

WORKING PAPERS

Social media and internet usage rates on employment outcomes among newcomers in Canada

Stein Monteiro
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among newcomers in Canada**

Stein Monteiro
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Series Editors: Anna Triandafyllidou and Usha George



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Introduction

Since the 2000s, the growth of information and communications technology has contributed to the growth in international migration. The main reason for this trend is that potential migrants have better access to information about the migration process and post-migration integration challenges (Kotyrlo 2019; Dekker & Engbersen 2014; Thulin & Vilhelmson 2014). Potential migrants will utilize all the information available to them to make the best possible decision before migrating. The internet, and social media in particular, is one of many tools that migrants may access to connect with existing diaspora networks living in the host country that could help them find a job, connect to needed services, or provide information about the host country's labour market. This study will provide new evidence on immigrants' internet and social media usage for labour market integration from the 2018 Canadian Internet Use Survey. Given the limitations of the survey, I will only be looking at employment as a labour market outcome. I found evidence in the survey that social media users are about 2.3 times more likely to be employed compared to those that were using traditional media like email, telephone and in-person interactions. In addition, I also find that those using the internet to search for employment or for training purposes are twice as likely to be employed. Moreover, there is no evidence to indicate that immigrants using social media or the internet experienced higher employment relative to similar native-born Canadians. These findings remain robust to the inclusion of controls for differences in internet usage across individuals. But the observed effects disappear when including demographic and socio-economic covariates representing the digital divide experienced by immigrants and native-born Canadians.

This study is part of a larger project by the Canada Excellence Research Chair in Migration and Integration program at Ryerson University that studies the impact of pre-arrival social media use on newcomers' labour market integration. This larger project functions in collaboration with the employment agency A.C.C.E.S Employment (Accessible Community Counselling and Employment Services), which serves a large number of newcomer jobseekers in the Greater Toronto Area. This study serves the larger project by contextualizing social media use by immigrants in Canada. This paper provides evidence from the 2018 Canadian Internet Use Survey on the effect of social media usage, internet usage for employment search and internet usage for training purposes on the employment of immigrants relative to the Canadian-born.

The literature on social networks and migration find that migrants are attracted to destinations where they have larger social networks and can leverage their social capital to smooth the process of integration (Blumenstock, Chi & Tan 2019; Comola & Mendola 2015; Munshi 2014; Patel & Vella 2012; Dolfin & Genicot 2010)¹. Social networks give potential migrants information about the migration process, border crossing, jobs, housing, banking and credit. The presence of family members in the destination country is especially important. Dolfin & Genicot (2010) show that migrants with family in the destination country tend to prioritize job information in the destination country over legal migration processes and border crossing information, which has the effect of increasing the likelihood of illegal migration and use of middlemen in border crossing. Moreover, families do not just provide information, they also supply credit to new migrants, provide accommodation and assistance with jobs (Comola & Mendola 2015; Dolfin & Genicot 2010). On a more general note, family and non-family networks influence migrants' occupational choices and earnings, such that new immigrants tend to choose the same occupations as established immigrants in their locality, creating local niches and earning them a wage premium (Patel & Vella 2013; Waldinger 1994; Logan, Alba & Zhang 2002). Networks that form beyond family elements, such as caste, origin village or ethnicity can also be beneficial to its

¹ An alternative but smaller literature shows that too many frequent interactions with existing connections might dissuade migration to those places. Migrants might be competing for attention or information (Blumenstock, Chi & Tan, 2019).

community members. Some of these benefits are finding employment, supporting entrepreneurial activity and providing social insurance (Munshi 2014). Due to the benefits of a community network many migrants choose to live in close proximity to co-ethnics, which allows for ease in building networks through interactions without the communication barriers and cost of travel associated with geographic location (Bailey & Waldinger 1991; Chiswick & Miller 1996; Edin, Frederiksson & Aslund 2003; Chiswick & Miller 2005; Bauer, Epstein & Gang 2005; Warman 2007; Damm 2009; Xie & Gough 2011; Beckhusen, Florax & de Graaff 2012; Ghosh 2007; Danzer & Yaman 2016; Danzer, Feuerbaum, Piopiunik & Woessmann 2018; Bredtmann, Nowotny & Pennerstofer 2019; Nowotny & Otten 2020). What is common in the social network literature is the focus on the spatial proximity of community members to form immigrant communities so that the predominant mode of communication in these communities is in-person interaction. The literature on digital diasporas (Keles 2016) and transnational families (Madianou & Miller 2013; Madianou 2015, 2016) look more closely at how other forms of communicating (like social media) unrestricted by geographical boundaries have an impact on the interactions within community networks and families living in the home and host country. However, the digital diaspora literature does not look at labour market issues in sufficient detail. It only briefly touches upon labour market information (such as sharing job advertisements and internship opportunities) and supports (such as community business owners hiring new immigrants, language skills learning and career advice) passed on social networking websites in the destination country (Keles 2016). In this study, I hope to provide some preliminary motivation to further our understanding of how the internet and social media are important tools for newcomers in performing the functions of communicating with social networks and gathering information about the labour market, which in turn can contribute to improvements in their labour market outcomes.

Social networking and social media matter greatly in Canada for the general population. In 2020, 25.35 million people were using social networking sites and social media (Statista 2020f). Even before the COVID-19 pandemic, social network penetration rates were at 67%, much higher than the global average of 49% (Statista 2020e). By 2025, there are expected to be 32.07 million social networking and social media users in Canada (Statista 2020g). A large part of the growth in social networking and social media users is probably due to the influx of immigrants from countries where social networking and social media penetration rates and levels are much higher. For instance, India and China were the top two immigrant sending countries representing 34% of all Permanent Resident admissions in Canada in 2019. Both these countries had social media usage at least 14 times larger than in Canada (Statista 2020f). Although China had a much higher penetration rate of 72%, India was only about 29% (Statista 2020h). Based on findings from the 2018 Canadian Internet Use Survey, 67.09% of immigrants used social media, which is very similar to the 67.68% of native-born Canadians². These figures provide additional motivation for the need to study social media usage patterns among immigrants.

The definition of social media varies across the literature. In this paper, I utilize a working definition for social media that is based off a literature review on social media and migration by McGregor & Siegel (2013): “an internet-based application that allows the creation and exchange of User Generated Content” where User Generated Content is media content (i.e. text, audio, videos or images) created by an end-user of the application. This definition covers the internet used for social networking (such as Facebook, QZone, Google+, Vkontakte, Myspace and Orkut), professional networking (LinkedIn), dating services, sharing self-made content (such as

² Social media usage is defined by those that used social media frequently in the last 3 months and had at least one social media account. Social media covers the internet used for social networking, professional networking, dating services, sharing self-made content, blogging or microblogging, instant messaging services with group conversation capabilities, and voice/video calling. It excludes one-to-one communication through email, instant messaging services and voice/video calling. The usage rates are weighted using the sample weights provided in the survey.

Instagram, Snapchat and TikTok), blogging or microblogging (such as Twitter, Tumblr, Reddit, Baidu Tieba), instant messaging services with group conversation capabilities (such as WhatsApp, BlackBerry Messenger, Skype, WeChat, QQ, Viber, LINE and Facebook Messenger), and voice/video calling (such as WhatsApp, Skype, Zoom, Google Meet, Facetime and WeChat). It excludes one-to-one communication through email, instant messaging services and voice/video calling. Although, users may be using a particular platform with both one-to-one and many-to-many communication features. In addition, this definition fits well with the data available in the 2018 Canadian Internet Use Survey.

The survey captures responses from 13,810 residents at least 15 years of age living in a Province in Canada. The survey excludes residents of Yukon, Northwest Territories and Nunavut, and those living in an institution. The survey includes non-immigrants (or Canadian-born) and immigrants (or permanent residents), but does not capture refugees and non-permanent residents such as international students and temporary foreign workers. In addition, this study utilizes the public-use version of the survey, which does not identify the immigrant's year of landing in Canada and country of origin. The subsample and missing variables might pose a problem because temporary and permanent residents use ICT in very different ways (Acharya 2016; Mikal & Woodfield 2015), and the origin country's culture has an impact on ICT use especially for immigrant women and children (Acharya 2016). Moreover, established immigrants and Canadian-born are 68% more likely to access the internet than comparable new immigrants, although there were no significant differences in their use of social networking sites (Haight, Quan-Haase & Corbett 2014). Even with these missing pieces in the survey, the data presented in this paper can serve as a starting point for further analysis. Internet use among immigrants is not a new area of research, including the use of the internet to search for employment or training. In a study by Xue (2008), newcomers to Canada from all immigration categories (family, economic and refugees) that were surveyed in the Longitudinal Survey of Immigrants to Canada (2005; waves 1 - 3) said that internet was the most used job search method (58%), followed by networking with family and friends (46%). There were differences across immigration categories. Economic immigrants were more likely to use the internet to search for work, while family class immigrants and refugees relied more on their personal networks. Similar studies in Germany and Israel (Weiskopf & Kissau 2008), Bulgaria, Netherlands and Spain (Reichel, Siegel & Andreo 2015), Sweden (Thulin & Vilhelmson 2014) and the US (Mikal & Woodfield 2015) find that immigrants use the internet to search for job information, language learning, adult education and/or skills training.

