

**Citizenship More than Legal Status:
A Signaling Model on Labour Market Integration**

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Abstract

Canada is a country built by immigrants. It is known for its multiculturalist approach to welcoming these newcomers and uses a points system to select immigrants. This method of screening has received much praise from economists and policy-makers alike for its ability to identify applicants that will answer the varying demands of the labor market. Yet a component often forgotten is that attracting and screening immigrants is only half the battle. Once they arrive, it is just as important to ensure immigrants' skills and assets are properly integrated into the labour market and the Canadian economy. In this paper, I propose that the decision to ascend to citizenship acts as a signaling tool for employers. It allows the worker to distinguish themselves from those who are not yet integrated into the Canadian labour market, and therefore do not have the soft skills necessary for various jobs.

I present a model extended from Spence's (1973) signaling model, and with data from the National Household Survey 2011 test the theory against the data. The results suggest that citizenship is an effective signal for workers. Immigrant workers who ascended to citizenship enjoyed a premium on income and wages in the jobs that required such soft skills, and little return on jobs that did not require such integration. Future applications of the model and suggestions for further study with more data are also discussed.

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Chapter 1 – Introduction

Canada is a country built by immigrants. It is known for its multiculturalist approach to welcoming these newcomers and uses a points system to select immigrants. This method of screening has received much praise from economists and policy-makers alike for its ability to identify applicants that will answer the varying demands of the labor market. Together these provide various tools that shape Canada’s immigration and foreign policy. The adoption by other countries of the same or similar processes to their immigration policies is a clear reflection of its success.

This topic of immigration continues to surface in discussions, as the world increasingly integrates, and places a burden on policymakers to address the issue. In 2016 Canada received about 300,000 new immigrants, which is well above the per year average of 250,000 since 1991 (Immigration Watch Canada, 2010). This steady influx of people continued despite the 2008 recession, which after a moderate dip, has been increasing since (see figure 1). BMO economist Doug Porter helps put the numbers in perspective, as he says this year's increase in population is one of the largest since the baby-boom years and is mainly driven by immigration (CBC News, 2016). Policy-makers recognize the value of high-skilled workers which are gained through immigration. They contribute to economic growth as well as increasing the competitiveness of a country. Immigrants are important to bring new skills and knowledge to Canada, but also play the important role of filling the demand for the jobs which there is a lack of Canadian supply. In 2013, even the criticism of the temporary foreign worker program stealing Canadian jobs was debunked by the data demonstrating that the majority of jobs being fulfilled by these immigrants were jobs that the Canadian labor force was unable or unwilling to fulfill (Sorensen, 2013). These are only some of the reasons maintaining a healthy flow of qualified immigrants which is important for the country’s growth. This consideration leads to a race of skills as each country competes to attract the best and the brightest of visionaries.

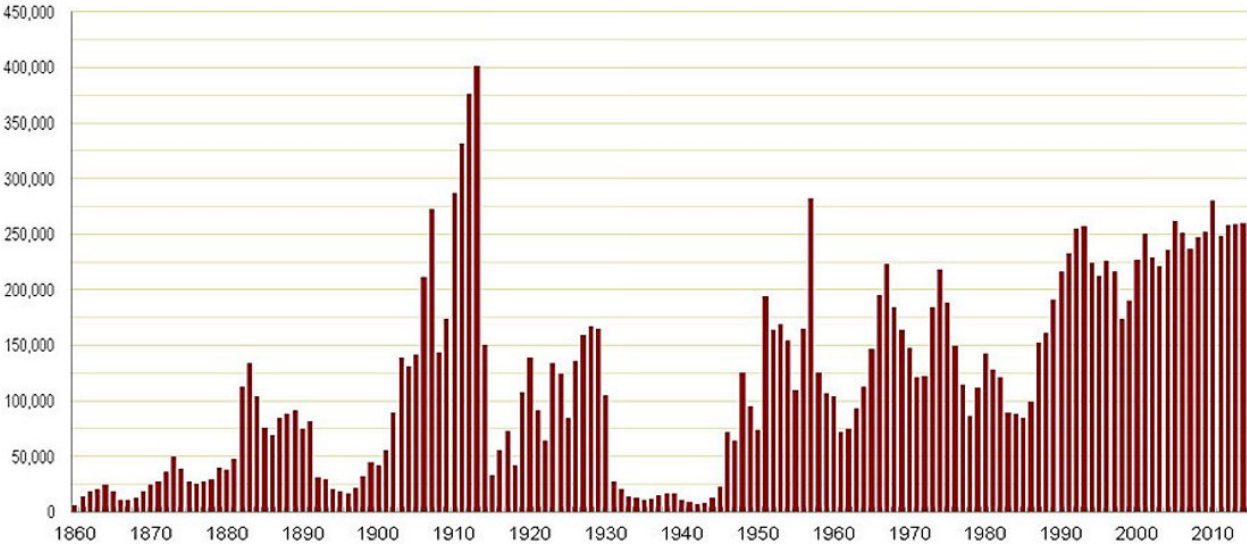


Figure 1 - Immigration Watch Canada: Canada - Immigration Intake, 1860-2014

The flow of people across borders shows no signs of decreasing. In light of the current trends in immigration, and the contribution of civil conflicts to massive emigration from specific areas, it is not likely the number of immigrants entering Canada will decrease. Based on the data released by the organization for Economic Cooperation and Development, Canada has one of the highest annual immigration flows among the OECD members, with the immigrant flow constituting 0.7% of the population (Gignac, 2013). Considering as well, the increasing number of baby boomers progressing towards retirement, and a smaller relative working population, the country needs such inflow of working population to support the retiring population.

Yet, there is a key component often forgotten in general immigration discussions. Attracting and screening immigrants is only half the battle. Once they arrive, it is just as important to ensure immigrants' skills and assets are properly integrated into the labor market and the Canadian economy. This allows them to enjoy the benefits they were admitted for in the first place and to contribute to their full potential. Having an admired immigration screening system will not serve its function, and respond to labor market demands, if barriers prevent the supply of skills from finding the demand, or reduce the return for workers (McMahon, 2013). Currently, various immigrants trained for high-skilled jobs have a hard time understanding the Canadian labor system and fully participating in it. Those that understand it, have difficulty distinguishing themselves from their counterparts who are not culturally and socially integrated. Further, in the 1970s immigrant men on average earned 85 cents on the dollar of the Canadian-born workers. This improved with the rate increasing to 92%, however, dipped towards the end of the century to 60% of the Canadian-born income. It has recovered to 75% fifteen years after but the situation still needs great adjustment (McMahon, 2013).

The economy's ability to accommodate immigrants becomes more a more pressing issue when one considers immigrant refugees. These are not screened for their skills but are admitted to Canada for humanitarian reasons. As the current Syrian humanitarian crisis demonstrates, these often come in large waves and are composed of a group with diverse skills sets and levels of experience. If the Canadian economy is not able to absorb immigrants that are carefully screened to answer to the demands of the market, what is to say it will be able to accommodate these large groups of unscreened workers? An equally important part of the immigration discussion then involves understanding how immigrants are integrated into the Canadian labor market, and what factors affect, or determine their labor market outcomes.

I propose that the concept of citizenship can shed some light on the discussion. Citizenship is more than a legal status; It represents an individual's loyalty to a country, it connects the individuals culturally, historically, socially and economically and demonstrates their knowledge and participation in such areas. The choice to become a citizen of another country is very informative. Briefly, it demonstrates the decision of an immigrant to become part of a new people. Citizenship reflects integration into a community, inspires a sense of belonging, and demonstrates knowledge of a culture to which they are now adapting. The decision of an immigrant, or permanent resident, to ascend to citizenship demonstrates such integration.

This decision to ascend in turn affects the labor market through its signaling function. The choice to ascend to citizenship demonstrates a desire and ability to integrate into a new culture and signals the employers their intentions. Through citizenship status, the employers can differentiate the immigrants who have successfully integrated into the Canadian culture, and can or already are also integrated into the Canadian labor market from those who do not. Supporting

this hypothesis is evidence of different premiums on returns for workers depending on their citizenship status, which still requires explanation. A study found that percentage of incomes below LICO increased during troughs in the business cycle from 11.7% to 16.17% for citizens, and from 15.6% to 20.5% for non-citizens (DeVoretz, and Pivnenko, 2005); this clearly shows a larger impact for noncitizens. This difference was also evident among immigrants from OECD countries and non-OECD countries. This puzzle invites further analysis to understand its effects.

Different ideas have been presented to explain this phenomenon. Economic explanations vary, with differences in human capital as the main explanatory factor. Yet a key criterion must not be forgotten: the market still must function within the bounds of Canadian law. The legal framework has the potential to help immigrants find success, through protections against discrimination as one example, and other protections and government aid programs. Yet it may simultaneously provide barriers that impede skills matching in the labor market. By introducing an economic model that connects citizenship to market success, I will provide suggestions on how this topic can be explored further and will test this against a suggestive empirical model to gain insights.

The paper is organized into five parts. The first part introduces the relevant literature review. This will start with a literature review of the labor market outcomes of immigrants; what struggles they face, what are the possible causes, and possible solutions. Next, the review will examine the citizenship part of the formula. This part analyses the background information behind the decision to immigrate, which sets the context for the theoretical model. Through this, there is an analysis of the requirements of ascending to citizenship in Canada, as well as the legal implications of the change in immigration status. This part also includes a discussion of the meaning of citizenship for a person, the motivations behind the decision to become the citizen of another country, and the practical effects. The main and third part presents the theoretical model. This paper uses the signaling model proposed by Spence in his 1973 paper and adapts the details and assumptions to fit the current situation. Some further expansions of the model are also presented. Next, some suggestive empirical evidence provides support for the theory. Finally, the conclusion follows a brief discussion of the limitations of the paper and possible reverse causality to consider.

Chapter 2 – Literature Review: Labour Market & Immigration

2.1 Immigrant Labour Market Outcomes

The literature on immigrant success upon arrival in Canada is mixed. It extends across various disciplines, including economics and sociology, with differing results and conclusions. Statistics and articles such as OECD report a positive picture by stating that employment of foreign-born Canadian citizens has increased since 2008, and in 2012 Canada had the third highest employment rate for immigrants among the OECD member countries (Canada, 2014). Some interpreted this as evidence of immigrants quickly integrating into the labor market. Other sources painting a less optimistic picture argue the country has had a drastic decline in economic welfare of the skilled immigrants admitted to Canada. This is a serious concern since the recent generation of immigrants are far more experienced and have higher education credentials than previous generations. Almost 80% of skilled workers who came to Canada between 2000 and 2007 had a university degree. In contrast during the same period, only 25% of the Canadian born

population possessed the same level of education. The skilled workers admitted are meant to contribute to the Canadian economy, yet seem to face obstacles in achieving the desired outcomes. (McMahon, 2013).

Various scholars have examined differences in the labor market outcomes of immigrants. They compare arrival periods, entrance category, skill-sets, and success at obtaining a job, among other components. Others go further and try to determine the causal connection between the immigrant cohorts and their current position within the Canadian society and economy. These again contain both optimistic and pessimistic conclusions of immigrant success upon arrival in Canada. The contradictions and mixed results imply a gap in the theory and it is my intention in this paper to fill this gap in the literature.

This concern is not limited to immigrants only. The dilemma also has an impact on wages and income more broadly as well. When too many skilled immigrants are admitted to Canada, the excess supply drives down the returns for skilled workers with higher levels of education and training. This was the case in 2013, where Harvard economist George Borjas and former Statistics Canada senior researcher Abdurrahman Aydemir found Canada admitted more high-skilled workers than necessary (McMahon, 2013). This drives down returns for both immigrants and native-born citizens. The excess admittance is a possible explanation for poor labor market outcomes witnessed but does not account for the persistent issue. Canadian immigration policy has not always been tied to economic factors and business cycles, with numbers admitted to each category has been adjusted over the years. There are other underlying influencing factors that need to be explored.

2.2 The Immigration system in Canada

The Canadian immigration system allows potential immigrants to apply through one of three different categories; independent class, family class and refugee class (Canada, 2017). Since the 1967 changes to the Canadian immigration policy, the focus has turned away from "preferred nationalities" in the screening process towards skill assessments that will best respond to the needs of the labor market (Wanner, 2003). The independent class category of immigrant is subject to the point system, where applicants receive scores based on six main criteria: language skills, education, age, experience, arranged employment in Canada and adaptability (Citizenship and Immigration, 2017). The family class immigrants are those that have a close relative in Canada. The main goal of this category is to promote family reunification and may be subject to the point system as well. Finally, the refugee class immigrants are admitted under special circumstances; they must be defined as convention refugees under the United Nations Protocol relating to the Status of Refugees and must satisfy outlined sponsorship criteria (Wanner, 2003).

Historically, Canadian immigration policy has shifted focus between the different immigration categories. In 1978 the Government of Canada brought the new *Immigration Act* which increased dramatically the available spots in the refugee and family-class categories (Wanner, 2013). However, for the past 30 years there has been a compositional shift in immigrants admitted, with an increase in economic, skill-assessed class from 29.5% to 60%, a fall in family class entrants from 50.4% to 25.9%, and a decrease in refugees admitted from 17.4% to 9.1% (Abbott and Beach, 2011). Now the new Liberal government has once again turned the focus towards family reunification and humanitarian aid. The government increased the spaces for family class immigrants and committed Canada to welcome a record number of

Syrian refugees escaping the civil conflict (CBC News, 2016). This shift from one category to another, expectedly, also reverberates through the economy.

2.3 Differences in Labour Market Outcomes by Entry Class

Several papers have explored the difference in labor market outcomes between immigration entry classes in light of the shifting policies. Li (2003) concluded that refugee class and the family class immigrants required a longer period compared to the skill-assessed immigrants to achieve par with Canadian born workers, however, the number of years necessary to achieve this convergence had been decreasing over time. Recognizing that various time-relevant factors can influence these conclusions, on the surface, these results imply the differences in immigrant entry class are eroded in the long run as immigrants integrate into the labor market.

Wanner (2003) also explored the earnings attainment of immigrants using data from 1980 to 1995. Using the 1996 Census, he regressed change in earnings on country of origin, individual characteristic controls, years since immigration, and percentage of immigrants in one category that originated from the same country. His main finding also shows a convergence in earnings over time between the entry groups, even in entry year cohorts that were composed of a large percentage of refugees. However, for men, this convergence is sensitive to country of origin controls. For future research, he urges scholars to consider country-of-origin specific traits in their earnings models.

More recently, Abbott and Beach (2011) explore the effect of economic recessions on the earning outcomes across the different entry classes. They conclude that earnings of newly-arrived immigrants can be significantly affected by the economic condition and policy environment prevailing at the time of landing. The negative effects are specifically pronounced for male immigrants and for those who have few years in Canada. They also find there is a convergence between distributions as years since landing increase but claim the rate of convergence is decreasing over time. While these results contradict Li and Wanner's findings, the authors recognize that differences in convergences may be attributed to the placement of economic recession (i.e. early in cohort's career or towards the end) in the sample periods studied. Combined, these papers suggest that changes in immigration policy do not have long run effects on earnings, however, these are sensitive to country-of-origin and economic recession controls. More importantly, they imply that factors other than skill-level and labor market characteristics play a role in explaining immigrant success once they arrive in Canada.

This phenomenon was also observed in the United States, to which Chiswick (1978) offers possible explanations. In his paper, Chiswick points to the transferability of skills to the American market possessed by immigrants as main explanations for the higher initial level of income. But also observed earnings convergence and offers some explanations. He argues that family class and refugees may catch up to skill-based immigrants by taking advantage of family support and networks to increase training in the host country and gain access to employment opportunities. While skill-based immigrants have higher initial earnings, based on social capital theory (Wanner, 2003), they are less likely to further invest in human capital in the host country (Chiswick, 1978). In contrast, family class immigrants, with support from the family, will have more access to resources to make human capital investments possible. As for the refugee class, the theory suggests that what this group lacks in social and capital advantages enjoyed by the

family class, they gain from the large waves of refugees that result from political instability. The large group often settles close to each other, developing their own social networks, therefore achieve fast earnings growth, and offsets the lower earnings at arrival.

Such arguments direct future research to explore topics in social and human capital as possible determinants of immigrant outcomes. Others highlight the transferability of skills from an immigrant's original and host country as areas of further exploration.

2.4 Immigrant issues: Poverty and Recognition of Foreign Credentials

Despite the optimistic income convergence picture painted by the above articles, other evidence invites a less optimistic conclusion. Canada, much like other advanced nations of the western world, receives most of its immigrants from less advanced countries (Akbari and Aydede, 2013). These arrive looking for opportunities and a better life. However, this is not always the reality for immigrants. One of the most pressing issues is the growing poverty rates among immigrants across major cities and persistent lack of credential recognition. These create barriers to proper integration into the labor market and prevent immigration from being the effective response to labor market demands it is intended to be.

Ley and Smith (2008) tackled this issue. They discussed the issues associated with immigrant poverty in major gateway cities of Toronto and Vancouver, arguing that social networks and resources are major contributors to the successful immigrant experience. This is a significant contrast from the sole skill-based focus of the previous body of literature. These networks are greatly influenced by the place they live since it affects the opportunities available to immigrants and could restrict their participation in society and sense of belonging.

Bloemraad (2006) also argues for non-economic factors affecting labor success. He proposes that Canada's multiculturalism, political rights, and settlement services contribute to the successful social integration of the immigrant. However, these provisions are not sufficient, as many immigrants identify a lack of understanding of their new society and how to make it work for them as recurring frustrations (Ley and Smith, 2008). The shift to a knowledge-based workforce consequently placed more emphasis on having a high level of communication standards and language proficiency on the job. Without a proper understanding of the culture and the market is extremely difficult or impossible to achieve success. Without this social integration and cultural understanding, immigrants have steered away from upper-tier jobs in the economy, regardless of possessing the necessary skill-set from their country.

This is not an issue specific to Canada. Other countries have identified lack of proper integration into the culture as a major cause of economic failure. Trevor Phillips, the Chair of the Commission for Racial Equality in the UK, warned Britain that it was "sleepwalking towards segregation" in a 2005 speech (Ley and Smith, 2008). Others describe the immigrant experiences as having "parallel lives". Combining this evidence with earlier research, it is becoming clear that factors affecting immigrant integration go beyond a person's *curriculum vitae*. To provide better predictors for immigration policy, economists need to be able to capture the effect of ease of integration in their economic models to truly capture the underlying forces and factors.

Touching on the explanation already provided by Chiswick in the United States, Ley and Smith (2008) also explore the possible benefits of "ethnic enclaves". The main literature is divided between those who believe ethnic clusters provide benefits through supportive social

capital and those who believe they were associated with growing segregation and immigrant poverty. Ley and Smith drew on such contradicting results, and with more recent studies concluded that while these enclaves can provide support and social networks, they are associated with an economic cost (Ley and Smith, 2008). Specifically, they found Chinese-origin groups were not affected by neighborhood segregation in Toronto and Vancouver, but this result was not robust to other ethnic groups (Ley and Smith, 2008). On the surface, these clusters have stronger frequency of non-official languages spoken, which the authors argue, are strong predictors of depressed community skills and knowledge required to succeed in the labor market. Further policy implications involve the reduced opportunity for children born and raised in such clusters and poor neighborhoods. Finally, among concluding remarks, they identify some stigma associated with these cluster neighborhoods, which could extend to the labor market and affect opportunities available to these groups.

