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Working Without Fixity:
Accounting for a Mobile Workforce

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Abstract

Working without fixity, while historically prevalent, has been on the rise in Canada and throughout the world due to processes associated with advanced capitalism. Moreover, it implies mobility to, from, and within work, which in a time of COVID-19, is problematic for workers and communities alike. In this paper, we argue that our pre-COVID statistical knowledge of workers without a fixed place of work in Canada is inadequate. Using the best source of available data—the 2016 Census—we provide a thorough account of these workers as compared to those with a set place of work. We find that most individuals without a fixed workplace are male, have low income, are likely to be self-employed, have a higher proportion of employment insurance (EI) and self-employment income, and have college or on-the-job training skill levels. They are also likely to live in rural areas, and work in the construction or transportation industry. We argue that documenting which workers are most likely to be working without fixity is necessary to understand how a COVID-19 world will play out for these workers and their communities as the pandemic continues and beyond.

Keywords: COVID-19, labour, mobility, gender, Canada, Census

Travailler sans fixité:
Comptabiliser une main-d'œuvre mobile

Résumé

Le travail sans fixité, bien qu'historiquement répandu, est à la hausse au Canada et dans le monde entier en raison des processus associés au capitalisme avancé. De plus, cela implique une mobilité vers, depuis et au sein du travail, ce qui, à une

époque de la COVID-19, est problématique pour les travailleurs et les communautés. Dans cet article, nous soutenons que notre connaissance statistique pré-COVID des travailleurs sans lieu de travail fixe au Canada est inadéquate. En utilisant la meilleure source de données disponibles, le Recensement de 2016, nous fournissons un compte rendu détaillé de ces travailleurs par rapport à ceux dont le lieu de travail est défini. Nous constatons que la plupart des personnes sans lieu de travail fixe sont des hommes, ont un faible revenu, sont susceptibles d'être des travailleurs autonomes, ont une proportion plus élevée de revenus d'assurance-emploi (AE) et de travail autonome, et ont suivi une formation collégiale ou sont en formation pratique par niveaux de compétence. Ils sont également susceptibles de vivre dans des zones rurales et de travailler dans l'industrie de la construction ou des transports. Nous soutenons que documenter quels travailleurs sont les plus susceptibles de travailler sans fixité est nécessaire pour comprendre comment un monde COVID-19 se déroulera pour ces travailleurs et leurs communautés alors que la pandémie se poursuit et au-delà.

Mots-clés: COVID-19, main-d'œuvre, mobilité, le sexe, Canada, Recensement

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1.0 Introduction

As we write this introduction, provinces and territories in Canada are entering the fourth wave of the COVID-19 pandemic. This wave is unfolding amid rising vaccination rates and the loosening of public health restrictions associated with travel, self-isolation, and mandatory mask-wearing. As of July 1, the province of Alberta, for example, eliminated nearly all its pandemic-related restrictions, including the requirement for COVID positive people to quarantine. After over a year of predominantly closed borders, Newfoundland and Labrador eased travel related restrictions for those entering the province as of July 1. As of August 2021, Canada began opening its borders to fully vaccinated foreign nationals, beginning with US citizens and residents of Saint Pierre et Miquelon. With the Delta variant on the rise, its reach and impact, as well as its implications for renewed restrictions, remain to be seen. COVID-19 is a seemingly unending story of ebbs and flows. Its beginnings were, however, unmistakeably felt by workers.

Following the World Health Organization's call of COVID-19 as a global pandemic in March 2020, jurisdictions across the world entered varying degrees of lockdown. From March until June, most of Canada remained in this liminal space. An initiative of the federation (i.e., a unanimous approach across all 13 provincial and territorial jurisdictions), which was supported by sub-national public health legislation to protect Canadians and reduce the spread of the novel coronavirus causing COVID-19, the lockdown saw workers across the country either 'sent home' to work or without work entirely. In most cases, only essential workers in health and emergency services, and those working in transportation and the provision of food (i.e., grocery stores) were permitted to carry out their work.

Canadians were assured that these measures, though strict, were necessary to protect the public health of populations and communities. To mitigate the impacts of job loss, the Federal Government created the Canadian Emergency Response Benefit (CERB)—an economic security measure guaranteeing displaced workers with $2,000 of monthly income. In April 2020, over 10 million CERB applications were

received (Government of Canada, n.d.). By mid-September, this number rose to 27 million (Government of Canada, n.d.). Covering that same time period, the August 2020 releases from Statistics Canada on the Canadian Labour Force Survey (LFS) indicated that, as of the week of August 9 to 15, 1.8 million Canadian workers were impacted by COVID-related economic shutdowns. This number was down from the April peak of 5.5 million workers. While unemployment rates in the country are slowly decreasing, Statistics Canada reports that just over two million people were unemployed in August, with national unemployment rated reaching a 'record high' of 13.7% in May (Statistics Canada, 2020).

The shutdown of non-essential work, along with increased travel restrictions into and out of jurisdictions, impacted workers involved in what the On the Move Partnership (OTM, https://www.onthemovepartnership.ca) calls employment-related geographical mobility (ERGM). Cresswell et al. (2016) define ERGM as "frequent and/or extended travel from places of permanent residence for the purpose of, and as part of, employment" (p. 1788). They further note that ERGM captures "patterns that exceed standard definitions of 'commuting' in terms of the time, length, and complexity of journeys to and from work" (Cresswell et al., 2016, p. 1788). Mobile workers—those engaged in more extended and/or complex forms of ERGM—are estimated to make up about 16% of the Canadian workforce (Neis & Lippel, 2019). Drawing upon news coverage and reports throughout the winter of 2020, Neis et al. (2020) detail the impacts of COVID-19 on the mobile labour force in Canada. Here we read the realities of truckers, airline workers, trades workers, home care workers, multi-located long-term care workers, and fish harvesters, who are all mobile workers and who were deeply impacted by the pandemic. While many of these workers, such as those working in natural resource extraction and construction, were initially grounded and/or laid off because of the pandemic, others, such as home care workers, truckers, and airline workers, had no choice but to work. These and other stories were detailed in a series of blog entries solicited and published by OTM on its website.

