

Catalogue no. 11F0019M — No. 437
ISSN 1205-9153
ISBN 978-0-660-33525-4

Analytical Studies Branch Research Paper Series

Measuring the Gig Economy in Canada Using Administrative Data

by Sung-Hee Jeon, Huju Liu and Yuri Ostrovsky

Release date: December 16, 2019



Statistics
Canada

Statistique
Canada

Canada

How to obtain more information

For information about this product or the wide range of services and data available from Statistics Canada, visit our website, www.statcan.gc.ca.

You can also contact us by

Email at STATCAN.infostats-infostats.STATCAN@canada.ca

Telephone, from Monday to Friday, 8:30 a.m. to 4:30 p.m., at the following numbers:

- Statistical Information Service 1-800-263-1136
- National telecommunications device for the hearing impaired 1-800-363-7629
- Fax line 1-514-283-9350

Depository Services Program

- Inquiries line 1-800-635-7943
- Fax line 1-800-565-7757

Standards of service to the public

Statistics Canada is committed to serving its clients in a prompt, reliable and courteous manner. To this end, Statistics Canada has developed standards of service that its employees observe. To obtain a copy of these service standards, please contact Statistics Canada toll-free at 1-800-263-1136. The service standards are also published on www.statcan.gc.ca under "Contact us" > "[Standards of service to the public](#)."

Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued co-operation and goodwill.

Published by authority of the Minister responsible for Statistics Canada

© Her Majesty the Queen in Right of Canada as represented by the Minister of Industry, 2019

All rights reserved. Use of this publication is governed by the Statistics Canada [Open Licence Agreement](#).

An [HTML version](#) is also available.

Cette publication est aussi disponible en français.

Measuring the Gig Economy in Canada Using Administrative Data

by

Sung-Hee Jeon, Huju Liu and Yuri Ostrovsky

Social Analysis and Modelling Division
Economic Analysis Division
Statistics Canada

11F0019M No. 437
2019025
ISSN 1205-9153
ISBN 978-0-660-33525-4

December 2019

Analytical Studies Branch Research Paper Series

The Analytical Studies Branch Research Paper Series provides for the circulation of research conducted by Analytical Studies Branch staff and collaborators. The Series is intended to stimulate discussion on a variety of topics, such as labour, immigration, education and skills, income mobility, well-being, aging, firm dynamics, productivity, economic transitions, and economic geography. Readers of the Series are encouraged to contact the authors with their comments and suggestions.

All the papers in the Analytical Studies Branch Research Paper Series go through institutional and peer review to ensure that they conform to Statistics Canada's mandate as a governmental statistical agency and adhere to generally accepted standards of good professional practice.

Acknowledgements

The authors thank David Green, René Morissette and the participants of the 2019 IZA Labor Statistics Workshop on Contract Work held at the W.E. Upjohn Institute for Employment Research (Kalamazoo, Michigan) for many helpful comments and suggestions.

Table of contents

Abstract	5
Executive summary	6
1 Introduction	7
2 A brief overview of reporting self-employment income in Canada	8
3 Data	9
4 Identifying gig workers using administrative data	10
5 Unincorporated self-employment and the gig economy	13
5.1 Self-employment estimates in administrative, census and survey data	13
5.2 Self-employment and gig work trends from 2005 to 2016.....	14
6 Characteristics of gig workers	16
6.1 Tax data	16
6.2 Tax data linked to census microdata	19
7 Conclusions	22
Appendix	23
Figures.....	23
Charts.....	25
References	28

Abstract

This study identifies gig workers based on characteristics of their work arrangements and how these are reported in tax data. It introduces a definition of gig work specific to the way work arrangements are reported in the Canadian tax system and estimates the size of the gig economy in Canada using administrative data. The share of gig workers among all workers rose from 5.5% in 2005 to 8.2% in 2016. Some of this increase coincided with the introduction and proliferation of online platforms. The analysis highlights gender differences in the trends and characteristics of gig workers. By linking administrative data to 2016 Census microdata, this study also examines educational and occupational differences in the prevalence of gig workers.

Keywords: gig economy; self-employment; administrative data.

JEL classification: J21, J40, J46.

Executive summary

The gig economy is a much-discussed global phenomenon, and mainstream and social media continue to speculate about the number of gig workers in Canada. Gig workers are usually not employed on a long-term basis by a single firm; instead, they enter into various contracts with firms or individuals (task requesters) to complete a specific task or to work for a specific period of time for which they are paid a negotiated sum. This includes independent contractors or freelancers with particular qualifications and on-demand workers hired for jobs mediated through the growing number of online platforms.

This study introduces a clearly defined methodological framework for identifying gig workers in Canada based on various Canadian administrative sources, including individual and corporate income tax returns. This is the first Canadian study to systematically identify gig workers using administrative data and measure the share of gig workers among all Canadian workers. When the work arrangement typology developed in previous studies is applied, gig workers can be viewed as unincorporated self-employed workers (sole proprietors) who report business, professional or commission self-employment income, and whose future business activity is uncertain or expected to be minor or occasional.

This study found that, from 2005 to 2016, the percentage of gig workers in Canada generally rose from 5.5% to 8.2%. The increase was observed for both men (from 4.8% in 2005 to 7.2% in 2016) and women (from 6.2% in 2005 to 9.1% in 2016), and driven by the growth in the percentage both of gig workers who earned no wages or salaries (T4 income) and of gig workers who combined gig work with wages or salaries.

The results showed that the annual income of a typical gig worker was usually low. The median net gig income in 2016 was only \$4,303. Workers in the bottom 40% of the annual income distribution were about twice as likely to be involved in gig work as other workers.

For most gig workers, gig work was only a temporary activity. Roughly one-half of those who entered gig work in a given year had no gig income the next year. However, a non-negligible share of gig work entrants—about one-quarter—remained gig workers for three or more years.

Workers whose main occupations were in arts, entertainment and recreation were about four times more likely to be gig workers than workers whose main occupations were in management of companies and enterprises. Those whose main occupations were in manufacturing and utilities were least likely to be gig workers.

The study also found that gig work was more prevalent among immigrants than among Canadian-born people. In fact, 10.8% of male immigrant workers who had been in Canada for less than five years were gig workers in 2016, compared with 6.1% of male Canadian-born workers.