Another issue outlined in the literature was credential recognition. Ironically, immigrants have difficulty in having the credentials which granted them access to Canada recognized by employers. Derwing et al. (2000) completed a study of refugee integration into the labor market in Alberta. From various interviews with 525 adult refugees who resettled in Alberta, they concluded that immigrants are more likely than other Canadians to be unemployed, and if employed they are likely to be under-employed in temporary and part-time jobs. The study found that on average refugees were highly educated, with levels of post-secondary education comparable to the levels of citizens in Alberta (Derwing et al., 2000), yet upon arrival in Canada had great difficulty in obtaining occupations that corresponded to the level of education. The study found that country of origin did play a role in their employment experiences, and more time living in Canada did not affect their employability as one would expect. They extrapolated that this may be due to lack of additional training, or individuals “holding out” for better jobs.

Participants identified discrimination and lack of knowledge of the Canadian labor market as one of the barriers to employment opportunities, preventing them from finding “good jobs”. These barriers were not influenced by time of arrival in Canada and did not improve with continued residence in Canada. Together, these conclusions suggest that labor market knowledge may be one of the factors explaining downward occupational mobility, but it is certainly not the sole explanation. Finally, the paper discusses barriers to immigrants’ access to employment insurance, job-training programs and Canadian work experience, which prevents integration. They explain that the eligibility requirements of EI and training programs prevent immigrants from gaining the country-specific market knowledge required to be successful. The relevance of such knowledge is reflected in employers’ demands of Canadian work-experience, which ironically immigrants cannot obtain until they get hired in the first place. With this circular logic, the cycle of unemployment, poverty, and underemployment persists and effectively prevents immigration from helping clear labor markets as intended.

Further evidence confirmed the presence of discrimination in Canada and the U.S. Given the different array of foreign job experiences and uncertainty on credentials, many employers do not seriously consider immigrant job applications. One way they have started screening immigrants is by requiring “Canadian work experience”. Other employers admit to assuming a worker with a foreign name had poor English skills. A University of Toronto economist found that by changing his name on the resume from Anglophone to Indian or Chinese reduced responses to job applications by 50% (McMahon, 2013). This is a stigma difficult to overcome, but not impossible.

As presented in earlier articles, there are successful immigrants in the labor market. The bridge that connects these two scenarios just needs to be discovered. The outlined issues in this area of literature have the underlying theme that credentials and specific skills on which immigrants are admitted to Canada is only one dimension of immigrant success upon arrival. To capture the relationship, models need to measure immigrant's ability to gain social networks and market knowledge that affect their employment experiences.

2.5 Substitutability of Immigrants and Native Workers in the Canadian Labour Market

A last approach to the topic, the literature examines how elastic domestic labor demand is to the foreign substitute demand. It questions how foreign skills are received by Canadian employers, and if the requirement of Canadian experience has economic merit. As mentioned previously, immigrant admission and skill evaluation does not translate directly into jobs as the labor market experiences various barriers and frictions. To help explain the observed poverty rates and underemployment of immigrants presented above, Akbari and Aydede (2013) take a production function approach to identify the substitutability of immigrant educational credentials for those of native-born workers.

The authors propose there are negative effects from ethnic and cultural clusters on employment opportunities. As the intake of immigrants in Ontario decreases, and the flow of immigrants spreads to other smaller provinces, which they argue has the potential to improve the levels of structural and frictional unemployment observed. However, this spread of skills would only be true if foreign-trained and Canadian workers had a certain level of substitutability. Using data from 2001 Census, the authors estimate a poor elasticity of substitution between Canadian born labor and their equivalently trained immigrant worker. This result controlled for province-specific effects and instrumented on recent immigrant workers and pre-existent immigrant concentration. This was consistent across almost all levels of education. Results become less clear when they run simple OLS model, however, where results suggest that level of substitution is decreasing in education levels. This is not surprising as skills become more specific and complex as education levels increase. Furthermore, they find that while substitution between the recently-arrived immigrants at low levels of education is poor, this improves to perfect substitution between established immigrants and native-born with increasing years in Canada. Examining the results across the different estimations (IV and OLS) the results consistently show that immigrants arriving with a university degree have the least substitutability with their native-born workers (Akbari and Aydede, 2013). This further supports the conclusion that substitutability has a negative relationship to the level of education.

These results are consistent with the suggested factors affecting immigrant labor market success. The authors submit that possible explanations for the poor substitution for University degree-holders may be rooted in country-specific skills. These can include speaking English and French languages for Canada, knowledge of institutional and legal practices, skill-sets not acquired in university in a foreign country, or subjective discrimination against immigrant labor. The policy implications of these results are severe when one considers the high volume of immigrants with university degrees entering Canada, adding to the already steady supply of Canadian university graduates. The most direct and obvious implication of this is the unexploited productivity potential of the pool of university-trained (skilled) workers. In this respect, the authors called for public policy to facilitate labor market integration of these workers, with a role for regulatory professional organizations to make use of the incoming pool of professionals.

2.6 Addressing the Gap in the Literature

The common theme that comes out of all approaches to the subject is that transition into the Canadian labor market is not frictionless and goes beyond documented credentials. Influencing factors extend from the community in which immigrants settle; to the level of Canadian experience, they obtain, to their incentives to acquire further skills or Canada-specific skills. I propose that citizenship status is a possible measure to capture these effects.

Citizenship encompasses the legal aspect of economic success that governs all workers and markets. In their paper, DeVoretz and Pivnenko (2005) concluded this legal distinction had great effect on the jobs and opportunities available. For example, many well-paying government jobs require high levels of security clearance that also require citizenship. Furthermore, given the high volume of international business of Canadian firms, especially with the United States through NAFTA, a Canadian passport can substantially lower costs of travel and can increase the number of employment opportunities (DeVoretz and Pivnenko, 2005). This difference in cost may prevent an otherwise qualified immigrant professional from reaching higher managerial levels and improve their career outcomes.

Secondly, the decision regarding citizenship can help reconcile some of the mixed results in the literature. Social science evidence shows that one's decision to ascend to citizenship is not strongly related to entry class category (DeVoretz and Pivnenko, 2005). This is consistent with the results from the first pieces of literature which show a convergence in income, possibly as time passes and immigrants acquire citizenship. Furthermore, to become a Canadian citizen, immigrants must demonstrate a proficiency in either English or French, and pass a citizenship test that covers Canadian history, culture, legal rights, etc. (DeVoretz and Pivnenko, 2005). This step can help immigrants fill the gap in knowledge of the society and the market, which many have identified as one of the barriers to economic integration.

Third, despite the legal protections in place through the Charter and other human rights codes, distinctions between native and foreign born workers still present issues. Although citizenship may not extinguish the problem completely, it can reduce the effects by adding characteristics in common between both groups. It may also improve immigrant feeling of inclusion within Canadian society as opposed to the feeling of exclusion identified by immigrants. In turn, social inclusion can affect immigrant incentives to become socially integrated and develop the necessary networks to succeed (Derwing et al., 2000) (Ley and Smith, 2008). These combined effects may then improve the level of substitutability between native and foreign trained workers.

It is interesting that the economic literature has not explored this possible effect in depth. When studying the earnings growth, adaptability, etc. few scholars account for any differences in citizenship status that can affect employment opportunities. I admit that ascension to citizenship is not likely to influence degree recognition, as that is determined by professional organizations. However, going through the process and undertaking the costs of obtaining citizenship can serve as a signal between the employee and employer, revealing the motivations and incentives of the worker. Those who ascend to citizenship possess specific skills and characteristics which can provide key insights into the observed effects.

Immigration and its associated policies have the potential to greatly benefit a country, increase innovation and promote economic growth. However, understanding the variety of forces

that are at play, and understanding the mechanisms through which immigrants join and thrive in the Canadian labor force is essential to the design of immigration policy. Immigrants not only affect the current economy but affect economic outcomes for future generations. With global integration showing no signs of slowing down, how to take full advantage of these potential drivers of growth and productivity will be a dominant topic in many future public policy discussions.

Chapter 3 – Literature Review: Citizenship & Signaling

3.1 Ascension to Citizenship as a signal

The factors that drive an individual to ascend to citizenship are a source of great debate. It affects several areas in one's life, in social, cultural, legal and economic aspects. It is not surprising to find extensive discussion on the topic. Scholars from various disciplines and across disciplines have discussed the issue, and while there is no consensus on the main driver of the decision, the theories do converge into what here I grouped into four general ideas. After reviewing these I will propose a fifth idea; workers ascend to citizenship to send a signal to employers that they possess specific qualities. These qualities will be discussed and elaborated on in a later section. First, let's consider other theorized reasons for obtaining citizenship to understand the underlying process.

The first theory approaches the decision from a territorial and normative perspective. It focuses on moral grounds, looking at how the values of the country shape its society, and how compatible the individual is with this society. This, in turn, affects how the immigrant is received into the country by the native-born citizens. Feina and Straughn demonstrate from the experience in Estonia, some immigrants choose to become citizens from a sense of civic virtue (Feina and Straughn, 2013). Some perform this task because they feel a level of loyalty to the country; they respect and conform to its law. They agree with what the society stands for and therefore want to become a part of it. This feeling also served as a deterrent from citizenship. In Estonia, immigrants refused to ascend to citizenship as a way to protest the policies of the country. Various immigrants expressed outrage at how the country chose to treat residents who were not citizens and refused to ascend to citizenship based on these moral grounds. This ideology was also evident in immigrants residing in the United States and Canada (Bloemraad, 2006 b). Effectively, this theory claims national ideologies, government institutions, and current policies affects the characteristics and the naturalization rate of the immigrants residing in the country (Bloemraad, 2006 b). Further evidence of the impact of the receiving country is provided by the European community experience, where despite following the same immigration policy, ascension rates vary significantly between countries.

A second theory considers the emotional and symbolic connections of an immigrant to their new country of residence. Based on this theory, the choice to become a citizen is based on the bonds of culture, ethnic heritage, and territory (Feina and Straughn, 2013). This was again the experience of various immigrants in Estonia who ascended to citizenship. This feeling is described by many as belonging to the 'homeland' and is not confined to a single country. Demonstrated by the experience of Jewish residents of Estonia (Feina and Straughn, 2013). These immigrants felt equally attached to Estonia and to Jerusalem. Significant to the discussion, the decision to ascend to citizenship is not only a legal process; it contributes to their personal

identity. The theory does include examples of people who do not identify with any one culture or country emotionally or may identify with all of them. Such individuals are characterized as "citizens of the world", and help explain the cases of lack of attachment to one specific country.

The civil and political engagement of the immigrant with the society also helps build such emotional and cultural ties that encourage naturalization. Bloemraad explains societies who engage their immigrants, make them feel like legitimate political players, involved in the society will have higher ascension rates (Bloemraad, 2006 b). This level of social and cultural integration occurs through personal contact and social interaction, which are aided by informal community organizations, and other groups from *outside* the immigrant community. The willingness of nationals to help and guide newcomers also affects their perceptions of being welcomed in the country. This feeling together with the creation of social ties encourages the emotional connection to the new country. This effect is exemplified in the diverging rates of ascension between the United States and Canada, despite being politically and economically similar receiving countries. While Canada has a relatively high ascension rate, the U.S. lags in that aspect. Aid from outside the immigrant community has significantly different influences and can be determinative of an individual having a sense of belonging in a new country or just belonging to an ethnic group in that country.

The third theory focuses more on economic variables and cost-benefit analysis as factors influencing the decision to ascend. Authors that support this theory include Kelley &

McAllister, and Portes & Mozo (Devoretz and Pivenko, 2005). Some present the decision to become a citizen as providing the individual with utility from naturalization, with welfare gained by decreasing the costs of moving to a new country (Bloemraad, 2006 b). Devoretz and Pivenko posit that citizenship is motivated by the prospects of higher earnings, opportunity to subsidize human capital costs and gain access to two public goods: citizenship and passport (Devoretz and Pivenko, 2005). In Estonia, as Feina and Straughn explain, many residents post immigration changes justified their naturalization through economical and practical decision-making (Feina and Straughn, 2013). Residents chose to become Estonian citizens to facilitate an application for a loan, for increased employment opportunities, and ease of travel outside the country. These benefits were measured against the costs of possible harmed relations with other countries such as Russia and the costs of mastering the language of the country. Those, whose costs exceeded the benefits, became Russian citizens.

There are pieces in the literature that dispute this economics-based explanation for citizenship. Authors such as Chiswick claim there is no significant improvement in one's income from ascending to citizenship (Devoretz and Pivenko, 2005). Others further argue that in Western countries, with the focus on equality and human rights, there is little to no distinction between citizens and non-citizens. As a result, there is little benefit from becoming a citizen (Bloemraad, 2006 b). However other studies such as Pivenko and Devoretz found a strong citizenship effect on Ukrainian immigrant earnings in Canada (Devoretz and Pivenko, 2005). While there is no consensus on the topic, there is enough evidence to indicate some correlation between the legal citizenship status and the economic motivations.

Finally, the last theory provides a more mechanical explanation. It attempts to identify specific characteristics of the individual that would promote ascension into citizenship. This approach looks at different set of skills, resources, country of origin, interests, and aptitudes that would promote the ascension to citizenship. For example, Bloemraad argues that an immigrant,

who has a high level of education, is middle aged, is above the poverty line and is proficient in English as a second language will be more likely to seek naturalization, than an individual who does not possess such skills (Bloemraad, 2006 b). This approach is consistent with one of the general economics maxims that individuals with same preferences and opportunity sets, make similar decisions and end up in similar situations (Spence, 1973). Canada screens immigrants based on these kinds of characteristics. Following logically, one would expect perfect ascension rates, as the Canadian government would only admit those with such Canada-compatible characteristics to promote naturalization. One weakness is that it does not consider any possible effects of the receiving country (Bloemraad, 2006 b).

The theory does incorporate possible influences from the country of origin. The reasoning behind such influence implies that immigrants from the same country share the same characteristics, and therefore there exist countries whose immigrants would have preferred naturalization rates. The author explains that individuals who emigrated from countries close to the United States, for example, may see the decision as reversible, and be less driven to ascend to citizenship (Bloemraad, 2006 b). This finding is supported by Devoretz's study, which found the level of development of the country of origin was an important determinant in the decision (Devoretz and Pivnenko, 2005). In contrast, if the immigrants originated from a democratic country, they may hold values that favor citizenship and be more likely to seek naturalization. This line of argument, however, is ambiguous at best, as the literature explains that individuals arriving from undemocratic countries may too, be attracted to the idea of naturalization after experiencing the rights and rewards that come with a democratic system of government. Guidance through these ambiguities will hopefully be provided through the results from the empirical model in the fourth part of the paper.

Such categorization of skills and aptitudes may also help inform immigrants' choice of careers in Canada. Various immigrants come trained in trades and professional careers from their country but encounter an additional hurdle of licensing before they can practice their art in Canada. Especially in the medical profession, many immigrants have to complete certain Canadian courses or accreditation programs where they are reintroduced to their field (Access to Professions and Trades Guide: Education and Training, 2016). Despite screening immigrants for their education and training, if they do not possess the skills and motivation to acquire the relevant licenses and accreditations, their predicted chances of success in the Canadian labor market may be skewed. If an immigrant were expected to practice one profession in Canada, but due to an additional licensing obstacle settle for underemployment, they would have fewer incentives to commit to that country. If the costs of returning to their home country, where they can practice their skill, is relatively low they may be less likely to ascend and either return to their homeland or move to another country with lower transition costs.

While there are arguably infinitely many forces that influence one's decision to become a citizen, it is clear there also are quantifiable and economically driven factors that play a role in the decision. These characteristics and motivations of individuals who become citizens can, therefore, also inform employers about the skills of potential employees as they invest in the hiring process. I will continue to explore the economic motivations behind naturalization, and its connection to success in the labor market.

Chapter 4 - The Theoretical Model

4.1 The Hiring decision and its considerations

When hiring workers, the employer makes an investment decision under uncertainty. In a pool of applicants, who seemingly possess the necessary skills to perform the job, the employer must try and identify the productive ones. They must identify the workers whose resumes reflect their true abilities, and offer the appropriate compensation to both match their marginal productivity and meet the worker's reservation wage. Making the right decision is very important both in the short and long run given the costs associated with hiring new employees. In the short run, the hiring process itself involves the use of resources, which are reallocated from an otherwise more productive use. The delay in filling a position with the demanded skills also leads to a loss of potential profits. In the long run, the wrong hire can further increase costs. Because of market frictions, such as incorrect matching and rigidities usually brought by contracts, resources may be wasted on sub-productive employees (Spence, 1973). The task is further complicated when the employer is faced with the decision to hire an immigrant. The task of screening the skills of the worker has in part already been investigated by the immigration office. For the immigrants admitted in the economic category, their acceptance into the country implies they have special set of skills demanded in market and are expected to positively contribute to the productivity of the company. This should facilitate the decision of the employer. Yet, it must be noted also, that this implication depends on the government's immigration policy in place and their present immigration objectives. These objectives may not match the objectives of the employer, and may in fact complicate the decision of the employer. As presented by Spence, one way to frame this phenomenon is through a signaling model.

The main challenge with foreign workers presents itself through an often forgotten, subtle requirement of cultural and social skills. As mentioned previously, many of the immigrant workers identify lack of knowledge of the Canadian market, general and work culture as the main obstacles to finding employment in their trained field. While resumes, degrees and other formal documentation can speak to the hard skills of the employee, it does not speak to the employee's soft skills. These include understanding social norms, values and ethical concerns, and different approaches taken to solve issues. Immigrants from cultures that greatly contrast Canadian culture may experience a culture shock in the work place as they engage in activities that go beyond their technical training. Depending on the sensitivity or importance of the job, these shocks or mistakes may be too costly for the employer and may lead to the employee being fired or overlooked for further opportunities and promotions. In light of these challenges, the employer must differentiate from a pool of immigrant applicants, those that possess the soft as well as hard skills to succeed in the job, successfully navigating the Canadian labor market.

There are other concerns entertained by the employers as they choose between native-born and foreign-born workers. Despite requiring immigrants to have a certain ability to speak the country's language, this may not guarantee a communication skill level that understands idioms and verbal cultural cues necessary to perform the job (Access to Professions and Trades Guide: Education and Training, 2016). This is less of a concern with native workers, who speak the language as their first language, understand these communication niches. The native-born workers have also gone through the education system and thus provide a guarantee that may not be available when hiring a foreign-born worker. Secondly, while all employers have to consider the costs of training and investing in a worker, the foreign worker has the added risk of returning

to their homeland (Canada, 2014). The native-born worker has established roots and ties to the country that the immigrant worker may not have yet developed. While the native-born worker may also leave the company, they will still contribute to the industry and the overall economy. The situation is not as clear for the immigrant worker. While their decision to migrate to Canada may have been a final one, despite developing ties and establishing roots in Canada, they still have roots elsewhere and may return to that country on a date unknown to the employer. For these and further reasons to be mentioned, the employer faces additional risks and considerations when deciding to invest in an immigrant worker.