To make matters worse, these workers' mobility was treated as a public health risk. Yet, mobility put them *at* risk. In April 2020, at the height of the first wave of the pandemic, truckers, for example, were challenged in accessing bathrooms and meals across the country, not only because the places where they normally access these services were closed, but also because they were denied access as a result of perceived risk. As CBC News reported in April, rest stops and washrooms normally open for this purpose were locked to avoid the risk of spread (Dunn, 2020; see also Hanson & Neil, 2020). Further, COVID outbreaks in long-term care facilities were widespread during the first wave and came with devastating consequences (Loreto, 2020, 2021). As Loreto's work documents, these outbreaks exposed negligence and system failure, including the stark reality that long-term care workers were, in fact, precarious in that they often held multiple jobs and, therefore, had multiple sites of employment. As a result of this risky reality, many jurisdictions across the country, including British Columbia, Alberta, Ontario, Saskatchewan, Manitoba, New Brunswick, and Newfoundland and Labrador, took actions to prevent long-term care workers from working at multiple sites (BC Care Providers Association, 2020).

As economies continue to reopen, and work in the traditionally mobile industries of mining, oil, and gas have recommenced near pre-COVID levels, workers' mobility is especially on the minds of public health officials, politicians, families, and individuals. Writing in May 2020, Dorow (2020) recounted some of these realities,

noting the consequences and uncertainty of 'camp' outbreaks which, she pointed out, are layered on top of already stressful circumstances of being a fly-in fly-out worker. In Newfoundland and Labrador, where travel restrictions into and out of the province have been extensive, and where the OTM partnership is headquartered, the historical and current COVID reality of mobile workers is in plain view. As with the rest of the country, 'rotational workers' coming into the province were expected to self-isolate for two weeks. The lack of time for a non-isolating turnaround (i.e., workers had turnarounds that were two weeks or less in length), and the inability to interact with family outside of the household prompted a moderate degree of public outcry in the province, and vocal dissent from the leader of the provincial opposition at the time to argue that other jurisdictions made testing provisions available to rotational workers to ease the burden brought on by the impact of COVID-19 (VOCM News, 2020). In September 2020, rotational workers were finally able to access more frequent testing and eased restrictions, provided they had negative test results (Health and Community Services NL, 2020). However, an outbreak in the province in February 2021, prompted by the B117 variant, tightened restrictions once again for this group, prompting more outcry, stories, and fatigue (Mullen & Moore, 2021).

This pandemic has amplified the stories of those most impacted by it. As our introduction indicates, this is particularly true for those working without fixity. Although we point to stories from across the country, important questions remain: who are these workers statistically? What are, in fact, the characteristics of individuals without a fixed place of work in Canada, and who is more likely to be working without fixity here? These are the questions that this paper seeks to answer because, to date, no such analysis exists. Although statistical portraits of precarious workers are available in Canada (Cranford et al., 2003; Vosko, 2006; Vosko et al., 2003), and statistical accounts of workers across the ERGM (Haan et al., 2014) and journey to work spectrums (Statistics Canada, 2017) are in circulation, focused descriptive and probability-based studies on those with no fixed workplace have yet to be released. We recognize this as an important gap to fill, especially now. We argue that understanding this group statistically enables us to show where these workers concentrate in the Canadian labour force, and alert us to thinking about who is and can be most at risk when mobility—the underlying facilitator of contemporary work—is compromised. This is not only an individual and familial level of consideration, but also one with impacts at the community level. Mobile work, and working without fixity, are means through which familial economic stability is maintained (Walsh, 2012). It is also a means through which community stability is achieved, in so far as workers enable remittances and ensure that their families can live and work in source communities (see Lionais et al., 2020; Markey et al., 2015; Vodden & Hall, 2016 for relevant Canadian discussions), thus contributing to property tax revenues for municipalities and to community life more broadly.

Using microdata from the 2016 Canadian Census—the most readily available and recent data source to capture place of work information—we investigate who is working without fixity through a comparative lens. Even though the pandemic was far in the future, we believe that having 2016 results provides us with valuable baseline information from which to compare to in future work—such as when the 2021 Census becomes available. We detail workers without fixed workplaces through a series of variables organized to reflect socio-demographic, economic and human capital, geographic mobility, and industry indicators. We then compare these individuals to those who have a regular workplace. Next, we explore which

characteristics increase one's probability of working without fixity. To answer these questions, we use a logit model, presented as marginal effects.

Our paper is divided into five sections. First, we outline what it means to have no fixed workplace in Canada, and the concept of working without fixity, drawing upon research conducted in this field. We then turn to our methods and methodology section. Here, we introduce the Canadian Census and the place of work questions within, followed by an explanation of the variable sets used in the investigation. Our findings first present the characteristics of those without a fixed place of work compared to those with one, and then, based upon our modelling approach, results on probabilities. Our conclusion returns to the notion of risk for these workers based upon these findings, with commentary on community-level impacts. From a community development policy perspective, we argue that, as federal, provincial, and municipal governments look toward recovery while still observing public health measures, understanding those without a fixed place of work is necessary. We end by noting some of the limitations of our study.