1 Introduction

The gig economy is a much-discussed global phenomenon. Although there is no widely accepted definition of the gig economy, the term broadly refers to less structured and non-traditional work arrangements. Gig workers are usually not employed on a long-term basis by a single firm; instead, they enter into various contracts with firms or individuals (task requesters) to complete a specific task or to work for a specific period of time for which they are paid a negotiated sum. This includes independent contractors or freelancers with particular qualifications and on-demand workers hired for jobs that are mediated through the growing number of online platforms and crowdsourcing marketplaces, such as Uber, Lyft, TaskRabbit, Upwork, Guru, Fiverr and Freelancer.

Despite continued speculation by mainstream and social media about the number of gig workers in Canada, a recent University of Toronto report surveying the international literature on the gig economy found no peer-reviewed articles examining the Canadian labour market (Bajwa et al. 2018). To partially address the growing need to estimate the size of the Canadian gig economy, the October 2016 Labour Force Survey (LFS) asked whether a respondent had offered or used any sharing services such as Uber, Lyft, Airbnb and FlipKey. According to this survey, a relatively small percentage of Canadian adults indicated that they offered peer-to-peer ride services (0.3%) or private accommodation services (0.2%) (Statistics Canada 2017). In contrast, a study based on the Bank of Canada's Canadian Survey of Consumer Expectations estimated that as many as 30% of Canadians participate in some form of informal paid work (Kostyshyna and Luu 2019). However, the results of the study are based on a relatively small study sample collected through an online questionnaire and may not be fully representative of the Canadian population. A small number of external surveys have been conducted to measure various elements of the gig economy at the local level. For example, a recent survey found that 9% of Greater Toronto Area residents worked through online platforms (Block and Hennessy 2017). However, people who work through online platforms are only part of the gig economy since not all gig workers do.

This present study introduces a clearly defined methodological framework for identifying gig workers in Canada based on various Canadian administrative sources, including individual and corporate income tax returns. This is the first Canadian study to systematically identify gig workers using administrative data and measure the share of gig workers among all Canadian workers. The definition of a gig worker in this study is consistent with the definition of Abraham et al. (2018) and is based on the typology of work arrangements introduced in their study. It includes, but is not limited to, individuals working through online platforms.¹ Similar to gig workers in the United States, gig workers in Canada are likely to be unincorporated self-employed workers who report business, professional or commission income on their income tax returns. The methodological approach used in this present study allows gig workers to be distinguished from traditional employees who receive wages or salaries, incorporated self-employed workers, sole proprietors who own established businesses and partners in partnerships.² The study is similar in spirit to the U.S. study by Collins et al. (2019), but with important differences stemming from the differing U.S. and Canadian tax systems and data sources. Furthermore, this study seeks to strengthen the methodology used in U.S. studies by drawing on information not available to the U.S. researchers, such as census data.

This study makes at least two other important contributions to the recent literature on the gig economy and non-traditional work arrangements. Understanding the evolution of gig work in Canada is important in itself, but it also contributes to better understanding broader

-
1. Gig work is not to be confused with precarious work. Unlike gig work, precarious work usually encompasses many types of traditional work arrangements, including temporary, part-time and seasonal employment, as well as all forms of self-employment. Minimum wage jobs are also often considered precarious work.
 2. There are four types of business structures in Canada: sole proprietorships, partnerships, corporations and co-operatives.

self-employment trends in Canada and related issues with measuring these trends that are discussed in the recent literature. Several recent studies using administrative (tax) data to measure the gig economy in the United States were motivated by diverging estimates of self-employment rates in U.S. survey and administrative data (Abraham et al. 2018; Katz and Krueger 2016, 2019). One of the important questions investigated in this present study is whether similar patterns of divergence between estimated self-employment rates in administrative and survey data can be observed in Canada. The data used here allow these trends to be compared using both survey and administrative data from 2005 to 2016. Some reasons for differences in self-employment rates obtained from various sources are also discussed.

This study also examines the characteristics of gig workers and their income sources in considerably more detail than previous studies. In particular, the scope of the analysis is expanded by linking administrative data to 2016 Census of Population microdata. The linked files contain detailed information about education and immigrant status (among other things) for 25% of the total Canadian population.³ Using the linked data, it is possible to explore the characteristics of gig workers, identify occupations and industries with particularly high or low prevalence of gig workers, and shed light on some of the key differences in how individuals report their self-employment activities in census and administrative data.

2 A brief overview of reporting self-employment income in Canada

Tax returns in Canada are filed individually (although spousal and other family information has to be provided) and the filing rates are very high, at over 90% for the adult population.⁴ To file their tax returns for a particular year, Canadians submit a completed T1 Income Tax and Benefit Return to the Canada Revenue Agency (CRA) in the following year. Permanent or temporary Canadian employees who receive wages report their annual wages or salaries based on the T4 slips (Statement of Remuneration Paid) they receive from their employers, who also submit copies of the T4 records to the CRA. On T1 returns submitted to the CRA, individuals report their total T4 income from all T4 slips issued for a particular tax year as their “employment income” for that year.⁵ Employment income other than wages and salaries, such as tips and gratuities, is reported as “other employment income.”

Unincorporated self-employed workers use the T1 form to report their self-employment income from five principal activities: fishing, farming, professional, business and commission income.⁶ Unincorporated self-employed workers who report professional, business or commission income (e.g., Uber drivers) attach a T2125 Statement of Business and Professional Activities to their T1 forms. The T2125 form details all revenues and expenses related to the individual's

3. This information is based on the long-form census questionnaire, which is randomly distributed to 25% of all Canadian households.

4. The estimate is based on internal Statistics Canada reports. The coverage rates for the working population are likely to be much higher than 90%.

5. In addition to T4 slips, employers can also issue T4A slips (Statement of Pension, Retirement, Annuity and Other Income), which contain boxes indicating payments made to independent agents as “self-employed commissions” or “fees for services.” However, T4A slips are used mainly to report pension income, and no T4A slips are issued for many gig activities. For instance, no T4A or any other slips are issued for online platform work (e.g., Uber drivers). Unlike 1099-K, T4As are not issued for electronic and online transactions. For this reason, T4A slips cannot be used in the way 1099-K forms are used in U.S. studies (e.g., Collins et al. 2019).