Despite the risks mentioned above, there are numerous benefits to hiring an immigrant worker. Immigrant workers offer diverse set of skills and experiences that are not available with the native-born workers (Employer's Guide to Integrating Immigrants into the Workplace). They are exposed to different challenges, different scenarios, and bring a variety of perspective to the jobs in Canada. Together, these factors help contribute to the businesses' competitiveness. They are very productive, can help your business tap into new markets, and expand from local to international markets (Canada, 2014). Other connections include introducing the company to more efficient methods; establishing relationships with less costly suppliers, other organizations, and other valuable workers; enhancing creativity and attract top talent in labor shortages (Employer's Guide to Integrating Immigrants into the Workplace). Many employers also face labor shortages in certain geographical regions or by skill areas; this gap can be filled by immigrant workers. In 2013, demand for immigrant and temporary foreign workers increased dramatically, as they not only had the skills for the job but were willing to fill the gaps in the labor market that Canadians were not able or not willing to fill (Sorensen, 2013). While there are costs incurred when hiring immigrant workers, the benefits seem to be sufficiently large. It is fair to assume employers in the market are rational and profit maximizers. Consequently, they would not hire immigrant workers if the costs exceeded the benefits. While some immigrants struggle, there also exist great success stories.

In the end, the employer is left with an investment decision under different sets of uncertainties. One option is to invest in a native-born worker, who may or may not be productive. The alternative is to employ an immigrant worker who is assumingly productive, but may or may not confirm the risks mentioned above regarding employing immigrants (i.e. possess Canadian-specific soft skills, have roots in Canada, speak the language and have good communication skills). I propose this investment decision under uncertainty can be modeled using a signaling model with the appropriate modifications to fit the situations. The model is presented below.

4.2 The Spence Model

As defined by Spence, signals are actions incurred at a cost that is meant to inform the beliefs of the relevant party as to what "type" the signaler is. In the context of workers and employers that Spence presents the model, signals are meant to update the employer's beliefs about the worker and help inform the hiring decision. The worker undertakes some cost to obtain the signal, which is observed by the employer and informs him that the worker is the part of a particular group, with a particular level of productivity. The workers, when deciding if they should obtain the signal, try to maximize the distance from the benefit of being hired, to the cost of obtaining the signal. Normally, this benefit is expressed as the wage or earnings of the worker because of being hired. Under the proper assumptions, workers will only invest in signals that

reflect their true type, the employer observes such signals, and makes the optimal decision by hiring the desired worker type.

The veracity of the information being conveyed by the signal, and in turn the employer's reliability on the signal. As most economic models, it assumes that players are rational and look to maximize their utility or payoffs. The payoffs or wages of the players is an increasing function in productivity, or in the characteristic of interest. Next, we assume is that there is a cost incurred when obtaining a signal, and the cost of *sufficient* signals is attainable by the relevant group. This cost is not limited to monetary costs and can include emotional, opportunity, mental and physical costs (Spence, 1973). A further, yet critical assumption is that the cost to undertake the signal is inversely related to productivity, or the relevant characteristic. This is definitive to the credibility of the signal. If the costs were the same for all types, there would be incentive for low productivity types to falsely obtain the signal, and access the higher payoffs associated with the higher productivity levels. This, in turn, would lead to defective matching, and an inefficient allocation of resources. As employers update their beliefs, they would stop relying on the information conveyed by the signal, and it would lose its relevance. Finally, to be significant, the signal must not be mandatory. If every player is obligated to have the signal, then it conveys no more information about the specific person and does not help differentiate the individual from the group.

Along with the idea of signals, Spence also introduces the contrasting idea of indices. Signals are mutable characteristics about oneself and help convey information to the employer. In contrast, indices are immutable characteristics about oneself such as sex, place of birth, skin color, etc., and are normally assumed not to influence signals. However as Spence briefly explains, this assumption is mistaken; indices can have an effect on signals when paired with the signals. The employer does not know what characteristics are signals and which are indices, however, will eliminate uninformative indices as they approach equilibrium. Therefore, when implementing the model, such indices need to be considered to help explain the results. The paper will elaborate on the intuition behind indices at the empirical approach part of the paper.

This model offers some robustness benefits but is also limited in some respects. An initial benefit as **Spence** demonstrates is that there are an infinite number of possible equilibria, which are not affected by the initial proportion of people in each group. This result is conditional on the assumption that the marginal product of the worker does not change with the number of employees hired. Some weaknesses, however, are presented in practice. The signals and the groups have multidimensional aspects, and together with the variation of signal costs may prevent the employer from distinguishing perfectly among individual's capabilities. Although not mentioned by Spence, another possible limitation is the model assumes employers have no barriers to observing the signals. It assumes the meaning of the signal will not be misinterpreted, which may not always be reflected in practice. Finally, the model assumes that indices are uncorrelated with productivity, and are perceived as so. This may cause some issues when applied in reality. Some indices may legitimately affect productivity such as weight carrying capabilities between men and women. Alternatively, due to discrimination and stereotyping, indices may be perceived as being correlated with productivity. Keeping the above considerations in the background, this model nonetheless offers great insights into the hiring decision and into factors that influence the labor market and workers' outcomes.

4.3 Other Applications of the Model

This signaling framework has been adapted to fit different models. It has been kept within the context of labor markets but has also been conceptualized within political democratic models, decisions between war and peace, contracts types and many others (Del Granado and Bull, 2017) (Waldman, 1990). One such example is the decision of rebel groups to seek change through a revolution or through the polling place, as a signal of their relative strengths and chance of success. The subsequent decision of the sovereign in light of the signal determined the outcome of conflict or peace (Del Granado and Bull, 2017).

For the purposes of this paper, I will focus only on the decision of the employer on which immigrant worker to hire. The employer will not consider hiring native-born workers. The purpose of the paper is to analyze how employers make decisions on hiring immigrant workers to provide some insights into the employment issues facing skilled immigrant workers. The motivations and incentives at work behind the decision to hire a native versus an immigrant worker can be further examined in future projects. Perhaps the signaling model can also be used to help inform the decision. The next section will present the model in further detail.

Chapter 5 - The Citizenship Signalling Model

5.1 Model Background

There exist two types of immigrant workers; those from group I who are highly productive, and those of group II who are less productive. The level of productivity is represented by y and $y/2$ respectively. The productivity is a linear, monotonically increasing function. When speaking of levels of productivity for groups I and II, high productivity involves those who possess both hard and soft skills, while the low productivity refers to workers that only have hard, technical skills. In the model, soft skills are defined as the culture and society-specific skills that immigrants identified as significant barriers to employment. These soft skills are skills that are transferable and workers will possess these if they are socially integrated into the culture and the labor market. Hard skills on the other hand refer to skills obtained through training, education, and work experience.

Assume the employer needs to hire a worker that will possess both hard and soft skills to maximize the productivity per worker and minimize costs. Each worker knows their own type; however, this is private information. The employer does not know which of the two types each worker is, rather can only observe a signal and reach conclusions based on the information conveyed by the signal. This signal is the immigrant's ascension into citizenship, as discussed at earlier points in the paper. In this model, there is no distinction between high and low skilled workers, only high and low productivity workers. In other words, there are only workers with both hard and soft skills and those who possess only hard skills. This assumption is reasonable given high-skilled workers will only compete against other high-skilled workers for their trained field, and low-skilled workers will compete with their own counterparts. The effect will be two symmetrical relationships occurring in parallel. Due to different opportunity sets facing the groups as mentioned in the brief discussion surrounding indices, the external effects in one group should have no influence on the other group. For the remainder of the model, the paper will refer to skilled workers and will analyze them as a representative group. A report from 2013

concluded that high-skilled workers constituted 50% of the admitted immigrants (McMahon, 2013), therefore the focus on one representative group should not skew the conclusions.

There is also the assumption that rigidities of the market do not prevent proper work-worker match. Immigrant workers should not have mobility constraints, and therefore should not face any frictional unemployment. In fact, the evidence in the literature suggests one of the main reasons employers hire immigrant workers over native-born workers is the immigrant's willingness to move to another city or province to secure the job (Sorensen, 2013). While the native-born worker would sooner take the employment insurance cheque, the immigrant has higher mobility. This result and assumption are not surprising. Immigrants have demonstrated they are adaptable and willing to undergo change for larger goals through their original decision to move to another country, and without having developed as firm a root in one location will be more willing to relocate.

Lastly, the model requires the assumption that no worker will be motivated to falsely obtain the signal of citizenship. Each worker knows what type they are, and how productive they are. The worker also knows what the wages offered are for each of the productivity levels. Those workers with high productivity levels can produce y units per day and the low productivity-level workers can produce $y/2$ units per day. In return for their labor, the workers receive w and $w/2$ respectively, for each unit they produce. Each worker then decides if they can maximize their welfare by investing in the signal: citizenship. Employers believe those workers that have become Canadian citizens will have both the hard and soft skills they require to complete the job and will be the most productive of the workers. The wages offered to these workers will reflect their level of productivity, with the wage of the naturalized immigrant being the highest, followed by the wage of the permanent resident immigrant worker, and lowest wage paid to the native-born worker. This assumption refers to the rational choice of the employer to consider only immigrant candidates, and also reflects the diverse skills and training that immigrants bring despite lacking some cultural knowledge and social integration.

$$\begin{aligned} \textit{naturalized high skill wage} &> \textit{immigrant high skill wage} \\ &> \textit{canadian - born high skill wage} \end{aligned}$$

To obtain the signal, each worker faces a cost. Consistent with the assumptions presented in Spence's model (Spence, 1973), the cost to become a citizen for immigrants who possess the soft as well as hard-skills will be the lowest, $x/2$, followed those with hard skills only, x . Assume investing in the signal is feasible for at least one group, that is $y > x$. Also assume employers are profit maximizers, and will set the wages equal to the marginal productivity of the worker; $\frac{dy}{dx} = w$. This information is summarized in table 1. The reasoning for each assumption, along with supporting evidence is provided in the next sub-section.

Each worker therefore decides if they can maximize their welfare by investing in the signal and becoming a Canadian citizen. The employer then observes the signal, interprets it, and hires the worker he or she needs. If they require a worker that is well integrated into the culture and Canadian labor market, they will choose the worker that has ascended to Canadian citizen, will offer the appropriate wage, and the worker will accept.

Table 1 - Model Costs and Benefits

	Group I	Group II
Total productivity	y	$y/2$
Cost of signal	$x/2$	X
Wage to be gained	w	$w/2$
Surplus	$y - x/2 > 0$	$y/2 - x < 0$

5.2 The Employer's problem

As mentioned previously, I assume the employer has already decided to hire an immigrant employee rather than a native born one. This assumption is not a large stretch from what occurs in reality. As discussed above there are benefits to hiring an immigrant worker. Some reasons include the different experience from having worked in the other country, the additional knowledge of languages, exposure to training that Canadian-trained workers may not have had, etc. Again, for the purposes of this paper, I assume immigrant workers are more productive than their native-born counterparts, even if for a small margin. To maximize the returns from the search and hiring process, the employer's decision is confined to immigrant workers only.

When making the hiring decision, the employer wants to attract highly productive workers, and simultaneously offer the appropriate wage to maximize the return per worker. Offering a high wage for the worker possessing hard and soft skills will bring the most return as the workers are the most productive, and will have the highest marginal product. Recall that despite possessing credentials and the technical skills to perform the job, many immigrants found they lacked the cultural knowledge and social skills specific to the Canadian market (Derwing, T. et al., 2000). This, in turn, impaired their success in the labor market. This requirement is increasingly significant in high-skilled careers as professionals will be interacting with patients (in the case of physicians), commercial and negotiating partners, and interacting with clients in any customer service business. Therefore the employer with productions similar to those mentioned above will gain the most output per worker from those who can adapt and apply their technical and hard skills to the Canadian context. With the help of the signal, they can identify the workers they demand, and offer sufficient compensation for the worker to accept.

This does not imply that all jobs require such customer interaction, and a lack of soft skills will render the skills obsolete. There are various skills and career fields which do not require such knowledge. The fields involving mathematics, computer software and programming, for example, use universal languages and transcend individual cultures. Workers in this field would be more valued for their technical skills than their ability to communicate and interact with another culture. For those jobs that do not require such adaptability, the employer will hire workers that only possess the hard skills, and again offer the appropriate wage to maximize their profits. Nonetheless, this discussion is an important one to keep in mind for the labor market in general. Through increased global integration, the ability of a worker to adapt and interact with different cultures increases the chances of thriving. As business students continue to learn in

their training, and any professional working in the international setting observes, culture is an important influential factor in market interactions (Karton, 2017).

Finally, the employer also wants to avoid unnecessary costs incurred by mistakenly identifying the worker type. The first is the inefficient use of the resource. Offering the hard and soft skill wage to the hard skills only worker will not only be an overpayment of the worker, but will be removing the worker from a better-fitting job where his productivity would be maximized. The worker will not provide the expected level of output, and would receive payment above the marginal product. Consequently, the employer will face reduced profits, and will keep out the worker that would be better suited for the position. The use of contracts and other similar rigidities in the market means the effect of the mistake would not be short-lived. Rather it would be prolonged for the duration of the contract. On the other side, mistakenly hiring the low-productivity worker will also disturb the other market's equilibrium. This erroneous hire means a reduction in the supply of low-productive workers, and assuming the high-productive workers will not accept underemployment, will create a supply shortage. This sort of mismatch and constraint is not uncommon in the labor market, and such friction prevents the achievement of potential output. In the long term, if the mismatch persists, it may further discourage workers from investing in their skills. The lost surplus from such mistakes therefore provides the employer with the incentive (and necessity) to correctly identify the type of worker.

5.3 The Worker's Problem

Each worker seeks a job that will maximize their welfare. In the model, welfare is an increasing function in income. The worker knows they will have access to higher wages and a better job if they are highly productive (i.e. possess hard and soft skills). Yet they will only invest in the signal if their increase in income will be sufficiently higher than the cost of obtaining the signal. This will be the case for those who will have more difficulty in communicating their quality to the employer and possess the skills informed by the signal. The worker will maximize the distance between their wage and the cost to obtain the signal.

There will be no incentive for workers to lie about their type. The workers that have significantly invested in their education will be very motivated to obtain the signal. As Devoretz discusses, the more the individual invests in education, the more likely he will be to become a citizen in order to reap more of the rewards that come along with the legal title (DeVoretz and Pivnenko, 2005). Consistent with this discussion, we assume the wage offered to hard-skills only workers will not be sufficient to compensate the high-skilled worker for their investment in education and the transfer to the Canadian market. For these workers not investing in the signal means the employer will assume they have low productivity, and only offer $w/2$ as payment. This is a smaller payoff than what they could be making if they had invested in the signal, $w - x/2 > 0$. This assumption attempts to capture the motivations of immigrants that have training as lawyers, accountants, doctors, professionals with MBAs, etc. Many of these professions impose various obstacles to ensure their training is recognized in Canada, and although citizenship is not requirement, success in these fields involves great cultural adaptability, conveyed by the signal of citizenship.

This is demonstrated through the relationships below. If the high-productive worker invests in the signal, they receive the following payoff.

$$\text{if productivity} = y \text{ then } w - \frac{x}{2} > 0$$

However, if they do not invest in the signal, they receive the following lower payoff.

$$\text{If productivity} = y \text{ then } \frac{w}{2} - 0 > 0$$

which is a lower amount than the payoff from investing in the signal.

The workers whose jobs do not require such adaptability will not see any benefit in obtaining the signal. The status of citizen may still convey the signal to the employer, but there will be no adjustment in wages since the level of productivity will not change. If the level of income is associated with the level of productivity, investing in the signal will leave them with a lower net income than not investing in the signal. This relationship is presented with the functions below:

$$\text{if productivity} = \frac{y}{2} \text{ then } \frac{w}{2} - x < 0$$

The workers can maximize their profits however by not investing in the signal:

$$\text{if productivity} = \frac{y}{2} \text{ then } \frac{w}{2} - 0 > 0$$

These workers with little need for the signal will typically be the ones involved in trades such as mechanics, carpenters, electricians, and those involved in fields of mathematics, computer software or similar professions. In these professions, the skills are greatly transferable from one country to another, the costs to adapt to the new country are low, and there is little need to understand culture and the society. For this reason, they will not have a significant increase in income as a result of investing in the signal.

From the incentives discussed above, those that are not committed to staying in Canada will not find it welfare maximizing to invest in the signal. The lack of interest in remaining in Canada implies they do not have the social and cultural knowledge about Canadian culture or cannot adapt to it. Thus, the costs to obtain the signal will be too high, as this will involve both undergoing the legal process of citizenship and obtaining the information about Canada. These sets of incentives and the associated costs ensure the credibility of the signal. The hard-skills only worker will find it profit maximizing to not obtain the signal, while the hard and soft-skills worker will see a great return in investing in the signal. Each type will truthfully reveal themselves to the employer.

5.4 The Benefits of Citizenship

The model so far has only described the returns to the worker associated with the signal in the context of wages and income. However, the benefits of obtaining the signal extend beyond just higher pay. The worker will also have the incentive to become a Canadian citizen to take advantage of the many benefits this legal title offers. DeVoretz and Pivnenko (2005) concluded the legal distinction between citizen and permanent resident has great effect on the jobs and opportunities available to the worker. For example, many well-paying government jobs require high levels of security clearance that also require citizenship (Citizenship Support.ca). Despite the clear discrimination and charter violation this distinction entails, it has been supported by the

2003 decision of the Supreme Court of Canada to uphold the relevant law (DeVoretz and Pivnenko, 2005). This further entrenches the distinction between citizenship statuses of the workers.

Secondly, citizenship entitles you to a Canadian passport. This improves the ease of travel for the immigrant, lowering monetary and time costs at borders. Traveling with a Canadian passport eliminates the need for visas to enter the United States and Common Wealth countries, and facilitates re-entry into Canada (Citizenship Counts.ca). Especially with the NAFTA agreement, a Canadian citizenship increases the number of opportunities for jobs, since the worker gains access to the American job market as well as the Canadian job market (Devoretz and Pivnenko, 2005) (Citizenship Counts.ca). This difference in cost and market access may prevent an otherwise qualified immigrant professional from reaching higher managerial levels and improve their careers. When being considered for a promotion, an immigrant may be overlooked for the position in favor of an employee without practical travel difficulties. Furthermore, as a citizen there is no minimum residency requirement (Permanent Resident Status, 2016). A permanent resident must incorporate the number of days spent outside the country into any decision as they consider possible work opportunities. This may pose a further obstacle to securing reliable employment. Eliminating this constraint, while securing one's residency, is beneficial to all workers.

There are other benefits not as closely related to the economic aspect but nonetheless add to the value of holding a Canadian citizenship. Primarily, it expands one's democratic rights. As a Canadian citizen, the person is entitled to vote, to be a candidate for all levels of government, to run for office, and entitles the worker to pass Canadian citizenship to their children who were born outside of Canada (Citizenship Counts.ca). Furthermore, it provides a security of residency since citizens cannot be deported from the country, and there is no need for renewal of citizenship status (Rights and Responsibilities of Citizenship, 2016). It also allows you to continue to receive healthcare and public school education services for free (Citizenship Support.ca). Finally, as a Canadian citizen, you can get help from the Canadian consulate in case you lose your passport, run into trouble abroad, need emergency financial help abroad, or need help contacting your family (Citizenship Support.ca). Therefore, when weighing the returns to investing in the signal, the model should and does allow for considerations beyond simply wage.