2.0 Working Without Fixity: Its Dimensions and Rise

To begin, we look at the dimensions of working without fixity and how its occurrence has been on the rise. Regardless of the findings of on-going research, it is still assumed that most people have a fixed place of work—that is, an actual physical workplace and space to which they will return on a regular basis. This is because it is embedded in the notion of work itself (Felstead et al., 2005). It is also an assumption that grew through and with the standard employment relationship, built upon continuous, stable employment, on a fixed schedule, at the employer's place of business (Kalleberg et al., 2000, p. 258).

Since the 1970s, a growth in non-standard employment relationships (Kalleberg, 2009) has occurred in Canada and across the western world. This relationship is marked by "temporary, fixed-term, non-permanent, and even casual employment" (Walker, 2011, p. 16). It is akin to precarious work, or rather "employment that is uncertain, unpredictable, and risky from the point of view of the worker" (Kalleberg, 2009, p. 2; Vosko, 2006, p. 3), which has been indicated as a segment of all non-standard forms of employment. In non-standard employment, a regular and physical place of work is not required, although it is not a prerequisite.

The concept of working without fixity pre-dates the rise of the standard employment relationship and the assumptions that have come along with it. Fish harvesters (Williams, 2019), truckers (Cantor et al., 2010), pilots (Pizzi et al., 2008), oil and gas workers (Barber & Breslin, 2020), as well as those working construction trades (Dong et al., 2015; Ng & Chan, 2018) have always been among those working without fixity. The mobilities associated with this lack of a stationary workplace are an engrained and normal part of their biographies, that of their families (Deacon et al., 2017), and, in many cases, the culture of the places where they live (Walsh & Gerrard, 2018).

Shifts are, however, occurring that impact and increase those working without fixity. Using data from the UK Labour Force Survey, the Change in Employer Practices Survey, and the Location of Work Survey, Felstead et al. (2005) find that the spatial organization of work is changing inside the workplace. While those working outside of a physical place of work remain a minority in the UK, more people are using their homes as a job base. Moreover, Felstead et al. (2005) discuss the role of Information

and Communication Technology (ICT) in enabling alternative spatial work relations, as much of the research on 'placeless' employment does, in fact, focus on ICT (Gray et al., 2017; Vilhelmson & Thulin, 2001). For instance, Gray et al. (2017) investigated the lives of those working in ICT in Ireland in the academic and creative industries through a qualitative analysis of interviews (p. 624). As well, the ICT industry in Sweden is examined with respect to geographic mobility and travel (Vilhelmson & Thulin, 2001). However, our paper is less concerned with ICT as a central organizing theme due to the fact that, in the consideration of those without a fixed place of work, ICT foci limit the potential workers to those in professional positions, the so-called white-collar workers. In fact, as Cohen (2010) argues, most studies of those who are mobile for work or as work overrepresent a particular class perspective. Blue collar workers, which are central to her own work, are less considered. Our paper, on the other hand, favours neither. Instead, it examines those without a fixed workplace across a continuum of possibilities.

To look at specifics, globalization, as a process, has contributed to a rise in global production networks, processes of deregulation, wage squeezing, and increases in contractual arrangements (Nayyar, 2015, pp. 87–88). These economic changes have all contributed to fluctuations in the employment relationship and have led, most markedly, to a rise in precarious employment (Coe, 2013; Nayyar, 2015). For instance, international migrant labour, though historically prevalent throughout Canada, is on the rise, especially in the agricultural sector (Reid-Musson, 2014, 2017; Strauss & McGrath, 2017). Further, connected to the rise in communication technologies, along with faster, cheaper modes of transportation, mobility is increasingly possible in the workforce. Where once mining towns were necessary, fly-in/fly-out operations are possible and commonplace, with implications for workers as well as home and host communities (Joyce et al. 2013; Perring et al., 2014; Deacon et al., 2017).

In terms of specific foci, there has been a great deal written on gender and family inter-relationships, including race and ethnicity, with respect to precarious employment (Reid-Musson, 2017, Vosko, 2006; Vosko et al. 2003 Zeytinoglu & Muteshi, 2000). Others have considered precarity with respect to industry (Jay et al., 2017). However, a spatial perspective attentive to the geographies of employment, as Strauss (2018) points out, is essential. Most studies examining the concepts of non-standard work and precarious employment tend to focus on the forms of employment with vulnerable individuals and a lower socio-economic status. Fewer studies examined higher socio-economic status workers who were linked to a no-fixed workplace status. In this paper, we examine those without a fixed workplace across a continuum of socio-demographic, economic, geographic, and occupational possibilities to allow for the fullest scope of investigation. In the next section, we discuss our methods for this process, followed by an examination of our results and their implications.

3.0 Methods

We use data from the 2016 Canadian long-form Census, which offers a 20% sample of Canadian households. The file contains detailed information on the socio-economic characteristics of individuals and their families, and its place of work classifications include "no fixed workplace." Respondents can indicate whether, during the reference period, they: (a) worked at home, including those who live and work on the same farm; (b) worked outside of Canada; (c) worked at a specified

address—a usual workplace; or (d) worked at a place with no fixed workplace address. In other words, respondents should choose the latter category if they "do not go from home to the same workplace location at the beginning of each shift" (Statistics Canada, n.d.). Examples provided include building and landscape contractors, travelling salespeople, and truckers. Importantly, the "no fixed workplace" address option was not included as an explicit Census response category until 1996, at which point it came into use as a means to reduce response burden (Statistics Canada, 2008).

