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4-2014

# Discrimination at Work: Comparing the Experiences of Foreign-trained and Locally-trained Engineers in Canada

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### SOURCE Citation

Chaze, Ferzana and George, Usha, "Discrimination at Work: Comparing the Experiences of Foreign-trained and Locally-trained Engineers in Canada" (2014). *Faculty Publications and Scholarship*. Paper 11.

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## Discrimination at Work: Comparing the Experiences of Foreign-trained and Locally-trained Engineers in Canada

### Abstract

This paper reports on the findings of a study of the experiences of discrimination faced by internationally-trained engineers in Canada. Three hundred foreign-trained and two hundred locally-trained engineers were surveyed in order to identify the relationship of race, language proficiency, and location of training in finding work in the engineering field. In addition to measuring whether the applicants found work in the engineering field, this paper also sought to understand the perception of discrimination of internationally-trained engineers. Our findings demonstrate the relationship of race/ethnicity and its related marker—foreign training—with both ability to secure work in the engineering field and perceptions of discrimination. In the case of new immigrants, location of training was found to be a significant predictor of ability to find work in the engineering field, where locally-trained engineers were far more likely to acquire a job in the engineering field than foreign-trained engineers. Race/ethnicity was also found to be significantly associated with getting an engineering job among the locally-trained engineers.

### Résumé

Cet article présente un compte-rendu des résultats d'une étude sur la discrimination que les ingénieurs formés à l'international subissent au Canada. Trois cents de ces derniers et deux cents diplômés au Canada ont participé à une enquête pour identifier la relation entre la race, la compétence linguistique et le lieu de formation d'une part, et l'accès à l'emploi dans le génie d'autre part. En plus d'évaluer les cas où les candidats ont trouvé un emploi dans leur domaine de qualification, nous avons cherché à comprendre comment ceux formés à l'international perçoivent la discrimination. Nos résultats montrent qu'il y a bel et bien une relation entre, d'une part, race, ethnicité et ce qui les trahit – la formation à l'étranger – et, d'autre part, la capacité de s'assurer un emploi en tant qu'ingénieur, ainsi que ce qui est perçu comme une discrimination. Dans le cas des nouveaux immigrants, nous avons constaté à quel point là où ils ont étudié permet de prédire s'ils pourront trouver du travail dans leur domaine du génie, quand des études au pays donnent considérablement plus de chances d'en obtenir un que des diplômés étrangers. L'évidence montre aussi que la race et l'ethnicité jouent un grand rôle quand un ingénieur postule un emploi en même temps que d'autres qui ont reçu leur formation au Canada.



### INTRODUCTION

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The Supreme Court of Canada describes discrimination as an intentional or non-

intentional distinction based on the personal characteristics of the individual or group that imposes some kind of disadvantage or which limits access to some members of society. Discrimination includes harassment, racial slurs or jokes pertaining to race, colour or ethnic origin even if they are not specifically targeted at an individual (Canadian Human Rights Commission 2010, 2). Discrimination in employment includes lack of access to employment, differential rewards and outcomes in the labour market, as well as perceptions of discrimination (Banerjee 2008). Henry and Tator (2006) view employment discrimination as a form of systemic discrimination that is the result of seemingly value neutral and unbiased established procedures for hiring, selection and promotion. A few authors distinguish between discrimination at the pre-employment stage—"access discrimination"; and discrimination in treatment while on the job (Levitin et al. quoted in Forstenlechner and Al-Waqfi 2010). Discrimination can be viewed from two perspectives—objective and subjective (Naff 1995; Hopkins 1980; Banerjee 2008). The objective fact of discrimination is one that is observed by an impartial outsider according to predetermined criteria while the subjective perception of discrimination is one that a person experiences or perceives. Both perspectives "deal with the same phenomenon from different points of reference" (Hopkins 1980, 131).

This paper discusses the findings of a study that compared the experiences of internationally-trained and locally-trained engineers in Canada to identify the roles of race/ethnicity and location of training in finding work in the engineering field. The paper further explores the specific relationship of ethnicity/race in perceptions of discrimination at the current workplace. A key contribution of this study is the light it sheds on the continued role of discrimination on account of race and its associated markers in relation to employment. In doing so it provides a more nuanced understanding of the discrimination faced by immigrants (a large number of whom are visible minorities) and other visible minorities in Canada.

## EMPLOYMENT DISCRIMINATION FACED BY IMMIGRANTS TO CANADA

This paper is based on the understanding that the challenges faced by many foreign-trained engineers to find work in line with their education and training (Boyd and Schellenberg 2007; Ziestma 2010) is an indicator of discrimination against these immigrants. Discriminatory practices in relation to immigrant employment are not unique to Canada. Immigrants are subject to similar practices in relation to employment in the UK (Regmi and Naidoo 2009), USA (Hersch 2008), Switzerland (Lagana 2011), Germany (Forstenlechner and Al-Waqfi 2010), and Australia (Shinnaoui and Narchal 2010). There is ample evidence in the literature that speaks to the differential access of immigrants and visible minorities to employment in Canada. Recent

immigrants to Canada have been found to have higher rates of unemployment than non-immigrants regardless of region of birth (Gilmore 2008). Yet important differences exist within these immigrant groups based on ethnicity/race. An analysis of the 2006 Canadian census (Xue and Xu 2010) found that recent immigrants—with the exception of persons from the Philippines, Hong Kong, Poland and North America—tend to have lower rates of employment compared to immigrants of non-European origin. Past research on experiences in the labour market have highlighted the differential economic outcomes for visible minorities and immigrants such as access to employment (Oreopoulos 2009), and earning gaps (Pendakur and Pendakur 2011; Reitz 2001) between “similarly qualified visible minorities and whites” (Banerjee 2008, 4) or between visible minority immigrants and those of European descent (Baker and Benjamin quoted in Banerjee 2008).