How can using the internet improve labour market outcomes for immigrants? The answer to this question is less clear because on the one hand greater internet use and higher labour market outcomes are both attributed to digital skills, which are also highly valued in today's labour market (Tverdostup & Paas 2018). Even in the early stages of searching and applying for jobs, digital skills are a prerequisite because job applications are predominantly completed online. On the other hand, the internet facilitates the search for employment by providing job market information (Suvankulov, Lau & Chau 2012; Beard, Ford, Saba & Seals 2012; Jansen, Jansen & Spink 2005; Kuhn & Skuterud 2004), opportunities for connection building (Mesch 2011), and is also used for skills training or education (Suh & Hsieh 2018). In this paper, I only look at the latter uses of the internet as a tool to search for employment and training.

Since a more comprehensive discussion of the literature on social media and migration is provided in McGregor & Siegel (2013), as well as recent systematic literature review of ICT adoption by Acharya (2016), in this paper I focus on the evidence relating to the labour market outcomes of immigrants. The next section compares social media and internet usage rates between immigrants and native-born Canadians using the survey. Then I will estimate and discuss the effect of social media and internet use in finding employment.

Social media use by immigrants

In 2015, many refugees and asylum seekers, escaping conflict, arrived at the borders of Europe. Refugees have information needs such that lack of information or misinformation can be detrimental to safe passage and subsequent life in the destination country. Borkert, Fisher & Yafi (2018) found that 42% of Arab refugees at the Za'atari refugee camp in Jordan reported that learning how to use communication technologies was a critical skill to have. The information that was most important to them was whether a country was politically stable (78%) and economically stable (77%). With the help of social media and communication technologies, 58% indicated that it was very easy to find information about the political and economic stability of a destination country. About 49% of refugees relied on conversations with people who already completed their journey to Europe and 39% used Facebook enroute. The type of social media that is used by migrants is situational. Migrants will use the social media platform that best meets their present information needs, operating within a 'polymedia' space (Madianou & Miller 2013). For example, 80% of asylum migrants between Syria and Europe in 2015 used social networking sites like Facebook and LinkedIn before migrating. During migration, only 38% used these platforms, while use of Google Maps increased dramatically by 44%. When met with an obstacle, asylum migrants used social media to identify new routes and validate rumors (Dekker, Engbersen, Klaver & Vonk, 2018). Certainly, the information needs of refugees are very different from those of permanent residents and non-permanent residents. For instance, international students who are non-permanent residents have unique information needs. Jayadeva (2019) found that Indian students looking to study in Germany made effective use of Facebook and WhatsApp to learn and share their personal experiences with their peers on topics such as visa applications, the visa interview, university applications, language requirements and part-time job opportunities. The major advantage of the online communities is their ability to create new network contacts at the pre-arrival stage. These contacts helped them after arrival in Germany as well.

All migrants use telephones and email to communicate with family and friends in their home country. Social media is a variation of that form of communication with some important differences. The main advantage of social media over older forms of technology-mediated communication is that it allows people to communicate many-to-many (as opposed to one-on-one communication mediums like telephones and email), it has a low marginal cost of usage (although the initial investment in social media is large), gives people the ability to identify new latent connections by traversing existing networks, and it allows for media-rich content sharing (i.e. text, audio, videos and images) (Dekker & Engbersen 2014; Dekker, Engbersen & Faber 2016; Dekker, Engbersen, Klaver & Vonk 2018). All these incremental advantages of social media over traditional forms of communication are useful to newcomers. We saw that social media usage rates of immigrants (67.09%) and native-born Canadians (67.68%) was very similar. However, they might be using it in different ways. Table 1a shows the distribution of uses for social media by immigrants compared to native-born Canadians. The p-value in the last column of the table identifies, based on a two sample proportions z-test, whether there is a statistical difference in the percentage of immigrants' performance of activities using social media compared to the percentage of native-born Canadians. For each of the reasons indicated in the first column of the table there appears to be no significant difference between immigrants and native-born Canadians' activities performed on social networking websites and applications, except for using social media to learn about government programs/services, to share pictures and videos with family/friends and to follow current events. Immigrants are 8.83 percent (significant at the 1 percent level) less likely to follow current events using social media than the Canadian-born, 4.39 percent (significant at the 10 percent level) more likely to learn about government programs/services, and 5.43 percent (significant at the 10 percent level) more likely to share pictures or videos with friends and family. Similarly, table 1b provides the reasons as to why immigrants are *not* using social media. There does not appear to be any significant difference

between immigrants and native-born Canadians in their reasons for not using social media. In relative terms, immigrants do not appear to be affected by the functional barriers presented by social media websites and applications.

Wall, Campbell & Janbeck (2017) draw attention to 'information precarity' as refugees and other newcomers may become susceptible to misinformation and digital surveillance by state actors. Among immigrants in Canada (relative to native-born), information precarity does not appear to be a major problem. Table 1c below provides a comparison of immigrants and native-born Canadians in their experiences with cyber security threats. I cannot infer whether these threats were experienced solely on a social media platform, but to get a better estimate that is closer to immigrants' experience on social media I subset the data to those that used social media regularly. It appears that immigrants that are regular users of social media are not more susceptible to a cyber security threat than comparable native-born Canadians.

Table 1a: the distribution of activities performed on social media by native-born Canadians and immigrants in the last 3 months. The percentages in the table are weighted using the survey provided frequency weights. The estimates exclude students.

Activities	% of immigrants	% of Canadian-born	Unweighted number of immigrants	Unweighted number of Canadian-born	Standard error	Z-score	P-value
Communicate with friends and family	15.28	12.78	208	773	0.0265	0.9419	0.3462
Follow current events	25.89	34.72	322	1,832	0.0285	-3.0984	0.0019
Keep up to date with the activities of friends and family	4.38	5.87	63	359	0.0315	-0.4734	0.6359
Learn about government programs or services	23.64	19.25	293	1,123	0.0263	1.6687	0.0952
Share or post your own thoughts, pictures or videos publicly	4.47	6.07	72	310	0.0305	-0.5255	0.5992
Share or post your own thoughts, pictures or videos with friends and family	18.30	12.87	232	822	0.0258	2.1013	0.0356

Other	5.53	6.30	75	344	0.0306	-0.2494	0.8030
None	2.52	2.00	30	128	0.0291	0.1801	0.8571
Not stated	0.00	0.16	-	8	-	0.0000	1.0000

Table 1b: the distribution of reasons for not using social media among native-born Canadians and immigrants that have not used social media in the last 3 months. The percentages in the table are weighted using the survey provided frequency weights. The estimates exclude students.

Reason	% of immigrants	% of Canadian-born	Unweighted number of immigrants	Unweighted number of Canadian-born	Standard error	Z-score	P-value
Lack of confidence, knowledge, skills or training	6.12	7.15	57	315	0.0367	-0.2810	0.7787
Negative experience	0.57	1.97	6	46	0.0578	-0.2420	0.8088
Security or privacy concerns	12.77	14.92	124	571	0.0349	-0.6165	0.5376
No need, no interest or no time	38.40	32.49	338	1,293	0.0289	2.0451	0.0408
Not stated	0.00	0.02	0	1	-	0.0000	1.0000

Table 1c: cyber security threats experienced by native-born Canadians and immigrants that have used social media in the last 3 months regularly. Weighted using the survey provided frequency weights. The estimates exclude students.