The dataset consists of Canadian citizens and permanent residents aged 25–64 who identify as the primary household maintainer. In terms of further restrictions, our chosen sample are not living in band housing, working at either a no-fixed workplace or a usual workplace, report their industry of employment, have at least one census family in the household, have a total income greater than $0, have no children under one year-old, and are not in school themselves. The data were additionally restricted to include only those living in one of the ten provinces over the past five years. Access to the dataset was provided through the Statistics Canada Research Data Centre at the authors' University.

3.1 Variables

First, a no-fixed workplace dummy variable was generated, wherein 'one' equals the person works at a no-fixed workplace and 'zero' equals the person works at a usual workplace. Therefore, the possible characteristics and incentives related to the no-fixed workplace arrangement are identified by comparing people working within these arrangements with those working at usual places. Additionally, four variable sets were chosen as independent variables, which included a focus on socio-demographic characteristics, such as (a) age, (b) gender, (c) marital status,(d) having children—and the age of children, (e) immigrant status, and (f) visible minority status. Moreover, variables associated with human and economic capital through the lens of income were included. The employment insurance and self-employment share of total income variables were determined by dividing the employment insurance or self-employment income by the total income, creating two variables that range from zero to one. Human capital is defined by skill level and education, wherein each skill level represents those obtained from management, professionals, college, high school, and on-the-job training.

Next, we created geographic mobility variables. Different census subdivision (CSD) variables were determined for those who changed CSDs between both 2011–2016 and 2015–2016. Variables indicating that an individual worked outside of Canada were determined for those who immigrated to Canada from another country between 2011 and 2016, as well as 2015 and 2016. Furthermore, a variable labeled 'rural' indicates whether someone lives in a rural setting. This is an admittedly crude measure of rurality, as we do not know if the rural region is within close proximity to an urban setting or if it is northern and/or remote.

Finally, we looked at each industry of employment, which was achieved by separating each NAICS industry code into separate dummy variables.

Once our variables were decided and set, we employed a simple logit model to analyse the characteristics related to the status of working at a no-fixed workplace. The binary variable $y_i = 1$, implies that the individual i works at a no-fixed place, while $y_i = 0$ means that the individual works at a usual, fixed location. It is assumed

that the probability of $y_i = 1$ is p and the probability of $y_i = 0$ is *1-p*. Thus, in a logit model,

$$\Pr(y_i = 1|\boldsymbol{X_i}) = p_i = F(\boldsymbol{X_i}\boldsymbol{\beta}) = \frac{e^{X_i\beta}}{1+e^{X_i\beta}} \qquad (1)$$

where $F(X_i\beta)$ represents the cumulative logistic distribution. Therefore,

$$\log\left(\frac{}{}\right) \qquad\qquad\qquad (2)$$

The r   assumed to be dependent on a set of variables, $\boldsymbol{X}$. The vector of coefficient $\boldsymbol{\beta}$ is estimated through maximizing the log likelihood function:

$$lnL = \sum_{j \in S} w_j lnF(X_j\beta) + \sum_{j \notin S} w_j \ln\{1 - lnF(X_j\beta)\} \quad (3)$$

3.2 Analysis and Discussion

Here, we discuss our findings using a variety of figures, tables, and models. Cartographically, Figure 1 presents the geographic variation in the percentage of the labour force with a no-fixed workplace at the census division level. Based on the spatial distribution, for most census divisions at least 10% of the labour force have a no-fixed workplace. The census divisions with the largest percentages of workers with a no-fixed workplace (> 17.5%) are located in Alberta, British Columbia, Newfoundland and Labrador, and Nova Scotia. Meanwhile, Ontario and the Northwest Territories have two and one census divisions, respectively, with over 17.5% of the labour force holding a no-fixed workplace.

Figure 1: Percent of no-fixed workplace status to total labour force.
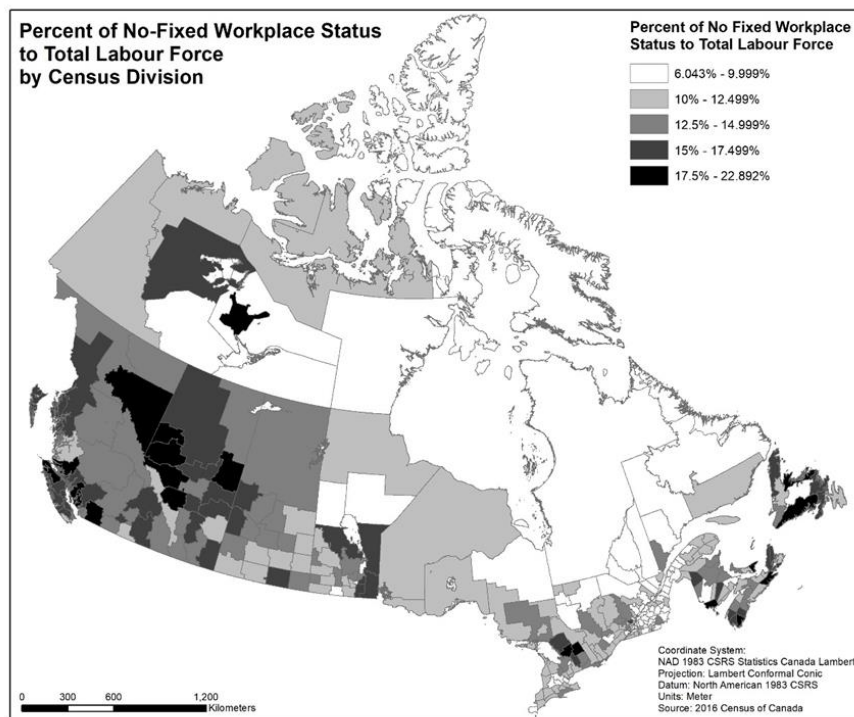
Source: Census of Canada, 2016.