5.5 Why Citizenship is a Good Signal

Citizenship status is a good signal for workers to show they possess both soft and hard skills for various reasons. I will start with an analysis of the characteristics of citizenship as a signal according to Spence's requirements for the signals. Secondly, I will discuss what information is conveyed to the employer about the naturalized immigrant through the attainment of Canadian citizen status.

Voluntary

Primarily, the signal must not be mandatory. As Spencer explains through the example of completion of education as a signal, it is only reliable and only conveys information if it allows the employer to differentiate one individual from another. Education is a good signal to indicate hard-work, determination, cooperation with others, critical thinking skills, etc. As soon as it becomes mandatory, the completion of education will be common to all applicants, and will lose

its meaning as a signal to partition the pool of applicants. The same approach applies to citizenship.

Once an immigrant arrives in Canada with the purpose of living in Canada indefinitely, they receive the status of landed immigrants or permanent residents. For as long as they remain in Canada, they can maintain their status as landed immigrants, with no legal pressure or deadline to ascend to citizenship. As such, the decision to become a Canadian citizen is an entirely voluntary, individual one. Some would argue that differential treatment between citizens and non-citizens, and access to resources and public services are a source of pressure to become citizens. To have access to the same services as citizens, with the same level of benefits and securities these immigrants would be forced to become citizens, albeit indirectly. This certainly not true in Canada as discussed previously.

Immigrants face no direct or indirect pressure to ascend to citizenship in Canada. Canadian are known for their acceptance and incorporation of immigrants into their society. In fact, Bloemraad observed in her paper a substantial divergence between the rate of ascension to citizenship between immigrants that go to the United States and those that come to live in Canada in the last century. She explores the peculiarity of the decrease in rate of citizenship in the United States, and the constant rate for Canadians despite the more prevalent pressure in the United States for naturalization of immigrants. In Canada, there is very little difference between what the citizen and non-citizen can access (Bloemraad, 2016 b). All individuals that reside in Canada, this includes both citizens and landed-immigrants, are covered under the universal health care system, receive protection under the Charter of Rights and Freedoms, have access to the other benefits brought by status of citizen. The only potentially relevant restrictions are that residents who are not citizens cannot vote in any elections, will have more obstacles than a Canadian citizen when crossing some borders, and may not have access to high-security clearance jobs in the government as mentioned above. In contrast to the United States where immigrants face more obstacles to access services, in Canada there is no indirect pressure and incentive to obtain citizenship.

It is not unreasonable to assume the lack of democratic rights and access to a specific market will be significant enough to push a citizen into citizenship. There are various other opportunities in the private market that demand the same set of skills as demanded by the high-clearance federal government jobs. In addition there are other avenues, and arguably more efficient ways, an immigrant can use to engage in political discussions and help bring change other than the voting ballot, if this is an immediate concern to the worker. The more restrictive travel issue may be one of the factors encouraging workers to ascend to citizen; however this is a result of immigration policy of the destination country and relations with Canada rather than only Canadian immigration policy. Furthermore, such delays are not significant barriers and individuals are still free to travel to other countries.

The process to become a Canadian citizen is clearly available to all. For those that choose to become Canadian citizens, the information required is outlined in the XXXX website, with details on the procedure, steps and contact information of public servants, should the person have any questions. Once the immigrant complies with the minimum requirements, they can apply to become citizens. The process for citizenship, and by extension the signal, is thus completely voluntary and open to all interested.

Costs Inversely related to productivity

The second assumption, which is critical to the functioning of the model, is that costs be inversely related to the productivity of the worker. In this case, the cost of obtaining citizenship must be lower for those who possess hard and soft skills, and higher for those with only hard-skills. To understand the relationship, it is important to first explain how costs of citizenship are defined. As Apel and Bushway (2012) and Spence (1973) and other authors of the model explained, the costs to obtain the signal are not confined to monetary terms. These costs can be emotional, financial or physical.

The first type is the monetary costs. Each adult applicant must pay an application fee. Each adult must pay a processing fee of \$530 and a “right to citizenship fee” of \$100, and minors pay a \$100 processing fee. This cost may be a relatively large amount to pay for some families and a small fee for others. For the highly productive workers, this may not be a significant cost incurred for Canadian citizenship. These workers have substantially invested in their education and training. The expected income increase from being hired in their trained profession is substantially higher than the processing fee. When one compares the expected income from working in their trained field, with the underemployment income they would make without the signal, the processing fee is a small cost they would be willing to undertake. Although this may be a one-time fee, it represents the present-discounted value of practicing their trained profession.

To a low-skilled worker, whose job does not require such soft skills, this fee will be significantly high. The average family is four people, two parents and two children. This means that for an average family to become Canadian citizens, on the other hand, they would have a charge of \$1460. This is in comparison to the average weekly earnings of \$895.98 for the family in 2012 dollars (Statistics Canada, tables 281-0024 and 281-0027). This is a considerable amount for a family to spend on a legal process. Such costs only include the application fees, but do not account for lawyer fees, fees for request for documentation, etc. which often accompany these processes (Canada, 2016 a). Especially if the job does not require such soft skills, there will be little to no wage increase from sending such signal, and little incentive to undertake such investment.

There are also emotional costs associated with the process. Sociological studies suggest people have, attachment to their country of origin, as well as their country of citizenship. As Feina and Straughn (2013) explains by the experiences of residents of Estonia post-independence and following the reform in immigration and citizenship policy; one’s decision to become a citizen involves both cost-benefit analyses, and emotional considerations. Various residents described a sense of rootedness and feelings of civic duty that were owed to their country. Others framed their citizenship in affective and symbolic ideas, with one’s concept of citizenship described through the bonds of culture and ethnic heritage (Feina and Straughn, 2013). From these examples, we can see that becoming a citizen of a new country is more than a mere legal component. The decision to become citizens of a new country, may require such feeling of rootedness in the country, and may invoke feelings of rejection or abandonment of the connection to the country of origin.

There is no evidence to indicate one’s attachment to their country of origin is correlated with their productivity and skill level. Studies suggest this can vary by country of origin, yet in terms of labor market outcomes, it is hard to determine which one of the two groups of workers

will face higher costs associated with adopting a new citizenship. It is possible to conclude however, that this cost will be especially high for those individuals whose country of origin prevents dual citizenship. In that case, the decision to attain Canadian citizenship and provide the distinguishing signal to the employer will not only affect the worker on an economic level, but will also have a social and psychological effect. The worker will essentially be renouncing his commitment and dedication to his country of origin.

Finally, the process also involves opportunity costs and time. To be eligible for citizenship, the immigrant must be present in Canada for 4 years within a period of 6 years, or equivalently 1460 days (Canada, 2016 c). Further, the person must be physically present in Canada at least 183 days each year for the four years immediately before submitting the application. Despite allowing for considerable time travel time within these years, workers still face an opportunity cost from having to remain in Canada for this period. Even if the time spent outside of Canada is for valid work purposes, a worker may have to pass a job opportunity if it would force him to be outside the country for a period exceeding the allowable days. Another alternative is the worker may be prevented from moving to another country with better job prospects once they have already initiated and invested a substantial amount of time in the citizenship process.

This fear of losing the time already invested is even more relevant once the application for citizenship has already been submitted. The application processing time provided by the office of immigration is twelve months (Canada, 2017), yet popular blogs provide evidence of some applications extending to up to sixteen months. This estimate however begins once the immigration officer receives a *complete* application. Application processing times can be further delayed if there are missing or additional documents that need to be submitted with the application; the applicant missed a test, hearing or interview; or do not meet the language requirements. (Canada, 2017). Writing the application, compiling the documents and putting in the application are parts of the investment being made to obtain the signal.

Such time investment and sacrifice of further work opportunities will be costlier for least productive workers. If one is to give up hours of work to prepare the application and to meet the citizenship requirements, the high-productive workers will have more incentives to do so since the payoff will be significantly higher. Such high skilled workers will be sacrificing a low-skill wage in the process of obtaining the signal, yet will see a wage increase to the high-productivity level. A less productive worker however will sacrifice the same low-wage to prepare the application, yet unlike the highly-productive worker, will not be compensated with a wage increase large enough to offset the time invested. Furthermore, those with lower wages and lower productivities generally have more elastic labor supplies. As a result, the requirement of residency for a minimum number of days and the sacrificed opportunity of a new contract or job elsewhere may be too high a price to pay.

Involves small portion of relevant population

Another significant requirement for a good signal is that it is acquired by only by a small portion of the relevant population. In this case, the relevant population are all workers in Canada in the different fields. For specific skills offered by the naturalized immigrant workers to be valuable, they must be scarce enough to increase their value. This point goes back to one of the foundational concepts of economics, where the issue of scarcity increases the value of the good. As mentioned previously, there are various benefits to an employer hiring an immigrant worker,

two of which are the additional language and foreign experience. In Canada, 77.7% of the 2011 working force was native-born, which leaves a sufficiently small portion of the population considering investing in the signal. This group shrinks further when we isolate only the immigrants that will pursue Canadian citizenship as soon as possible, with the intent of using it as an economic signal. Out of all workers in 2011, 16.6% had ascended to citizenship (Statistics Canada, 2014). Thus, the final cautionary requirement of the model is fulfilled by citizenship as a signal.

Conveys the Necessary Information

Lastly, yet importantly, the signal of citizenship conveys the necessary and intended information from the worker to the employer. Through the process and the criteria required to become a Canadian citizen, the worker demonstrates their possession of various skills and characteristics that employers look for.

The requirements for citizenship help convey the information. An immigrant is eligible to apply for citizenship if he is over the age of 18, is currently a permanent resident in Canada, passes the Canadian citizenship test and provides proof he knows how to speak and write in at least one of Canada's official languages, English or French (Canada, 2017). Such criteria all encourage the immigrant to become familiar with Canada and its culture. The proof of language skills speaks to the immigrant's ability to communicate in the language of the country. Therefore, the worker offers communication abilities in both their native language and Canada's official languages if they are distinct from one another. Secondly, by studying and passing the citizenship test the worker is not only learning about the rights and responsibilities of citizens; they discover Canada's history, understand its roots and evolution, and with it absorb the culture and its people. This requirement helps equip the immigrant with the Canadian-specific knowledge that was mentioned by many immigrants as being an obstacle to obtaining jobs.

Further, there is also a time requirement. The immigrant must have lived in Canada for at least 4 years out of the 6 before you apply. Within each of the 4-year period, the immigrant must have lived in Canada as a permanent resident for at least 183 days (Canada, 2017). These criteria serve a couple of different purposes. First, it further promotes an understanding of the Canadian culture. One would assume that as more time is spent within a society, the more the person will understand its ways and adapt to that way of life. Dedicating 4 years of residency in one location, with a minimum required number of days per year promotes intensive immersion in one culture. Even if the individual goes abroad, and is exposed to other cultures the minimum 183-day physical presence requirement ensures the individual is always reminded of and immersed in the Canadian culture. Moreover, the time spent in Canada is restricted to times spent as a free Canadian resident. In other words, time served in prison or spent visiting Canada does not contribute to the citizenship requirement. This increases the chances of success of the proper, law-abiding citizens of society and discourages members that dispute Canadian society by challenging and breaking its laws.

Fulfilling the requirements to become a citizen, along with the costs, shows a commitment and dedication to Canada. Following such requirements, especially considering the many international forces pushing and pulling individuals across borders, is an achievement that should be recognized by employers. In addition, the requirement allows the immigrant to establish a life and begin setting roots in the country. Such connections will lower the chances of the worker abandoning the employer and the country after reaping the benefits of the investment.

The time spent training and developing the worker will not be a surplus wasted, nor will it contribute to the well-known phenomenon of brain drain present in the Canadian market. With the costs and time necessary to become a citizen, those using Canada as an intermediate stop or stepping stone to migrate to another country will be less likely to obtain citizenship.

The process also encourages the development of financial and physical ties. Other requirement includes filing taxes for at least 4 years during the last 6 years, with any outstanding tax debt being paid off, and completing the application from within Canada. Effectively, both the presence and tax filing requirement ensure immigrants are not able to acquire citizenship for economic or practical purposes without incurring the intended costs and learning process included in the application. The filing of taxes also promotes the development of "significant residential ties" to Canada (Canada, 2017). These ties include ownership of a home or other personal property in Canada, having family living with you in Canada, and other social ties. Together, the fulfillment of these requirements shows the immigrant's determination to stay in Canada, as well as their ability to adapt enough to a culture to build a new life in the new place.

Finally, as mentioned at the start of the paper, the identified factors that lead immigrants to become citizens are consistent with the information conveyed by the signal. To start, theories explain that immigrants engage in cost-benefit analysis in their decisions to ascend, which implies this measure has an economic foundation. Secondly, as presented by Feina and Straughn (2013) immigrants are motivated towards naturalization by feelings of emotional and cultural connections to Canada, as well as interaction and aid from citizens from outside the immigrant community. This interaction promotes the knowledge and integration into Canadian society and culture necessary. Integration into the Canadian society and understanding the culture helps workers fit their skills within the Canadian labor market context, which is beneficial to both workers and employers.

There are also additional and often unexpected transitional costs to immigrating and entering a new labor market. The licensing or Canadian accreditation required for many professions and trades, for example, can be a further deterrent from success in the labor market. Sociology theories also speak to certain characteristics, skills and aptitudes of immigrants being more conducive to naturalization. Although citizenship is not a prerequisite to obtaining many licenses and Canadian accreditations, obtaining it does make it more likely that the individual will invest in the accreditation process. If an individual has become a citizen, the employer can infer they possess a certain set of skills and aptitudes which led them to citizenship in the first place, while are also conducive to the Canadian culture and labor market. Further, given they became Canadian citizens and are more committed to Canada than their permanent resident counter parts; they are more likely to complete the necessary accreditation or already possess the necessary Canadian licenses. Again, citizenship demonstrates their advantages and skills to prospective Canadian employers.

5.6 Why Citizenship and not Permanent Residency?

As mentioned previously, an immigrant need not become a Canadian citizen; they can choose to remain a permanent resident for the remainder of their time in Canada. programming raises the question of why permanent residency is not the signal being considered. While similar in some respects, permanent residency does not convey the same information as citizenship and cannot act as a valid signal.

First, all immigrants who relocate to Canada become permanent residents, with a threshold of obligations they must meet. Aside from the choice of migrating to Canada in the first place, once here the choice of holding permanent residency is not voluntary. As such, being filing Canada conveys to the employer only the fact that you are the of another country, who was present in Canada for at least 730 days within every 5-year period, and has not committed any acts that would warrant a revocation of such privilege. This does not distinguish the different immigrant workers. Furthermore, it does not offer as strong a connection to the social integration on citizenship. Comparing with the time and residency requirements of citizenship, the necessary time spent in Canada is much shorter. It is much more flexible and without the yearly requirement, a person need only spend 40% of the time in Canada to maintain their permanent resident status. This is less conducive to the cultural and social integration employers are interested in, and therefore is not as reliable as a signal.

Secondly, it is much easier to maintain the permanent resident status than citizenship. For one, an individual is able to fulfill the residency requirements, despite not being physically present in Canada. Such requirement may be satisfied if the person is traveling with a Canadian spouse or common-law partner, employed on a full-time basis by a Canadian business, have a Public Service of Canada position outside of Canada, or are the spouse, common-law partner or child of a permanent resident who is outside Canada and meets their residency requirements as well. This effectively lowers the costs associated with maintaining the status, and may even equalize the costs of the signal for all groups. Consequently, it would cease to distinguish one individual from another, and render the signal uninformative.

Finally, permanent resident status is much less secure than citizenship. If you are in Canada and the immigration officer determines that you have not complied with your residency obligations, the officer can issue a departure order requiring you to leave Canada (Permanent Resident Status, 2016). This is effective immediately with little time to make proper arrangements. There is a lower risk of suddenly losing your employee when hiring a naturalized immigrant. Given the lower costs of obtaining the permanent resident status and the ease of losing it, the opportunity cost of abandoning it will accordingly also be lower. If the immigrant receives a better offer elsewhere, the lower substitution cost makes further migration and brain drain a more likely outcome.

5.7 Limitations and Applications of the Model

A notable application of the Spence model is the signaling perspective on criminal re-entry programs. This adaptation offers some parallels with the immigration scenario and provides important lessons to keep in mind when constructing this model. These refer to the signals sent to employers from ex-prisoners through their participation in government re-entry programs (Apel and Bushway, 2012). As this article explains, the chance of successfully obtaining employment and staying out of the criminal justice system, albeit modestly, increases if the criminal has successfully completed the re-entry program. Contrary to claims that the program has no effect on recidivism, the authors argue that this program still has an important impact in the re-entry process, even if they don't have a causal impact in the employment or recidivism. Important for the purposes of this paper, the authors identify some causes of the failure of the signaling system when applied to the data, which helps inform our model in this case.

First, the signal will not be effective if those meant to interpret the signals are not open to receive them. This implicates the original assumption that the individuals involved are rational. For the re-entry programs, despite being prepared for the labor market, the well-documented employment problems create a stigma and discrimination against the workers, which overshadow the information conveyed by the signal (Apel and Bushway, 2012). There is also evidence that those with cynical attitudes towards the correctional justice system are more likely to continue crime. This demonstrates how pre-set attitudes can make signaling more or less accurate. A similar phenomenon may be present with immigrant workers, who may face stigma and discrimination despite being the most qualified for the job.

Canadians are not normally known to discriminate. This commitment to equality is deeply entrenched through the provisions of the Charter of Rights and Freedoms. Durham immigration further describes Canadian as respectful of cultural differences and committed to social justice (Durham Immigration Portal). It has often been called the cultural mosaic, by emphasizing the different backgrounds and cultures of the people (Just Landed). However, in the labor market and other parts of society, this may not be enough. Canada's population is divided into different economic and social classes. While one is not tied to their original classification and can achieve great ends, there are obstacles in place that simply money cannot overcome. Connections and political alliances can influence the process, and obstacles of color can be more difficult to overcome (Just Landed). When it comes to hiring, implicit assumptions and unnoticed discrimination, these factors can affect the chances of the workers. These may therefore interfere with the effectiveness of the signal.

A second possible point of failure comes if the measures to provide the signals are not properly implemented. In the case of the re-entry program, implementation issues and non-compliance with the requirements of the program created obstacles to the workers to obtain the skills needed and thus provide credibility to the signals being sent (Apel and Bushway, 2012). Similarly in the immigrant worker scenario, if the path to obtaining the signal is not properly implemented or workers do not properly comply with the requirements to obtain the signal, it will lose its credibility. This is an issue for this model. As employers use the signals and update their beliefs, a falsely gained signal if encountered often enough will undermine the credibility of the information intended to be conveyed, or will lose meaning altogether. If ex-prisoners that went through the program do not perform to the guaranteed standard, employers will stop using graduation from the program as a signal of good employability. In the same logic, if immigrants who become citizens do not have the cultural knowledge, proficiency in the language and communication, and connection to Canada as expected by the employer, employers will stop using it. The signal will become meaningless and workers will have to find another manner to convey the necessary information to employers.