Barriers immigrants face in accessing jobs in their fields of training and/or in achieving labour market success have been attributed to their foreign credentials (Becklumb and Elgersma 2008; Li 2001; Krahn et al. 2000; Alboim et al. 2005), language ability (CIC 2001), lack of Canadian experience (Buzdugan and Halli 2009), and discrimination or racism (Li 2001; Henry and Tator 2006). Each of these important barriers is further discussed.

### ***Foreign Credential Recognition***

The devaluation of foreign degrees or the lack of credential recognition is one of the most commonly cited reasons for differential access and outcomes in the labour market (Becklumb and Elgersma 2008; Li 2001; Krahn et al. 2000; Albiom et al. 2005). Lack of uniformity in educational systems and professional practices around the world make assessments regarding the comparability of foreign degrees and experience difficult. Over the years, professional bodies in Canada have developed mechanisms to provide assessments of international credentials. However, these services are not used by all immigrants either due to lack of knowledge about the same, the lack of availability of resources of time and money that these processes entail (George et al. 2012a), or lack of access to the documents required for the credentialing process (Krahn et al. 2000).

Foreign credentials can serve as a marker of difference as can be seen in the Australian study by Shinnaoui and Narchal (2010). The authors of the study found that foreign credentials can be used as an ostensibly legitimate basis for discounting of the visible minority applicant. Using Bourdieu’s concepts of institutional cultural capital and habitus, Girard and Bauder (2007) illustrate how the credentials of foreign-trained engineers are devalued by credential recognition bodies and how the credentialing process requires foreign-trained professionals to fit in with the cultural norms of the profession as they are practised in Canada (Girard and Bauder 2007).

Both studies suggest that the rejection or acceptance of foreign credentials serve as proxies for acceptance or rejection of the candidate based on their being “foreigners” or deviant from the norm.

### ***Canadian Work Experience***

An important component of credential recognition is related to past work experience. Immigrants to Canada find that their work experiences outside of Canada are discounted. Lack of Canadian work experience is an important factor determining entry to the labour market (Buzdugan and Halli 2009). Applicants to jobs are required to show a track record of having worked in the Canadian context. Liu (2007) suggests that this requirement is considered proof that the applicant has the required language skills and is capable of performing in a Canadian work environment (10). The requirement of Canadian work experience is considered unrealistic for newcomers (Aycan and Berry 1996).

### ***Language Proficiency***

The economic performance of immigrants has also been linked to language proficiency (CIC 2001). Though immigrants are required to prove their language proficiency while applying for immigration, language proficiency remains contested in everyday interactions (Creese and Kambere 2003). Language proficiency is a very subjective phenomenon and immigrants with English language fluency might continue to be penalised due to their accents. Munro (2003) informs us that an accent is seen by employers as a marker of difference, and a proxy for foreign ancestry. Foreign accents are considered to be undesirable and incompatible with high status jobs. Creese and Kambere (2003) posit that a foreign accent is a socially defined phenomenon with differential rewards for persons with particular accents (e.g., British or American versus African). Focus group participants in their study felt that their accents were seen as implying limited English language skills even though they had been settled in Canada for fairly long periods of time. Further, their accents denied them entry into jobs that require speaking with the public with a “Canadian” accent.

### ***Discrimination and Racism***

Contemporary understandings of race have shifted from previously held biological understandings of physiological and intellectual differences “to denote a conflation of class, religion, and broad-based cultural and political concerns and definitions” (Calliste and Sefa Dei 2000, 27). Racism (understood in this broad sense) in society is changing from its more overt forms to more subtle and covert forms, embedded in daily interactions of people (Li 2001a; Dietch et al. 2003; Henry and Tator 2006). Accompanied by legal and policy changes that discourage overt racism, individuals are not likely to face overt discrimination at work. Dietch et al. (2003) suggest that

most studies on workplace discrimination do not take into account the subtle forms of discrimination faced by stigmatized individuals, and there is a need to widen the understanding of the term discrimination. Discrimination on account of racism continues to be reported in relation to research with internationally trained immigrant groups such as nurses (Hagey et al. 2001) and teachers (Schmidt 2010). Studies have also noted the differences in employment outcomes for visible minority persons in Canada (Li 2000; Reitz 2001; Chui and Maheux 2011; Block 2010; Wong and Wong 2006).

Racism is also intertwined with other dimensions of identity. Li's (2001b) study of the 1996 census data sought to estimate the market worth of immigrants' educational degrees relative to that of native-born Canadians. He found that "joint negative effects of immigrant status and foreign degree were most severe for visible minority women and men and less so for white women and men" (32). This led Li to summarize that "gender and racial characteristics of holders of credentials cannot be separated from the credentials themselves, since they produce complicated interaction effects" (Li 2001b, 33).