Individuals across the continuum of those without fixity are similar, yet distinct. Based on the 2016 Census, the following section will present the characteristics of individuals without a fixed workplace in detail. These include socio-demographics, economics and human capital, geographic mobility, and industry.

In Table 1, the mean and standard deviation are displayed for all of the variables in the model by workplace, with the weighted sample size recorded at the bottom. The first group of variables define the socio-demographics of the sample. Indicated here is that the mean age is similar for both those with a no-fixed workplace and those with a usual place of work. As well, the Female variable suggests 38% of women have a usual place of work, while 15% have a no-fixed workplace. Expressed as a ratio, there is one female for every six males without fixity, which is greater than for those with a usual place of work (1 female to 1.65 males). These ratios confirm that men are more likely to hold no-fixed workplace jobs as compared to females.

The remaining indicators on marriage, common law, non-visible minority status, presence of children, immigrant status, and home ownership are fairly similar between those with a usual place of work and a no-fixed workplace. For example, in marital status, both places of work had approximately 65% married, 21% common law, and the remainder were single. Visible minority status was 23% for a no-fixed workplace compared to 24% at a usual place of work. Further, the percentage of those who were immigrants was 27% for those with a no-fixed workplace compared to 26% for those with a usual place of work, while the average number of years since migration was similar, at 5.59 to 5.60 years, respectively. Considering housing ownership status, for those with a no-fixed workplace, the relationship is 23% renters to 77% owners, which is similar—21% renters vs. 79% owners—to those with a usual workplace. The mean housing value was $447,920.64 (12.73) for those with a no-fixed workplace, while for those with a usual place of work the housing value was $467,016.41 (12.79). These statistics indicate that, with the exception of the gender variable, socio-demographic characteristics are similar between those with a no-fixed workplace and a usual place of work.

The second set of variables cover the sample's economic and human capital characteristics. Considering income, those individuals with a no-fixed workplace earn, on average, $61,649.44 (10.69), which is approximately $20,000 less than for those who work at a usual workplace—$81,027.77 (11.00). This is furthered by the low-income indicator, which shows that 13% of those with a no-fixed workplace have low income as compared to only 6% of those with a usual workplace. As well, from Table 1, the mean EI share of income is twice as large (4% vs. 2%) and the self-employment income share is over four times as large (14% vs. 3%) for individuals who work at a no-fixed workplace. Moreover, the full-time variable indicates 87% of those with a no-fixed workplace have full-time employment as compared to those with a usual place of work (92%), while the number of hours worked for those with no workplace fixity (34.78) is, on average, two hours shorter than the number of hours for an individual with a usual workplace (36.56). In summary, taken together, these statistics indicate, from an economic perspective, that those with a no-fixed workplace earn less and have higher proportions of EI and self-employment income.

Table 1. *Weighted Means and Standard Deviations for Data by the No-fixed Workplace Status*

| Variable | Usual Workplace | | No-Fixed Workplace | | Total | |
Socio-demographics	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Age	46.77	20.45	46.61	21.24	46.75	20.56
Female	0.38	0.98	0.15	0.72	0.35	0.96
Married	0.64	0.97	0.66	0.96	0.64	0.97
Common law	0.21	0.81	0.22	0.83	0.21	0.82
Not a visible minority	0.76	0.86	0.77	0.85	0.77	0.86
Young children	0.14	0.70	0.16	0.74	0.14	0.70
Older children	0.44	1.00	0.44	1.00	0.44	1.00
Immigrant	0.26	0.89	0.27	0.90	0.26	0.89
Years since immigration	5.59	23.65	5.60	23.15	5.59	23.58
Homeowner	0.79	0.82	0.77	0.85	0.79	0.82
Log of housing value*	12.79	1.52	12.73	1.63	12.79	1.54
Economics and Human Capital						
Log of total income	11.00	1.53	10.69	1.96	10.96	1.61
Low income indicator	0.06	0.46	0.13	0.67	0.07	0.50
EI share of total income	0.02	0.16	0.04	0.21	0.02	0.17

Self-employment income share of total income	0.03	0.31	0.14	0.62	0.05	0.38
Full time	0.92	0.55	0.87	0.68	0.91	0.57
Hours	36.56	31.39	34.78	42.45	36.32	33.12
Self-employed, without paid help	0.03	0.33	0.17	0.75	0.05	0.43
Self-employed, with paid help	0.05	0.42	0.11	0.63	0.05	0.46
Unpaid	0.00	0.05	0.00	0.07	0.00	0.05
A managers	0.15	0.73	0.08	0.56	0.14	0.71
A professionals	0.22	0.83	0.07	0.52	0.20	0.80
B college	0.32	0.94	0.44	1.00	0.33	0.95
C high school	0.24	0.86	0.28	0.91	0.25	0.87
D on-the-job training	0.07	0.52	0.12	0.66	0.08	0.55
High school education	0.21	0.82	0.26	0.89	0.22	0.83
College education	0.36	0.97	0.42	1.00	0.37	0.97
University education	0.35	0.96	0.16	0.74	0.33	0.95

Geographic Mobility

Different CSD 1 year ago (2015)	0.04	0.38	0.04	0.41	0.04	0.39
Different CSD 5 years ago (2011)	0.15	0.73	0.16	0.75	0.16	0.73
Outside of Canada 1 year ago (2015)	0.00	0.10	0.00	0.10	0.00	0.10