Setting aside the limitations, the model can be expanded to further applications. Primarily, Canadian citizenship does not have to be limited to signaling Canadian employers only. Obtaining Canadian citizenship can be a signal interpreted by foreign employers as well. Let me illustrate this with an example. Hong Kong and mainland China have extensive and voluminous business with Canada and the United States. This means Chinese negotiators must be proficient at communicating in either English or French, and understand the culture of these countries to succeed in negotiations, especially in highly complicated or controversial business deals. To a Chinese employer with extensive business in these countries, a worker that understands the negotiating partner's languages and motivations will be more valuable than one only integrated

into the Chinese culture and market. In this situation, the Canadian citizenship can act as a signal to Chinese employers as well. It demonstrates that the workers have been integrated into Canadian culture and market, and effectively distinguishes the worker from the rest of the masses.

This example has some empirical support. Devoretz found that by 2004, 25% of the Chinese immigrant population had returned to Hong Kong or China, many with Canadian citizenship (DeVoretz and Pivnenko, 2005). It is not clear if they improved their labor market outcome through citizenship and then returned to their original country, or if they were successful and chose to return for other reasons. However, the expanded idea of citizenship as a signal could explain this departure from Canada. Once the workers became integrated into the Canadian culture and ascended to Canadian citizenship, they return to China to reap the benefits of their investment in the signal. The variable analysis in the next section also reveals supporting evidence. In the data, the numbers reported of Canadian citizens by naturalization with original Asian citizenship are quite low compared to the number of permanent residents from Asia in the country. This may be a result of the naturalized citizens of Asian origins returning to China, and supports expanded effect of Canadian citizenship as a signal to foreign employers.

Extending further, the achievement of Canadian citizenship may provide viable signals for employers in other countries looking for other specific skills. Canada's political and economic system can show employers that workers are familiar with general workings of democracies, capitalist economies, large welfare states, etc. To continue further would extend beyond the scope of this paper. However, it is a path left to be explored further in the future, and developed with expansions of the model. Currently, I will return to the original inquiry and proceed to the empirical model, which provides further support for the theory.

Chapter 6 – The Empirical Model

6.1 The Data

To support the theoretical model, a suggestive empirical model is presented. The goal of the empirical model is to mimic the effect of citizenship on income and wages as it sends the relevant signals. This looks at different rates of returns for similar individuals, save for their different citizenship status. Once these differences are observed, the model can examine if the patterns fit with and are consistent with the predictions of the theoretical model. If they are found to be consistent, it would suggest citizenship is a viable signaling tool and further validate the theory.

The data used for the empirical exercise is the public use microdata file of the 2011 National Household Survey, with the response rate of 68.6%. The format, questions, and approach to the study is similar to past ones conducted in past years, with some questions changed. The file selected the sample of individuals using a two-phase sampling plan and overall has the sample size of 887,012 individuals (Statistics Canada, 2014). For testing this model, the paper looks at a subset of eighteen variables from the total of 133 of the whole study. The sample was weighed using a weighting factor for each individual unit. The average value of the weight is 32.4, but after dropping certain observations for the model it becomes 35.93. The regressions, results and summary statistics are presented incorporating the weights provided with the sample.

To look at the effect of citizenship, the individuals that were Canadian by birth were dropped from the sample. These included individuals that were born in Canada and thus had Canadian Citizenship, as well as those Canadian-born who had obtained citizenship to other countries as well. This resulted in a sample size of 172,589 representing 21.5% of the original sample, and when adjusted for weights represents a population of 6,201,395.9. The individuals left in the sample include those that were born outside of Canada and became citizens by naturalization through the naturalization process and those who are not Canadian citizens and hold the citizenship of another country or had no citizenship. Of the individuals who became citizens by naturalization and the citizenship process, they also include those that have citizenship to Canada as well as other countries, for those countries that allow dual citizenship.

Next, the immigrants in the country that were not permanent residents were dropped from the sample. Using the variable of Immigration status, the data was filtered to keep only those who were permanent residents, but not yet citizens, and those that became citizens by naturalization. The group that was dropped included individuals on student visas, temporary work visas, or participating in the foreign worker program. These would disrupt the sample, and due to the temporary nature of their work would have similar incentives and characteristics as the group of interest to send the correct signal. There are also other controls added to the regression to account for these individuals, which will be elaborated on later in the section.

6.2 The Variables

There were two variables used to represent the labor market outcomes of the individuals: total income and wages. The model uses two different dependent variables, repeating the same process for each dependent variable, as each helps complement the information that is missing from the other. The first dependent variable is wages. This value captures the wages received from work, but also includes military pay and allowances, tips, commissions and cash bonuses. The measure also includes benefits from wage-loss, income-maintenance insurance plans, supplementary unemployment benefits from employer or union and any other casual earnings and taxable benefits earned during the year 2010 (Statistics Canada, 2014). The second dependent variable used is total income. This is defined as income from work incomes such as self-employment income from farm or unincorporated business or professional practice; income from government transfers such as child benefits, Old Age Security (OAS) and Guaranteed Income Supplement (GIS), pension plan benefits, EI; as well as income from investments, dividends, bonds, savings certificates; and any other money income (Statistics Canada, 2014). For both measures of returns for workers, the universe is limited to those over the age of 15. The observations that were unavailable or not applicable were recoded as missing to maintain the observation without influencing the valid values.

Both measures provide important yet different pictures of the labor market outcome of the individual. To start, total income provides an overall picture of the money available to the immigrant worker to survive. As shown by the above evidence, many immigrants look at the decision to become citizens as a cost-benefit analysis. Therefore, we assume they would compute all benefits available to them, not simply the amount received directly from work. These benefits include the ones discussed previously such as more job opportunities, access to larger markets, and noneconomic advantages. When making the decision to obtain the signal, the immigrant worker considers all these sources of funds, along with other factors that could affect their success in the labor market. However, the measure of total income includes government

distortions from the labor market using transfer payments, employment insurance, etc. Given that such government aid and supplements are provided based on need and not on citizenship status, the receipt of or lack of government provided income does not provide any signal or help distinguish one worker from another. For this reason, I also compare the relationships found in the regression using total income as a dependent variable to the relationships obtained in the regressions using wages as the dependent variable.

Wages provide a more reliable relationship between worker skills or productivity, and the payment attributed to each. Through the measure of wages, the model will better capture the return on citizenship, controlling for the factors that also influence the decision of the employer. When a worker acquires different skills, there is a difference in productivity, and this difference would most clearly be reflected in their wages. As a measure of labor-market success, wages do not include government distortions such as transfer payments, but still allow for the regular precautions workers implement such as buying additional insurance. Furthermore, the comparison of wages and total income allows the model to separate the effects that are direct results from the labor market, from the relationships that result from all other sources of income and supplements.

A correlation analysis further supports the importance in examining the effects through both measures. This is demonstrated in the table below. While simple and obvious, it is worth noting the relationship has a positive sign. Becoming a citizen of Canada contributes positively to one's returns for work; the model is on the right track. Looking at both correlations, it is clear the correlation is stronger between citizenship and total income. The difference in measures suggests the benefits that accompany citizenship are not confined simply to higher wages. Since the additional incomes through government transfers are not dependent on citizenship status but on necessity, we would not expect a difference in the relationships. However, the observed difference in correlation could be a sign of the added benefits of citizenship at work. The measure of total income could be capturing the non-wage related benefits such as access to government jobs and accompanying job benefits (such as well-maintained pension plan, dental and medical insurance, etc...) and increased number of accessible job vacancies. The empirical tests will compare the effects of citizenship on both returns, and note further differences in relationships.

Table 2 – Correlation of citizenship to dependent variables

CORRELATION	Wages	Total Income
<i>citizenship</i>	0.0655	0.0990

6.2.1 BASIC REGRESSION VARIABLES

The model controls for the general demographic characteristics of the worker as well as other immigration characteristics. These include sex, age at immigration, citizenship status, province of residence, household size, arrival prior to the 2008 recession, official language, and number of years in Canada. The first five variables were provided by the survey, and the last three were created from other variables in the survey. These are included in all regressions and referred to as the basic variables. Sex is a dummy variable with male coded as 1 and female as 0, with no other manipulations done to the variable. The persistent and well-known wage gap

between men and women requires such consideration in the model. The sample only considers real income of the individuals that are 15 years of age or older. This is one of the defining characteristics of the labor force, and to stay consistent with the definition of labor force, the model also only considers respondents over the age of fifteen. The variable age group was used to drop observations of people under the age of 15, however, was not included in the regressions. As will be discussed later in the regressions section, the age group variable was not significant and the relevant information it could provide was transmitted through the other variables in the regression.

In contrast, the life experience of the individuals was captured by the “age at immigration” variable. This variable was squared, and included in the regression together with the original form of the variable. It is well-known in the labor and labor income literature that experience and wage growth tends to follow a quadratic pattern, with a peak at the optimal point of productivity of the worker. The same should be true of the age at immigration. The younger the general worker starts, the more time he or she will have to develop skills and increase their productivity. A young general worker also implies the employer will have a longer use investment by hiring the worker. This suggests the relationship between age and wage is negative. From the citizenship signal model perspective, younger immigrants will have more time and more exposure to the new culture, thus facilitating integration into the new society. Depending on the age of immigration, the worker may finish their education in Canada, and develop practices consistent with Canadian culture and receive higher returns. In turn, this may also influence their need to signal their type to the employer, as the Canadian education will already demonstrate their integration into Canadian society. This reasoning suggests a negative relationship between income and age at immigration. However, in the case of immigrant workers specifically, one of their appealing characteristics is their foreign work experience and knowledge. If the worker migrates too young, they will have had little employment in the foreign country, which diminishes their contributions to productivity. This implies that income should be increasing in age at immigration. The quadratic form will allow help to accommodate these opposing forces, as employers trade longer investments in workers with the worker’s foreign experience. The results of the regression should provide some clarity on the relationship.

Citizenship status was simplified; all observations of individuals that were Canadian by birth were dropped. Non-citizens were recoded to zero and citizens by naturalization to 1. A summary table is provided below in tables 3 and 4.

Table 3 Variable Information

Variable	Max	Min
Weight	396.39	32.39
Age group	85+	15
Age at Immigration	60+	0
Total Income	\$769,923	\$0
Wages	\$751,180	\$0
Years in Canada	60+	0

Table 4 – Proportions of Indices

Sex	Proportion	Citizen	Proportion	Speak official Language	Proportion
Male	47.63%	By naturalization	78.87%	Yes	93.42%
Female	52.37%	Permanent resident	21.13%	No	6.58%

The model also controls for province of residence, with no manipulations done to the variable. The purpose of including this control in the model is two-fold. Based on research province of residence should not have much (if any) effect on the decision of the worker to become a citizen. While it should not affect the return on the status directly, province of residence does influence the level of wage received, given the differing costs of living in each province and the different industries each province specializes in. The province control considers these differences and adjusts for related anomalies. Secondly, and on the total income side, the level of social welfare and assistance differs from province to province. While there are welfare programs organized at the federal level, most of the support including aid organizations, is organized at a provincial level. Note from the graph below, the majority of the population is concentrated in Ontario. This may skew results slightly and place greater focus on the individuals in this province.

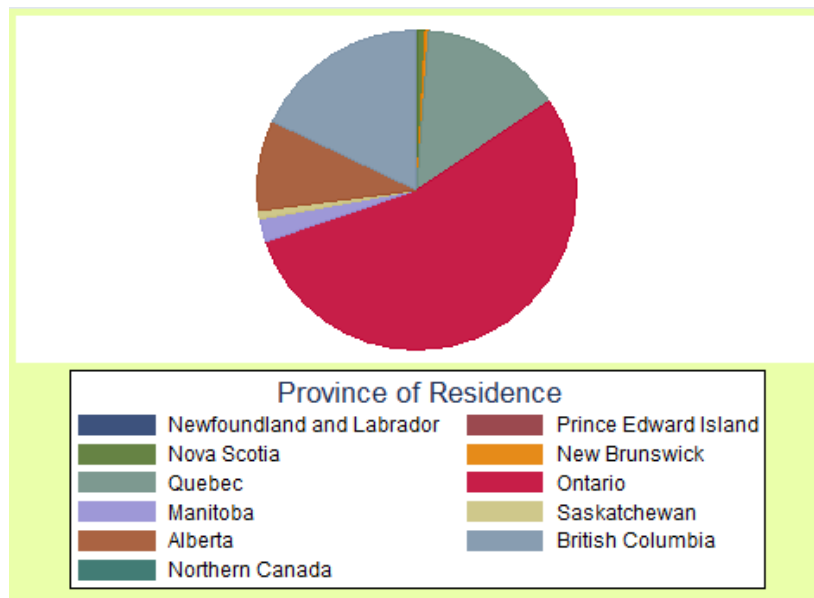


Figure 2 – Province of Residence

The group of generated basic variables includes number of years spent in Canada, a dummy variable capturing those whose mother tongue is the same as one of the official languages, a dummy for arrival after the 2008 recession, and the percentage of immigrants from the same country. This last variable was included based on general relationships that were

inquired about in the literature as potentially affecting one's income or the signal sent by citizenship; the cluster effect. This variable is included as a mere curiosity, and will only have a brief discussion.

The variable accounting for language skills was derived from the variable "Language: First Official Language Spoken", and recoded 1 to those that spoke English, French or both and recoded zero to those that spoke neither language. The workers whose first language is either English or French, excluding the slight differences in dialect and accents, are expected to have an advantage communicating with their peers and integrating into the Canadian culture over the other immigrants who must also learn to speak English or French. As mentioned in the literature above, language can be a major part of culture, and speaking the same language may provide these immigrant workers with an additional connection to the Canadian market. These skills may also influence the incentives of the immigrant worker to obtain citizenship. It may facilitate the worker's communication that he possesses the skills mentioned. Thereby diminishing the value or return to the signal. For a worker whose first language is something other than English or French, however, the value of citizenship signal would increase. The signal in this case would demonstrate not only their ability to communicate with their Canadian co-workers, but also brings the added asset of an additional language with which to conduct business.

The variable accounting for number of years spent in Canada serves as a control for those who are not yet eligible to become citizens, and therefore the legal status is not an individual's choice. It also controls for the different experiences in Canada, and opportunities to integrate into the Canadian culture. The longer time the immigrant has spent in Canada, the better integrated into the Canadian culture he or she is expected to be. "Years in Canada" was created by subtracting the year 2010 from the variable "year of immigration". This variable controls for the experience: work, social and cultural, acquired by the immigrant the longer they spend time in Canada. The data provides a list of all years from 2010 until 1990, however changes the method of reporting to grouping the years into groups of 5. For the measure of years in Canada for the periods that are grouped, the data was rounded down to the lower value of the bin. For example, for the group of immigrants who arrived between 1985 and 1989, the calculation rounds down to 2010-1985, hence 25 years.

The third created variable is a control introduced to account for the effect of the 2008/2009 recession on the income of workers. It is already well documented in the literature that immigrants suffer more from a recession than Canadian born citizens (Abbott and Beach, 2011). This variable controls for the dramatic changes in income that hit the wages and income of the workers. It also provides a chance to explore the interesting effect of a recession, on workers based on their citizenship status. The status as citizen implies the worker has a better job, facilitated through the signal, and would be better prepared to handle such shocks to the economy. This dummy variable was created using the year of immigration, and coded individuals who arrived in Canada before the recession as zero, and those that arrived in 2008 or after as one. The issue with this variable however, is that the set of immigrants who arrived after the recession and are citizens, will be empty. The data only goes as far as the start of 2011, and to become a Canadian citizen one must be in Canada for at least 3 years. Therefore, seeing the effect of a recession on immigrants that are, and are not citizens will have to be explored by further research when more data is available. However, the variable will be included in the regressions to control for the effect of this event on the return to workers

The last general factor controlled for captures the Cluster effect identified in the literature. This refers to the volume of immigrants from the same country, or same geographical area, that concentrates in one area and which creates their own communities. The effect of such immigrant communities on immigrant integration into the Canadian labor market, community and culture is unclear. The community of immigrants helps newcomers and within the community, the worker can find suitable work; thus making the expense associated with the signal unnecessary. On the other hand, the opportunities available in the community can be limited, and the immigrant must still interact with the greater Canadian community. As a result, the workers may still be motivated to obtain the citizenship signal. The model attempts to capture this effect by creating a variable that makes use of the place of birth data in the survey. The copy of the place of birth variable was recoded to reflect the percentage points of people in Canada from each country. For example, if 5% of the immigrant population was from Argentina, the cluster variable for all observations from Argentina would be recoded as 5. This measure is certainly not perfect. One main issue is that it cannot control for where the immigrant established residence. Despite a high quantity of immigrants from one country, there is no guarantee the new immigrant will move to the same area or even be in contact with the cluster from their country. The assumption with this measure is that as mentioned by the literature, immigrants are drawn to areas with people that are like them and will thus seek out the clusters (Ley and Smith, 2008). This measure may exaggerate the effect of clusters, however should still roughly indicate the direction the relationship between clusters and integration into Canadian labor market.

6.2.2 SIGNAL RELATED VARIABLES

The next set of variables control for the different characteristics of the worker that would affect their necessity to obtain the signal. In the model, these are the variables that would reveal which workers would face greater constraints in demonstrating their skills, and would thus invest in the signal. The connection to the income would as a result, appear in gaps in return for otherwise equal workers. Those who would experience a loss in returns by becoming a citizen would be the workers whose immigrant status is a requirement or a benefit for the job, or those who do not need the signal to differentiate themselves from others. Therefore the investment in the signal would be an unnecessary cost and consequently lower their total income. On the other hand, a positive relationship to income by ascending to citizenship, with a premium on their income would suggest citizenship is acting as a signal to employers, and has benefits as theorized above. These variables include field of education, highest degree earned, industry worked in, country of original citizenship and class of worker. These are all controls that most likely explain the level of income and wages, yet may also demonstrate the effects of citizenship as a signaling method.

Area of education refers to the major field of study based on the new Classification of Instructional Programs (CIP) Canada 2011 "primary groupings". It only considers individuals with a postsecondary certificate, diploma or degree. There are 12 categories, such as education, visual and performing arts, business and management, mathematics and computer information, architecture and engineering and related fields, and health related fields. The observations that were not available or not applicable were recoded as missing in the sample to not influence the results. This is one of the variables where the effect of the signal is likely to be observed. Some fields of education and consequently the area of work they will pursue require more soft skills than hard skills. The information of this indicator variable should provide some insights into which areas. If a worker in one field of education would benefit from the signal of citizenship to

further their careers, or would have a difficult time distinguishing themselves from their colleagues who do not have soft skills, the benefit would be apparent in the difference in wages between the different citizenship statuses. The difference in wage or premium on citizenship would suggest the employer is interpreting the signal, and investing more in the employee that is a citizen. Later, as the employers observe the workers and reinforce their beliefs, they will continue to use citizenship as a signal and further increase the returns for those workers that demonstrate it.