Not all discrimination needs be rooted in racism or even be intentional. Systemic discrimination (Abella 1984) is measured more through its impact than through intent and exists when practices in society serve—either intentionally or not—to limit the chances and potential of certain groups of persons to succeed. In the case of hiring practices in Canada, the practice of relying heavily on professional connections for references, for example, could be seen as discriminatory for new immigrants who do not have access to such connections (George et al. 2012a).

### ***The Perception of Discrimination***

The Ethnic and Diversity Survey in Canada (Statistics Canada 2003) reported that 7% of Canadians said that they had experienced discrimination in the past five years which they attributed to ethno-cultural characteristics. Twenty percent of the visible minority population reported discrimination sometimes or often in the past five years related to their ethnicity, race, language, religion and accent. Similarly, in examining the experiences of Chinese engineers in Canada, Wong and Wong (2006) found that over 21 percent of their survey respondents felt that they might have been denied opportunities for promotion on account of ethnic or racial discrimination.

Naff (1995) defines subjective discrimination in the context of the employment situation as "the perception that a work-irrelevant criterion" "affects how one is treated or evaluated on the job" (538). Perceptions of discrimination may not always coincide with objective discrimination (Banerjee 2008). Moreover, persons might be more willing to acknowledge discrimination against a group they belong to rather than against themselves personally (Naff 1995; Dion and Kawakimi 1996).

Recognising and labelling harassment and discrimination might not be a straightforward process and might be influenced by gender, race and citizenship status. Welsh et al.'s (2006) study of sexual harassment provides a good example. The study conducted focus groups with ethnically diverse women in Canada to understand how these women defined sexual harassment. Their study found that white women's understandings of sexual harassment matched legal understandings of what it is to be sexually harassed. However, the understanding of the term differed for visible minority groups. For black women in their study, when the harassment was by black males it was seen in the context of historical sexism in the community and when it was by non-black males it was seen as something the women could handle. For Filipina domestic workers the notion of harassment was complicated by their citizenship status and race. The authors note that the visible minority women in their study "do not see their harassment as being about race or gender; rather, it is about how race and gender, along with citizenship, intersect that defines their experiences" (103).

The literature provides us with many factors that might hinder the naming of an experience as discrimination from the socio-psychological perspective: the extent to which individuals are able to call to mind a term like discrimination in the context of their lived experiences (Hirsh and Lyons 2010); a sense of entitlement to equitable treatment (Hirsh and Lyons 2010; Banerjee 2008); a tendency to prefer attributing negative occurrences to personal failings so as to minimise psychological harm to self (Ruggiero and Taylor 1997), and the tendency to see one's situation and life in a positive light (Taylor and Brown 1988). Matthews (2006) suggests that it is also important to understand the impact of socio-political forces and stages in life trajectories of the individual in order to get a full understanding of possible barriers to perceiving discrimination.

The difficulties immigrants face in accessing work, and the differential incomes earned by visible minority immigrants, in particular, has implications for their earning potential and job prospects in Canada, making them vulnerable to poverty (Fleury 2007). Perceptions of employment discrimination have been known to impact the health of the individual, sometimes several years after the discrimination is reported (Pavalko et al. 2003). It has also been known to lead to diminished job satisfaction and commitment, lower motivation to strive for leadership positions, and lower organisational citizenship (Ensher et al. 2001; Naff 1995).

## METHODOLOGY

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### *Sample*

An online survey was conducted in collaboration with the Council for the Access to the Profession of Engineering (CAPE) to identify the profile and experiences of

foreign-trained engineers in looking for and finding suitable work in Canada. Foreign-trained engineers who had been in Canada for 10 years or less were invited to participate in the study. Immigrant settlement is a long term-process (CCR 1998) and a 10-year eligibility criteria to participate in the research ensured that immigrants who were relatively new to the country, yet had enough time to enter their professional fields, were included. Three hundred foreign-trained engineers participated in this survey. The online survey was administered through a secure login system administered through the CAPE website. As an objective of the study was to untangle the effects of foreign education and visible minority status on finding employment, a second survey was conducted with locally-trained engineers. Alumni of the Faculty of Engineering, Architecture and Science at Ryerson University who had graduated within the last ten years and who had applied for licensing were invited to participate in a similar online survey that was administered through Survey Monkey by the research team. Keeping a 10-year period of graduation as the eligibility criteria was to ensure a common ground to compare the experiences of the locally trained engineers with those trained abroad. The alumni of Ryerson University are representative of a very diverse population and so were considered suitable for the study. Ease of access to the alumni database by the principal investigator belonging to the same university was also a deciding factor in selecting alumni from Ryerson University. Two hundred and two locally-trained engineers participated in this online survey.

The total sample size for the current study consisted of 457 engineers who provided data on whether or not they had secured a job in engineering, 261 of whom were trained outside Canada (i.e., “foreign-trained”) and 196 who were trained in Canada (i.e., “locally-trained”).