Outside of Canada 5 years ago (2011)	0.02	0.30	0.02	0.29	0.02	0.30
Rural	0.17	0.76	0.26	0.88	0.18	0.78
Newfoundland and Labrador	0.02	0.25	0.02	0.30	0.02	0.26
Prince Edward Island	0.00	0.13	0.01	0.14	0.00	0.13
Nova Scotia	0.03	0.33	0.03	0.34	0.03	0.33
New Brunswick	0.02	0.30	0.03	0.32	0.02	0.30
Quebec	0.24	0.87	0.18	0.78	0.24	0.86
Ontario	0.39	0.98	0.35	0.96	0.38	0.98
Manitoba	0.03	0.37	0.03	0.36	0.03	0.37
Saskatchewan	0.03	0.34	0.04	0.37	0.03	0.34
Alberta	0.12	0.65	0.16	0.74	0.12	0.66
British Columbia	0.12	0.66	0.15	0.73	0.12	0.67

Industry

Agriculture	0.01	0.23	0.04	0.37	0.02	0.25
Mining	0.02	0.29	0.04	0.38	0.02	0.31
Utilities	0.01	0.22	0.01	0.19	0.01	0.22
Construction	0.05	0.43	0.35	0.96	0.09	0.57
Manufacturing	0.13	0.68	0.04	0.39	0.12	0.65
Wholesale	0.05	0.43	0.03	0.37	0.05	0.42

Retail	0.10	0.60	0.03	0.34	0.09	0.57
Transportation	0.05	0.45	0.13	0.69	0.06	0.49
Information	0.02	0.31	0.02	0.27	0.02	0.30
Finance	0.05	0.45	0.01	0.21	0.05	0.43
Real estate	0.02	0.25	0.02	0.26	0.02	0.25
Professional	0.07	0.52	0.05	0.43	0.07	0.51
Management	0.00	0.09	0.00	0.04	0.00	0.09
Administration	0.03	0.34	0.08	0.56	0.04	0.38
Education	0.08	0.54	0.03	0.34	0.07	0.52
Health	0.12	0.65	0.04	0.41	0.11	0.63
Arts	0.01	0.23	0.01	0.20	0.01	0.22
Accommodation and food	0.04	0.41	0.01	0.23	0.04	0.39
Other	0.04	0.40	0.03	0.35	0.04	0.39
Public administration	0.09	0.58	0.03	0.34	0.08	0.55
Weighted Sample Size	**4,329,430**		**676,970**		**5,006,400**	

Note: *Log of housing value is only based on housing values that are greater than 1.

Source: Author's Calculations from the 2016 Census of Canada.

In terms of occupation and education, the percent of managers (8% vs. 15%) and professionals (7% vs. 22%) was less for those with no-fixed workplace. Looking at education as a variable, which is based on the highest level of education, determined as either high school, college, or university, those without a fixed place of work had higher levels of high school (26% vs. 21%) and college (42% vs. 36%) education compared to those with a usual place of work. These statistics suggest a link between a no-fixed workplace and occupational categories, as well as education levels.

The next set of variables covered geographic mobility and location, wherein each province represents the province of residence. Table 1 indicates that 26% of respondents with no-fixed workplace had a rural residence, versus 17% with a usual place of work. This suggests that being located in a rural setting tends to increase the chance that an individual has no-fixed workplace. Moreover, in Table 1, only Quebec, Ontario, Alberta, and British Columbia indicated a change between a usual place of work and a no-fixed workplace. As well, Quebec (18% vs. 24%) and Ontario (35% vs. 39%) indicated a lower percentage of those with a no-fixed workplace versus those with a usual place of work. Conversely, Alberta (16% vs. 12%) and British Columbia (15% vs. 12%) presented increases in the percentage of those with a no-fixed workplace. These statistics, therefore, suggest that location is relevant to defining those without a fixed employment location.

Finally, Table 1 also indicates the largest proportions of those with no-fixed workplaces are in the construction industry, followed by transportation and administrative services, while the smallest proportions exist in the finance and management sectors. Compared to those with a usual place of work, the percent of those with a no-fixed workplace increased for the construction (+30%), transportation (+8%), administrative services (+5%), agriculture (+3%) and mining (+2%) industries. In the remainder, the percent either dropped or remained the same, with the largest drop occurring in the manufacturing industry (-9%). These statistics indicate that industry plays an important role in defining those without a fixed place of work.

3.3 Model Findings

In this section, the general statistics of our four models will be presented first, followed by a detailed analysis of the results in the final model. The first model—available upon request—presented only the socio-demographic variables, Model 2 added the economic and human capital variables, and Model 3 added in the geographic mobility factors—whether a person has moved in the last one or five years. The province of Ontario was dropped as a reference group. The final model, Model 4, included the various industry sectors. The manufacturing sector was removed as a reference group. Table 2 presents the Akaike's Information Criterion (AIC), the Log likelihood, and the Bayesian Information Criterion (BIC) statistics on the models. As can be seen, as model complexity increases, the AIC and log likelihood decline, while the BIC saw a slight increase.

Table 2. *Model Summary Statistics*

	AIC	Log likelihood	BIC
[1]	0.758	-466244.377	-16300000
[2]	0.664	-408462.732	-16400000
[3]	0.657	-403929.341	-16400000
[4]	0.575	-353415.641	-16500000

As the fourth model involves the most variables and possessed the lowest AIC and BIC values—lower values are preferred—the results from this model will be explored next. Table 3 presents the marginal effects, standard errors, z-values, and probabilities, *p*, for Model 4. In general, with a few exceptions, all variables are statistically significant at p<0.05.

