly rent for renters as the dependant variable. The estimated coefficients are reported in columns 6 and 7 of table 1.

Our results suggest that, on average, immigrants reside in dwellings that are in fact 3.5 percent more expensive than that of Canadian-borns. Looking at renters, immigrants, on average, pay only 5.4 percent lower gross monthly rents compared to Canadian-borns. Given the proportion of immigrants who are house owners or renters (64.6% and 35.4% respectively), the weighted average of percentage difference in value of dwelling and gross monthly rent between immigrants and Canadian-borns, as reported in column 8 of table 1, is 0.3 percent. As mentioned before, assuming the property and related taxes paid by immigrants is related to their value of dwelling and gross monthly rent, our results suggest that recent immigrants, on average, pay 0.3% higher taxes on property compared to Canadian-borns. Assuming that amounts paid as

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<sup>7</sup> Grubel and Grady (2011) find the ratio of investment income between Canadian-borns and natives (1987-2004) to be 41%. They discount it by 72% to arrive at the ratio they use for corporate income tax ( $41\% * 72\% = 30\%$ ).



property and related taxes are related to total income, which is the assumption adopted by Grubel and Grady (2011), would imply that immigrants pay 12.4% lower taxes on property, which doesn't seem to be supported by our regression results. We use our estimates in table 2 to calculate the per capita property and related taxes paid by immigrants and Canadian-borns.

#### **4. Benefits received**

Statistics Canada provides aggregate amounts of different benefits provided to all Canadian residents.<sup>8</sup> However, to the best of our knowledge, there is no data available to directly measure the benefits received by immigrants and Canadian-borns. Therefore, our analysis of the difference in benefits received by immigrants and Canadian borns is based on assumptions that are laid out below.

Column (1) of table 3 reports different types of services provided by Canadian government, and column (2) provides the total expenditure on each type of benefit provided. Column (3) calculates the per-capita benefits received by an average Canadian resident, based on the country's estimated population of 31.6 million in 2006. Column (4) measures the ratio of the benefits received by an average immigrant as a percentage of an average Canadian-born. We assume that immigrants and natives receive the same amount of benefit for general government services, health, social services, recreation and culture, regional planning and development, transportation and communication, resource conservation and industrial development, environment, foreign affairs and international assistance, research establishments, and "other expenditures".

For Education benefits, Grubel and Grady assume that recent immigrants on average receive 9 percent higher benefits from government spendings on education compared to "other Canadians", but their explanation to justify this number is not clear and convincing. We believe we can find a more accurate estimate of the benefits received by immigrants for education. We break down the government expenditures on education into 4 categories: elementary and secondary education, post-secondary education, Special retraining services and other education.<sup>9</sup>

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<sup>8</sup> The numbers reported in table 3 are consolidated and exclude intergovernmental transfers.

<sup>9</sup> The numbers are from Statistics Canada, Table 385-0001.

This enables us to separately calculate the per capita benefit received for each category. We use the 2006 Census data to calculate the proportion of individuals older than 19 and in school, and the proportion of individuals younger than 20 and in school, separately for immigrants and Canadian borns (the proportions are reported in table 1, columns (4) and (5)). Our results suggest that the rate of attendance at school below the age of 20 for immigrants is 66% of the Canadian average, which suggests recent immigrants receive lower benefits in terms of elementary and secondary education. For post-secondary education, we find that the rate of attendance at school above the age of 19 for immigrants is 120% of the Canadian average, which suggests that recent immigrants receive higher benefits in terms of post-secondary education. We use these more accurate estimates in table 3 to calculate the difference in average per capita benefits received by immigrants and Canadian borns. Due to lack of data, we assume immigrants and Canadian borns receive the same education benefits for special retraining services and other educations.