### **Measures**

Two distinct analyses were conducted. First, the study sought information on whether the respondents obtained a job in the engineering field. The second method was to assess the perceptions of racial and ethnic discrimination using the Workplace Prejudice and Discrimination Inventory (WPDI) (James et al. 1994). The WPDI is designed to measure perceptions of prejudice and discrimination experiences on the job site, primarily on account of race and ethnicity. The inventory contains 16 items reflecting global and specific common perceptions of prejudice/discrimination at work. In keeping with the original inventory, respondents were asked to indicate their level of agreement with each of the items using a 7-point likert scale ranging from “disagree completely” to “completely agree.” The instrument has previously been shown to be valid and reliable in diverse populations (James et al. 1994). For the purpose of the current analysis, the total score of the WPDI was used,



with higher scores indicating more discrimination. Only respondents who were currently working (in the engineering field or otherwise) completed the WPDI and only those who responded to at least 80% of the items received a total score. The internal consistency of the full scale was found to be excellent for both the foreign (Chronbach's  $\alpha=.92$ ) and locally-trained (Chronbach's  $\alpha=.92$ ) sub-samples.

A number of socio-demographic variables related to discrimination were focused on in the analyses, including location of training (i.e., foreign or local); race/ethnicity (i.e., White, Chinese, South Asian, Black, other Asian, Latin American, Arab, or multiple background/other); and religion (i.e., Muslim, Christian, no religion or other). Analyses also included several employment-related variables, which had been shown in previous research to be associated with getting an engineering job at the  $p<.15$  level (see George et al. 2012a). These variables included the following: education level (i.e., Bachelor's degree or graduate degree), age (20-29, 30-39 and  $\geq 40$ ) and gender. Engineering specialization was also included to examine whether the type of specialisation had a role to play in securing work in the engineering field.

## ANALYSIS

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First, focusing on ability to find engineering work in the full sample, a logistic regression analysis was used to determine whether location of training alone, and in combination with race and religion, related to getting a job in the engineering field. A similar analysis was also undertaken using multiple regressions to determine how the latter factors related to the total score of the WPDI (on perceptions of discrimination). Next, the analyses were stratified by location of training to tease out whether race was related to both the ability to secure work in the engineering field as well as perceptions of discrimination. Logistic regression was used to analyze the relationship between race and getting an engineering job, and multiple regression was used to explore the relationship between race/ethnicity and the total WPDI score, in the local and foreign samples separately. All analyses controlled for the employment-related variables (i.e., engineering specialization, education, age and gender). SPSS version 20 was used to analyze the data.

## RESULTS

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### *Description of Sample*

As shown in Table 1, the majority of participants in the full sample were male (75.0%), had a Bachelor's degree (74.5%) and did not currently have a job in the engineering field (54.7%). The largest racial group were South Asians (38.0%), followed by Whites (22.0%) and Chinese (16.0%). The mean score on the WPDI was

**TABLE 1.** Description of the Foreign-Trained, Local-Trained and Full Samples of Engineers†

	Foreign-trained sample (n=261)	Locally-trained sample (n=196)	Full sample (n=457)	p-value‡
<b>Age</b>				
20-29	21 (8.3%)	111 (67.3%)	132 (31.7%)	<.001
30-39	114 (45.2%)	43 (26.1%)	157 (37.6%)	
≥ 40	117 (46.4%)	11 (6.7%)	128 (30.7%)	
<b>Race</b>				
White	27 (10.8%)	69 (36.9%)	96 (22.0%)	<.001
Chinese	37 (14.8%)	33 (17.6%)	70 (16.0%)	
South Asian	119 (47.6%)	47 (25.1%)	166 (38.0%)	
Black	10 (4.0%)	4 (2.1%)	14 (3.2%)	
Other Asian	21 (8.4%)	11 (5.9%)	32 (7.3%)	
Latin American	15 (6.0%)	4 (2.1%)	19 (4.3%)	
Arab	11 (4.4%)	6 (3.2%)	17 (3.9%)	
Multiple backgrounds/ other	10 (4.0%)	13 (7.0%)	23 (5.3%)	
<b>Gender</b>				
Female	54 (20.8%)	60 (30.6%)	114 (25.0%)	<.05
Male	206 (79.2%)	136 (69.4%)	342 (75.0%)	
<b>Religion</b>				
Muslim	68 (27.6%)	26 (14.2%)	94 (21.9%)	<.001
Christian	52 (21.2%)	70 (38.3%)	122 (28.4%)	
No religion	47 (19.1%)	64 (35.0%)	111 (25.9%)	
Other	79 (32.1%)	23 (12.6%)	102 (23.8%)	
<b>Education Level</b>				
Bachelors Degree	176 (69.3%)	157 (81.3%)	333 (74.5%)	<.01
Masters/PhD	78 (30.7%)	36 (18.7%)	114 (25.5%)	
<b>Engineering Specialization</b>				
Electrical	35 (13.8%)	49 (25.0%)	84 (18.7%)	<.01
Mechanical	56 (22.0%)	32 (16.3%)	88 (19.6%)	
Other	163 (64.2%)	115 (58.7%)	278 (61.8%)	
<b>Current job in Engineering Field</b>				
Yes	87 (33.3%)	120 (61.2%)	207 (45.3%)	<.001
No	174 (66.7%)	76 (38.8%)	250 (54.7%)	
<b>Total WPDI score<sup>§</sup></b>				
Mean (S.D.)	3.30 (1.32)	2.61 (1.22)	2.98 (1.32)	<.001

† Only includes respondents with complete data on current job

‡ p-value derived comparing foreign- and locally-trained samples using chi-square test for categorical variables and t-test for continuous variables