Cyber security threats	% of immigrants	% of Canadian-born	Unweighted number of immigrants	Unweighted number of Canadian-born	Standard error	Z-score	P-value
Cyber-ransom	6.68	4.93	74	243	0.0298	0.5853	0.5583
Fraudulent communications	26.15	29.99	340	1,676	0.0271	-1.4198	0.1557
Hacked account	3.00	2.91	40	164	0.0297	0.0290	0.9769
Identity theft	0.20	0.10	2	9	0.0267	0.0363	0.9710
Information abuse	0.05	0.24	1	9	0.0498	-0.0398	0.9682
Loyalty points fraud	1.89	0.78	19	40	0.0295	0.3756	0.7072
Payment fraud	6.82	5.67	84	288	0.0293	0.3922	0.6949

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Website redirection	13.88	15.04	172	771	0.0300	-0.3871	0.6987
None	38.99	37.90	491	2,256	0.0242	0.4518	0.6514
Not stated	0.77	1.25	10	68	0.0367	-0.1316	0.8953
Other	1.58	1.18	15	69	0.0316	0.1284	0.8979

Except to follow current events, to learn about government programs, and to share pictures and videos with family/friends, immigrants' and native-born Canadians' social media usage is very similar. However, this does not mean that immigrants do not face barriers in accessing internet services and social media websites and applications. Firstly, there is the cost of smartphones, laptops and tablets, which makes the initial burden of investment larger for those in lower income brackets. Secondly, learning to use the technology can be difficult, which makes it a costly effort for older migrants, rural dwellers and those migrants from countries where internet penetration rates are low. However, once this hurdle has been overcome, the marginal cost of using social media to communicate is low compared to traditional mediums. Finally, there are changing preferences for social media platforms. For instance, platforms such as Facebook, Twitter and LinkedIn each serve a different purpose. Newcomers navigate multiple platforms to address their communication needs and exploit the differences between these platforms to manage the relationships they have in their professional and personal lives (Madianou & Miller 2013, Madianou 2015). Facebook is the most popular platform among newcomers post-arrival, but Facebook Groups is used by potential migrants pre-arrival to get information and learn from others' experiences. A search on Facebook shows 72 public groups dedicated to discussions on immigration, work and study in Canada by potential migrants and diaspora. Facebook is an informal way of learning about Canada pre-arrival which can lead to weak connections between people discussing the job market specific to newcomers' occupation, industry and personal circumstances. On the other hand, there are professional networking services like LinkedIn that allow individuals to meet others in their own field of expertise, get advice and information about their labour market experiences in Canada. An informal search on LinkedIn shows 50 active groups dedicated to discussions on immigration, licensing for foreign-educated persons, visa assistance, resume building, finding jobs and starting a business in Canada. While Facebook and LinkedIn have been popular in the past, there is growing interest in other social media platforms, like Instagram, TikTok, Snapchat and Reddit among newcomer communities to get required information on the job market. The technological landscape is constantly changing. While online discussion forums were popular during the early years of the internet, these have been replaced by Facebook Groups, LinkedIn Groups, Reddit, Tumblr and Twitter. Other countries like China and Russia have their own social networking websites and applications that are used frequently by the Russian and Chinese diaspora living in Canada. Some of the most popular are: Vkontakte in Russia, Baidu Tieba, WeChat, QZone and QQ in China. As of October 2019, social media use among selected major platforms is ranked as follows (Statista, 2020a): (1) Facebook, (2) YouTube, (3) Instagram, (4) TikTok, (5) Reddit, (6) Twitter and (7) LinkedIn. Furthermore, Facebook's monthly active users is steadily growing (Statista, 2020b), compared to Twitter which declined slightly since last year and appears to have plateaued in number of monthly active users (Statista, 2020c). On the other hand, monthly active Instagram users have grown at a much faster rate since 2013 (Statista, 2020d). The technologies migrants are using are changing rapidly. The most popular platforms today may not be relevant in the future.

Social media is useful for newcomers for many reasons. As was previously mentioned, immigrants used social media to share pictures and videos with family and friends. The many-to-many functionality of social media allows newcomers to widely broadcast their experiences on the journey and within the host country for wider reach, more feedback, well adjusted responses to the environment and eventually better outcomes. The many-to-many functionality exists on many social media platforms (such as LinkedIn, Facebook, Twitter, Reddit, as well as WeChat and Baidu Tieba in China). Many-to-many communication gives users the ability to share their professional experience, job openings and career advice to people within or outside their network. These exchanges are common to LinkedIn and online discussion forums such as [Canadavisa.com](#) (516,220 threads, 8,290,995 messages and 802,730 members), [Immigroup.com](#) (1,340 threads, 4,704 messages and 16,237 members), [Settlement.org](#) (3,484 threads, 9,667 posts and 6,504 members). Immigration processes, certification and employability

are the main issues being discussed on online discussion forums (Caidi, Komlodi, Abrao & Martin-Hammond, 2014). Secondly, social media makes it significantly advantageous for migrants to build their social capital pre- and post-arrival. Social media allows migrants to build their network by creating new latent connections. For instance, Dekker & Engbersen (2014) found that migrants reported contacting (or being contacted) by strangers on the social media platform Orkut. Informal meetings online contribute significantly to expanding migrants' networks. But not all these connections are weighted the same way in a newcomer's social network, and certainly not all these connections will lead to better job market outcomes. There are two types of connections that people have: weak and strong ties. A strong tie is a close family or friend, while a weak tie is a distant relative, an acquaintance or friend-of-a-friend. Social media has the inherent feature of preserving weak ties for a long period of time, which may become stronger in the future when migrants revive contacts with relatives or friends living abroad (Dekker & Engbersen, 2014). Finally, social media is advantageous over traditional mediums because it allows users to communicate using text, audio, videos and images. This makes social media platforms more engaging and also communicates a lot more information than an email or telephone call. This adds a more immersive dimension to the process of integration. Dekker & Engbersen (2014) report a sense of intimacy and closeness when communicating using video calling services such as Skype and media sharing services such as Facebook. This allows migrants to maintain stronger ties with family and friends in their home country lessening the emotional and social costs of migration.

Personal characteristics will impact who has access to the benefits of social media. The difference in access is termed the 'digital divide'. Dekker & Engbersen (2014) identified a digital divide in social media use among migrants along the dimensions of age, gender, class, place of residence and education. Similarly, Ono & Zavodny (2007) show that there is a large gap in computer and internet access and use between immigrants and native-born Americans. This differential is more serious among immigrants with limited English-speaking proficiency. The digital divide in social media use does not just stem from being able to use social media, but also being able to afford internet connectivity, laptops, smartphones and/or tablets. Those who are younger, richer, more educated, live in urban areas or come from countries with higher internet penetration rates are more likely to use social media (Acharya 2016; Haight, Quan-Haase & Corbett 2014). A study by Haight, Quan-Haase & Corbett (2014) on the digital divide in Canada using the 2010 Canadian Internet Use Survey found that recent immigrants to Canada have lower rates of internet access, but those who are online have higher levels of online activity compared to similar native-born Canadians and established immigrants. In terms of usage of social networking websites, Canadian-born and immigrants had similar usage patterns. The study does not go into the details of how women, older, less educated and poorer immigrants use social media in comparison to similar native-born Canadians. I will go a step further from the Haight, Quan-Haase & Corbett (2014) study by looking at how immigrants may be digitally divided along the lines of their demographic and socio-demographic characteristics (such as age, gender, household income, education and location), relative to native-born Canadians. In the regression analysis I will also show that the digital divide explains the relationship between social media usage (or internet usage) and employment outcomes. Furthermore, it should be noted that there is evidence to indicate that the effects of the digital divide might only be temporary. Merisalo & Jauhiainen (2019) report on a subset of asylum-seekers from 37 countries in Africa, Asia and the Middle East to destinations in Greece and Italy, where they find gender, educational and rural/urban differences in internet use disappear after asylum-seekers have completed their journey. Haight, Quan-Haase & Corbett (2014) find similar results in comparisons of internet access, internet activity and social networking website use between recent and more established immigrants.

From the 2018 Canadian Internet Use Survey, I constructed a social media usage variable that is based on responses to activities performed on the internet related to communication. I

considered those that communicated using the internet through instant messenger services, social networking websites and applications, voice/video calling, dating websites or applications, creating or sharing self-made content and writing on a blog or personal website to be a form of social media usage. The only internet communication that was omitted from the definition of social media usage was communication by email. Furthermore, only those that used social media regularly and had at least one social media account were considered social media users. From this social media usage variable I derived the weighted percentage of immigrants and native-born Canadians that used social media by age, gender, education, household income, English speaking and location of residence. The weighted percentages are shown in columns 2 and 3 of table 2 for each of the characteristics in column 1. Using a two proportions z-test for each of these demographic and socio-economic characteristics, I can identify if there are statistically significant differences between immigrant and Canadian-born social media usage. I calculated the z-score using the weighted percentages calculated in columns 2 and 3 along with the unweighted number of immigrants and Canadian-born sampled in columns 4 and 5. The z-scores and associated p-values are shown in columns 7 and 8.