Grubel and Grady assume that “immigrants benefit by 10% more than other Canadians” from housing. A recent study by Fleury (2007) from HRSDC Canada however finds that in 2004, only 20.4% of recent low-income immigrants used subsidized housing, while this number is 22.5% for low-income native Canadians. We use the ratio reported in this study ( $20.4\%/22.5\% = 90\%$ ) to get a more accurate estimate of housing benefits received by immigrants. Grubel and Grady assume that immigrants receive the same benefit from social services as all Canadian residents. Baker and Benjamin (1995) find however that “immigrants have lower participation rates in Unemployment Insurance and Social Assistance than natives.<sup>10</sup>” Unfortunately, due to lack of data, we are unable to estimate the social service benefits received by immigrants, but it should be noted that social services amount to more than one third of government total expenditures and only a 10 percent difference in the benefits received by immigrants changes the difference in average per capita benefits received by immigrants by around \$500. Therefore, assuming that immigrants and Canadian-borns receive the same amount of benefit from social services is likely to overestimate (underestimate) the fiscal costs (benefits) of immigrants. The sensitivity of the cost-benefit analysis to the choice of estimates should warn any careful researcher about drawing strong conclusions based on such analysis in the absence of accurate estimates.

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<sup>10</sup> According to the figures of government expenditures provided by Statistics Canada, total spending on social assistance alone amounted to 55% of spending on social services at all government levels in 2006.

## 5. Public Goods and the Contribution of Immigrants

One important issue that should be taken into account is that some of the services provided by the government are in the form of public goods, and therefore independent of the number of people they serve. Therefore, tax payments by immigrants lower the average cost of public goods to all taxpayers. Following Simon (1981) and Akbari (1989), we adjust for immigrants' public goods contribution by using the following formula:

$$FT = (G_i - G_c) - \alpha * T_i + (1 - \alpha)(T_c - T_i)$$

FT is the average per capita fiscal transfer to immigrants from Canadian-borns, adjusted for immigrants' public goods contributions. *i* denotes immigrants and *c* denotes Canadian-borns. The first term in the equation above is the difference in average per capita benefits received by immigrants and Canadian-borns. The second term is public goods contributions of immigrants, where  $\alpha$  is the share of public goods expenditures in total tax receipts. The last term is the difference in average per capita taxes paid by Canadian-borns and immigrants on non-public goods. Simon (1981) estimates the amount of  $\alpha$  to be equal to 20% for the US. Akbari (1989) estimates  $\alpha$  to be 5.9 per cent of 1980 consolidated government expenditures treating national defense, science and technology, foreign affairs and international assistance as pure public goods. If we use the same expenditures as in Akbari (1989) we get  $\alpha = 4.3\%$ .<sup>11</sup> However, we believe this number is an underestimation of the true share of public good expenditures in total tax receipts. Akbari(1989) only uses those expenditures that are pure public goods to calculate  $\alpha$ , however it is not unreasonable to assume that part of the expenditures on services such as education, recreation and culture, regional planning and development, environment, resource conservation and industrial development goes toward the provision of public goods in those sectors. Therefore, we also use  $\alpha = 10\%$  and  $\alpha = 15\%$  in our calculations of fiscal transfer.

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<sup>11</sup> The expenditures on national defence in 2005/2006 is estimated to be 14.7 Billion dollars (Defence Budgets 1999-2007). We use expenditures on research establishments as a substitute for science and technology.

## 6. Results

Table 6 reports our estimates of average per capita fiscal costs/benefits of immigration. To allow for comparison, we contrast our results with those reported by Grubel and Grady. Correcting for inconsistencies in Grubel and Grady and using more accurate estimates, as discussed before, reduces the estimated fiscal transfer to immigrants by \$627 or 10%.<sup>12</sup> Next, changing the reference group to immigrants who arrived in Canada between 1970 and 2004 (after the introduction of point-based system in 1967), and using Canadian-borns rather than all Canadian residents as comparison group, as well as correcting the inconsistencies and using more accurate estimates, reduces the estimated fiscal transfer to immigrants by \$3927 or 65%, compared to estimated fiscal transfer by Grubel and Grady. Finally, adjusting for immigrants' public goods contributions, using  $\alpha = 4.3\%$ , further reduces the estimated fiscal transfer by \$710. Compared to Grubel and Grady, fixing the inconsistencies, using more accurate estimates, using the longer cohort of immigrants as the comparison group, and adjusting for immigrants' contributions to public goods reduces the estimated fiscal transfer by \$4637 or 77%. Using  $\alpha = 15\%$  changes the picture completely and now not only immigrants are not a burden to Canadian borns, but there is a fiscal transfer of \$397 from immigrants [1970-2004] to Canadian borns.<sup>13</sup> This further emphasizes the sensitivity of our results to different assumptions and the use of different estimates, and warns against using these results to draw strong policy conclusions.