Table 3. *Marginal Effects and Percent Likelihood for having a No-fixed Workplace*

Variable	dy/dx	Std. Err.	Z	P>|z|	% Likelihood for NFW
Age	-0.001	0.000	-29.800	0.000	-2.018
Female	-0.086	0.001	-108.540	0.000	-8.593
Married	-0.019	0.001	-21.320	0.000	-1.945
Common law	-0.009	0.001	-9.290	0.000	-0.944
Not a visible minority	0.010	0.001	11.670	0.000	0.973
Young children	0.000	0.001	-0.360	0.717	-0.030
Older children	0.005	0.001	9.080	0.000	0.512
Immigrant	0.016	0.001	12.330	0.000	1.648
Years since immigration	0.000	0.000	-5.930	0.000	-0.586
Homeowner	-0.040	0.003	-12.360	0.000	-3.984
Log of housing value*	0.003	0.000	11.520	0.000	0.466
Log of total income	-0.016	0.000	-40.430	0.000	-3.077
Low income indicator	0.015	0.001	14.510	0.000	1.533
EI share of total income	0.095	0.003	34.750	0.000	1.991

Table 3 continued

Self-employment income share of total income	0.078	0.001	64.580	0.000	4.860
Full time	-0.048	0.001	-51.280	0.000	-4.823
Hours	0.000	0.000	-25.320	0.000	-1.666
Self-employed, without paid help	0.119	0.001	116.540	0.000	11.935
Self-employed, with paid help	0.064	0.001	61.970	0.000	6.397
Unpaid	0.051	0.008	5.970	0.000	5.071
A managers	-0.065	0.001	-64.760	0.000	-6.454
A professionals	-0.053	0.001	-48.630	0.000	-5.340
C high school	0.001	0.001	1.680	0.093	0.119
D on-the-job training	0.012	0.001	12.360	0.000	1.194
High school education	-0.002	0.001	-3.010	0.003	-0.195
University education	-0.035	0.001	-42.540	0.000	-3.496
Different CSD 1 year ago (2015)	0.005	0.001	3.530	0.000	0.520
Different CSD 5 years ago (2011)	0.005	0.001	6.120	0.000	0.517
Outside of Canada 1 year ago (2015)	-0.021	0.006	-3.760	0.000	-2.110
Outside of Canada 5 years ago (2011)	-0.019	0.002	-8.830	0.000	-1.864
Rural	0.021	0.001	30.090	0.000	2.077
Newfoundland and Labrador	0.012	0.002	6.270	0.000	1.184
Prince Edward Island	0.000	0.004	-0.050	0.957	-0.021
Nova Scotia	0.014	0.002	8.520	0.000	1.379
New Brunswick	0.007	0.002	3.930	0.000	0.680

Table 3 continued

Quebec	-0.022	0.001	-27.890	0.000	-2.176
Manitoba	-0.003	0.002	-1.820	0.069	-0.274
Saskatchewan	0.015	0.002	10.080	0.000	1.519
Alberta	0.025	0.001	29.430	0.000	2.451
British Columbia	0.021	0.001	25.490	0.000	2.106
Agriculture	0.152	0.002	81.760	0.000	15.168
Mining	0.143	0.002	82.320	0.000	14.347
Utilities	0.101	0.003	38.470	0.000	10.053
Construction	0.244	0.001	202.650	0.000	24.409
Wholesale	0.088	0.002	53.000	0.000	8.773
Retail	-0.001	0.002	-0.460	0.644	-0.079
Transportation	0.160	0.001	119.460	0.000	15.981
Information	0.112	0.002	54.960	0.000	11.195
Finance	0.014	0.002	6.050	0.000	1.449
Real estate	0.088	0.002	39.670	0.000	8.779
Professional	0.090	0.002	55.800	0.000	8.980
Management	0.030	0.010	3.080	0.002	3.022
Administrative Services	0.164	0.001	110.640	0.000	16.425
Education	0.073	0.002	40.930	0.000	7.340
Health	0.052	0.002	32.600	0.000	5.224
Arts	0.058	0.003	21.990	0.000	5.816
Accommodation and food	-0.015	0.002	-6.700	0.000	-1.503
Other	0.047	0.002	26.550	0.000	4.699
Public administration	0.043	0.002	25.770	0.000	4.347

Source: 2016 Census of Canada.

The socio-demographic variables indicate that being (a) male, (b) unmarried or living in a common law relationship, (c) not being a visible minority, (d) the presence of older children, (e) being an immigrant, and (f) having rental accommodations were significant predictors for a no-fixed workplace. The absence of young children was also a predictor for a no-fixed workplace; however, the value was not statistically significant. Increases in the log of the housing variable also works to predict a no-fixed workplace, as well as decreases in continuous variables on age and years since immigration. These results demonstrate that single males with older children, or who are renting, are more likely to lack fixity.

In the economic and human capital variables, non-fixity is predicted by low income, self-employment indicators, and the unpaid indicator, as well as high school and on the job training skill sets. Increases in the EI and self-employment shares of income also help to predict a no-fixed workplace. On the other hand, full-time employment status, managerial and professional skill sets, as well as a university education negatively predict a no-fixed workplace. Interestingly, however, a high school education negatively predicts a no-fixed workplace, yet the high school skill level positively predicts a no-fixed workplace. As well, increases in income and hours negatively predict a no-fixed workplace. All variables are significant at the *p* 0.05 level, to the exception of the high school skill level. As such, we can conclude that high proportions of EI and self-employment income, as well as self-employment status, predict working without fixity in Canada.