6. Rental income, which is sometimes included among self-employment income sources, is also reported on T1 returns. In this study, workers who receive rental income but not any other self-employment income are not included among self-employed workers for consistency with other Statistics Canada definitions of self-employed workers (e.g., Longitudinal Administrative Databank) and the definitions of self-employment used in most other studies.

unincorporated business and professional activities.⁷ Self-employed owners of unincorporated businesses may request a business number (BN) for their business (or businesses) from the CRA. If they have a BN, they must report it on the T2125 form. Partnerships are subject to special rules concerning business formation and dissolution. Unlike a corporation, a partnership does not file a corporation income tax return (see below). All partnership income is allocated among the partners, and each partner reports their partnership income on individual T1 returns.⁸ Depending on the partnership's structure and revenues, it may be required to issue a T5013 Statement of Partnership Income to its partners.

Incorporated businesses submit a T2 Corporation Income Tax Return to the CRA. The main types of corporations in Canada are private corporations, public corporations (with shares publicly traded on the stock exchange) and corporations owned by the Crown. When private corporations file their T2 returns, they have to attach a Schedule 50 listing all shareholders with shares equal to or exceeding 10%. In this study, all individuals listed on Schedule 50 forms are considered owners of incorporated businesses or incorporated self-employed workers. Owners of incorporated businesses may also pay themselves wages or salaries, in which case they receive T4 slips and report employment income on their individual T1 return.

3 Data

The main administrative data source for this study is the Canadian Employer–Employee Dynamics Database (CEEDD), maintained by Statistics Canada. The CEEDD is not a single dataset, but a data environment consisting of multiple administrative data blocks that are linkable through unique individual and business identifiers.⁹ Annual individual tax return files (T1) are among the principal CEEDD components. These contain detailed and complete information about individuals' incomes from all sources, government transfers, benefits and taxes. The CEEDD T1 files cover all Canadian taxfilers and span the period from 1983 to 2016.

Among the T1 files Statistics Canada receives from the CRA is a file containing information on all individuals who report positive gross income for at least one of the following income types: farming, fishing, professional, business, commission or rental income (Statistics Canada 2011). The variables in the file correspond with information collected from attachments related to all six activities, including T2125 and T5013 forms. Using this file as its main source, Statistics Canada constructs Financial Declaration (FD) files better suited for analytical purposes. FD files are annual files for all unincorporated self-employed workers in Canada. They are currently available for 2005 to 2016.

In addition to information from individual tax returns, the CEEDD contains information from corporate tax returns (T2 forms). As mentioned above, each private corporation that files a corporate tax return is also required to submit a Schedule 50, which lists all shareholders with shares equal to or larger than 10%.¹⁰ Statistics Canada receives Schedule 50 files and they are part of the CEEDD environment.

The main sample for the analysis includes all workers aged 15 and older from 2005 to 2016 T1 files. Workers are defined as all individuals who:

-
7. Individuals who receive income from home sharing (e.g., through Airbnb) report rental income on a Statement of Real Estate Rentals (T776 form). If they provide additional services, such as laundry services or meals, they are also required to submit a T2125 form.
 8. However, incorporated partners report their partnership income shares as corporate income.
 9. Individual identifiers are derived from social insurance numbers (SINs), and business identifiers are derived from BNs issued by the CRA.
 10. Unlike the shareholders of private corporations, the shareholders of public corporations are not business owners in any meaningful sense and are not considered self-employed in this study.

- (a) reported any employment income from T4 slips or other employment income such as tips, gratuities or director's fees on their T1 forms,
- (b) reported any unincorporated self-employment income, or
- (c) were identified as owners of incorporated businesses through corporate tax returns.

The files range in size from 18,088,542 to 20,419,262 observations. In each annual T1 file, gig workers are identified using information from FD files based on the definition introduced in the next section.

An essential, novel element of this study is that it exploits the advantages of administrative data linked to 2016 Census microdata to address several important information gaps in tax data. Using the recently established concordance between individual administrative data and census data identifiers, CEEDD data can be linked to the 2016 Census of Population microdata files covering a randomly selected sample of 25% of Canadian residents. This means that census data are available for a randomly selected subsample of 25% of all workers in the main sample. The linked data (CEEDD files to the census) allow further exploration of some human capital characteristics of gig workers that are not identified in tax data, such as highest level of education, main occupation and immigrant status. The linked T1–Census analysis sample includes 4,781,844 observations, which is about 23.4% of the main T1 sample in 2016.

A comparison between unincorporated self-employment trends in survey and administrative data can offer some clues about recent changes in the size of the gig economy in Canada. Much of the information regarding self-employment in Canada comes from the LFS, which is a monthly Statistics Canada survey that has been conducted since 1945. The LFS serves as the main source for computing various official economic indicators such as employment and unemployment rates. Responding to the survey is mandatory under the *Statistics Act*. Workers are classified into several categories in the LFS: private and public employees, incorporated self-employed workers with and without employees, unincorporated self-employed workers with and without employees, and private employees working in family businesses without pay. In this study, the LFS-based estimates of self-employment rates are compared with the self-employment rates based on CEEDD data.

4 Identifying gig workers using administrative data

There is little consensus in the economic literature or public forum about the exact meaning of the term “gig economy,” and even less consensus about the size of the gig economy in the United States, Canada or other countries. The proliferation of online platforms and crowdsourcing marketplaces connecting workers with employers through very flexible—and often minimally binding—work arrangements has resulted in renewed interest in the “gig” aspect of the modern economy and has motivated new attempts to identify and quantify the gig economy. However, these same technological factors have amplified the complexity of measuring the gig economy and intensified the need for new methodological approaches.

Recent studies turned to administrative data to quantify the gig economy, identify how it affects broader self-employment trends in the United States, and reconcile discrepancies between self-employment estimates based on administrative data sources and more traditional survey databases. Abraham et al. (2018) introduced a methodological framework for identifying gig workers based on the characteristics of their work arrangements and how these are reported in tax data. This typology of work arrangements is based on several characteristics that help distinguish between various work arrangements, including whether the person is paid a wage or salary, the work relationship can be expected to continue, or the person's work schedule and earnings are predictable (see Table 1 in the study by Abraham et al. [2018]). Abraham et al. (2018) also note that gig workers are not wage employees, do not have a long-term contract with

any employer, do not have a predictable work schedule and do not have predictable earnings. Therefore, gig workers are unincorporated self-employed freelancers, day labourers, or on-demand or platform workers according to this typology. In administrative data, gig workers can be identified (at least partially) depending on how the workers report their work arrangements to tax authorities.