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<sup>12</sup> Looking at Table 2 in the study by Grubel and Grady, where they estimate the difference in average per capita taxes paid by immigrants [1987-2004] and all Canadian residents, there are several inconsistencies between the text and the numbers that appear in the table. (1) The text (page 6, the line before the end line) claims that "the ratio for corporate income tax is assumed to be 30%" while the ratio used in the table is 20%. (2) To justify the use of 30% as the ratio for corporate income taxes (although they end up using 20% in their table), Grubel and Grady argue that "according to the PUMF data, the [recent] immigrants' investment income is only 41% of the average of all Canadians and that this probably includes a disproportionate amount of investment other than corporate stocks." However, a closer examination of the PUMF data reveals that this number is in fact 46%. (3) Grubel and Grady claim that "it was assumed that the amounts paid as *property and related taxes* and *other taxes* were related to total income." However, the ratio used in table 2 to calculate the *property and related taxes* paid by immigrants is 41%, which has nothing to do with the total income ratio (which is 72% as calculated in table 1 by Grubel and Grady).

<sup>13</sup> This is consistent with Auerbach and Oreopoulos (2000). They also conclude that "the overall fiscal impact of immigration is unclear. Whether there is a gain or loss depends on the extent to which government purchases rise with the immigration population" which in turn depends on the proportion of government purchases that are "public" in nature.

## **7. External validity of the cost-benefit analysis**

### **7.1. Drawing conclusions regarding immigration policy based on cost-benefit analysis**

There are two important issues that need to be taken into account when one tries to assess the contribution of immigrants to Canadian economic performance and draw policy conclusions based on fiscal effects of immigration. As results of table 3 suggest, an average immigrant receives lower benefits than an average Canadian born (the difference is \$554). Therefore, the fact that under some scenarios immigrants have negative fiscal impacts on Canadian-borns, as the results in table 4 suggest, is mainly driven by the fact that immigrants are lower paid in Canada, and therefore pay lower income taxes. An implicit assumption in studies such as Grubel and Grady is that any observed differences in average incomes between natives and immigrants, which subsequently generates lower taxes paid by immigrants, is due to lower ability or lower skills of immigrants relative to native Canadians. There is, however, a large literature in economics that tries to explain the native-immigrant wage gap.<sup>14</sup> The results of these studies suggest that differences in characteristics between natives and immigrants (e.g. education, labor market experience, age, knowledge of official language, number of children, occupation, industry, etc) do not explain the existing wage gap between these two groups and part of the observed wage disparity between these two groups is due to disadvantages that immigrants face in the labor market such as a lower earning premium for education or work experience compared to native-born Canadians. A recent study by Oreopoulos (2009) which is based on a field experiment with six thousand fake resumes finds that “Canadian applicants that differed only by name had substantially different callback rates: those with English-sounding names received interview results 40 percent more often than applicants with Chinese, Indian or Pakistani names. Overall, these results suggest considerable employer discrimination against applicants with ethnic names or with experience from foreign firms.”

Another recent study by Pendakur and Woodcock (2008) finds that visible minority immigrants face glass ceilings in Canada, conditional on their observed characteristics, that are largely driven by their segregation into low-paying employers compared to their Canadian counterparts.

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<sup>14</sup> Examples include the studies by the Ornstein and Sharma (1983), Li (1988, 1992), Economic Council of Canada (1991), Boyd (1992), Abbott and Beach (1993), Christofidies and Swidinsky (1994), Reitz and Breton (1994), Bloom et al., (1995), Baker and Benjamin (1997), Reitz and Sklar (1997), Pendakur and Pandakur (1998), Hum and Simpson (1999), Reitz et al. (1999), and Thompson (2000), among others.

Reitz (2001) also finds evidence that suggests “if immigrants received full compensation for their years of education and work experience, and with no discounting based on origins, their annual earnings would increase by \$15 billion and would be about 20 percent higher than they were in 1996.” These findings seem to suggest that one reasonable solution to remove the fiscal burden imposed on Canadians by recent immigrants (if any), or increasing their fiscal contribution, is to help to remove the barriers and disadvantages that block the advancement of immigrants in the labor market, especially given the fact that recent immigrants seem to experience more difficulties assimilating in the labour market despite their better observed characteristics. For instance, one solution to reduce the under-utilization of immigrants in certain occupations tied to the recognition of their foreign credentials would be to use private or public service agencies to assess and interpret immigrant qualifications for employers. As different studies suggest, removing the economic costs of under-utilization of immigrants could eliminate a considerable amount of the observed native-immigrant wage gap and any fiscal burden generated through these lower wages. Policy proposals that aim to reduce the immigration level, directly or indirectly, are in fact ignoring the problem rather than trying to solve it.