§ only currently-employed respondent and who answered at least 80% of the items received a total score

WPDI = Workplace Prejudice and Discrimination Inventory

S.D. = Standard Deviation

2.98. A larger proportion of the foreign-trained had a graduate degree ( $p < .01$ ) compared to the locally-trained. On the other hand, more of those trained in Canada were women ( $p < .05$ ), White ( $p < .001$ ), Christian or non-religious ( $p < .001$ ) and specialized in electrical engineering ( $p < .01$ ) compared to those trained abroad. The locally-trained were also much younger ( $p < .001$ ) and a greater proportion had secured a job in the engineering field (61.2%) compared to the foreign-trained (33.3%;  $p < .001$ ). Finally, the locally-trained had a lower mean score on the WPDI (mean=2.61) than those trained outside of Canada (mean=3.30;  $p < .001$ ).

### ***Ability to Secure Work in the Engineering Field***

The analysis of ability to secure work in the engineering field in the full sample is presented in Table 2a. It can be seen in Model 1 that the locally-trained had over five (OR=5.35) times the odds of getting an engineering job compared to the foreign-trained, even when controlling for the employment-related variables (i.e., engineering specialization, education, age and gender). When race/ethnicity alone was added into the analysis (Model 2), or in combination with religion (Model 3), the relationship between location of training and the odds of getting an engineering job was attenuated slightly; however, the relationship remained strong and its magnitude stayed large<sup>1</sup> (Model 2: OR = 4.04; Model 3: OR=4.19).

With respect to race/ethnicity, it can be seen that certain groups had lower odds of getting work in an engineering field, compared to Whites. In particular, the findings from Model 3 suggest that South Asians, Latin Americans and those from multiple or unknown “other” backgrounds had significantly lower odds of getting an engineering job, even after controlling for location of training, religion and the other employment-related variables, such as education level. This finding will be explored further in the stratified analyses presented below. It is worth noting that of the employment-related control variables, only education was significantly associated with the odds of securing an engineering job across the models. In the fully-adjusted model (3), higher-educated engineers had over two times the odds of getting an engineering job (OR=2.38), independent of location of training, race/ethnicity, religion and the other control variables.

### ***Perceptions of Discrimination***

Table 2b reveals that location of training was also significantly associated with perceptions of discrimination. That is, engineers trained outside of Canada had higher total scores on the WPDI than those trained locally. Indeed, this finding remained consistent, even when controlling for race/ethnicity, religion and the employment-related variables ( $p < .01$ ). Belonging to a certain race/ethnicity did not seem to predict perception of discrimination. However, it is important to note that the WPDI measured discrimination mainly on the basis of race/ethnicity. Inspection of the change in  $R^2$  between Models 1 and 2 confirms that the model with race/ethnicity only accounted for an additional 1% of the total variation in WPDI scores. Moreover, while education was associated with the total score on the WPDI, the relationship went in the opposite direction as expected. In particular, it was found that engineers with higher education had significantly higher scores on the WPDI than engineers with a Bachelor’s degree only ( $p < .05$ ).

**TABLE 2A.** Odds Ratio of Getting a Job in an Engineering Field by Race and Location of Training (n=372)††

	Model 1	Model 2	Model 3
	O.R. (95% C.I.)	O.R. (95% C.I.)	O.R. (95% C.I.)
<b>Variables of Interest</b>			
Location of training			
Local	5.35 (2.86, 10.01)	4.04 (2.09, 7.79)	4.19 (2.14, 8.18)
Foreign	1.00 (ref)	1.00 (ref)	1.00 (ref)
Race/ethnicity			
White		1.00 (ref)	1.00 (ref)
Chinese		0.46 (0.22, 0.95)	0.47 (0.21, 1.06)
South Asian		0.29 (0.15, 0.56)	0.35 (0.16, 0.79)
Black		0.37 (0.09, 1.48)	0.38 (0.09, 1.57)
Other Asian	--	0.49 (0.19, 1.27)	0.64 (0.23, 1.77)
Latin American		0.17 (0.04, 0.83)	0.17 (0.04, 0.80)
Arab		0.28 (0.08, 0.95)	0.50 (0.13, 2.00)
Multiple backgrounds/ other		0.22 (0.07, 0.68)	0.23 (0.07, 0.74)
Religion			
Muslim			1.00 (ref)
Christian	--	--	2.19 (0.96, 5.00)
No religion			1.91 (0.79, 4.64)
Other			2.08 (0.97, 4.46)
<b>Control variables</b>			
Specialization			
Electrical	1.00 (ref)	1.00 (ref)	1.00 (ref)
Mechanical	2.10 (1.01, 4.35)	2.02 (0.95, 4.33)	2.09 (0.96, 4.50)
Other	0.92 (0.50, 1.69)	0.84 (0.44, 1.57)	0.83 (0.44, 1.57)
Education			
Bachelors	1.00 (ref)	1.00 (ref)	1.00 (ref)
Masters/Phd	2.32 (1.35, 4.00)	2.31 (1.33, 4.03)	2.38 (1.36, 4.17)
Age			
20-29	0.75 (0.34, 1.58)	0.73 (0.34, 1.57)	0.67 (0.31, 1.46)
30-39	0.82 (0.47, 1.44)	0.74 (0.41, 1.32)	0.69 (0.38, 1.26)
40 and older	1.00 (ref)	1.00 (ref)	
Gender			
Female	1.72 (0.99, 2.99)	1.62 (0.91, 2.88)	1.57 (0.87, 2.80)
Male	1.00 (ref)	1.00 (ref)	1.00 (ref)
<b>Nagelkerke R Square</b>	.19	.24	.26
<b>-2 log likelihood</b>	455.86	436.97	432.09