Table 1
Estimated shares of self-employed workers among all workers using administrative, census and survey data, 2016

	Labour Force Survey data	2016 Census data	Administrative data: CEEDD (2016)
		shares	
Incorporated self-employed workers	7.1	4.4	9.5
Unincorporated self-employed workers	9.5	7.5	14.6
		percent	
Unincorporated self-employed workers			
With employees	12.0	26.4	3.9
With no employees	88.0	73.6	96.1
		shares	
Sole proprietors with T2125 income	...	...	12.9
Gig workers	...	...	8.2
		percent	
Gig workers			
With no T4 jobs	...	...	48.6
With a single T4 job	...	...	36.3
With multiple T4 jobs	...	...	15.1

... not applicable

Note: CEEDD: Canadian Employer–Employee Dynamics Database.

Sources: Statistics Canada, authors' calculations based on data from the Labour Force Survey, the 2016 Census and the 2016 CEEDD.

The methodology for measuring the share of gig workers in the Canadian labour force proposed in this study is consistent with the methodology and typology of work arrangements outlined by Abraham et al. (2018). The approach is based on combined information from several administrative sources available in the CEEDD, such as T1 files, T2 and Schedule 50 files, and FD files that contain detailed information about self-employment activities, and incorporated and unincorporated business ownership. The focus is on unincorporated self-employed workers who file T2125 forms, which are required for reporting business, professional or commission self-employment income. These workers are grouped into three categories: partners (in partnerships) reporting T2125 income, sole proprietors reporting T2125 income and providing a BN, and sole proprietors reporting T2125 income and not providing a BN. The emphasis on reported T2125 income is because self-employed freelancers, platform workers and day labourers have to file a T2125 to report their business income. However, not all T2125 workers are gig workers. When the work arrangement typology of Abraham et al. (2018) is applied to the Canadian context, gig workers can be viewed as unincorporated self-employed workers (sole proprietors) who report business, professional or commission self-employment income on their T1 tax returns and attach at least one T2125 form without a BN.

Unincorporated T2125 filers who operate an established business and who can expect a certain degree of continuity and predictability in their work arrangements fall outside the gig worker category. The delineation line is drawn between individuals who do not have a BN because they have not registered their business with the CRA (gig workers) and those who do. The reason for the emphasis on having a BN is twofold. First, a decision to obtain a BN indicates the expectation of continuity. Although the process of obtaining a BN is not especially onerous, an individual has to invest time to fill out necessary forms and provide information about their business to the CRA. This effort is less likely to be made when future business activity is uncertain or expected to be

minor or occasional. Second, businesses and activities that are particularly unlikely to be associated with gig work, such as businesses that employ people or are engaged in import and export activities, are automatically excluded since they are required to have a BN. The definition proposed in this present study fits well into the work arrangement typology of Abraham et al. (2018), which excludes unincorporated sole proprietors with some expectation of continuity and earnings predictability from the gig worker category.

An important element of the methodological strategy is recognizing the possibility of an individual holding several jobs or being involved in multiple self-employment activities. While surveys usually focus on the main labour market activities of respondents, tax data contain information about all of an individual's income sources, not matter how small. For many gig workers, their "gig" activity is only part of their overall labour market activities. The definition used in this study recognizes, for instance, that a gig worker reporting business income can also receive a wage or salary (T4) from wage employment, be an owner of an incorporated firm (listed on a Schedule 50) or own an unincorporated firm for which they report professional income on a separate T2125. Therefore, it is possible to differentiate gig workers whose gig activity is their only source of income from those who use gig work to supplement their income.

As with any attempt to define a category of workers as ambiguous as "gig workers," the definition used in this study has its advantages and disadvantages. Among the advantages is the definition's conceptual clarity based on specific parameters that are associated with the tax system, and its reliance on the features of the tax system that have been stable in the past and are likely to remain stable in the future. Unlike survey questions about gig work, a definition of gig work that is based on tax information is free from the ambiguity associated with individual interpretation of gig work and uncertainty about the meaning of the term for different respondents. Tax data are also more suitable for analytical analysis because administrative data files are usually large and cover the whole universe of workers and firms. However, tax data tell little about the nature of the job and lack information about work hours, hourly wages and job duration.

The definition of gig workers introduced in this study comes with an important caveat. Canadian businesses are required to have a BN to report the federal and provincial sales taxes (GST/HST) they collect when charging customers for goods and services. The exceptions are businesses that provide goods and services exempt from sales taxes (e.g., basic groceries, educational services, legal aid services and music lessons) and small suppliers whose total taxable business revenues do not exceed \$30,000 per year. This requirement largely excludes T2125 filers with more than \$30,000 in business revenue from the gig worker category. To assess the implications of the \$30,000 threshold for the estimates in this study, the kernel density of the gross income was estimated for all sole proprietors who reported T2125 income in the 2016 data and sole proprietors who satisfied the gig worker definition (Figure 1). Both lines reveal slight bunching just below \$30,000. The income bunching itself is not unexpected.¹¹ However, the relatively small magnitude of income bunching is somewhat reassuring. Figure 1 also shows that the gross income of about 74% of all sole proprietors reporting T2125 income and 85% of those identified as gig workers was below \$30,000.¹² For a large majority of sole proprietors reporting T2125 income, the \$30,000 threshold does not appear to be binding. Nevertheless, some potential gig workers among those who report gross T2125 income above \$30,000 are missed in the analysis.

11. This logic is the same as the logic for income bunching around the lower bounds of tax brackets (Saez 2010).

12. Grekou and Liu (2018) found that the median business income of unincorporated self-employed workers was \$10,000 in 2013.

5 Unincorporated self-employment and the gig economy

5.1 Self-employment estimates in administrative, census and survey data

A key element of the gig worker definition based on the typology of work arrangement characteristics introduced by Abraham et al. (2018) is that gig workers are among unincorporated self-employed workers. Therefore, the present study computed self-employment rates and examined basic differences in the estimates of self-employment rates in survey and administrative data sources before focusing specifically on gig workers. The analysis began with a comparison of the estimated shares of incorporated and unincorporated self-employed workers among all workers in 2016 using survey (LFS), administrative (CEEDD) and census microdata. The objective was to compare the estimates from the LFS and census (the two sources most frequently used to estimate the extent of self-employment activities in Canada) with the estimates from administrative data, which only recently became available, for a comprehensive analysis of various aspects of both incorporated and unincorporated self-employment. A direct estimate of the gig economy in Canada was also provided using administrative data based on the definition introduced in the previous section.