Figure 3 provides the distribution of fields of education among those that are citizens and non-citizens. The patterns are mostly consistent between both citizenship statuses; however there are more citizens trained in architecture and engineering, education, business and management, and finally no post-secondary degree than noncitizens. In contrast, there are more non-citizen workers who studied humanities, physical and life sciences and visual and performing arts. These patterns follow the expectation mentioned above. Fields that would have difficulty demonstrating their soft skills, yet can be important to success in the field, would see an advantage in the signal. An example based on the graph includes architecture and engineering. Those in entertainment, visual and performing arts, on the other hand, would not be expected to struggle with demonstrating their soft skills and understanding of a culture since their chosen field incorporates specifically these skills. It is very likely they would see no advantage to investing in the signal. Of the workers that reported no post-secondary degree, it is possible they chose to become citizens to signal their possession of *any* skill. Considering they cannot easily demonstrate their possession of any hard skills, the signal may provide an easy way to demonstrate their soft skill to the employer, and compensate for the lack of hard credentials.

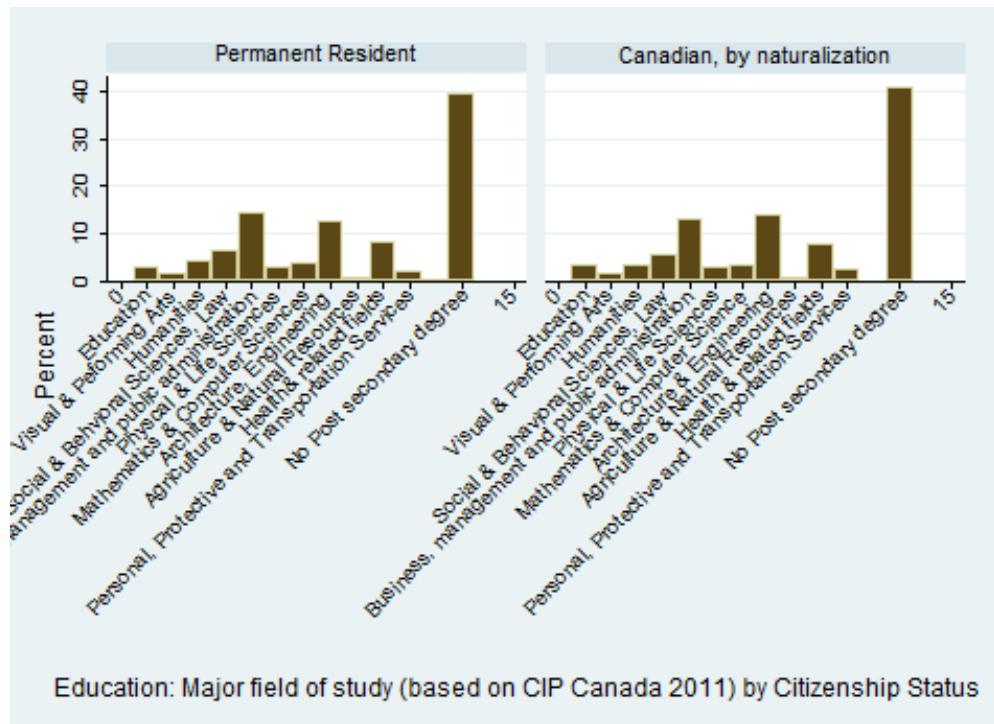


Figure 3 – Individual Major Field of Study by Citizenship Status

The level of education earned can be a large influence in a worker's returns; however it is unlikely to provide evidence to suggest citizenship was used as a signal. The highest degree earned variable is included in the model, but only demonstrates the worker's different shut-off wages according to the different level of investment in the education. A level of degree is too general, and does not provide any indication of which workers would see the value in investing in a signal. As an example, with the categories of education shown above, a bachelor's degree in architecture or engineering would need to demonstrate to the employer they possess soft skills, whereas a worker that also has a bachelor's degree, but in humanities, social sciences or education would not need to demonstrate these skills as it would already be assumed for the job. The expected result of the level of degree, is to only suggest the more the worker has invested in the degree, the higher returns they would expect, and more likely they would be to invest in the signal to enjoy the benefits that accompany it. The reason it *is* included in the model is to control for the different levels of education a worker may have, that would affect their level of earnings. As a result, it will not be interacted with citizenship, but is included as an indicator variable in the regression.

Highest degree achieved is the variable which provides a detailed profile of the person's most advanced certificate, diploma or degree. This information was compiled based on a series of education questions and was loosely tied to the "in class" duration of various types of education (Statistics Canada, 2014). There are a substantial number of workers with high levels of education, such as master's degrees, university certificates and diplomas and bachelor's degrees as can be seen in figure 1. This suggests the model's assumption to work only with high-skilled workers sufficiently matches the data, and will provide least biased results. For the highest degree earned variable, all 5 slightly different categories of completion or partial completion of CEGEP, college or non-university certificate were joined into one category.

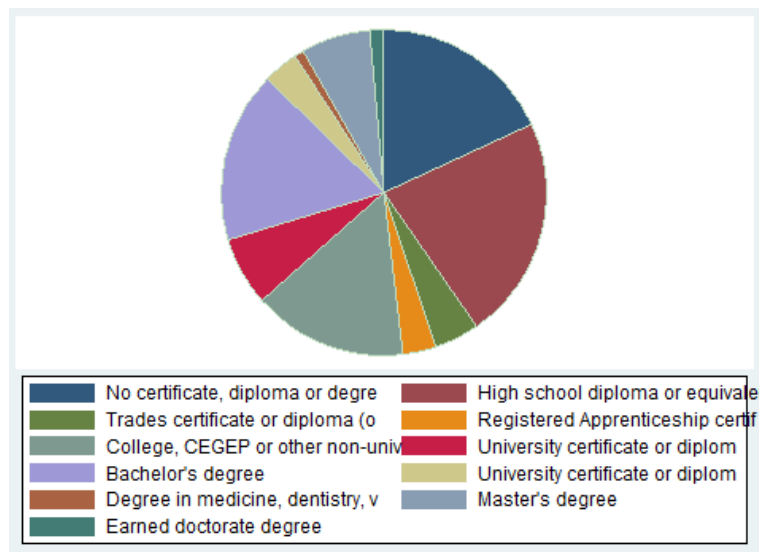


Figure 4 - Highest Degree Achieved

To account for different skill-requirements and differences in earnings, industry was also included. This is an important distinction from the field of education. Various fields of education can relate to multiple different industries, and many of the other fields of education translate directly into specific industries. Some examples include humanities and education for the former

case, and health related fields or business management for the latter case. The industry sector is determined based on the general nature of the business carried out by the place where the individual worked, and includes only individuals above the age of 15. Given the general nature of the industry yet the specific area it represents, this indicator variable could provide mixed results. The various types of positions within each industry could provide general results like highest degree earned, yet the specific area could bring some information aligned with the results from field of education.

The categories are organized based on the NAICS 2007. This measure is an enhanced industry comparability method of categorization used among the three NAFTA countries. This is a systematic arrangement of industries, separated into 20 sectors, with 102 sub sectors and 324 industry groups. For the purposes of this model, the variable focuses only on the 20 general sectors. This is a good control for skills of the workers, as well as adjusting for different levels of earnings that are attributed to different industries based on their size and prominence in Canada.

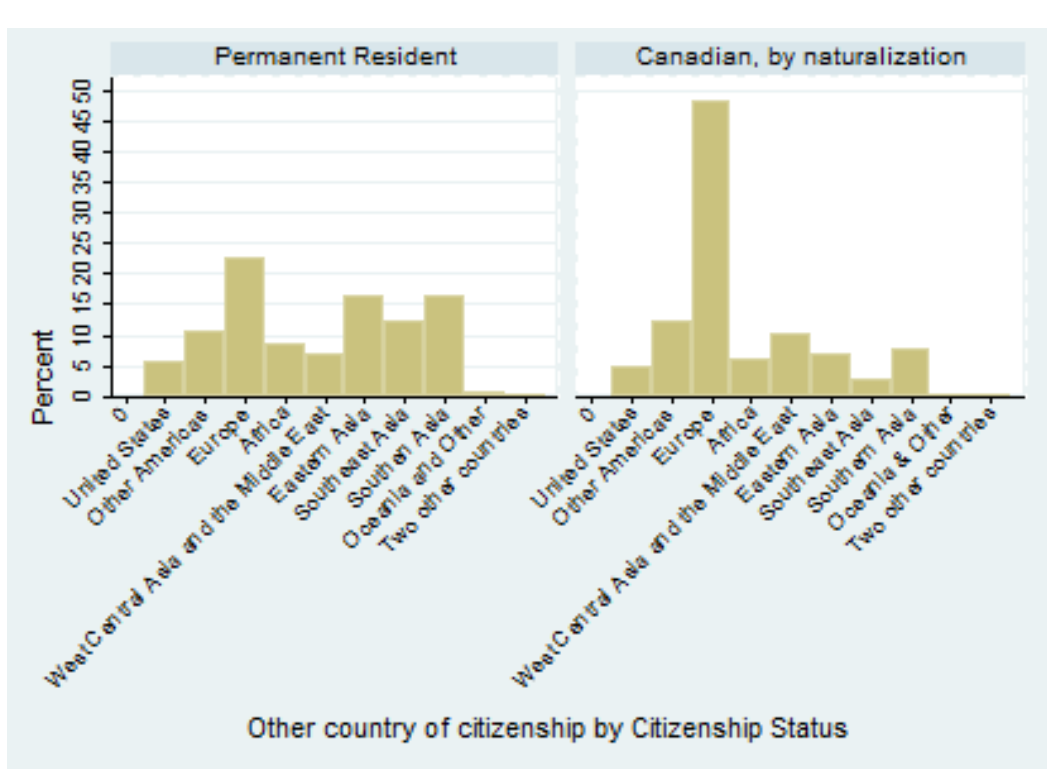
Perceptions of foreign cultures can also affect how well one is perceived to adapt to the new culture. The next variable captures the effect of citizenship on labor market outcomes based on different nationalities and cultures. This is represented by “Citizenship (component): Other country of citizenship - First write-in”. This measure refers to the legal citizenship status of a person, which may not be the country of birth of the individual. This is grouped by major countries or by continent. This variable includes those that are citizens of the country by birth, by naturalization, or are stateless.

While there are protections in place against discrimination, evidence presented above indicates it may still be present in the labor market. Controlling for country of last citizenship can help uncover such practices. As for the effect of citizenship, a gap in income *ceteris paribus* would suggest citizenship offers important information to employers. The lack of Canadian citizenship may suggest they have not yet integrated into the Canadian market. The country of current citizenship and how compatible its culture is to Canada’s may be an indication of how likely the worker is to be successful in the labor market. This divergence based on citizenship would be expected for the workers whose culture differs the most from Canada’s; those who would be perceived to face obstacles to adapting to the Canadian culture. Those closest to Canada such as American citizens, and those who share close cultural connections to Canada such as Europe, would likely see little benefit in investing in the signal. They would already be expected to understand the Canadian culture, at least in part since the UK and France colonized Canada, and their common political and economic systems should also make for an easy transition to the Canadian market.

Looking at the figure distributing country of citizenship by citizenship status however only confirms half of this hypothesis. The results for the United States is consistent with the prediction, yet the number of Europeans as Canadian citizen towers over the others, and the number of Asian immigrants who became citizens dwindle when in fact they would be expected to be high. The low number of Asian citizens in 2011 may reflect the phenomenon described earlier of many Asian, naturalized Canadians returning to their countries. The European result may also incorporate the fact that there are many different countries and cultures in Europe, which may not be as close to Canada was believed. The regression results should provide further insight into the relationship.

The dataset did provide country of birth as a variable. The model however chose to use other citizenship status as the best measure. Primarily because place of birth is not significant in determining the income or wage of the individual. This may be explained by the number of countries that do not automatically award citizenship to all of those born within its territory. Thus, country of birth may not provide the same connections and influence the motivations of workers as country of citizenship. There are also many individuals who are born in one country but spent most of their lives in another country, to which they have citizenship, and feel both more connected and integrated. When considering the signal provided by the citizenship status, one must remember that Canadian citizenship is not the only one providing a signal to the employer. As the literature explained above, there are various factors that influence one's decision to become a citizen and how they view their citizenship. It is not simply what message Canadian citizenship sends to others, but also what being a citizen of another country signals back. For these reasons, the model will use other citizenship to capture the effect of citizenship as a signal for different countries.

Figure 5 - Country of Last Citizenship by Citizenship Status



Finally, the last signal-related variable is class of worker. This variable separates the workers into employees; self-employed workers with and without paid help, incorporated and not incorporated; and non-paid family employees. While the model mainly focuses on employees sending signals to employers, it will be useful to see if self-employed workers also have an incentive to become Canadian citizens for the purposes of signaling. Self-employed workers are their own employers; therefore they know their full sets of characteristics and would have no need for a signal. A different approach may suggest that the workers are signaling their clients similar or equal information as a worker sends to their employer; reliability, understanding of their culture and thus better consumer relations. This last component is more of a curiosity that

the model can help shed some light on. The non-paid, family workers are dropped from the sample, self-employed workers are recoded to zero and employees are recoded to 1.

6.2.3 Final Note on the Model

Returning to the main model the variables included consist of both indices and signals. This was done for a couple of reasons. To start, many of the variables were included in the regression to control for other possible effects on income and wages. In other words, to minimize any omitted variable bias. Secondly, as presented by Spence in his paper, the indices can also influence the information sent to the employer. The employer does not know which characteristics are indices and which are signals. The indices can provide information by affecting the opportunity set of each group. As a result, controlling for indices such as sex and age of immigration, the sample will be separated according to their categories, each with their own opportunity set, and be compared on the same merits with citizenship status as the only varying characteristic. This should help draw out the relationships of the signal.

6.3 The Regression

The model consists of parallel regressions; one with total income and the other with wage as the dependent variable. The approach taken is as follows. The first regressions include all the mentioned variables, with the main signal related variables being interacted with citizenship. This will allow the model to separate the different effects on income based on the different citizenship statuses. The interacted variables are identified with an asterisk (*) next to the name of the variable. The variables with various categories were inputted as indicator variables, with results reported for the different categories. This process is done for both regressions, which are compared throughout the analysis. The form of the regression is as follows:

$$\begin{aligned} \text{Log}(\text{dependent var}) = & \beta_0 + \beta_1 \text{ageimm} + \beta_2 \text{ageimm}^2 + \beta_3 \text{yrsCan} + \beta_4 \text{citizen} + \beta_5 \text{Cluster} \quad (1) \\ & + \beta_6 \text{Arr2008} + \beta_7 \text{i.HDgree} + \beta_8 \text{HHSize} + \beta_9 \text{sex} + \beta_{10} \text{language}^* + \beta_{11} \text{province} + \\ & \beta_{12} \text{CIP2011}^* + \beta_{13} \text{NAICS}^* + \beta_{14} \text{Othercitizen}^* + \beta_{15} \text{ClassWorker}^* + \varepsilon \end{aligned}$$

In terms of functional form, the regressions take the log of the dependent variables to capture the percentage change in income associated with each variable. This will provide a better idea of which factors or signals have greater influences on income and wages. Secondly, the regression form is quadratic. Among the basic variables is age at immigration squared. A quadratic functional form was chosen since it is consistent with the literature examining skills of workers and factors that affect worker returns for productivity. In other labor market outcome models, age is the variable that is usually squared. In this model since age group proved insignificant considering the other variables included, the closest variable was age of immigration, and it was therefore squared.

Chapter 7 – Results & Discussion

The full model contains citizenship as one of the variables, as well as interacting with the main signal variables with the citizenship status as well. A preliminary look reveals a couple of key factors about citizenship. First, while the sole variable of citizenship is not significant in either the income or the wage regression, there are significant differences between like-individuals, based on their citizenship status, demonstrated through the interaction terms with citizenship. In the majority of cases, those who are citizens by naturalization earn higher income

and higher wages than their permanent resident counterparts. This can be seen through the results in table 1. Secondly, the regression for wages shows citizenship with the expected positive sign; being a Canadian citizen contributes more to one's wage than being a permanent resident. This full model regression with the interactions account for 15.9% of the changes in an immigrant's total income, and 13.86% of an immigrant's wages.

An analysis of the basic and demographic variables of the total income regression demonstrates results as expected, and consistent with other results from the literature. Male workers make 14.7% more than women. The same conclusion is reached in the wages regression, yet with much higher gap of 30%. This difference between the earnings measure can be attributed to the welfare payments that are also included in the total income measure, and not the wages measure. Such a drastic gap was expected among immigrants, as Abbott and Beach presented the disadvantage for women are more pronounced among immigrants (Abbott and Beach, 2011). Household size is not significant in the wages regression but has a small significant effect in the total income measure. Again, this may be reflective of the welfare payments to the household, which is highly dependent on the number of individuals in the household. Consistent with the theory, household size would not be expected to affect citizenship decisions.

Regarding the variables related to immigration, the age of immigration contributes positively to the income of the worker at a decreasing rate. Similarly, years in Canada increase the worker's income by 2.8% per year. The increase in income with age at immigration, however at a decreasing rate demonstrates the two forces at work discussed previously. The older the immigrant is, the more experience he or she will have from working in their previous country, which they can bring and improve the efficiency of production. This is the positive relationship with age of immigration. On the other hand, the older the immigrant is, the less working years they will have left before retirement, and the harder it will be for the worker to adapt to Canadian culture and market. This is captured by the negative age at immigration squared variable. The increase in income with years in Canada reflects the value of the so called "Canadian experience" that various employers demand, and has been discussed in papers above as one of the main obstacles for immigrants to obtain employment (Derwing et al., 2000). The significance of years in Canada also contradicts one of the papers mentioned above, which argued hire-ability is not affected by years in Canada. The results do not suggest this. Immigrants do not seem to be holding out for better jobs; rather they are slowly being integrated into the labor market. The conclusion of the basic controls for the wages regression reaches similar results. Age of immigration increases wages at a decreasing rate. Years in Canada also increase income, with similar size effects.

Note that these regressions do not include the age of the worker. This was done for a couple of reasons. Originally when included, age of the worker was not significant. This may be because the information the variable would convey is already presented by the other age-related variables in the regression. These are age at immigration, and years in Canada. Secondly, the consideration of the employer when hiring an immigrant worker is different than hiring a native-born worker. For a native-born worker, the age informs the employer of number of working years left as well as provides some indication of how much experience they have. For the immigrant worker however, the more important factor is how many years of experience the worker has both in Canada and in the foreign labor market of their previous country of residence.

In this case, to help minimize errors, age of the worker was excluded from the regression, and the variables that provide more information were included.

The controls for arrivals post-2008 recession also display expected results. For both income measure and the wage measure, those that arrive after 2008 have a significant reduction in earnings, ranging from 25.4% of the wages and 27.8% of total income. However, this measure contributes limited information to the study due to the lack of more recent data, with more time since the recession. This limitation will be explored further in the next section.

The last simple variable, capturing the cluster effect mentioned in the literature is significant in the total income measurement but insignificant in the wages regression. In the total income measure, the results indicate the higher the concentration of immigrants from the same geographical area, contribute to higher income of the individual. This is highly significant and very influential in the income regression. These results suggest there is much to be gained from immigrants interacting with clusters of similar immigrants. Considering the lack of significance in wages, the benefits of clusters are likely in other non-wage support, for example in the form of employment, accommodations, work experience, child care, etc. The design of the measure prevents interaction with citizenship to understand the different effects on income; however, it demonstrates a positive contribution to a worker's success. There are also some limitations with this measure, which will be addressed in the next section.