†Only includes respondents with full data on current employment

**Stratified Analysis—Ability to Find Work in the Engineering Field**

The stratified analysis of ability to find work in the engineering field presented in Table 3a shows that race/ethnicity is significantly associated with getting an engineering job among the locally-trained, but not among the foreign-trained. In the

**TABLE 2B.** Unstandardized Coefficients for Regression of the Total Score of Workplace Prejudice and Discrimination Scale on Location of Training, Race and Religion (n=286)† ‡

	Model 1	Model 2	Model 3
	b (S.E.)	b (S.E.)	b (S.E.)
<b>Variables of Interest</b>			
Location of training (ref=local)			
Foreign	0.55 (0.21) <sup>b</sup>	0.58 (0.22) <sup>b</sup>	0.57 (0.22) <sup>b</sup>
Race/ethnicity (ref=white)			
Chinese		0.06 (0.24)	0.26 (0.27)
South Asian		-0.06 (0.19)	-0.09 (0.26)
Black		-0.03 (0.52)	-0.11 (0.53)
Other Asian		-0.38 (0.34)	-0.39 (0.36)
Latin American	--	0.20 (0.46)	0.27 (0.46)
Arab		0.56 (0.44)	0.50 (0.48)
Multiple backgrounds/Other		0.05 (0.38)	0.07 (0.38)
Religion (ref = Muslim)			
Christian			0.03 (0.28)
No religion	--	--	-0.35 (0.30)
Other			-0.05 (0.25)
<b>Control variables</b>			
Engineering Specialization (ref=electrical)			
Mechanical	-0.19 (0.25)	-0.16 (0.25)	-0.14 (0.25)
Other	-0.14 (0.20)	-0.13 (0.21)	-0.11 (0.21)
Education (ref = bachelors)			
Masters/Phd	0.32 (0.18)	0.37 (0.18) <sup>c</sup>	0.39 (0.18) <sup>c</sup>
Age (ref = 20-29)			
30-39	-0.03 (0.22)	-0.06 (0.22)	-0.08 (0.22)
40 and older	0.32 (0.25)	0.25 (0.26)	0.18 (0.26)
Gender (ref = male)			
Female	-0.02 (0.19)	-0.05 (0.19)	-0.06 (0.19)
<b>R<sup>2</sup></b>	<b>.10<sup>b</sup></b>	<b>.11</b>	<b>.12</b>

†Scored on a 7-point likert scale. Higher scores indicate greater discrimination

‡Only includes respondents who were currently employed (in the engineering field or not)

<sup>a</sup>p < .001

<sup>b</sup>p < .01

<sup>c</sup>p < .05

locally-trained sample, South Asians (OR=.13) and “other” racial groups (OR=.21) have significantly lower odds of securing work in the engineering field compared to Whites. Post-hoc analysis demonstrated that locally-trained South Asians also have significantly lower odds of getting an engineering job compared to the Chinese, even when controlling for the employment-related variables (data not shown). Table 3a reveals that higher education is significantly associated with the increased odds of securing engineering work in both the foreign and local samples.

### ***Stratified Analysis—Perceptions of Discrimination***

Table 3b presents the stratified analysis of perception of discrimination. It can be seen that, while race/ethnicity was moderately associated with total WPDI score

**TABLE 3A.** Odds Ratio of Getting a Job in an Engineering Field by Race among Foreign- and Locally-Trained Engineers (n=235)†

Variable of Interest	Foreign-Trained		Locally-Trained	
	Model 1	Model 2	Model 1	Model 2
	O.R. (95% C.I.)	O.R. (95% C.I.)	O.R. (95% C.I.)	O.R. (95% C.I.)
<b>Race/ethnicity</b>				
White	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)
Chinese	0.38 (0.13, 1.12)	0.48 (0.15, 1.52)	0.62 (0.23, 1.67)	0.60 (0.21, 1.72)
South Asian	0.49 (0.20, 1.19)	0.51 (0.20, 1.33)	0.18 (0.07, 0.44)	0.13 (0.05, 0.35)
Other	0.44 (0.17, 1.13)	0.52 (0.19, 1.39)	0.28 (0.11, 0.71)	0.21 (0.07, 0.62)
<b>Control variables</b>				
<b>Engineering specialization</b>				
Electrical	---	2.28 (0.82, 6.32)		1.08 (0.32, 3.72)
Mechanical		0.93 (0.37, 2.31)	---	0.61 (0.24, 1.53)
Other		1.00 (ref)		1.00 (ref)
<b>Education</b>				
Bachelors	---	1.00 (ref)	---	1.00 (ref)
Masters/Phd		1.93 (1.03, 3.63)		4.88 (1.52, 15.65)
<b>Age</b>				
20-29	---	0.36 (0.90, 1.35)		3.09 (0.67, 14.37)
30-39		0.60 (0.33, 1.10)	---	2.12 (0.40, 11.19)
40 and older		1.00 (ref)		1.00 (ref)
<b>Gender</b>				
Female	---	1.58 (0.72, 4.46)	---	1.12 (0.50, 2.54)
Male		1.00 (ref)		1.00 (ref)
<b>Nagelkerke R Square</b>	.02	.10	0.15	0.24
<b>-2 log likelihood</b>	289.05	275.78	188.35	176.58

†Only includes respondents with full data on current employment

among the foreign-trained, no relationship existed among the locally-trained. That is, Chinese, South Asians and “other” racial groups had moderately higher scores on the WPDI compared to Whites among the engineers trained abroad ( $p < .10$ ); however, the scores did not vary by race/ethnicity in the locally-trained sample.