Note that the data represents the digital divide post-arrival, so the immigration selection policy also influences whether the digital divide has an impact on labour market integration outcomes. Age is an important selection criterion for the immigration system (18-35 year olds are awarded 12 points or 18 percent of the minimum score of 67 points to be eligible for permanent residency. For each year after, points allocated towards age decrease by 1 point), so younger applicants have better chances of becoming permanent residents and typically have better labour market outcomes (Schaafsma & Sweetman 2001). But immigrants in the working age segment are especially in need of all the tools required to integrate into the labour market, including social media. Table 2 clearly shows that youth and young adults (15 to 24 years old) had lower usage rates compared to the Canadian-born by 14.74 percentage points (significant at the 5 percent level). But older working age immigrants (55 to 64 years old) had higher usage rates by 7.26 percentage points (significant at the 1 percent level). Except for youth and young adults, immigrants had at least as high usage rates compared to their Canadian-born counterparts.

There are no statistically significant differences in social media usage rates between immigrants and native-born Canadians in rural and urban areas. On the other hand, social media usage rates are higher among female immigrants and native-born Canadians than their male counterparts. But female (male) immigrants had 3.11 percentage points (3.37 percentage point) lower (higher) usage rates than female (male) native-born Canadians.

Along the dimension of education, more educated people had higher social media usage rates for both groups. However, immigrants with a high school diploma (certificate, below a bachelor's degree/college/CEGEP/trade) had lower social media usage rates by 5.09 percentage points (7.36 percentage points) than their Canadian-born counterparts. But immigrants with at least a bachelor's degree had higher social media usage rates by 3.80 percentage points than their Canadian-born counterparts.

Table 2 percentage difference in social media usage rate between immigrants and Canadian-born by demographic and socio-economic characteristics. The percentages in the table are weighted using the survey provided frequency weights. Social media usage excludes those that have only used email to communicate over the internet in the last 3 months.

Digital divide variables	Social media usage rate of immigrants	Social media usage rate of Canadian-born	Unweighted number of immigrants	Unweighted number of Canadian-born	Standard error	Z-score	P-value
Household income							
Upto \$35,000	40.33	43.78	592	2,508	0.0226	-1.5242	0.1275
\$35,000 - \$60,000	60.36	58.15	510	2,240	0.0242	0.9142	0.3606
\$60,000 - \$95,000	66.90	66.82	439	2,080	0.0247	0.0310	0.9753
\$95,000 - \$150,000	76.32	73.11	385	1,767	0.0248	1.2946	0.1955
More than \$150,000	77.84	75.02	307	1,409	0.0271	1.0411	0.2978
Age group							
15 to 24 years	73.85	88.59	26	177	0.0713	-2.0672	0.0387

25 to 34 years	90.58	88.37	194	1,018	0.0248	0.8928	0.3720
35 to 44 years	80.58	81.39	385	1,358	0.0226	-0.3622	0.7172
45 to 54 years	68.19	70.38	477	1,560	0.0240	-0.9131	0.3612
55 to 64 years	61.76	54.51	412	2,429	0.0265	2.7403	0.0061
65 years and over	29.41	32.45	739	3,462	0.0189	-1.6082	0.1078

Knowledge of official languages

Both English and French	69.89	71.44	340	2,302	0.0263	-0.5883	0.5563
English only	63.99	63.26	1,692	6,205	0.0132	0.5501	0.5822
French only	63.09	51.81	134	1,437	0.0451	2.5020	0.0124
Neither English nor French	26.50	47.45	56	3	0.2648	-0.7910	0.4289

Highest level of education

High school diploma or an equivalency certificate or less	45.34	50.43	599	3,626	0.0221	-2.3099	0.0209
Certificate/diploma Univ. below bachelor/College/CEGEP/trade	61.76	69.12	656	3,568	0.0198	-3.7145	0.0002
University degree above the bachelor or bachelor's degree	75.55	71.75	963	2,723	0.0167	2.2748	0.0229

Gender

Male	62.14	58.77	1,175	4,717	0.0160	2.1059	0.0352
Female	65.10	68.21	1,058	5,287	0.0158	-1.9740	0.0484

Population centre indicator

Large urban centres (CMA/CA)	63.46	64.62	2,044	7,080	0.0120	-0.9660	0.3340
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Prince Edward Island	62.43	64.34	46	558	0.0735	-0.2604	0.7946
Rural and small town (non- CMA/CA)	64.21	60.21	143	2,366	0.0421	0.9503	0.3420

Interestingly, French only speaking immigrants had significantly higher social media usage rates than their French only speaking native-born counterparts by 11.28 percentage points (significant at the 1% level). Finally, immigrants and native-born Canadians from wealthier households had higher social media usage rates. However, there does not appear to be any statistical difference between the immigrant and native-born Canadians in usage rates for any of the household income quintiles.

For comparison purposes, tables A1 and A2 in the appendix provide usage rates for internet used to search for employment and internet used for training purposes, by the demographic and socio-economic characteristics of the digital divide. To summarize table A1, rates in internet usage to search for employment was significantly higher for immigrants than comparable native-born Canadians in most of the demographic and socio-economic dimensions indicated in column 1, except for those with a high school diploma³. On the other hand, table A2 shows that the rates in internet usage for training purposes was significantly lower for older working age (55 to 64 years) and less educated (less than a university bachelor's degree) immigrants compared to similar native-born Canadians. On the other hand, French speaking and rural immigrants had significantly higher internet usage for training purposes than comparable native-born Canadians.

So far the discussion has shown that differences in social media and internet usage rates between the two groups were significantly different for many factors like age, gender, education level, location, household income and ability to speak English and/or French. But these observed differences in usage rates may have no impact on observed differences in employment rates for the two groups. In the following section I will look more closely at how social media usage, internet usage for employment search and internet usage for training is linked with employment outcomes. I will also look at how the digital divide enters into this equation to change the observed relationship between the variables of interest.

Social media use and employment

Newcomers are a highly resilient group of people. They will use all the tools available to them in order to access the services they need to successfully integrate into the host country. A major part of this process is getting a job and earning a living. But integration into the labour market also means having a job that matches their existing qualifications. If those qualifications are insufficient to hold a job in Canada, then access to education and skills training services is required. Newcomers also need the right information on how to search for jobs, get a work visa, apply for permanent residency, apply for Employment Insurance and get legal advice. The internet and social media can help newcomers meet these needs. The main advantage of social media in searching for a job is that it provides job-seekers with access to weak ties in their relevant professional networks (i.e. distant relatives and friends, acquaintances, friends-of-friends who work in the same industry or occupation). Migrants might have strong ties in the host country, but these ties might not be working in the same industry or occupation. Although the research is fairly conclusive that network contacts are suppliers of information for job-seekers that goes beyond sharing of job postings, the research also finds that there is considerable heterogeneity in how people use social media in their job search. Some people are actively using their contacts on Facebook and Twitter to help them in their job search, while others are passive searchers and wait for opportunities to arrive through their network contacts (Mowbray, Hall, Raeside & Robertson, 2018; Lambert, Eby & Reeves, 2006).

³ I am only interpreting those estimates that were at least statistically significant at the 10 percent level. The total number of observations for Canadian-born people that spoke neither English nor French was too small to make any inferences.

The discussion surrounding whether weak or strong ties matter in job search is not conclusive either, although both appear to be important in different ways (Gee, Jones & Burke, 2017; Tian & Lin, 2016; Kramarz & Skans, 2014). A study by Gee, Jones & Burke (2017) using 6 million Facebook users' data show that although weak ties are important, strong ties are what matter in the end for job seekers. In addition, youth workers entering the labour market that find a job at a company through strong ties (for instance, parents) appear to have much higher wage growth than others entering the company without a strong tie (Kramarz & Skans, 2014). Of course, migrants are not so fortunate to have similar strong ties in a new country, which is why a dense and diverse network of weak ties might substitute the lack of strong networks. And professional networking sites like LinkedIn are ideal for maintaining those weak ties. These studies did not attempt to identify whether there were any advantages to immigrants from social media usage compared to similar native-born Canadians. In the following regression analysis, I show that immigrants and native-born Canadians that used social media and the internet were more likely to be employed. But there is no evidence to indicate that there are relative advantages to immigrants from using social media or the internet. However, the effect of social media and internet use on employment disappears when accounting for differences in demographic and socio-economic factors such as age, gender, location, household income and the ability to speak English and/or French.