Table 5 - Regression Results for General Variables

<i>Variables / Regression</i>	(1) Total Income	(2) Wages
<i>Constant</i>	7.9584 (0.2880) *** [*]	7.6742 (0.5680) ***
<i>Age Immigration</i>	0.3439 (0.0174) ***	0.2479 (0.0196) ***
<i>Age Immigration2</i>	-0.0184 (0.0013) ***	-0.0131 (0.0014) ***
<i>Years in Canada</i>	0.0282 (0.0010) ***	0.0199 (0.0014) ***
<i>Citizen</i>	0.3096 (0.2689)	0.4342 (0.4303)
<i>Highest Degree[†]</i>		
<i>High school diploma or equivalent</i>	0.1389 (0.0410) ***	0.2150 (0.050) ***
<i>Trades certificate</i>	0.1311 (0.0834)	0.0956 (0.0964)
<i>Registered</i>	0.1805 (0.0881) **	0.12208 (0.1000)

^{*} *** Results significant at the 1% level

^{**} Results significant at 5% level

^{*} Results significant at 10% level

[†] The categories listed in the results are only selected results. Categories were selected based on relevance and level of significance.

<i>Apprenticeship</i>		
<i>College, CEGEP</i>	0.2352 (0.0774) ***	0.2726 (0.0813) ***
<i>University Below Bachelors</i>	0.2098 (0.0797) ***	0.3232 (0.0820) ***
<i>Bachelor's Degree</i>	0.4092 (0.0747) ***	0.4348 (0.0796) ***
<i>Degree in medicine, dentistry, vet or optometry</i>	0.8266 (0.1249) ***	0.5682 (0.1579) ***
<i>Master's degree</i>	0.5491 (0.0768)	0.4982 (0.0853) ***
<i>Earned doctorate</i>	0.8627 (0.0935) ***	0.9581 (0.1059) ***
<i>Household size</i>	0.0345 (0.0064) ***	0.0083 (0.0070)
<i>Sex</i>	0.1504 (0.0200) ***	0.3012 (0.0238)***
<i>No language , Citizen</i>	-0.0187 (0.0862)	-0.1365 (0.1482)
<i>Language, Non Citizen</i>	0.0018 (0.0539)	-0.1413 (0.0643)**
<i>Language, Citizen</i>	(omitted)	(omitted)
<i>Cluster</i>	2.2178 (0.4898) ***	0.6364(0.6150)
<i>Arrived before 2008</i>	-0.2824 (0.0255) ***	-0.2536 (0.2907)***

Next highest degree achieved confirms the expectations discussed earlier. As the level of education increases, so does the contribution to one's wage. The higher levels of education such as Master's level or doctorates contribute as much as 95.8% to one's wage compared to the contribution of 21.5% from a high school degree. Trade certificates and apprenticeships have very little effect, with non-statistically significant results. This may be due to lack of income reporting, yet not the concern of this paper. While there is no direct evidence, the high returns for highly educated individuals from working in their respective areas suggest they will be motivated to find appropriate employment, will not likely settle for jobs where they are underemployed and are more likely to invest in the signal. Given the large benefits, high degree workers stand to gain by having their credentials recognized, there is an increased likelihood their potential benefits will exceed the costs, compared to lower diplomas.

Interestingly, speaking one the official languages as your first language is statistically significant for one's wages, but not to total income. This contrast is not surprising as there is no language requirement for receipt of welfare payments, and the language component required for one's job is captured in the wages effect. From the interaction with citizenship status, the results report that non-citizens whose first language is either English or French will make 14.13% less than their counter parts that have ascended to citizenship. While not statistically significant, it still is interesting to see that being a citizen, but speaking primarily a language other than the two

official languages will also make 13.6% less than the official language naturalized citizen. These results imply that neither language nor citizenship is sufficient on their own to maximize one's earnings and demonstrate integration into Canadian society. However, citizenship has a more prominent and significant effect than not speaking English or French as one's first language.

These results are consistent with the theory. Various sociological articles mentioned language can be an identifying part of culture and can facilitate integration. This is demonstrated through the advantage of the naturalized citizen who shares the first language with native-born Canadians. Hand in hand with language, to achieve higher wages, citizenship still serves as a key component. This suggests that citizenship supplies the employers with critical information that language alone cannot do; citizenship signals the employer as to the worker's type. Another interesting observation that comes out of these results is that knowledge of a second or third language, albeit indirectly, does not seem to significantly influence the wage of the worker. While language can be a component of culture, it is nonetheless a skill that can be acquired. Speaking multiple languages can be an asset to an employer, especially those who conduct business internationally. Perhaps the status of immigrant is in itself already a signal to employers that the worker speaks a foreign language and therefore not significant for wages among a pool of immigrant workers.

Fields of education interacted with citizenship highlight gaps in returns between citizens and non-citizens, statistically significant for some specific fields. Field of education is split into 11 categories, with non-citizen who studied the field of Education as the omitted category. Workers with no post-secondary certificate were also omitted from the results. The majority of the results show area of education having a positive contribution to one's income; however, most are not statistically significant. One proposed explanation for the lack of significance is that some fields of education do not translate directly into one career path. It also does not imply the worker will be performing a task related to what they trained for. Fields such as humanities, social and behavioral sciences, and visual performing arts and communications, have a wide range of opportunities available in their careers. In many studies in the Arts, universities advertise the program as helping the student build critical and analytical thinking skills, not specific to one career path. Going forward, the paper will focus on six specific fields that are statistically significant, which in contrast have a more direct path/connection between the field studied and the career pursued. These six focus fields imply citizenship plays an important role in the worker's earnings. This part of the results is summarized in table 6.

Controlling for area of education and citizenship status, the fields that are sensitive to and require soft skills to be successful contain a premium for naturalized workers. These are education, Business management and public administration, mathematics and computer information sciences, architecture and engineering and related technologies, health related fields, and finally personal protective and transportation services. Supporting the initial assumption of all workers as skilled-workers, these fields train high-skilled workers. In the total income regression, workers who studied in the field of education and have become citizens can make as much as 27.1% more than their permanent resident counterparts. A naturalized worker's business education contributes 27.4% to their total income at 1% level of significance, whereas the non-citizen counterpart's education only contributes 11.8%, at 10% level of significance, to the income. These suggest that citizenship provides the employer with some information about the worker's productivity, and warrants increased compensation.

Table 6 - Regression results for major field of study

<i>Variables / Regression</i>	Total Income	(2) Wages
<i>CIP2011[‡] (Citizen</i>		
<i>Permanent Resident)</i>		
<i>Education</i>	0.2780 (0.0959) *** [§] (omitted)	0.2187 (0.1534) (omitted)
<i>Visual Arts & Communications</i>	0.184 (0.0886) 0.1047 (0.1124)	0.0246 (0.1146) 0.1162 (0.1336)
<i>Humanities</i>	-0.0001 (0.0816) 0.0326 (0.996)	0.0368 (0.0846) 0.0865 (0.1177)
<i>Social Sciences</i>	-0.0354 (0.0757) 0.1531 (0.0904) *	0.0234 (0.0780) 0.2289 (0.0999) **
<i>Business Management, Admin</i>	0.1234 (0.0688) * 0.2831 (0.0842) ***	0.2207 (0.0699) *** 0.3101 (0.0933) ***
<i>Math, computers and IT</i>	0.1753 (0.0815) ** 0.2132 (0.0997) **	0.1928 (0.0869) ** 0.4794 (0.1031) ***
<i>Architecture, Engineering and related tech</i>	0.1061 (0.0724) 0.2132 (0.0828)**	0.1764 (0.0742) ** 0.2902 (0.0921) ***
<i>Agriculture, natural resources</i>	0.2143 (0.1052) ** 0.1510 (0.1110)	0.1666 (0.1308) 0.2643 (0.1586) *
<i>Health related fields</i>	0.0605 (0.0765) 0.3290 (0.0949) ***	0.0851 (0.0804) 0.4080 (0.143) ***
<i>Personal, protective & transport services</i>	0.0812 (0.0945) 0.2793 (0.1141) **	0.2148 (0.1018) ** 0.3976 (0.1344)***

This relationship is also found in the results for the other focus fields. Architecture and engineering students earn higher incomes by ascending to citizenship, where the contribution to income by the field is only significant once the student has ascended to citizenship. In mathematics and computer sciences, the pattern is the same, at 5% level of significance. The gap

[‡] the categories listed in the results are only selected results. Categories were selected based on relevance and level of significance.

[§] *** Results significant at the 1% level

** Results significant at 5% level

*Results significant at 10% level

is quite dramatic for those involved in the health and related fields. Citizens in this area can make as much as 27% more income than their counterparts who maintained their permanent residence status, with the contribution to income maintaining significance only for workers who have ascended to citizenship. This gap increases to 32.3% difference when the wages measure is used. Similarly, the field of protection is only significant if the worker has become a citizen under the total income measure, and contribution by noncitizens in the area is only significant at the 5% level.

These results are consistent with the predictions of the signaling theory. The fields of education, which lead to jobs within that field, require cultural understanding and well-developed social skills to connect with the audience and promote the message. Knowing this, the possession of soft skills is already expected for these workers; they would not have difficulty in revealing this quality to potential employers. This is reflected in the changing level of significance between both earnings measures. The significance of citizenship in one of the cases suggests that it is still important to demonstrate integration into the Canadian market and culture, however not as crucial as the field of mathematics for example. Workers trained in mathematics and computer information would not be expected to have strong soft skills, nor would they have various opportunities to demonstrate this skill. Math and computing are governed by functions, equations, and programs that transcend language and culture to a universal study. However, even if it is a small part of their overall training, these professionals still need to answer to the requests of their clients. This is where soft skills can help some mathematicians distinguish themselves from the others, with large potential benefits to offset the costs. The signaling approach fits as a possible explanation for the great and significant gap in wages between workers who are citizens and those who are not.

Similar analyses can be done for the other fields. Businessmen and women need to understand the audience and their values, beliefs, culture to succeed in negotiations or in promoting a product. Given the negotiating and marketing skills commonly used to describe the field of business, workers in these areas should face fewer obstacles to demonstrate their soft skills to employers. This is reflected in the smaller citizenship premium associated with that field, compared to others. Yet once again, there still exists a statistically significant gap in returns contingent on citizenship status. This suggests that aside from having or being assumed to possess well-developed communication skills, citizenship helps a worker demonstrate integration into the Canadian market, to interpret the local clientele's wants and respond accordingly. Similarly, engineers and architects complete most of their work with calculations and machines or software, yet require a firm grasp on their respective markets to answer the demands of the clients. This is once again reflected in the gap in wages between citizens and non-citizens. Continuing this observed trend with another example, transportation and protective services face the same challenge. For success in their business, protection and transportation agencies want to promote a tough yet reliable image through their employees, while simultaneously being able to adapt to the culture and practices of the area. The premium provided by citizenship allows the workers who have a tough demeanor to demonstrate to employers they can also interact well with the Canadian customers. This reasoning helps explain the premium given to workers who are Canadian citizens, explains its size relative to other fields, and explains its level of significance when comparing like-workers with difference citizenship statuses.

This social and cultural connection is arguably most important of all for health-related fields. The professional needs to be able to communicate with the audience to effectively identify

the issue, and most importantly establish a relationship of trust while the individual is uncomfortable or in pain. This importance is captured in the relative size of the premium for health related fields, 32.3%, the largest premium among the mentioned fields. As discussed earlier in the theory, recognition of accreditation does not require the worker to be a citizen. However, considering the extensive investment undertaken by these professionals and the high standards they are held to, citizenship seems to provide the employer with the important information necessary to distinguish the well-integrated and prepared candidates from the ones that are not. Considering the extensive investment the professionals undertake, they would have great incentive to convey this information to the employer and enjoy the greatest possible return.

Table 7 - Regression results for industry worked

<i>Variables / Regression</i>	Total Income	(2) Wages
<i>NAICS**</i>		
<i>Agriculture, Forestry, fishing</i>	-0.1882 (0.1482)	-0.4121 (0.2912)
<i>Mining, quarrying and oil extraction</i>	0.4651 (0.2561) *††	1.2078 (0.2120)
	0.6830 (0.1402) ***	0.6140 (0.1548)
<i>Utilities</i>	0.5234 (0.1562) ***	0.9636 (0.1768)
	0.2829 (0.1272) **	0.3159 (0.1922)
<i>Construction</i>	0.1524 (0.1040)	0.4814 (0.1471)
	-0.2091 (0.0960) **	-0.3622 (0.1272)
<i>Manufacturing</i>	0.1551 (0.0955)	0.5271 (0.1381)
	-0.1441 (0.0777) *	-0.1181 (0.0893)
<i>Wholesale trade</i>	0.1681 (0.1038)	0.5680 (0.1425)
	0.0375 (0.0807)	0.1148 (0.0868)
<i>Educational Services</i>	-0.0945 (0.1041)	0.1517 (0.1483)
	-0.4106 (0.0769) ***	-0.5286 (0.0975)
<i>Health care & social Assistance</i>	0.1128 (0.1025)	0.4933 (0.1427)
	-0.1863 (0.0741) **	-0.2633 (0.0897)
<i>Accommodations & food services</i>	-0.3348 (0.0987) ***	-0.0663 (0.1402)
	-0.5734 (0.0861) ***	-0.6208 (0.0986)

** ** the categories listed in the results are only selected results. Categories were selected based on relevance and level of significance.

†† †† *** Results significant at the 1% level

** Results significant at 5% level

*Results significant at 10% level

Moving along to industry of work, the relationship of citizenship is contrary to what was expected. Like in field of education, only some industries are significant determinants of one's income and wages. However, diverging from the results in fields of education, the advantage from the gap in income goes to noncitizens rather than citizens. Almost all industries except for Mining, quarrying and oil and gas extraction show permanent residents earning higher income than naturalized citizens, with varying levels of statistical significance. These results, listed in table 7, would suggest the integration of into Canadian culture signaled by citizenship would be a damaging rather than contributing skill.

There are however a couple of possible explanations or contributing theories for this result. First, these statistically significant industries tend to have the jobs that local labor does not want to do. As a result, the Canadian market needs to outsource the labor to complete these jobs (Canada, 2014). The income to non-citizen could be higher simply because there is a disproportionate amount of immigrant workers in those fields. Further, as they become citizens these workers gain Canadian experience and can indulge in the same mentality and job preferences of Canadian-born citizens. This explanation, however, does not contribute to the application of the signal theory, as they do not support nor deny the expectations. It is important nonetheless to include this control in the regression, as discussed earlier in the variables section.

A second possible explanation uses the entrance category the immigrant was admitted under. Skilled workers, for example, are admitted into Canada with a job already secured, and have passed a strict test of their skills and training to work in Canada (Canada, 2016 b). These workers, many of which are sourced out to work in specific positions, need only demonstrate their competence for the job, their hard skills. Based on the research presented by Abbott and Beach (2011), the skilled worker category of immigrants has a greater return on their labor and tends to fare better in the labor market compared to their counterparts in the other categories. They are not the same as temporary foreign workers. In contrast to other immigrant workers who are admitted under one of the other categories, they must search for a position after migrating and do not have the focus solely on their hard skills. These workers need to sell themselves as good investments, compete with other Canadians, and rely on both their qualifying credentials (field of education as one descriptor) and soft skills to be chosen for the job. For this reason, they would have an invested interest in obtaining the signal and increase their return to education and training. The skilled workers, on the other hand, would already have demonstrated their skills to the employers and would have no incentive to obtain citizenship. As demonstrated in the table below, about 18% of the immigrants in Canada in 2011 had been admitted into Canada under the skilled worker category, with their spouses constituting another 18%. While these explanations do not present the entire picture, these could be contributing factors.

Table 8 - Proportion of immigrants admitted in 2011 by entrance category^{††}

2011 Figures	Total immigrant admission	Business class, principal applicant	Family class	Skilled worker, Principal applicant	Skilled worker, spouses and dependents
Number	4455540	74655	1422130	781175	818180
Proportion		1.68%	31.9%	17.5%	18.4%

In contrast to the unrelated results provided by industry, the theory of citizenship signal is consistent with the results for country of last citizenship. The results present a substantial gap between the income and wages of naturalized workers and permanent resident workers, with citizenship providing a positive contribution to earnings, and lack of citizenship having a negative, statistically significant effect. In fact, all results for noncitizens from all countries, except for Oceania and other smaller non-listed places and dual other citizenships are significant. This contrast in statistical significance between citizenship is very relevant in the discussion. The significance of country of last citizenship for non-citizens, followed by lack of significance with citizens could indicate that citizenship is acting as an effective integration signal to employers. Based on the theory, once a worker obtains Canadian citizenship, they are demonstrating their possessing of soft skills, and sufficient integration into the Canadian culture. Following this rationale, once they become citizens, the place of origin is irrelevant for the employers as the workers are all equally prepared for the labor market in Canada. This is precisely what the results claim in table 9.

The next quality of the results to notice is the size of the wage and income gaps between the different countries. From the discussion above, the theory would predict that countries whose cultures are closer to that of Canada would have an easier time adapting to Canadian market and demonstrating it to the employers. As a result, their return from investing in the signal would be lower than a worker whose last country of citizenship operates in ways very different from Canada's. The other country has a very different culture as well and complicates the worker's integration. Employers do not know how foreign workers from different countries will perform in the labor market, and therefore use country of origin and its culture to help estimate the worker's chance of success. This is reflected in the smaller losses suffered by European immigrants of 13% for not having citizenship, compared to the losses of African immigrants, Southern Asia immigrants and West Central Asia and the Middle East with losses of 47.6%, 42.5% and 54.2% respectively.

^{††} Statistics Canada. *Table 054-0018 - Income of immigrants, by sex, landing age group, immigrant admission category, period of immigration, family status and tax year, 2014 constant dollars, annual (dollars unless otherwise noted)*

The farther away the country's cultural, political and economic structure is from Canada's, the more difficulty the immigrant will have to adapt and to demonstrate this to the employer. This size of gap is reflected in the difference in wages among workers. The premium for citizenship for a worker originally European is 62%. In contrast, the premium for citizenship for a worker originally from eastern Asia is 89%. Most of the countries with the smaller premium for citizenship are democracies, countries which have had substantial American influence or countries that were colonized by western European countries. While Canada does have the Charter of Rights and Freedoms to prevent discrimination on grounds of citizenship, among others, this indirect form of discrimination seems to be one way in which employers screen their potential future employees.