## SUMMARY

Overall, these findings suggest that location of training is strongly associated with both getting a job in an engineering field, and with perceptions of discrimination. Some racial groups are less likely to secure an engineering job than whites; however, our stratified analyses demonstrated that the effect race/ethnicity has on discrimination varied according to location of training and the measure of discrimination. That is, while race/ethnicity was related to ability to secure employment in the engineering field in the locally-trained sample (i.e., South Asians had lower odds of getting engineering work than Whites or the Chinese), it was not in the foreign-trained sample. In contrast, race/ethnicity was moderately related to perceptions of discrimination in the foreign-trained sample (i.e., Chinese, South Asians and “other” racial

**TABLE 3B.** Unstandardized Coefficients for Regression of the Total Score of Workplace Prejudice and Discrimination Inventory on Race Among Foreign- and Locally-Trained Engineers†‡

	Foreign-Trained (n=169)		Locally-Trained (n=128)	
	Model 1	Model 2	Model 1	Model 2
	b (S.E.)	b (S.E.)	b (S.E.)	b (S.E.)
<b>Variables of Interest</b>				
Racial/ethnicity (ref=white)				
Chinese	0.46 (0.39)	0.75 (0.41) <sup>d</sup>	-0.17 (0.30)	-0.24 (0.31)
South Asian	0.42 (0.34)	0.57 (0.34) <sup>d</sup>	-0.10 (0.27)	-0.31 (0.29)
Other	0.50 (0.37)	0.66 (0.38) <sup>d</sup>	-0.29 (0.30)	-0.53 (0.33)
<b>Demographics</b>				
Engineering Specialization (ref=electrical)				
Mechanical		0.14 (0.35)		-0.40 (0.36)
Other		0.20 (0.30)		-0.40 (0.26)
Education (ref=Bachelors)				
Masters/Ph.D.	---	0.34 (0.23)	---	0.56 (0.30) <sup>d</sup>
Age (ref=20-29)				
30-39		0.34 (0.45)		-0.19 (0.27)
≥ 40		0.77 (0.45) <sup>d</sup>		0.03 (0.42)
Gender (ref=male)				
Female		-0.07 (0.29)		0.06 (0.24)
<b>R<sup>2</sup></b>	.01	.07	.01	.05

†Scored on a 7-point likert scale. Higher scores indicate greater discrimination

‡Only includes respondents who were currently employed (in engineering field or not)

<sup>ap</sup>< .001

<sup>bp</sup>< .01

<sup>cp</sup>< .05

<sup>dp</sup>< .10

groups had lower WPDI scores), but it was not in the locally-trained sample. It is worth noting that a relationship between education and discrimination was also found in many of the analyses; however, while higher education was associated with increased odds of getting an engineering job, it was associated with greater perceived experiences of discrimination.

## DISCUSSION

Two limitations of the study are the cross sectional design and that the respondents self-selected to participate in the study which does not allow for generalization of the findings to the wider population. It is also possible that the non-random sample led to an over-representation of those who felt discriminated against in the Canadian job market.

Our analysis demonstrates the relationship of race/ethnicity and its related markers—foreign-training—with both ability to secure work in the engineering field and perceptions of discrimination. In the case of new immigrants, location of

training proved to be a significant predictor of ability to secure work, where locally-trained engineers were far more likely to acquire a job in the engineering field than foreign-trained engineers. This finding is not surprising and confirms findings of other studies on the difficulties faced by immigrants in relation to access to employment in Canada (Boyd and Schellenberg 2007; Ziestma 2010). Past studies have attributed the lack of access to the job market faced by immigrants to discrimination on account of foreign credentials (Becklumb and Elgersma 2008; Li 2001; Krahn et al. 2000; Albiom et al. 2005), language ability (CIC 2001), and lack of Canadian experience (Buzdugan and Halli 2009). It has also been argued that the employment discrimination on account of location of training faced by immigrants could be a form of racism (Henry and Tator 2006; Reitz 2005). It is possible that location of training is then a signifier for other cultural and racial markers on the basis of which the discrimination is occurring covertly. Esses et al. (2007) found that the discrimination faced by visible minority immigrants is specific to their visible minority status. Their research on the role of prejudice in discounting immigrant job applicants led them to conclude that “the fact that the individual had foreign qualifications made the situation more ambiguous and provided a reason for devaluing them” and that “it was easy to judge the black applicant as unsuitable for the position without appearing prejudiced” (116) on the account of foreign credentials.