Another issue that needs to be noted is that despite all the disadvantages that Immigrants face in the labour market, they might still be able to repay the fiscal transfers they receive if they earn more than average incomes for a longer period in their lives. A close examination of the 2006 Census data provides evidence that supports this scenario. For instance, looking at the sample of all immigrants who came to Canada between 1975 and 1979, their average income is \$43,600 and their average income tax paid is \$7,755, which is significantly higher than that of an average Canadian calculated by Grubel and Grady (for all Canadians, these numbers are \$35,057 and \$5,995 respectively). The same pattern emerges when looking at immigrants who came to Canada between 1970 and 1975 or 1980 and 1986.

The second important issue is taking into account different contributions of immigration to Canadian-borns and Canada’s economic performance. Studies such as Grubel and Grady that propose strong immigration policy reforms ignore a large body of research that provides theoretical and empirical support for other benefits of immigration beyond fiscal costs/benefits. For instance, a comprehensive study done by a panel of experts in National Research Council

(National Research Council, 1997) to assess the effects of immigration on US economy, using a basic economic model and plausible assumptions, suggests that “immigration produces net economic gains for domestic residents, for several reasons.” At the most basic level, immigration facilitates the production of new goods and services through increasing the labour supply. This will generate a gain for domestic workers as a whole since immigrant workers are paid less than the total value of these new goods and services. Immigration also increases the productivity of domestic workers by enabling specialization in producing goods and services in which they are relatively more efficient. Immigration also generates specialization in consumption, and similar to the effect of international trade, breaks the link between domestic production and domestic consumption. This study estimates the domestic gains from immigration to be between \$1 billion to \$10 billion a year for the US economy. Immigration could also increase the total welfare of all Canadians as a result of cheaper price of goods and services produced by immigrants with lower wages.

Another comprehensive study done by the World Bank (Ratha et al. 2011) summarizes some of the findings regarding gains from immigration: “Even though quantitative estimates of the direct gains from migration are difficult to obtain, economic simulations suggest that an increase in South-North migration would produce substantial income gains in the long-run; these income gains could exceed those from comprehensive trade liberalization; and the destination countries in the North would capture one fifth the overall benefits of increased immigration (World Bank 2006, Winters et al. 2003, Anderson & Winters 2008, van der Mensbrugge & Roland-Holst 2009). Documented welfare gains from South-North migration work primarily through the increase in the available labor force. Ortega and Peri (2009) found that immigration increases employment in the destination countries in the North one for one, implying no crowding-out of natives. This result implies that immigration increases the total GDP of the receiving country without affecting average wages or labor productivity.

Immigration has also been observed to boost productivity through innovation and specialization. Data from the United States show that one percent increase in the share of migrant university graduates increase the number of patent applications and grants issued per capita (Chellaraj et al. 2008, Hunt & Gauthier-Loiselle 2008). However, burdensome regulatory requirements and

procedures that foreign doctors, engineers, architects and accountants have to meet in order to practice in the destination country can impose significant financial and other costs on these highly skilled immigrants (Mattoo and Mishra 2009). Also the less-educated immigrants increase labor productivity as they complement the uneducated local labor force that, based on their knowledge of the local language and institutions, will be better able to specialize in more productive complementary tasks (Peri & Spaber 2009). Furthermore, immigrants are often willing to do jobs that locals no longer are interested in, such as care for the elderly (UNDP 2009, p. 85). Also, the availability of low-cost childcare by the immigrants can enable young local women to go back to work (Kremer & Watt 2006) thus boosting economic development further.”

Countries could also benefit from immigration through its effect on international trade. An important channel through which immigrants influence international trade is the knowledge they have of their home economies, as well as expertise, linguistic skills and personal connections with their home country which facilitates the international trade. International Trade accounts for 36% of the Canadian GDP and plays an important role in Canadian economy. A study by Head and Ries (1998) suggest that “immigration has a significant positive relationship with Canadian bilateral trade.”