The comparison across the three data sources revealed substantial differences in the estimated shares of self-employed workers in 2016 (Table 1). The share of incorporated self-employed workers in the census data (4.4%) was less than half of the corresponding share in the CEEDD data (9.5%). The difference may be partly because census respondents are asked only about their main job, whereas in administrative data, anyone with more than a 10% share in an incorporated business is identified as an incorporated self-employed worker. In addition, census figures are based on the individual's self-employment work during the reference week. In administrative data, the preceding calendar year is the reference period. Unlike the census-based estimate, the share of incorporated self-employed workers in the LFS is based on either the main or the secondary work activity. This share fell between the estimated shares from census and administrative data (7.1%). Similarly, the share of unincorporated self-employed workers based on census data (7.5%) was just over one-half of the share using administrative data (14.6%), while the LFS estimate was closer to the census estimate (9.5%).¹³ Less than 4% of unincorporated self-employed workers in the CEEDD had employees, compared with 26.4% of those in the census data and 12% in the LFS.¹⁴ This result was consistent with the notion that self-employment work is a relatively minor activity for many individuals identified as unincorporated self-employed workers with tax data. Therefore, the prevalence of employers among this group was much lower than the prevalence of employers among those who reported self-employment as their main labour market activity in the census.

Table 1 shows that the share of unincorporated self-employed workers in 2016 who satisfy the definition of gig workers was about 8.2%. As mentioned in Section 4, a small number of potential gig workers with gross T2125 incomes over \$30,000 is likely missing, so the actual share of gig workers was somewhat higher than 8.2%.¹⁵ The study computed the net total annual gig income for each gig worker in 2016 and estimated the density of gig income using a kernel density estimator (Figure 2). The median line corresponds with \$4,303—a very small amount. For many gig workers, the net total gig income was negative. Among gig workers, 48.6% had no wage-earning job and reported no employment income, while 36.3% had one wage job and about 15.1% had multiple wage jobs. Therefore, gig workers were split almost evenly between those who had

13. The results echo the findings in Yssaad and Ferrao (2019), who estimated shares of self-employment in the Canadian workforce using the LFS, but considered only the main labour market activity of respondents.

14. The low estimate of unincorporated self-employed workers with employees in administrative data is consistent with other studies based on Canadian administrative data, such as the study by Green et al. (2016).

15. Even if all sole proprietors with gross T2125 income over \$30,000 were counted as gig workers, the share of gig workers would not exceed 10.3%.

no other earnings except for their gig earnings and those who supplemented their wages and salaries with the earnings from their gig activities.

For some idea about the relative importance of gig work among those identified as gig workers, the share of earnings derived from gig work among the total earnings for each individual and various percentiles of the resulting distribution were computed. The computations show that the median share of gig income in total earnings was 76%, meaning that for about half of all gig workers, gig earnings represented more than three-quarters of their total annual earnings. However, the median share of gig income in the total annual income from all sources was much smaller (22%). For more than one-quarter of all gig workers, their gig earnings represented all of their earnings and more than 89% of their total income.

5.2 Self-employment and gig work trends from 2005 to 2016

Much of the recent U.S. literature on gig work is motivated by an apparent divergence of self-employment trends in survey and administrative data. For example, Katz and Krueger (2019) used the Current Population Survey to show that although the share of unincorporated self-employed workers declined from close to 9% in 1980 to just over 6% in 2017, the share of those who filed Schedule C (for reporting profit or loss from business in the United States) increased from around 9% to over 16% during the same period—and the divergence trend is likely to continue. Studies in the United States have speculated that the diverging self-employment trends in survey and administrative data may be partially attributable to gig economy growth that is not fully captured by traditional survey-based measures of self-employment.

Chart 1 shows estimated self-employment trends in Canada from 2005 to 2016, based on LFS and CEEDD data. Despite some evidence of the divergence between self-employment rates in the Canadian survey and administrative data from 2005 to 2016, the divergence trend appears less pronounced compared with a similar trend in the United States. As in the United States, administrative data identify a larger number of workers as self-employed than survey data since administrative data capture any self-employment activities—including occasional ones that may be ignored by survey respondents. Although the prevalence of unincorporated self-employment seems generally higher in Canada than in the United States, survey data indicate a small but comparable decline in the share of unincorporated self-employed workers between 2005 and 2016 in both countries.

The overall self-employment trend in the LFS was fairly stable, rising slightly from 16.9% in 2005 to 17.5% in 2009, then falling to 16.6% in 2016. The rate of unincorporated self-employment followed a similar path, but declined by a somewhat larger margin, from 10.4% in 2005 to 9.5% in 2016. However, the share of incorporated self-employed workers increased during the same period, from 6.5% in 2005 to 7.1% in 2016. This resulted in a smaller overall decline in the share of self-employed workers. In contrast, the overall share of self-employed workers based on the CEEDD data steadily increased from 20.7% in 2005 to 22.3% in 2016 despite a slight decline in the share of unincorporated self-employed workers from 14.9% to 14.6% over the same period. The increase in overall shares mainly reflected the increase in the share of incorporated self-employed workers, from 7.7% in 2005 to 9.5% in 2016. Chart 1 also shows that the decline in the share of unincorporated self-employed workers from 2005 to 2016 was mostly because of the decline in the number of people who reported income from fishing and farming since the share of unincorporated self-employed workers with T2125 income remained very stable, rising slightly from 12.7% in 2005 to 12.9% in 2016. This result appears in sharp contrast to U.S. findings that show a substantial increase in the share of people who filed a Schedule C in U.S. administrative data (Katz and Krueger 2019). However, despite the overall stability of unincorporated self-

employment rates in Canada, the share of gig workers among all workers in Canada rose from 5.5% in 2005 to about 8.2% in 2016.¹⁶

A closer inspection of the gig worker trend reveals two sharp increases between 2005 and 2016 (Chart 2). The first increase corresponds with the 2008/2009 recession, and it was somewhat sharper for men than for women. The timing of the increase suggests that the growth in the share of gig workers during those years can be largely attributed to push factors such as declining employment prospects. While the share of female gig workers continued to increase immediately after the recession (from 2009 to 2012), the share of male gig workers slightly declined during that period. The second sharp increase was observed around 2012/2013, but the reason why is less intuitive and may be related to the proliferation of online platforms in Canada that started around that time.¹⁷ After 2012, growth in the share of gig workers was higher for women than for men.