Race/ethnicity also mattered for the locally-trained engineers looking for engineering jobs (i.e., South Asians are less likely to get engineering work than other racial groups). Other studies have reported on the differences within ethnic groups in relation to labour market outcomes. Pendakur and Pendakur (2011) analysed income disparities among Canadian-born visible minorities over three census years and found larger labour market disadvantage for South Asian and Black males compared to Chinese males. Differences have also been found among the labour market rates, participation rates and underemployment rates of different ethnic groups in Canada. The unemployment rates of Arabs and Blacks were found to be the highest among all ethnic groups in the 2006 Canadian Census (Statistics Canada 2011). In their study of Chinese engineers, Wong and Wong (2006) analysed the 2001 Canadian census data to compare the earnings of different ethnic groups and found the mean earnings of Chinese, East Indians, Filipinos and Arabs to be much lower than the mean earnings of the country despite having higher than average years of schooling and university completion. Discrimination on account of racism is one explanation for these unequal outcomes for racialised groups.

Lack of social networks was perceived to be a hurdle in the career advancement of Chinese Canadian engineers in Canada (Wong and Wong 2006). It is likely that many locally-trained engineers from newly-arrived visible minority groups do not have access to networks of social capital within their professions that will support



them in finding suitable employment. It is likely that the parents of these locally-trained visible minority engineers too faced similar hurdles as the immigrant engineers in our study in securing employment within their professions, and have not been in a position to pass on the required social capital to their children (Yan et al. 2008). Hiring practices that place high importance on local referrals put newcomers who might not have such networks at a disadvantage.

Clear differences were found in the perceptions of discrimination between locally- and foreign-trained engineers in our study. Foreign-trained engineers were more likely to perceive themselves as experiencing discrimination on the job compared to locally-trained engineers. Ironically, visible minority locally-trained engineers who had more difficulty accessing the job market did not view themselves as victims of discrimination. The literature has some explanations that we can draw on. Matthews (2006) informs us that it is a human tendency not to view something as discriminatory. Seen through the lens of intersectionality (Calliste and Dei 2000; Stasiulis 1999), internationally-trained immigrants view their situation through a location at the intersection of multiple disadvantages (race/ethnicity, foreign education, foreign training), while locally-trained engineers do not. It is also likely that the rhetoric of multiculturalism and the perception of sense of equality in Canadian society that locally-trained engineers have probably internalised during their schooling are also possible reasons to not view themselves as victims of discrimination. Malhi and Boon (2007) suggest that the discursive strategies utilised by dominant groups to deny and erase racism are also internalised and used by racialised groups who used various strategies—such as attributing negative experiences to cultural miscommunication—to “manage” the racism. Like the participants in Malhi and Boon’s study, it is likely that locally-trained immigrants in our study aligned with the dominant discourses in Canadian society even when it contradicted their own lived experiences.

## **CONCLUSION: IMPLICATIONS FOR POLICY AND PRACTICE**

The difficulties immigrant professionals face in finding suitable jobs in Canada have been found to affect their health and well-being (Este and Tachble 2009; Asanin-Dean and Wilson 2009) and related to an overall feeling of dissatisfaction with life in Canada (George et al. 2012b). The literature has noted that perceptions of discrimination can have very real effects on the health as well as the job performance of the persons perceiving discrimination (Pavalko et al. 2003; Ensher et al. 2001; Naff 1995). There is also a potential for economic loss to Canada if these immigrants decide to leave the country to return to their own countries or to other countries that are eager to utilise their skills (Ho 2010; Reitz 2001).

Hiring practices in Canada rely heavily on professional references and discriminate against both newcomers to the country and visible minority graduates from Canadian universities who might not have the professional networks to provide such references. Mechanisms such as relevant and meaningful internships and professional mentorship programs are recommended to allow for referral relationships to be built where none exist. The authors of this paper reiterate the urgent need to address the barriers facing immigrants searching for employment in Canada.

Universities need to be aware of the disadvantage faced by their visible minority students in securing employment and need to help them prepare for the challenge of securing employment in the relevant field by emphasizing ways in which these young professionals can build professional social networks for themselves in order to further their careers. There is also a need to monitor closely the labour market outcomes of successive generations of all populations, and more so for visible minority immigrants at a national level.

Race/ethnicity was found to be a significant predictor of employment for locally-trained respondents and was a possible marker for foreign training which in turn predicted limited access to employment for internationally-trained respondents. Race and ethnicity also had a role to play in perceiving discrimination. The idea that racism in Canadian society exists in a nuanced and covert fashion is not new. Despite numerous policy interventions and practices in the public and private sector, Canada has not managed to eradicate the experiences of discrimination against visible minorities. More intense deliberations and concerted efforts are required to address this at a systemic level.

This paper has discussed the ability to find work in the engineering field and perceptions of discrimination among a cross section of locally-trained and foreign-trained engineers in Canada. The findings from this study highlight the role of subtle and continued discrimination based on race/ethnicity in the labour market.

## NOTES

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1. Language, an important component of ability to find work, was not included in the model as over 90% of the internationally trained engineers reported that they spoke English either very well or well. However, interviews conducted as part of the larger study from which this paper draws from led the researchers to believe that self-reporting of language ability might not be a reliable indicator of actual ability as some of the interview participants who were not able to communicate in English did not perceive language to be a barrier while others who spoke English fluently did not feel confident of their language abilities.

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