## **7.2. Static versus dynamic considerations**

Another important issue that requires attention is limitations of studies that adopt a static, cross-sectional approach. Since it is clear that the population of natives and immigrants in Canada is not in a dynamic equilibrium, this approach fails to provide a comprehensive picture of long-term effects of immigration on public finances. For example, Grubel and Grady do not account for future paths of government spending and tax rates in their estimate of net fiscal effect of immigration.<sup>15</sup> Therefore, although the static approach provides a picture of Canada as a consequence of past immigration policies in a snapshot, it fails to predict the long-term cost to

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<sup>15</sup> Reviewing the figures provided by Statistics Canada on government finances, there are significant changes in government finances over time. For instance, on a per capita basis, spending on social services in Canada has increased by 80% between 1989 and 2007. In comparison, health expenditures and expenditures on environment have increased by 136% and 116%, respectively. On the other hand, spending on the labour, employment and immigration has declined by 17% (Statistics Canada, 2007). Similarly, looking at consolidated revenues at all levels of government, the total personal income tax revenue collected by government has increased by 140% between 1989 and 2009.



taxpayers resulting from admitting additional immigrants, or the long-term effects of reducing immigration level significantly. Auerbach and Oreopoulos (2000) argue that to avoid potential misleading conclusions due to methodological shortcomings of the static approach, a dynamic analysis that takes into account the future consequences of immigration needs to be adopted. Auerbach, Gokhale and Kotlikof (1991) introduce techniques of general accounting that enable researchers to go beyond calculations of net impact of immigrants, and enable them to account for the impact of changes in immigration policy on the relative burdens of different age cohorts. It also provides a platform to compare the fiscal effects of immigration policy with those of other policies, which illuminates the quantitative significance of changes in immigration policy.

Such an analysis for the United States (National Research Council, Chapter 7, 1997) finds that once immigrants and their descendants' effect on tax receipts, transfers and government purchases are taken into account, US immigration generates a net fiscal benefit in present value. This analysis takes annual estimates as a starting point, but does not draw any conclusions due to the limitations of these estimates. Instead, under different assumptions regarding the course of immigration policy, fiscal policy and the economic assimilation of immigrants and their descendants, the long-term analysis projects revenues and expenditures into the future.

Extending the methodology by Auerbach, Gokhale and Kotlikof (1991), Auerbach and Oreopoulos (2000) also find that “net fiscal cost or benefit from immigration depends on the extent to which the existing fiscal imbalance will be borne by future generations. Because new immigrants and their offspring represent a larger fraction of future generations than of present ones, shifting the burden onto future generations also shifts it, relatively, onto new immigrants.” They conclude that “the overall fiscal impact of immigration is unclear. Whether there is a gain or loss depends on the extent to which government purchases rise with the immigration population” which in turn depends on the proportion of government purchases that are “public” in nature. This is exactly what our results also suggest.

### **7.3. Categorizing immigrants**

Broad grouping of immigrants is unable to capture the large heterogeneity in the population of immigrants and therefore fails to provide an adequate basis for policy. More appropriate

categories would provide a better determinant of which group of immigrants (if any) imposes fiscal burden on Canadian economy since different types of immigrant can have very different impacts on the economy. This will also help to focus the attention of debates over immigration policy on the composition of immigrants.

## **8. Conclusion**

This study measures the fiscal effects of immigration in Canada, while highlighting the limitations of such cost-benefit analysis in evaluating the contribution of immigrants to the Canadian economy. We contrast our results with a recent study by Fraser Institute (Grady and Grubel 2011), a non-profit research organization, that received widespread media coverage in print, radio and television media. Grubel and Grady estimate the fiscal burden created by immigrants arriving in Canada between 1987 and 2004. The central finding of their study is that “in the fiscal year 2005/2006 immigrants on average received an excess of \$6,051 in benefits over taxes paid”, or, as high as \$23 billion per year for the nearly four million post-1986 immigrants to Canada. Based on their cost-benefit analysis, Grubel and Grady propose changes to the immigration policy. Among different reforms, they argue that “all the grounds for granting immigrant visas presently in place are to be discontinued, except those applicable to refugee claimants.” They suggest that limited entry into Canada for settlement should be granted only to those with a valid offer of employment in Canada in certain occupations decided by the federal government and assistance of private-sector employers.