The key feature of Chart 2 is that, in all years, the share of gig workers was substantially higher among women than among men—and this gap widened over time. In 2016, the share of female gig workers was about 9.1%, while the share of male gig workers was about 7.2%.¹⁸ This result likely reflects the importance of flexible work arrangements for women trying to balance family and work (Jeon and Ostrovsky 2019). Compared with men, women’s participation in the gig economy was less affected by the 2008/2009 recession, suggesting that women’s decisions to do gig work may be less influenced by push factors (inability to find traditional employment) and more influenced by pull factors, such as work flexibility and the opportunity to “be your own boss.”

An important question often asked in debates about the gig economy is whether gig workers have more stable main jobs and do gig work primarily as a secondary activity to supplement their income or to explore self-employment opportunities, or whether gig work is the main activity and gig workers do not generally receive wages or salaries. In Chart 3, the trends in the shares of gig workers are shown separately for gig workers with and without wages or salaries (T4 slips). The trends in the left-hand panel (gig workers with no wage or salary earnings) spiked around the recession in 2008/2009, but remained relatively stable until another spike in 2012/2013. In contrast, the shares in the right-hand panel (gig workers with wage or salary earnings) increased virtually linearly from 2006 to 2016, with only minor bumps around 2008/2009. The linear trend was particularly apparent among female gig workers with wage or salary earnings. The trends in Chart 3 seem to suggest that although gig work has become more prevalent from 2005 to 2016, gig workers with no wage earnings responded more strongly to both push factors (recession) and pull factors (proliferation of online platforms). Overall, however, Chart 3 suggests that an increasing share of workers do gig work in addition to their main wage-earning jobs, but also that an increasing share of gig workers do not earn any wages or salaries.

Using the event study technique, Koustas (2019) showed that entry into gig work in the United States is generally preceded by a decline in non-gig income. A similar pattern was found in Canada. Chart 4 shows that T4 earnings dropped dramatically in the year an individual entered gig work (year 0), and that this drop in the T4 earnings was larger for men than for women. The T4 earnings partially recovered in subsequent years, while the gig earnings steadily declined. Chart 4 also shows that employment insurance (EI) benefits rose before the entry into gig work and dropped sharply in year 0. For women, this pattern was observed for both regular and special

16. These percentages translate into about 991,320 gig workers in 2005 and 1,666,061 gig workers in 2016. In terms of the duration of gig work, 53.1% of gig workers who entered in 2006 (i.e., those who were gig workers in 2006 but not in 2005) remained gig workers for at least one year, while 35.2% remained gig workers for two consecutive years and 25.9% remained gig workers for three consecutive years. The corresponding numbers were slightly lower for the 2010 entry cohort (50.0%, 31.1% and 22.8%, respectively) but higher for the 2013 cohort (56.4%, 39.1% and 29.8%, respectively).

17. For instance, 2012 was the year that Uber started its operations in Canada. See CTV News (2014).

18. The main sample is consistent with the LFS age restrictions and includes individuals aged 15 and older. Restricting the sample to those aged 25 to 55 had little impact on the results.

EI benefits.¹⁹ Koustas (2019) asked whether the decline in wages and salaries before year 0 represented a deliberate strategy of “gearing up” for gig work, or whether it was the consequence of outside shocks such as job loss or wage cuts. Given the EI eligibility rules, the rise in EI benefits before entry into gig work seems to suggest that outside shocks are important contributors to the decision to enter gig work.²⁰

Finally, the present study looked into whether the increase in the share of gig workers between 2005 and 2016 was associated with any changes in the patterns of filing T2125 income during the same period. With the overall stability of unincorporated self-employment rates from 2005 to 2016, the rising shares of gig workers among all Canadian workers implies that an increasing share of unincorporated self-employed workers file at least one T2125 form with no BN. Did gig work replace or supplement less precarious forms of unincorporated self-employment that are associated with a formal business? There are at least two possible scenarios. First, unincorporated self-employed workers continued to file T2125 forms at the same rate, but were increasingly less likely to report a BN. In this scenario, gig work replaced more stable forms of self-employment that required stronger commitment and possibly larger initial investment. In the second scenario, unincorporated self-employed workers filed the same number of T2125 forms with a BN but, in addition to filing T2125 forms with BNs, they also filed an increasing number of T2125 forms with no BN. In this scenario, self-employed workers increasingly took on gig work in addition to steady self-employment that continued to be their main activity.²¹

The analysis considers both scenarios and looks at the changes in the shares of sole proprietors who filed multiple T2125 forms. There was a modest (1.3 percentage point) increase in the number of sole proprietors who reported T2125 income from multiple sources in 2016 compared with 2005, but the vast majority continued to report T2125 income from just one source (95.9% in 2016). This finding further supports the idea that the increase in the share of gig workers observed in Chart 2 represents both a decline in the share of unincorporated self-employed workers with a steady business and an increase in the number of self-employed workers who do gig work in addition to their main business activity.

6 Characteristics of gig workers

6.1 Tax data

First, the study considers the characteristics of gig workers that are available in tax data, such as age, marital status, area of residence and industry of gig work. Some key gender differences in the prevalence and trends of gig work have already been noted. For this reason, other characteristics of gig workers are considered separately for men and women. Table 2 (upper panel) shows the distribution of gig workers in 2016 along several dimensions. The first two columns show the distribution of gig workers by different categories within each characteristic (e.g., age, marital status). The last two columns show the shares of gig workers among all workers in each category (i.e., the prevalence of gig workers in a given category).²² The results suggest that no age group dominated the age distribution of gig workers, and that gig workers were spread more or less evenly across the entire age spectrum. However, the prevalence of gig workers was especially high in the category for those aged 65 and older because fewer individuals in this age category worked and, when they did, they were more likely to be gig workers than younger

19. The latter primarily represents maternity leave benefits.

20. Workers who quit or are dismissed are generally not eligible for EI benefits.

21. It is also possible that more gig activities are now reported to the CRA because more gig work is done through online platforms, unlike in the past, where most of it was done through informal referrals from friends, neighbours, etc.