But there are problems with forming conclusions based on the regression analysis alone. Firstly, even though the empirical evidence provided in this study does not indicate that there are relative gains in employment to immigrants from using social media, there might be other advantages in relative earnings and education-occupation matches that this paper has not looked into. Secondly, due to data limitations, the regression analysis does not account for the pre-existing and/or new connections on social media for the purpose of getting a job. So whether the social networks that exist on social media platforms is the reason that people find jobs is not clear since some social media platforms like Facebook, Twitter, Instagram and TikTok allow users to receive and share information with/to people they are not followers/following/friends with. For instance, unconnected persons can learn from each other using Facebook Groups, IGTV (Instagram TV), TikTok and Twitter using hashtags (or keywords) and algorithms that make recommendations to users based on their previous activity patterns. These additional functions of social media make it difficult to disentangle whether online social networks are the reason for the observed effects in the data. Thirdly, the results are non-causal so there could be considerable simultaneity bias since it could just as well be the case that employed persons are more likely to be users of social media and the internet. It should be noted that the results only indicate that there is a positive relationship, not the direction of the relationship. Fourthly, the employment outcomes for recent immigrants might be very different from earlier cohorts as well as for different ethnic groups. And finally, the evidence may be biased in favour of those that used social media pre-arrival and had positive experiences online, while hiding the impact of social media on those potential migrants that decided against immigration to Canada. There may have been many potential migrants who used social media and were altogether discouraged from migrating as they learned more about the Canadian labour market or faced some negative experiences online. This means that the results from the regression analysis might be more about the selection bias among those immigrants with pre-arrival successes in using social media to navigate the Canadian labour market, with no negative experiences online and those with more information about privacy/security protocols.

I will run five regression models. Firstly, a simple regression of social media usage interacted with a dummy variable for immigration status as independent variables. The dependent variable is a dummy variable for employed or not. The second model includes another interaction variable with internet used for employment search, so that there are three-way interactions between immigration status and social media usage, immigration status and internet use to search for employment, and social media usage with internet used to search for employment. The

third model includes internet usage for training purposes and its interaction with immigration status. The fourth regression model includes controls for individual differences in weekly internet usage. Finally, the fifth regression model includes a set of controls for the digital divide interacting with the immigrant dummy variable. The summary statistics for each of the variables used in the regression models are provided in table A3 of the appendix, and the results of the five regression models are provided in table 3.

The first regression model in column 1 shows that social media usage has a statistically significant positive effect on employment. Those that use social media are 3.500*** times more likely to be employed than those that use traditional media. The interactions with immigration status are insignificant indicating no relative advantage to immigrants from social media usage. The second model further interacts internet used for employment search with social media usage. The main effects are statistically significant but none of the interacted variables are showing statistical significance. The main effect of social media usage increased slightly to 3.800*** and those that used the internet to search for employment are 3.300*** times more likely to be employed. Although an imperfect measure of using social media to find employment, the interaction between social media usage and using the internet to search for employment is the best measure available in this survey. The finding that this measure is insignificant is surprising because it indicates that frequent users of social media that also use the internet to search for employment are not more likely to be employed.

Similar to column 1, in column 2 there are no relative advantages to immigrants from using social media or using the internet to search for employment. In column 3, I include a variable for the internet used for training purposes. Not surprisingly, those that use the internet for training purposes are 2.500*** times more likely to be employed. While the coefficient estimate for social media usage remained about the same (3.400***), the coefficient estimate for using the internet to search for employment became smaller in magnitude (2.600***). This finding indicates that internet use for both employment search and training purposes are interacting to affect employment. Again, none of the interactions with the immigrant status dummy was statistically significant.

Table 3: estimating the effects of social media usage, internet usage for employment search and internet usage for training on the employment of immigrants relative to Canadian-born. The data used in the regressions exclude students.

	Dependent variable: Employed				
	(1)	(2)	(3)	(4)	(5)
Social media usage	3.500*** (1.100)	3.800*** (1.100)	3.400*** (1.100)	2.300** (1.100)	1.200 (1.100)
Internet used for employment search		3.300*** (1.200)	2.600** (1.200)	1.800 (1.200)	0.620 (1.200)
Internet used for training			2.500** (1.100)	2.200** (1.100)	1.400 (1.100)
Social media usage X Internet used for employment search		0.300 (1.200)	0.330 (1.300)	0.480 (1.300)	0.700 (1.300)
Immigrant X Social media usage	1.000 (1.100)	1.000 (1.100)	1.000 (1.100)	1.000 (1.200)	0.990 (1.200)
Immigrant X Internet used for employment search		1.100 (1.500)	1.300 (1.500)	1.200 (1.500)	1.100 (1.700)
Immigrant X Internet used for training			0.860 (1.200)	0.880 (1.200)	0.930 (1.200)
Immigrant X Social media usage X Internet used for employment search		1.100 (1.600)	0.900 (1.600)	0.940 (1.600)	1.100 (1.800)
Immigrant	1.200 (1.100)	1.100 (1.100)	1.200 (1.100)	1.200 (1.100)	2.400 (2.800)
Hours on internet per week: 5 to 10 hours per week				1.200 (1.100)	1.000 (1.100)
Hours on internet per week: 10 to 20 hours per week				1.100	0.800

	(1.100)	(1.100)
Hours on internet per week: 20 to 40 hours per week	1.200	0.850
	(1.100)	(1.100)
Hours on internet per week: 40 hours or more per week	1.100	0.740
	(1.200)	(1.200)
Hours on internet per week: None	0.280	0.660
	(1.100)	(1.100)
Age group: 25 to 34 years		0.810
		(1.300)
Age group: 35 to 44 years		1.000
		(1.300)
Age group: 45 to 54 years		0.810
		(1.300)
Age group: 55 to 64 years		0.210
		(1.300)
Age group: 65 years and over		0.031
		(1.300)
Immigrant X Age group: 25 to 34 years		0.430
		(2.500)
Immigrant X Age group: 35 to 44 years		0.400
		(2.500)
Immigrant X Age group: 45 to 54 years		0.550
		(2.500)
Immigrant X Age group: 55 to 64 years		0.640
		(2.500)

Immigrant X Age group: 65 years and over	0.410
	(2.400)
Female	0.710
	(1.100)
Immigrant X Female	0.650
	(1.200)
Education level: Certificate/diploma	1.600
	(1.100)
Education level: Bachelor's degree or above	1.300
	(1.100)
Immigrant X Education level: Certificate/diploma	0.800
	(1.200)
Immigrant X Education level: Bachelor's degree or above	1.200
	(1.300)
Region: Rural and small town (non-CMA/CA)	0.810
	(1.100)
Region: Prince Edward Island	0.750
	(1.200)
Immigrant X Region: Rural and small town (non-CMA/CA)	1.300
	(1.300)
Immigrant X Region: Prince Edward Island	0.920
	(1.800)
Speaks English	1.100
	(1.100)
Immigrant X Speaks English	1.400
	(1.300)

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Household income: 35,000 - 60,000					1.800 (1.100)
Household income: 60,000 - 95,000					2.600** (1.100)
Household income: 95,000 - 150,000					4.200*** (1.100)
Household income: More than 150,000					5.500*** (1.200)
Immigrant X Household income: 35,000 - 60,000					0.830 (1.300)
Immigrant X Household income: 60,000 - 95,000					0.930 (1.300)
Immigrant X Household income: 95,000 - 150,000					0.660 (1.300)
Immigrant X Household income: More than 150,000					0.960 (1.400)
Constant	0.830 (1.000)	0.760 (1.000)	0.680 (1.000)	0.930 (1.100)	2.700** (1.300)
Observations	12,181	12,117	12,117	12,099	11,943
Log Likelihood	-7,066.000	-6,970.000	-6,826.000	-6,653.000	-4,619.000
Akaike Inf. Crit.	14,140.000	13,956.000	13,672.000	13,336.000	9,328.000

*p<0.1; **p<0.05; ***p<0.01

Cluster robust standard errors in parentheses
Coefficients and standard errors are exponentiated.

The fourth column controls for individual differences in internet usage. The estimate for internet used for training decreased slightly, while the estimate for social media usage declined more drastically. The estimate for the internet used to search for employment became insignificant. The coefficient estimates for the interaction terms are still insignificant. This finding indicates that differences in internet usage along the intensive margin accounts for substantial differences in the observed effect of social media and internet usage on employment rates for immigrants and native-born Canadians.

Finally, the fifth column includes a set of demographic and socio-economic characteristics in the model interacted with the immigrant status indicator. The estimates for social media usage and internet usage for training purposes lose their significance and become much smaller in magnitude. This finding says that the digital divide is the underlying factor explaining the relationship between social media usage (or internet usage for training) and employment. In particular, those in higher household income quintiles are more likely to be social media users (or internet users for training purposes) and also be employed. However, there is no evidence to indicate that immigrants' experience of the digital divide differentially impacts the relationship between social media usage (or internet usage for training) and employment.