Our study identifies some of the issues related to the internal and external validity of the study performed by Grady and Grubel. There are a number of errors and inconsistencies in their analysis, and our study presents a corrected estimate of the fiscal transfer that they sought to estimate. After correcting the errors, using more appropriate reference and comparison groups, more accurate estimates for some of the taxes paid and benefits received by immigrants and Canadian-borns, and taking into account the contribution of immigrants to the provision of public goods, we find that the average per capita cost/benefit of immigration ranges from \$1414 (cost) to \$397 (benefit) in 2005/2006 fiscal year, which is substantially lower than the number reported by Grubel and Grady.

The main results, and the immigration policy reforms subsequently proposed by Grady and Grubel, are driven by the fact that immigrants have lower incomes than do Canadian-born workers. Lower incomes mean less tax is paid. However, there are other labour market effects that may be beneficial to Canadian-born workers, investors, and landholders. For example, the lower average wage of immigrants provides a cheap labour input for firms, which in turn generates higher profits. Indeed, Dustmann (2009) finds that immigrant workers raise the incomes of most native-born workers. Additionally, immigrants increase the production and variety of goods and services in the economy. This can result in increased innovation and specialization. Immigrants also provide a boost to international trade.

Thus, although under certain assumptions we find a sizeable per capita fiscal transfer from Canadian-borns to immigrants, we do not conclude that immigrants are “bad” for Canadian society, or that we need to reduce the flow of immigrants to Canada. We do conclude, however, that there is a sizeable cost in terms of lower tax revenue to having a large population of relatively poorly paid immigrants. Policies that improved the labour market potential and performance of immigrants to Canada would therefore have a beneficial fiscal impact on the current residents of Canada.

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**Table1: Income, taxes paid, school attendance, value of dwelling and gross monthly rent for Canadian-borns and immigrants in 2005**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Average Income	Average Income Tax Paid	Average investment income	Number of individuals in school and below the age of 20 (% in parenthesis)	Number of individuals in school and above the age of 19 (% in parenthesis)	Average percentage difference in value of dwelling (compared to Canadian- borns) [proportion owner in parenthesis]	Average percentage difference in gross monthly rent (compared to Canadian- borns) [proportion renter in parenthesis]	Weighted average of the percentage difference in value of dwelling and gross monthly rent	Number of observations in each sample (proportion in the total population in parenthesis)
(1) Immigrants (1970-2004)	\$31,290	\$4,865	\$1,058	4,861 (5%)	13,339 (13.5%)	3.5% (64.6%)	-5.4% (35.4%)	0.3%	98,793 (14.2 %)
(2) Canadian-borns	\$35,704	\$6,222	\$1,427	40,050 (7.5%)	59,145 (11.3%)	N.A.	N.A.	N.A.	529,207 (76.4 %)
(3) non-immigrant residents or pre-1970 immigrants	\$36,866	\$6,132	\$2,603	909 (1.5%)	5,995 (9.8%)	6.6% (71.88%)	0.5% (28.12%)	4.9 %	60,844 (8.8 %)
(1)/(2)	87.6%	78.1%	74%	66%	120%	N.A.	N.A.	N.A.	N.A.
(3)/(2)	103%	98%	182%	20%	87%	N.A.	N.A.	N.A.	N.A.

\*Numbers reported in columns (1) to (9) are all calculated using the 2006 Canadian Census data.

\*\*Numbers reported in column (6) are generated by regressing natural logarithm of value of dwelling on an indicator (which is equal to 1 for the relevant reference group, as specified in different rows of the table, and equal to zero for Canadian-borns as the comparison group) and a set of controls for province of residence and Census Metropolitan Areas within each province (33 indicators). The numbers reported in column (7) are generated similarly, with natural logarithm of gross monthly rent as the dependant variable.

**Table 2: Taxes paid by Canadian-borns and immigrants [1970-2004], all levels of government, 2005/2006.**

(1) Type of Tax	(2) \$ billions	(3) % of total revenue	(4) Dollars per capita for all Canadian residents  (2)/31.6	(5) Tax paid by immigrants (1970- 2004) as % of <i>Canadian – borns</i>	(6) Tax paid by non- immigrant residents and pre-1970 immigrants as % of <i>Canadian – borns</i>	(7) Dollars per capita paid by Canadian- borns  (4)/[0.764+(5) *0.142+(6) *0.088]	(8) Dollars per capita paid by immigrants (1970- 2004)  (5)*(7)	(9) Difference (\$ in per- capita tax  (8) – (7)
Personal income taxes	180,757	34.7	5,720	78	98	5952	4642	-1309
Health & social insurance levies	87,354	16.8	2,764	100	100	2780	2780	0
General sales taxes	68,538	13.1	2,169	88	103	2214	1948	-265
Corporate income taxes	57,859	11.1	1,831	55	131	1912	1052	-860
Property & related taxes	51,417	9.9	1,627	103	105	1623	1671	48
Other taxes	75,510	14.4	2,390	88	103	2439	2147	-292
Total	521,435	100.0	16,501	N.A.	N.A.	16924	14228	-2678