22. For example, 8.5% of male gig workers were younger than 25 (first column); the share of gig workers among all male workers younger than 25 was about 4.5% (third column).

workers. About 62.4% of all gig workers in 2016 were married or cohabited, while about 28.9% of male gig workers and 24.5% of female gig workers were single (never married). However, men (8.6%) and women (10.7%) who were divorced, widowed or separated were more likely to be gig workers than either married or single men and women.

Table 2
Characteristics of gig workers in tax data and linked tax–census data, 2016

	Percentage of gig workers		Prevalence of gig workers	
	Men	Women	Men	Women
	percent		prevalence	
Tax data				
Age (years)				
Younger than 25	8.5	6.9	4.5	4.5
25 to 34	19.0	20.7	7.0	9.3
35 to 44	19.2	22.6	7.4	10.6
45 to 54	20.0	21.8	7.3	9.5
55 to 64	19.0	18.6	7.7	9.6
65 and older	14.3	9.3	10.0	11.8
Marital status				
Married or common-law	62.4	61.8	7.6	10.1
Widowed, divorced or separated	8.7	13.7	8.6	10.7
Single	28.9	24.5	6.2	7.0
Region of residence				
Atlantic provinces	3.8	4.6	4.3	6.4
Quebec	23.8	24.4	7.5	9.8
Ontario	41.3	37.3	8.0	8.9
Prairies	14.6	17.1	5.6	8.5
British Columbia	16.2	16.3	8.7	10.7
other	0.4	0.3	3.1	6.0
Total income				
First (lowest) quintile	26.0	23.0	11.3	12.3
Second quintile	23.8	22.2	10.7	14.4
Third (middle) quintile	16.9	19.0	5.9	8.8
Fourth quintile	15.4	16.4	4.9	6.4
Fifth (highest) quintile	18.0	19.4	5.4	6.9
Linked tax–census data				
Highest level of educational attainment				
High school diploma or less	32.7	27.2	5.8	7.0
Some postsecondary education	31.2	36.8	6.4	9.7
Bachelor's degree	22.1	23.1	9.0	9.4
Graduate degree	13.9	12.9	13.7	16.5
Immigrant status				
Canadian-born	64.3	71.5	6.1	8.8
Non-permanent resident	1.5	1.0	7.5	6.7
In Canada for less than 5 years	4.6	3.2	10.8	9.5
In Canada for 5 to 9 years	5.5	4.4	10.9	10.8
In Canada for 10 to 19 years	9.3	7.8	10.5	10.6
In Canada for 20 years or more	14.8	12.1	9.5	10.1

Sources: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database (CEEDD) and the CEEDD–Census computed for 2016.

Perhaps not surprisingly, the shares of gig workers among all workers were higher where opportunities for gig work were greater, specifically in the three regions that have major Canadian urban centres—Quebec (Montréal), Ontario (Toronto) and British Columbia (Vancouver) (Table 2). However, Chart 4 shows gig worker trends separately for Montréal, Toronto and Vancouver and reveals substantial differences in the growth of gig work across these three urban centres. In Montréal, the growth rate of the share of gig workers was similar to that of the overall share in Canada until 2012, but increased faster thereafter. In Toronto, the growth rate in the

share of gig workers was higher than in other large urban centres until 2009. However, the spikes in the shares of gig workers (around 2008 and 2012) were followed by relatively flat and even downward trends, even though the share of gig workers in Toronto was well above the overall share in Canada in 2016 (Chart 5).

Finally, Table 2 shows that 49.8% of male gig workers and 45.2% of female gig workers belonged to the lowest two quintiles of the total income distribution. Among both men and women, the prevalence of gig workers in the top income quintile was roughly half the prevalence of gig workers in the bottom income quintile.

It is possible to look at the distribution of gig workers by industry using two-digit North American Industry Classification System (NAICS) codes (20 industries). Table 3 shows that most male gig workers worked in professional, scientific and technical services (19.0%); construction (12.4%); and administrative and support, waste management and remediation services (10.6%).²³ Female gig workers concentrated primarily in health care and social assistance (20.2%) and professional, scientific and technical services (17.4%). Table 3 also shows that the industrial distribution of gig workers based on the industry of their gig work was very similar to the industrial distribution of gig workers based on the industry of their main job, as recorded in census data (third and fourth columns). For the prevalence of gig workers among all workers (last two columns), the industry with the highest share of male gig workers was arts, entertainment and recreation (15.6%), which is the industry that originated the term “gig work.”²⁴ A high prevalence of gig workers was also observed in health care and social assistance (13.3%), educational services (11.3%) and real estate and rental and leasing (10.8%). Among women, the industry with the highest share of gig workers was other services (except public administration) (20.1%), a broad category that includes personal care providers, cooks, maids, caretakers and nannies.

23. This category includes activities such as administration, hiring and placing personnel, preparing documents, providing cleaning services, and arranging travel.

24. Oxford Music Online defines “gig” as “a term commonly applied to a music engagement of one night’s duration only” (Oxford Music Online 2002).

Table 3
Industrial distribution of gig workers in 2016 and the shares of gig workers among all workers

2-digit NAICS industry	CEEDD data: Percentage of gig workers		CEEDD–Census (main job industry): Percentage of gig workers		CEEDD–Census (main job industry): Share of all workers	
	Men	Women	Men	Women	Men	Women
	percent		percent		share	
Unclassified (did not work)	...	...	8.6	9.8	6.0	7.9
Agriculture, forestry, fishing and hunting	2.2	0.9	1.9	1.1	4.3	7.5
Mining, quarrying, and oil and gas extraction	0.3	0.1	0.8	0.3	2.5	5.0
Utilities	0.3	0.1	0.4	0.2	2.8	3.6
Construction	12.4	1.4	11.6	1.6	7.6	8.7
Manufacturing	2.0	1.6	5.2	2.3	3.4	4.7
Wholesale trade	1.3	1.4	2.6	1.3	4.4	5.4
Retail trade	4.5	10.0	6.2	6.5	4.8	5.2
Transportation and warehousing	8.3	1.3	6.4	1.5	7.4	6.2
Information and cultural industries	3.3	1.9	3.2	1.9	10.3	10.2
Finance and insurance	6.6	3.8	5.7	3.7	13.1	7.2
Real estate and rental and leasing	3.4	2.4	2.6	1.9	10.8	12.0
Professional, scientific and technical services	19.0	17.4	10.3	8.7	10.5	13.4
Management of companies and enterprises	0.2	0.1	0.1	0.1	4.0	4.6
Administrative and support, waste management and remediation services	10.6	13.4	5.7	6.3	9.5	17.2
Educational services	3.7	5.7	6.6	10.3	11.3	9.7
Health care and social assistance	6.5	20.2	6.9	23.0	13.3	11.7
Arts, entertainment and recreation	8.2	7.2	4.1	3.8	15.6	17.7
Accommodation and food services	1.2	1.4	3.3	3.5	4.9	4.3
Other services (except public administration)	8.2	12.7	4.7	9.6	9.7	20.1
Public administration	...	...	3.3	2.8	3.9	4.4