Table 9 - Regression results for country of last citizenship

<i>Variables/ Regression</i>	(1) Total Income	(2) Wages
<i>Country of Citizenship</i>		
<i>PR</i>		
<i>Citizen</i>		
<i>U.S. – citizen</i>	0.2438 (0.2390)	0.4808 (0.3877)
<i>Other Americas</i>	-0.3020 (0.0512) *** ^{§§}	-0.3008 (0.0625) ***
	0.0253 (0.2367)	0.4183 (0.3796)
<i>Europe</i>	-0.2121 (0.0448) ***	-0.1384 (0.0583) **
	0.1218 (0.2348)	0.4908 (0.3777)
<i>Africa</i>	-0.4441 (0.605) ***	-0.4768 (0.0710) ***
	0.0344 (0.2407)	0.3640 (0.3853)
<i>West Central Asia & Middle East</i>	-0.5773 (0.0675) ***	-0.5420 (0.0856) ***
	-0.1372 (0.2401)	0.3952 (0.3811)
<i>Eastern Asia</i>	-0.6150 (0.0541) ***	-0.5718 (0.0671) ***
	-0.1734 (0.2412)	0.3233 (0.3817)
<i>Southeast Asia</i>	-0.3932 (0.0538) ***	-0.3072 (0.0630) ***
	-0.0659 (0.2458)	0.5962 (0.3804)
<i>Southern Asia</i>	-0.5075 (0.0521) ***	-0.4246 (0.0633) ***
	-0.1528 (0.2374)	0.0827 (0.3830)
<i>Oceania and Others</i>	-0.0906 (0.1686)	-0.0092 (0.1552)
	0.6213 (0.2681) **	0.7876 (0.4313)*

^{§§} *** Results significant at the 1% level

** Results significant at 5% level

*Results significant at 10% level

Similar expectations are in place for countries which are geographically closer to Canada. The cultural similarities between the U.S. and Canada are well documented. Given the close history and many shared values, it is very unlikely American citizens would have any issue integrating into Canadian culture, and sharing this information with their employers. This is evident in the results, where all non-citizens face a negative income gap in relation to American non-citizens. Such conclusion is consistent with the discussion by Chiswick, which speak to the transferability of skills and knowledge from one country to another (Chiswick, 1978). Noncitizen workers from eastern Asia for example, have the largest drop in income compared to the American workers (-64%). American citizens' skills are more easily transferable and interpreted by employers which result in a smaller premium relative to other nationalities. These results suggest citizenship seems to work effectively as a signaling method.

The final analysis for this regression is the effects of citizenship as a signal for different classes of workers. The results are presented in table 10. It is a puzzling part of the results. Of the workers that have ascended to Canadian citizenship, the self-employed workers earn substantially less than those that are employees. This result is consistent with the literature. Paradoxically, employees that remain as permanent residents earn 65% more than the employees who have become Canadian citizens. This may be again a function of the entrance category of the immigrant. Perhaps examining this result further, and determining its cause can be the puzzle for a future article.

Table 10 - Regression results for class of worker

<i>Class of Worker</i>		
<i>Employee, Permanent resident</i>	0.4395 (0.0447) ****	0.6509 (0.0838)***
<i>Employee, citizen</i>	(omitted)	(omitted)

Chapter 8 – Limitations

8.1 General Limitations

While interpreting the results of the model, there are some limitations that should be kept in mind. To start, the measure of total income includes government financial assistance, such as Old Age Security, Employment Insurance, Child Benefits, etc. This measure has the potential to distort the demands and reactions of the labor market, and over or under emphasize the effect of a control on the worker's return. Especially given the lack of citizenship requirement for many of these aid programs, there is a limited ability to separate the two effects. As mentioned earlier, a measure of wages is also used to minimize this effect, however, such government involvement is always a factor to consider when analyzing the results. Secondly, the data does not allow for separation of the worker based on immigration entrance category, to then control for different circumstances coming into the country. As mentioned by Beach and Abbott in their paper, the skilled-worker category tends to have better labor market outcomes to those admitted under other categories (Abbott & beach, 2011). While there is some evidence that through income growth the

*** Results significant at the 1% level

** Results significant at 5% level

*Results significant at 10% level

incomes of different categories converge over time, the sample still has many observations at different points in the convergence process, which can affect their income, and their decisions to invest in the signal. It would be interesting for future research with access to more detailed data, to examine the effect of citizenship on workers based on their admission category. Given this lack of information and discussed importance of such entrance categories, some results must be assumed to be influenced by the category of the worker.

The cluster variable created using place of birth is also not a perfect measure. Recall, this variable was created by replacing the place of birth of the individual with the percentage of people from the same place. It attempts to capture the effect of immigrants moving into larger immigrant communities from the same country or area, thus eliminating the need to become acclimatized to the Canadian culture. This measure, however, depends on various assumptions. First, it assumes the immigrant group is concentrated in a single geographical area, rather than spreading out across Canada. With the available data, there are various challenges to determining the density of one population in each province, and further in each area. It also assumes that those immigrants have knowledge of the immigrant group, seek out the group and become involved in the group. It is possible that newly arrived immigrant families do not want to contact their past community members for an array of reasons. Finally, it assumes immigrants from one country only help those from the same country and excludes the possibility of immigrants helping other immigrants in general, regardless of country of origin. This relationship is something that needs to be explored further in the literature and provide a better understanding of how it positively contributes to labor market outcomes.

Finally, this study needs to be conducted again once there is later data available. The available data is limited to immigrants who arrived in early 2011, only 3 years after the great recession. While the effect of the recession on those that arrived after 2008 is as expected, the effect of the recession on workers depending on the different citizenship status is unavailable. The set of immigrants who arrived after 2008 and became naturalized citizens is empty. It takes a minimum of three years in Canada before an immigrant is eligible to apply for citizenship, and the data only extends as far as the start of 2011. Therefore, it would be interesting for a future study to explore the differences in labor market outcomes between the two different status groups pre-and-post-recession. This, unfortunately, is not possible at this time.

8.2 Possible Reverse Causality

The results and theory until this point have stipulated that the citizenship status leads to higher income and more success in the labor market. There is, however, the chance the causal relationship moves in the opposite direction. Keeping this possibility in mind, one can better understand the full relationship and see the big picture. The hypothesis has been that individuals choose to invest in the signal of citizenship, which reveals to the employer their type, and then leads to the differences in income. The employers are more confident that their hired workers are the more productive type, and the higher productivity translates into higher incomes and wages. Yet there has been some evidence that individuals with higher income are more inclined to become citizens in their new country of residence than low-income individuals. This suggests that workers already have higher income when they become citizens. Some of the initial reasons for this belief include investment and cost, necessity and time.

The decision to become a citizen involves a degree of cost-benefit analysis. It is possible that higher-income, higher-educated workers are the only ones that would find the benefits of citizenship greater than the costs to justify ascending to citizenship. The costs for a higher-income worker of becoming a citizen are relatively smaller than for a low-income worker. This is analogous to the theories that the poor pay more. To become a Canadian citizen, the immigrant must complete the formal application, with the compilation of documents and statements, study and take the citizenship test, as well as pay the relevant application fees. This involves time and money invested in the process, which takes time and money away from other necessities for the worker. This cost will be higher for the low-income worker. With fewer distinctions between citizens and immigrants in western countries, the benefits for low-income workers may not be enough to offset the costs. As a result, only high-income workers ascend to citizenship.

The low-income worker could, in theory, benefit from signaling as a high-productivity type. Nevertheless, the shorter time horizon and the information available to them lead individuals to not invest in the signal. Through learn-by-doing and exposure to higher productivity colleagues, these workers could improve their situation. Unfortunately, the evidence does not suggest this to be the case. Given their characteristics and situations, high-income worker would have more incentive to become a citizen, rather than the citizenship leading to higher income.

A second theory proposes that the same characteristics of individuals that lead to success in the labor market are also responsible for the decision to become citizens. This hypothesis was presented by Bloemraad in her 2006 paper. Further evidence presented by Devoretz and Pivenko (2005) also supports this hypothesis. During the study period, they found regardless of citizenship status, the labor market performance of immigrants followed the business cycle pattern. This would suggest that people already successful in the labor market and are subject to its variations independent of their citizenship status. The resulting distribution of citizens to non-citizens is driven by other motivations specific to their types included in the sample.

Challenging this conclusion however and reinforcing the causality argued in this paper, Devoretz and Pivenko found that immigrants from more developed countries took longer than those from developing countries to ascend. They argue that 1/3 of immigrant flows from China and India ascend after 15 years of residency, and by their 35th year 60% of the Chinese and Indian immigrant stock has ascended to citizenship. In contrast, immigrants from Western Europe and the US only had 5.4% of the stock as Canadian citizens after 15 years, and only 1/3 after 35 years of residence (Devoretz and Pivenko, 2005). With the expectation that more developed countries have more highly educated and high-income individuals, the argument for reverse causality would predict Europeans and US citizens would ascend to citizenship faster and at larger rate than India and China. As presented above, this is not the case. In fact, such results strengthen the argument for citizenship as a signal; those whose culture is farther from Canada and would face more obstacles in demonstrating their skills of integration to the employer, would see more benefit in citizenship. This is consistent with the results presented above. In sum, there is the possibility of a reverse causality. Nevertheless, there still stands strong evidence in support of the signaling model of citizenship as a significant contributor to one's labor market outcomes.

Chapter 9 – Conclusion

There is more to citizenship status than feelings of belonging or a mere legal status. The choice to become a citizen, while influenced by various interrelated relationships, has a

significant effect on labor market outcomes. Various theories in economics and other social sciences have discussed extensively the meaning of citizenship and its effects. The literature is also saturated with economic articles on the outcomes of immigrants in Canada, with mixed conclusions about their success upon arrival. In this paper, I have proposed a new perspective on the debate, linking the idea of citizenship with immigrant success, to help reconcile some of the conflicting results in the area and help answer some interesting inquiries. Ascension to Canadian citizenship serves as a signaling tool from immigrant workers to employers about their level of integration into the Canadian culture, society, and economy. The results from the empirical model, using the 2011 National Household Survey data, provide support for the model and suggest that citizenship status, *ceteris paribus*, does influence labor market outcomes of immigrant workers to Canada.

This conclusion will have implications for both government policy and economic activity. If employers recognize they have been using such characteristic as a signal, assuming they had not already realized it, there may be an increased demand for ascended citizen workers. This may lead to increased employment for immigrant workers who have committed to Canada by becoming a citizen and may improve the situations reported of immigrant under-employment suffered in various parts of Canada. On the policy side, the government will have to be aware of how changes in citizenship requirements and policy affect the signal. Relaxing the requirements for citizenship, for example, may weaken the credibility of the signal as is, and discourage employers from using it to distinguish between workers in the labor force. If this tool is lost it could increase the costs for employers of vetting and interviewing immigrant workers, and as a result, may contribute to increased immigrant unemployment or underemployment.

The new Liberal government has once again begun changing the immigration policy in Canada. There have also been changes to the citizenship application process and requirements. One of these changes includes lowering the number of people that must meet a language requirement, which can have great implications for citizenship as a signaling tool, specifically as a determinant of the proficiency in the official language. These and other changes will slowly incorporate into the Canadian market, and influence the decisions of workers and employers alike. Perhaps it can be a project to be taken up by future research. Until then, we will have to wait and see how the value of Canadian citizenship changes throughout the economy.

Chapter 10 - References

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Appendix I: Full Regression Results

Table 11 - Full regression results

<i>Variables / Regression</i>	(2) Total Income	(2) Wages
<i>Constant</i>	7.9584 (0.2880) ***	7.6742 (0.5680) ***
<i>Age Immigration</i>	0.3439 (0.0174) ***	0.2479 (0.0196) ***
<i>Age Immigration²</i>	-0.0184 (0.0013) ***	-0.0131 (0.0014) ***
<i>Years in Canada</i>	0.0282 (0.0010) ***	0.0199 (0.0014) ***
<i>Citizen</i>	0.3096 (0.2689)	0.4342 (0.4303)
<i>Highest Degree^{†††}</i>		
<i>High school diploma or equivalent</i>	0.1389 (0.0410) ***	0.2150 (0.050) ***
<i>Trades certificate</i>	0.1311 (0.0834)	0.0956 (0.0964)
<i>Registered Apprenticeship</i>	0.1805 (0.0881) **	0.12208 (0.1000)
<i>College, CEGEP</i>	0.2352 (0.0774) ***	0.2726 (0.0813) ***
<i>University Below Bachelors</i>	0.2098 (0.0797) ***	0.3232 (0.0820) ***
<i>Bachelor's Degree</i>	0.4092 (0.0747) ***	0.4348 (0.0796) ***
<i>Degree in medicine, dentistry, vet or optometry</i>	0.8266 (0.1249) ***	0.5682 (0.1579) ***
<i>Master's degree</i>	0.5491 (0.0768)	0.4982 (0.0853) ***
<i>Earned doctorate</i>	0.8627 (0.0935) ***	0.9581 (0.1059) ***
<i>Household size</i>	0.0345 (0.0064) ***	0.0083 (0.0070)
<i>Sex</i>	0.1504 (0.0200) ***	0.3012 (0.0238) ***
<i>No language , Citizen</i>	-0.0187 (0.0862)	-0.1365 (0.1482)
<i>Language, Non Citizen</i>	0.0018 (0.0539)	-0.1413 (0.0643)**
<i>Language, Citizen</i>	(omitted)	(omitted)

††† the categories listed in the results are only selected results. Categories were selected based on relevance and level of significance.

<i>CIP2011⁺⁺⁺ (Citizen Permanent Resident)</i>		
<i>Education</i>	0.2780 (0.0959) *** (omitted)	0.2187 (0.1534) (omitted)
<i>Visual Arts & Communications</i>	0.184 (0.0886) 0.1047 (0.1124)	0.0246 (0.1146) 0.1162 (0.1336)
<i>Humanities</i>	-0.0001 (0.0816) 0.0326 (0.996)	0.0368 (0.0846) 0.0865 (0.1177)
<i>Social Sciences</i>	-0.0354 (0.0757) 0.1531 (0.0904) *	0.0234 (0.0780) 0.2289 (0.0999) **
<i>Business Management, Admin</i>	0.1234 (0.0688) * 0.2831 (0.0842) ***	0.2207 (0.0699) *** 0.3101 (0.0933) ***
<i>Math, computers and IT</i>	0.1753 (0.0815) ** 0.2132 (0.0997) **	0.1928 (0.0869) ** 0.4794 (0.1031) ***
<i>Architecture, Engineering and related tech</i>	0.1061 (0.0724) 0.2132 (0.0828)**	0.1764 (0.0742) ** 0.2902 (0.0921) ***
<i>Agriculture, natural resources</i>	0.2143 (0.1052) ** 0.1510 (0.1110)	0.1666 (0.1308) 0.2643 (0.1586) *
<i>Health related fields</i>	0.0605 (0.0765) 0.3290 (0.0949) ***	0.0851 (0.0804) 0.4080 (0.143) ***
<i>Personal, protective & transport services</i>	0.0812 (0.0945) 0.2793 (0.1141) **	0.2148 (0.1018) ** 0.3976 (0.1344)***
<i>NAICS^{\$\$\$}</i>		
<i>Agriculture, Forestry, fishing</i>	-0.1882 (0.1482)	-0.4121 (0.2912)
<i>Mining, quarrying and oil extraction</i>	0.4651 (0.2561) * 0.6830 (0.1402) ***	1.2078 (0.2120) 0.6140 (0.1548)
<i>Utilities</i>	0.5234 (0.1562) *** 0.2829 (0.1272) **	0.9636 (0.1768) 0.3159 (0.1922)
<i>Construction</i>	0.1524 (0.1040) -0.2091 (0.0960) **	0.4814 (0.1471) -0.3622 (0.1272)
<i>Manufacturing</i>	0.1551 (0.0955) -0.1441 (0.0777) *	0.5271 (0.1381) -0.1181 (0.0893)
<i>Wholesale trade</i>	0.1681 (0.1038) 0.0375 (0.0807)	0.5680 (0.1425) 0.1148 (0.0868)
<i>Educational Services</i>	-0.0945 (0.1041) -0.4106 (0.0769) ***	0.1517 (0.1483) -0.5286 (0.0975)
<i>Health care & social Assistance</i>	0.1128 (0.1025) -0.1863 (0.0741) **	0.4933 (0.1427) -0.2633 (0.0897)
<i>Accommodations & food services</i>	-0.3348 (0.0987) *** -0.5734 (0.0861) ***	-0.0663 (0.1402) -0.6208 (0.0986)

⁺⁺⁺ the categories listed in the results are only selected results. Categories were selected based on relevance and level of significance.

^{\$\$\$} the categories listed in the results are only selected results. Categories were selected based on relevance and level of significance.

<i>Country of Citizenship</i>		
<i>PR</i>		
<i>Citizen</i>		
<i>U.S. – citizen</i>	0.2438 (0.2390)	0.4808 (0.3877)
<i>Other Americas</i>	-0.3020 (0.0512) *** 0.0253 (0.2367)	-0.3008 (0.0625) *** 0.4183 (0.3796)
<i>Europe</i>	-0.2121 (0.0448) *** 0.1218 (0.2348)	-0.1384 (0.0583) ** 0.4908 (0.3777)
<i>Africa</i>	-0.4441 (0.605) *** 0.0344 (0.2407)	-0.4768 (0.0710) *** 0.3640 (0.3853)
<i>West Central Asia & Middle East</i>	-0.5773 (0.0675) *** -0.1372 (0.2401)	-0.5420 (0.0856) *** 0.3952 (0.3811)
<i>Eastern Asia</i>	-0.6150 (0.0541) *** -0.1734 (0.2412)	-0.5718 (0.0671) *** 0.3233 (0.3817)
<i>Southeast Asia</i>	-0.3932 (0.0538) *** -0.0659 (0.2458)	-0.3072 (0.0630) *** 0.5962 (0.3804)
<i>Southern Asia</i>	-0.5075 (0.0521) *** -0.1528 (0.2374)	-0.4246 (0.0633) *** 0.0827 (0.3830)
<i>Oceania and Others</i>	-0.0906 (0.1686) 0.6213 (0.2681) **	-0.0092 (0.1552) 0.7876 (0.4313)*
<i>Class of Worker</i>		
<i>Employee, Permanent resident</i>	0.4395 (0.0447) ***	0.6509 (0.0838)***
<i>Employee, citizen</i>	(omitted)	(omitted)
<i>Cluster</i>	2.2178 (0.4898) ***	0.6364(0.6150
<i>Arrived before 2008</i>	-0.2824 (0.0255) ***	-0.2536 (0.2907)***
<i>Province of Residence</i>		
<i>Prince Edward Island</i>	0.1796 (0.3958)	-0.1057 (0.8393))
<i>Nova Scotia</i>	-0.2657 (0.3077)	-0.6512 (0.5658)
<i>New Brunswick</i>	-0.3070 (0.2906)	-0.1491 (0.5661)
<i>Quebec</i>	-0.3669 (0.2564)	-0.2386 (0.5379)
<i>Ontario</i>	-0.2323 (0.2557)	-0.0080 (0.5374)
<i>Manitoba</i>	-0.3144 (0.2606)	-0.1362 (0.5403)
<i>Saskatchewan</i>	-0.0804 (0.2683)	0.1191 (0.5446)
<i>Alberta</i>	-0.0523 (0.2571)	0.2303 (0.5378)
<i>British Columbia</i>	-0.2733 (0.2564)	-0.0503(0.5379)
<i>Northern Canada</i>	1.1658 (0.2656) ***	0.6379 (0.5431)
R-Squared	0.1616	0.1386

*** Results significant at the 1% level

** Results significant at 5% level

*Results significant at 10% level