Discussion

Based on the results of the regression analysis, it is clear that social media usage and internet usage for training purposes does appear to be positively related to employment. The coefficient estimate on the social media usage variable in table 3 is capturing the efficiency of social media over traditional media (such as telephones, email and in-person interactions) in communicating and gathering information from a social network. What makes social media different from traditional media is in their relationship to the underlying social network. The size of a pre-existing social network is positively associated with increased use of traditional media. But in the case of social media, even people with small pre-existing social networks are also inclined to adopt social media because of its ability to create new connections. There is a strong case that the statistically significant positive effect of social media usage on employment is due to social media's relative ease in creating new connections. However, it is difficult to say with certainty without more information on survey respondents' social network.

While the internet used for employment search was initially showing up as statistically significant. The inclusion of the internet used for training purposes in the model makes the magnitude of its effect smaller. This happens because either many people that use the internet to search for employment also use it for training purposes, or training is a necessary step before using the internet to search for employment, which eventually leads to actual employment. This finding indicates that using the internet for employment search may be insufficient and that online training may also be required to find employment.

Finally, the interaction between social media usage and the internet used for employment search does not have any statistically significant effect on employment, indicating that social media used for employment search is insufficient to find employment⁴. These findings together substantiate the need for training and that using the internet or social media for employment search is insufficient. The estimated effect of internet usage for training purposes captures the information and service delivery aspects of the internet. It captures the effect of online courses for further education in credential granting institutes, adult education courses, language learning classes, skills training and other forms of informal learning that may not lead to a credential. The

⁴ Although, this is only an imperfect measure of social media used for employment search. A more accurate measure could yield different results.

statistically significant positive effect of internet usage for training on employment confirms that online learning has positive returns in the labour market.

Throughout, the interactions with the immigrant status variable is insignificant. It is unlikely that there are any benefits to immigrants from social media use, internet use for employment search or internet used for training purposes that native-born Canadians do not also benefit from. While this study does not identify any relative advantages to internet and social media use among immigrants, this is probably an attribute of the immigration selection mechanism that selects potential migrants based on demographic and socio-economic characteristics that ensure employment success and technological sophistication. In addition, since social media and the internet are just tools to communicate with social networks and find information, they are expected to be strongly correlated with other factors, particularly the demographic and socio-economic characteristics in the digital divide. In column 5 of table 3, I controlled for age, gender, education level, location, household income and ability to speak English and/or French along with an interaction for immigration status. The inclusion of this set of controls made all of the independent variables of interest insignificant. This says that the digital divide variables are correlated with social media and internet usage, as expected. From the discussion in the previous section and shown in tables 2, A1 and A2, social media and internet usage was shown to be strongly related with age, gender, education level, location, household income and ability to speak English and/or French. In addition, since most of the interactions with the digital divide variables are insignificant as well, there is no evidence to indicate that differences in the experiences of the digital divide is the reason for observed differences in employment between immigrants and native-born Canadians. In fact, only the main effect of household income was significant and had a large magnitude.

Further research

We know from prior research that living and working in an ethnic enclave is a way for migrants to decrease communication and transportation costs because of increased interaction with co-ethnics (Chiswick & Miller 2005). But the presence of social media as a faster and easier way for immigrants to make connections in Canada relative to traditional mediums (like telephone, email and in-person meetings) means that ethnic enclaves can be somewhat substituted by online diaspora communities. This brings up many issues in the current state of research on ethnic enclaves that rely on the traditional assumptions of in-person interactions. To see this more clearly, it will be useful to map out how social media inserts itself into the relationship between social networks and labour market integration. The main relationship and sub relationships are depicted in figure 1a below. The shaded circles in the diagram represent exogenous variables in the analysis, or factors that are not determined within this analytical framework. In this framework, migrants decide whether to use traditional media or social media (and how much to use) to connect with existing diaspora networks, conditional on the socio-economic factors that impact their ability to adopt social media. The outcomes of this decision are expected to impact labour market outcomes in the far right of the diagram, where some of the labour market outcomes to consider are relative salary/earnings, the education-occupation mismatch and the employment rate.

The relationships indicated by the dotted line have been studied in the previous literature, while the others have been overlooked to a certain degree. The main relationship of interest here is simply the unidirectional relationship between social networks living in Canada and labour market outcomes. Social media usage sits between this relationship as a facilitator that connects 'existing' social networks with information on the Canadian labour market and is a more efficient way to receive information from connections than traditional mediums. In this setup of the model, there is no real problem with omitting social media from an analysis of social networks and labour

market integration, which most studies do. But this model relies on a very strong assumption that social media is only being used to manage existing connections. By weakening this assumption and allowing newcomers to create new connections using social media platforms, figure 1b provides a slightly altered view. In this new figure, the node 'Social networks living in Canada' is endogenous and is determined by how much social media the migrant chooses to consume and create new connections in their online network. This creates a feedback effect since social media usage and the expansion of social networks interact with each other. In this new setup of the framework, social media usage sits between this relationship as a moderator variable that amplifies the presence of existing and new social networks. This means that the social network that people have cannot be treated as given because it is always evolving as migrants connect with others. This aspect of social media makes it unique from traditional media because it allows for a convenient way in which migrants make new connections as well as manage old connections that are near or distant. This also means that the literature attempting to study the relationship between social networks and labour market integration could suffer from serious biases when social media is being omitted from the analysis.

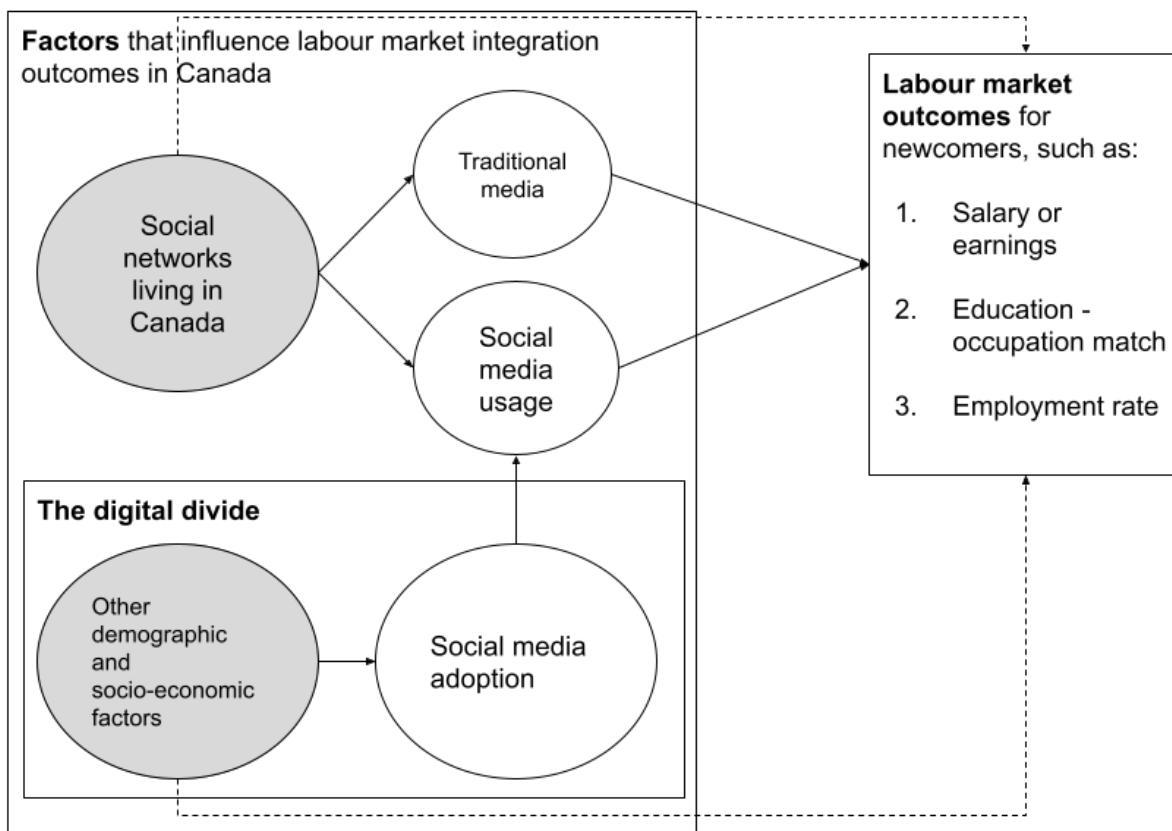


Figure 1a: an analytical framework to understand how social media is inserted into the wider relationship between social networks and labour market integration outcomes, where 'Social networks living in Canada' is treated as an exogenous factor. The grey nodes represent exogenous factors that are not determined within this framework and treated as given by the researcher and the migrant. The other nodes are decisions that a migrant can make, given the circumstances of their exogenous environment.