Further, most geographic variables aid in predicting a no-fixed workplace, to the exception of recent immigration from outside of Canada, as well as residence in Prince Edward Island, Quebec, and Manitoba. The strongest predictors for a no-fixed workplace are living in a rural setting or the western provinces (i.e., Saskatchewan, Alberta, and British Columbia). Conversely, Quebec is the province with the strongest geographical factor against having a no-fixed workplace. The results for Prince Edward Island and Manitoba are not statistically significant. These results suggest that location can aid in predicting a no-fixed workplace.

The next subset of variables concern industry of employment, which are also shown to predict a no-fixed workplace, except for retail and food. The retail industry was the only statistically insignificant variable, with the largest coefficient occurring in construction, followed by transportation and administrative services. These three were then followed by the coefficients for agriculture and mining.

Based on the percent likelihood for a no-fixed workplace, the findings indicate that females are 8.59% less likely to work at a no-fixed workplace than males. Further, self-employment without paid help makes individuals 11.94% more likely to work at a no-fixed workplace, while those who are self-employed with paid help are only 6.40% more likely, indicating that the former group had higher odds of a working situation without fixity. In terms of location, individuals who immigrated to Canada in the last one and five years were 1.86% and 2.11% less likely to have a no-fixed workplace, respectively. By province of residence, individuals in Alberta (2.45%) and British Columbia (2.11%) were the most likely to have a no-fixed workplace, compared to Quebecers, who were the least likely (-2.18%). By industry, those in the construction (24.41%), administrative services (16.43%), transportation (15.98%), agriculture (15.17%), mining (14.35%), information (11.20%), and utilities (10.05%) were more likely to have a no-fixed workplace when compared to individuals in the retail (-0.08%) and accommodation and food (-1.50%) industries. These statistics further the findings of the model.

4.0 Conclusion

Overall, our study focused on Canadians between the ages of 24 and 64 who report having no fixed place of work. Working without fixity implies mobility to, from, and within work which, although historically prevalent, has been on the rise in Canada and throughout the world through processes associated with advanced capitalism. In the Canadian context, people living in rural areas across the country have historically relied on mobile work to support themselves and their families. Today is no exception. However, mobility to, from, and for work is complex, challenging, and intensified by precarity.

In a time of COVID-19, working without fixity is problematic for both workers and communities, who, over the duration of the pandemic to date, have been challenged by access to transit in addition to being worried for their safety while in transit. For families of longer distance commuters, such as the rotational workers of Atlantic Canada, strict public health regulatory environments and extended periods of isolation, coupled with ongoing stigma, has been challenging. So much so that, in some instances, stories indicate that people chose to move away from their communities altogether (CBC, 2021).

In our paper, we argued that our pre-COVID statistical knowledge of workers without a fixed place of work in Canada was inadequate, and that it is important to develop baseline results for our future work to compare to the post-pandemic world. We further argue that their statistical portrait, as well as their propensity to be without fixity, is necessary now more than ever. Using the best source of available data—the 2016 Census—we provided a thorough account of these workers compared to those with a usual place of work. In general, the data indicate that most individuals without a fixed workplace are male, have low income, are likely to be self-employed, have a higher proportion of EI and self-employment as a share of income, and have college or on-the-job training skill levels. They are also likely to be college or apprenticeship educated, live in rural Alberta or British Columbia, and work in the construction or transportation industries. Together, these characteristics are also strong predictors of having a no fixed workplace. Further, understanding that rural men are working without fixity and are precarious is necessary to understanding how the COVID world is playing out for these workers, their families, and their communities as the pandemic continues.

In concluding our study, it is important to discuss the potential limitations, of which there are several. Concerning the data, the 2016 Census of Canada is a 20% sample of the population. This means some portions of the population could be over or under sampled, which could skew the results. While Statistics Canada has applied a complex sampling procedure to rectify over or under sampling with a variable sample weight, it still exists and should be considered. Therefore, the trends presented run the risk of not fully representing the entire population. Similarly, in some rural areas where the population is sparse, some of our results may be less accurate.

Some of our sample exclusions may also have implications for our results. Although excluding those with children under the age of one allows for a more accurate assessment of how employment insurance impacts the propensity to have no fixed workplace, it does exclude an important population subgroup. Future research— ideally qualitative—could help shed light on this population. Further, those under the age of twenty-five were also excluded, because many have not fully

attached themselves to the labour market, which may actually increase the risk of having no fixed workplace.

Building on sampling, one sub-group of the population that is not considered in the analysis are the temporary foreign workers. A number of these individuals work in the Seasonal Agricultural Worker Program, which has a geographic distribution heavily weighted towards Ontario (Mendiburo et al., 2017, p. 46). However, several previous studies have investigated this group in regard to their characteristics and experiences in Canada (Reid-Musson, 2014, 2017; Strauss & McGrath, 2017; Mendiburo et al., 2017).

Another limitation relates to income and employment characteristics. It is assumed that the recorded income is for the recorded employment characteristics. However, income is recorded for 2015, yet the employment characteristics are recorded for 2016. Therefore, in theory, an individual could have changed employment in the year between and, hence, their recorded income might not reflect their occupation. Additionally, the recorded employment could potentially be incorrect as well.

Nonetheless, our present study aids in defining important characteristics of workers without fixity in Canada, in addition to outlining some key areas that both future research and policy initiatives may well benefit from focusing on. This is especially important within the context of a post-COVID-19 world, given the uncertainty and instability that comes from a continuously shifting workplace in the wake of numerous waves of pandemic severity.

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