Source: Statistics Canada, 2010; Calculations by authors.



**Table 3: Benefits received by Canadian-borns and immigrants [1970-2004], all levels of government, 2005/06.**

(1) Type of government expenditure (program spending)	(2) Total expenditure (\$ millions)	(3) Per-capita benefits received (\$) (by an average Canadian resident)	(4) Benefits received by recent immigrants (% of <i>Canadian - borns</i> )	(5) Benefits received by non- immigrant residents and pre-1987 immigrants (% of <i>Canadian - borns</i> )	(6) Per-capita (\$) benefits received by <i>Canadian - borns</i>  (3)/[0.764+(4)*0.142+(5)*0.094]	(7) Per-capita (\$) benefits received by Immigrants [1987-2004]  (4)*(6)	(8) Difference (\$) in per-capita benefits (7) – (6)
General government services	20,074	635	100	100	638	638.833	0
Protection of persons and property	43,299	1,370	87	103	1400	1218	-182
Health	99,531	3,150	100	100	3169	3169	0
Social services	164,568	5,208	100	100	5239	5239	0
Education							
Elementary and secondary education	47,134	1,491	66	20	1703	1124	-579
Postsecondary education	32,887	1,041	120	87	1029	1235	206
Special retraining services	3,598	114	100	100	114	114	0
Other education	1,140	36	100	100	36	36	0
Recreation and culture	14,268	452	100	100	454	454	0
Labour, employment and immigration	2,480	78	120	100	76	91	15
Housing	4,527	143	90	90	147	132	-14
Regional planning and development	2,235	71	100	100	71	71	0
Transportation and communication	24,838	786	100	100	790	790	0
Resource conservation and industrial development	19,760	625	100	100	628	628	0
Environment	13,158	416	100	100	418	418	0
Foreign affairs and international assistance	5,585	177	100	100	178	178	0
Research establishments	1,859	59	100	100	59	59	0
Other expenditures	1,738	55	100	100	55	55	0
Total	502,680	15,907	N.A.	N.A.	16212	15657	-554

Source: Statistics Canada, 2010; Calculations by authors.

**Table 4: Estimates of Fiscal Transfers**

	average per capita fiscal transfer to immigrants from <i>Canadian-borns</i> (\$)
(1) Original estimate by Grubel and Grady Immigrants [1987-2004] as reference group and <i>all Canadian residents</i> as comparison group	(6,161 - 110) = \$6,051
(2) Correcting inconsistencies and using more accurate estimates Immigrants [1987-2004] as reference group and <i>all Canadian residents</i> as comparison group	(5,089 + 290) = \$5,379
(3) Correcting inconsistencies and using more accurate estimates Immigrants [1970-2004] as reference group and <i>Canadian-borns</i> as comparison group	(2,678 - 554) = \$2,124
(4) Correcting inconsistencies and using more accurate estimates Immigrants [1970-2004] as reference group and <i>Canadian-borns</i> as comparison group Adjusting for immigrants' public goods contributions ( $\alpha = 4.4\%$ )	(95.7%)*(2,696) - (4.3%)*(14,228) + (-554) = \$1,414
(5) Correcting inconsistencies and using more accurate estimates Immigrants [1970-2004] as reference group and <i>Canadian-borns</i> as comparison group Adjusting for immigrants' public goods contributions ( $\alpha = 10\%$ )	(90%)*(2,696) - (10%)*(14,228) + (-554) = \$450
(6) Correcting inconsistencies and using more accurate estimates Immigrants [1970-2004] as reference group and <i>Canadian-borns</i> as comparison group Adjusting for immigrants' public goods contributions ( $\alpha = 15\%$ )	(85%)*(2,696) - (15%)*(14,228) + (-554) = - \$397