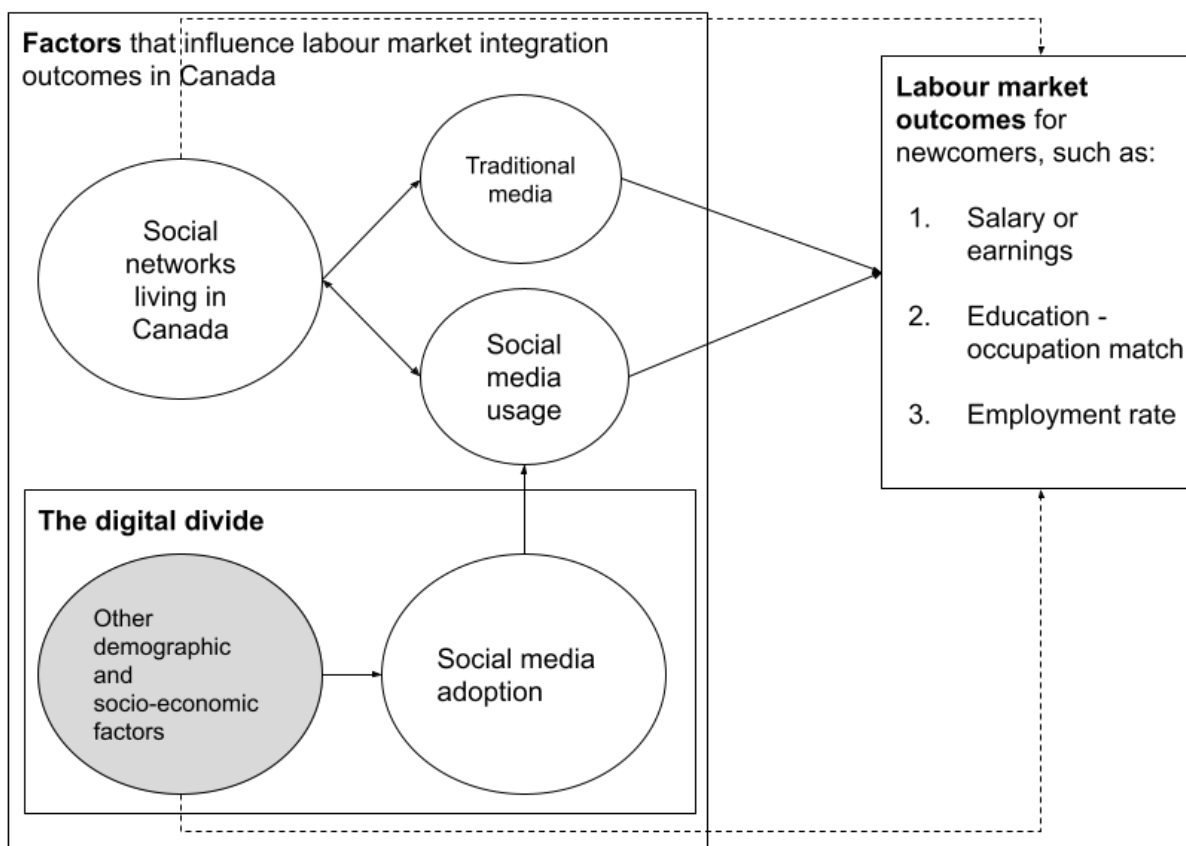


Figure 1b: an analytical framework to understand how social media is inserted into the wider relationship between social networks and labour market integration outcomes, where ‘Social networks living in Canada’ is treated as an endogenous factor. The grey nodes represent exogenous factors that are not determined within this framework and treated as given by the researcher and the migrant. The other nodes are decisions that a migrant can make, given the circumstances of their exogenous environment.

The above argument is just one reason why we need to consider the use of social media among newcomers more seriously from an analytical perspective. In addition, introducing the dimension of social media into the wider analysis of social networks and labour market integration raises the question of how the ‘digital divide’ plays into this analytical framework. From the empirical analysis of the survey data in this paper the digital divide drastically alters the relationship between social media use and employment. Adoption and use of social media matter for labour market success, but there is no evidence to indicate that there are relative advantages to immigrants relative to comparable native-born Canadians.

This also brings into question whether the divide experienced online is better (or worse) than what is experienced offline. Similarly, those who experience a digital divide may still be using their offline social networks very effectively (or vice versa). The 2018 Canadian Internet Use Survey has no information about respondents’ social networks online and offline. It could be the case that online and offline social networks are substitutes for some demographic and socio-economic groups, but complementary for others. In addition, the survey does not provide any

empirical evidence whether accessing social networks through social media is qualitatively better than the traditional methods of accessing them (for instance, through in-person interactions in an ethnic enclave). This is an empirical question about the quality of online diaspora networks in serving the community of newcomers compared to the traditional social capital built over many generations in the ethnic enclave. One dimension to consider is whether the social networks on a platform are equally accessible to all regardless of their demographic and socio-economic characteristics. Consider the case of the ethnic enclave, where the traditional notion of social connections are based on in-person interactions. The ethnic enclave could be treated as a common network with attributes such as size, connectedness and quality. If the ethnic enclave can be viewed as a platform, then everyone living in an enclave has access to the same social network as everyone else, but there are differences in how that common network is experienced for individuals. For instance, children, women and high-skilled immigrants experience the enclave's network in different ways than adults, men and low-skilled immigrants, which can contribute to varying pathways in building social capital in the host country (see the literature on bonding and bridging social capital; Ryan 2011; Sime & Fox 2015; Ryan & Mulholland 2014). On the other hand, those accessing social connections through social media (such as Facebook and LinkedIn) do not have access to a common social network because each person will have a different social network with different attributes of size, connectedness and quality, which is also a function of their demographic and socio-economic characteristics. Not only will personal characteristics impact social media adoption but also their access to relevant connections in the labour market.

So far the discussion has assumed that social media is simply an advancement of communication technologies, without any significant departure from traditional tools of communication like the telephone, email, mail or in-person interactions. But as was explained in the description of the analytical framework, this is not the case. Social media also contributes to the rapid expansion of social networks before migrating, which influences the migration decision itself. That is, among those that use social media to communicate with their family and friends abroad are also more likely to migrate. The presence of a pre-arrival network influences migration decisions, and the fact that social media allows for immersive experiences into life in the host country, being able to learn about the host country in a low-cost way while also having the option of keeping their strong links in the home country altogether encourage migration (Dekker, Engbersen & Faber, 2016).

Conclusion

Research on the impact of newcomers' social media use on accessing social networks for the purpose of improving labour market outcomes is scarce. But this area of research has relevance to policy makers and settlement service organizations. This research paper has brought together the available evidence from the 2018 Canadian Internet Use Survey. While there are some clear advantages to social media use by newcomers for labour market integration, immigrants appear to be well-suited to the digital space. Vulnerable groups like refugees and asylum seekers have very different usage patterns compared to permanent residents.

This paper shows that the 'digital divide' impacts social media and internet usage rates among immigrants and Canadian-born. Findings show that immigrants and native-born Canadians that are younger, more educated, wealthier and speak English have higher social media usage. But social media usage for immigrants was higher than similar native-born Canadians among the older working age (55 to 64 years old), male, French speaking and more educated (at least a bachelor's degree) groups. In addition, rates in internet usage to search for employment was significantly higher for immigrants than comparable native-born Canadians in most of the demographic and socio-economic dimensions indicated in column 1, except for those

with a high school diploma. And finally, French speaking and rural immigrants had significantly higher internet usage for training purposes than comparable native-born Canadians.

Further, this paper also looks at the effect of social media usage, internet usage to search for employment and internet usage for training purposes on employment. Immigrants and native-born Canadians that used social media were about 2.3 times more likely to find employment, and those that used the internet for training purposes or to search for employment were about 2 times more likely to find employment. But there was no evidence to indicate that immigrants benefited more than native-born Canadians from using social media and the internet to search for employment or training purposes. In addition, the benefits of using social media and the internet disappear when accounting for individual differences in demographic and socio-economic factors (i.e. the digital divide). Even those that used social media frequently and the internet to search for employment, there was no observed effect on employment rates. These findings show that either those that used the internet to search for employment were also using it for training purposes, or that training is necessary before using the internet to search for employment. In either case, together these findings substantiate the need for online training and that using the internet for employment search is insufficient.

Access to information is the main reason newcomers find labour market integration so difficult. The research questions we raised here are relevant to policy makers because it provides another lens to think about why immigrants might have lower labour market outcomes. The research findings presented by this paper recommends that policy makers should consider equitable access to social media and the internet to search for employment and training purposes is an important mediator in the path towards improving labour market outcomes for newcomers.

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Appendix

Table A1: percentage difference in rates for internet usage for employment search between immigrants and Canadian-born by demographic and socio-economic characteristics. The percentages in the table are weighted using the survey provided frequency weights. The estimates exclude students.

Digital divide variables	Internet usage for employment rate of immigrants	Internet usage for employment rate of Canadian-born	Unweighted number of immigrants	Unweighted number of Canadian-born	Standard error	Z-score	P-value
Household income							
Upto \$35,000	16.19	13.26	592	2,508	0.0158	1.8559	0.0635
\$35,000 - \$60,000	20.46	16.41	510	2,240	0.0185	2.1895	0.0286
\$60,000 - \$95,000	24.98	18.27	439	2,080	0.0208	3.2299	0.0012
\$95,000 - \$150,000	27.00	17.85	385	1,767	0.0223	4.1074	0.0000
More than \$150,000	19.55	18.10	307	1,409	0.0244	0.5970	0.5505
Age group							
15 to 24 years	30.45	44.05	26	177	0.1038	-1.3106	0.1900
25 to 34 years	41.27	29.99	194	1,018	0.0365	3.0918	0.0020
35 to 44 years	26.31	22.62	385	1,358	0.0245	1.5103	0.1310
45 to 54 years	28.13	19.44	477	1,560	0.0215	4.0411	0.0001
55 to 64 years	17.94	10.50	412	2,429	0.0170	4.3651	0.0000

65 years and over	1.53	1.44	739	3,462	0.0049	0.1829	0.8549
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Knowledge of official languages

Both English and French	22.61	18.01	340	2,302	0.0226	2.0369	0.0417
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English only	22.44	18.17	1,692	6,205	0.0108	3.9637	0.0001
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French only	17.74	6.96	134	1,437	0.0243	4.4264	0.0000
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Neither English nor French	2.46	47.45	56	3	0.1261	-3.5682	0.0004
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Highest level of education

High school diploma or an equivalency certificate or less	8.70	12.81	599	3,626	0.0144	-2.8406	0.0045
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Certificate/diploma a Univ. below bachelor/College/CEGEP/trade	21.00	18.59	656	3,568	0.0167	1.4475	0.1478
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University degree above the bachelor or bachelor's degree	29.95	19.05	963	2,723	0.0155	7.0281	0.0000
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Gender

Male	23.55	17.41	1,175	4,717	0.0127	4.8411	0.0000
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Female	19.26	16.26	1,058	5,287	0.0126	2.3839	0.0171
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Population centre indicator

Large urban centres (CMA/CA)	21.89	17.83	2,044	7,080	0.0098	4.1509	0.0000
Rural and small town (non-CMA/CA)	15.43	13.38	143	2,366	0.0294	0.6949	0.4871
Prince Edward Island	11.51	17.68	46	558	0.0579	-1.0649	0.2869

Table A2: percentage difference in rates for internet usage for training between immigrants and Canadian-born by demographic and socio-economic characteristics. The percentages in the table are weighted using the survey provided frequency weights. The estimates exclude students.

Digital divide variables	Internet usage for training rate of immigrants	Internet usage for training rate of Canadian-born	Unweighted number of immigrants	Unweighted number of Canadian-born	Standard error	Z-score	P-value
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Household income

Upto \$35,000	11.67	12.46	592	2,508	0.0150	-0.5219	0.6018
\$35,000 - \$60,000	19.37	19.60	510	2,240	0.0195	-0.1195	0.9049
\$60,000 - \$95,000	29.73	26.52	439	2,080	0.0233	1.3777	0.1683
\$95,000 - \$150,000	37.22	36.07	385	1,767	0.0270	0.4286	0.6682
More than \$150,000	39.45	39.57	307	1,409	0.0308	-0.0375	0.9701

Age group

15 to 24 years	29.54	44.72	26	177	0.1039	-1.4606	0.1441
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25 to 34 years	41.02	43.72	194	1,018	0.0388	-0.6972	0.4857
35 to 44 years	36.94	35.76	385	1,358	0.0277	0.4291	0.6679
45 to 54 years	29.31	29.44	477	1,560	0.0238	-0.0544	0.9566
55 to 64 years	24.78	20.96	412	2,429	0.0219	1.7486	0.0804
65 years and over	8.83	9.34	739	3,462	0.0117	-0.4347	0.6638

Knowledge of official languages

Both English and French	32.37	31.13	340	2,302	0.0269	0.4621	0.6440
English only	27.38	28.93	1,692	6,205	0.0124	-1.2525	0.2104
French only	14.54	9.90	134	1,437	0.0274	1.6927	0.0905
Neither English nor French	1.77	0.00	56	3	0.0763	0.2327	0.8160

Highest level of education

High school diploma or an equivalency certificate or less	6.45	15.21	599	3,626	0.0153	-5.7259	0.0000
Certificate/diploma Univ. below bachelor/College/CEGEP/trade	22.17	26.94	656	3,568	0.0187	-2.5531	0.0107
University degree above the bachelor or bachelor's degree	42.13	40.59	963	2,723	0.0184	0.8310	0.4060

Gender

Male	28.03	28.36	1,175	4,717	0.0147	-0.2204	0.8256
Female	25.19	25.79	1,058	5,287	0.0147	-0.4068	0.6841

Population centre indicator

Large urban centres (CMA/CA)	26.62	28.24	2,044	7,080	0.0113	-1.4426	0.1491
Rural and small town (non-CMA/CA)	29.24	23.07	143	2,366	0.0365	1.6940	0.0903
Prince Edward Island	20.77	22.59	46	558	0.0640	-0.2853	0.7754

Table A3: Summary statistics for all the variables used in the regression analysis. The estimates exclude students.

Statistic	N	Mean	St. Dev.	Min	Max
Social media usage: No	12,947	0.430	0.490	0.000	1.000
Social media usage: Yes	12,947	0.570	0.490	0.000	1.000
Social media usage: Missing	12,956	0.001	0.026	0	1
Internet used for employment search: No	12,764	0.860	0.340	0.000	1.000

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Internet used for employment search: Yes	12,764	0.140	0.340	0.000	1.000
Internet used for employment search: Missing	12,956	0.015	0.120	0	1
Internet used for training: No	12,764	0.770	0.420	0.000	1.000
Internet used for training: Yes	12,764	0.230	0.420	0.000	1.000
Internet used for training: Missing	12,956	0.015	0.120	0	1
Immigrant: No	12,237	0.820	0.390	0.000	1.000
Immigrant: Yes	12,237	0.180	0.390	0.000	1.000
Immigrant: Missing	12,956	0.055	0.230	0	1
Age group: 15 to 24 years	12,956	0.018	0.130	0	1
Age group: 25 to 34 years	12,956	0.100	0.300	0	1
Age group: 35 to 44 years	12,956	0.150	0.350	0	1
Age group: 45 to 54 years	12,956	0.170	0.370	0	1
Age group: 55 to 64 years	12,956	0.230	0.420	0	1
Age group: 65 years and over	12,956	0.340	0.470	0	1

Gender: Male	12,956	0.480	0.500	0	1
Gender: Female	12,956	0.520	0.500	0	1
Household income: Upto 35,000	12,956	0.250	0.430	0	1
Household income: 35,000 - 60,000	12,956	0.220	0.420	0	1
Household income: 60,000 - 95,000	12,956	0.210	0.400	0	1
Household income: 95,000 - 150,000	12,956	0.170	0.380	0	1
Household income: More than 150,000	12,956	0.140	0.350	0	1
Education level: High school	12,187	0.350	0.480	0.000	1.000
Education level: Certificate/diploma	12,187	0.350	0.480	0.000	1.000
Education level: Bachelor's degree or above	12,187	0.300	0.460	0.000	1.000
Education level: Missing	12,956	0.059	0.240	0	1
Region: Large urban centres (CMA/CA)	12,956	0.740	0.440	0	1
Region: Rural and small town (non- CMA/CA)	12,956	0.210	0.410	0	1
Region: Prince Edward Island	12,956	0.049	0.210	0	1

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Speaks English: No	12,883	0.130	0.340	0.000	1.000
Speaks English: Yes	12,883	0.870	0.340	0.000	1.000
Speaks English: Missing	12,956	0.006	0.075	0	1
Hours on internet per week: Less than 5 hours per week	12,905	0.260	0.440	0.000	1.000
Hours on internet per week: 5 to 10 hours per week	12,905	0.270	0.440	0.000	1.000
Hours on internet per week: 10 to 20 hours per week	12,905	0.200	0.400	0.000	1.000
Hours on internet per week: 20 to 40 hours per week	12,905	0.100	0.300	0.000	1.000
Hours on internet per week: 40 hours or more per week	12,905	0.041	0.200	0.000	1.000
Hours on internet per week: Missing	12,905	0.140	0.350	0.000	1.000
Hours on internet per week: None	12,956	0.004	0.063	0	1