... not applicable

Notes: The total exceeds 100.0% for Columns 1 and 2, because some workers can be found in two or more categories. NAICS: North American Industry Classification System; CEEDD: Canadian Employer–Employee Dynamics Database.

Sources: Statistics Canada, authors' calculations based on data from the CEEDD and the CEEDD–Census computed for 2016.

A recent study found that much of the recent increase in independent contracting in the United States was driven by rapid growth in the transportation sector that can be directly linked to Uber and similar online platforms (Hall and Krueger 2018). The study sought insight into the role of Uber, Lyft and similar online platforms by looking into recent trends in gig work in NAICS industries that are particularly closely associated with them, such as taxi and limousine services (4853). There was a sharp increase in the share of gig workers in taxi and limousine services in the mid-2010s. Yet even in 2016, when the share of male gig workers in taxi and limousine services almost doubled compared with 2014, this share did not exceed 3% of all male gig workers.

6.2 Tax data linked to census microdata

From a researcher's point of view, one of the main drawbacks of tax data is the lack of information about the education and other aspects of human capital of individuals. It is important to measure the strength of the correlation between participating in gig work and formal education, immigrant status and main occupation. Over one-third of all male gig workers (36.0%) had a university degree, while a similar percentage of male gig workers had only a high school diploma or less (Table 2). However, university graduates were much more likely to be gig workers than other men. There was a particularly high prevalence of gig workers among men (13.7%) and women (16.5%) who held graduate degrees (master's degree and higher). In contrast, only 5.8% of men and 7.0% of women with a high school diploma or less were gig workers. It is likely that the proliferation of supply-driven crowdsourcing marketplaces such as Upwork and Freelancer has given highly specialized skilled workers (suppliers) a better opportunity to connect with potential employers

and leverage their human capital. However, despite the higher prevalence of gig workers among university graduates, more than one-third of all male gig workers and more than one-quarter of all female gig workers had only a high school diploma or less, and just over one-third of both male and female gig workers had a university degree.²⁵

Given the high prevalence of immigrants in the Canadian labour force, the involvement of immigrants in the gig economy is an important issue. An advantage of linking administrative data to census data is that census data can identify immigrant workers. Table 2 shows that the shares of gig workers were considerably higher among immigrants, especially recent immigrants, than among Canadian-born workers. More than one-third of all male gig workers were immigrants—a far larger share than the share of immigrants in the Canadian labour force (about 24% in 2016). Even immigrants who had been in Canada for 20 years or more were more likely to be identified as gig workers than Canadian-born workers. Among recent immigrants, immigrant men were more likely to be gig workers than immigrant women but the opposite was true for immigrants who had been in Canada for 20 years or more. Whether this is an assimilation (time) or composition (cohort) effect cannot be concluded. An interesting question for future research is whether gig work is a labour market stepping stone for recent immigrants that allows them to gain experience working in Canada that can be leveraged in their search for more traditional employment.

Finally, two occupational classifications identified in the 2016 Census data were considered.

The first classification is based on the broad categories derived from the National Occupational Classification (NOC) (Table 4, upper panel). According to this classification, 19.6% of male gig workers were individuals with main occupations as trades, transport and equipment operators and related occupations.²⁶ Female gig workers concentrated in sales and service occupations (22.1%) and occupations in education, law and social, community and government services (20.3%). However, the shares of gig workers among all workers were the highest among workers with main occupations in art, culture, recreation and sport (24.2% for men and 26.6% for women).

The second occupational classification is based on the NOC, but is more consistent with the highest aggregation level in the International Standard Classification of Occupations. It consists of 10 classes, of which the first 3 are homogeneous on skill level and the rest focus on skill type (Table 4, lower panel). According to this classification, 24.7% of all male gig workers were workers whose main occupations were professional. Among women, however, many gig workers (22.8%) were in personal and customer information services. The highest prevalence of gig workers was observed among men and women in professional and technical and paraprofessional occupations.

25. Despite the higher prevalence of gig work among graduate degree holders (most of whom are likely to be high income earners), Table 2 shows that workers in the upper quintiles of the income distribution were less likely to be gig workers than those in the lower income quintiles. This is because the overall share of graduate degree holders in the population is relatively low, so their influence on the prevalence of gig work in the higher income quintiles is low.

26. About 8.6% of male gig workers and 9.8% of female gig workers reported not working in either 2015 or 2016 in the census.

Table 4**Occupational distribution of gig workers in 2016 and the shares of gig workers among all workers**

	Percentage of gig workers		Share of all workers	
	Men	Women	Men	Women
	percent		share	
2016 NOC				
Unclassified – Did not work	8.6	9.8	6.0	7.9
0 – Management occupations	10.0	5.3	6.1	6.5
1 – Business, finance and administration occupations	10.8	17.0	9.4	7.5
2 – Natural and applied sciences and related occupations	7.5	1.8	5.7	5.8
3 – Health occupations	5.5	11.5	16.6	10.3
4 – Occupations in education, law and social, community and government services	8.8	20.3	9.5	12.3
5 – Occupations in art, culture, recreation and sport	8.1	9.1	24.2	26.6
6 – Sales and service occupations	16.2	22.1	6.7	8.3
7 – Trades, transport and equipment operators and related occupations	19.6	1.3	6.0	7.3
8 – Natural resources, agriculture and related production occupations	2.5	0.7	5.6	8.1
9 – Occupations in manufacturing and utilities	2.4	1.0	3.1	3.7
Statistics Canada classification (related to ISCO)				
Unclassified (did not work)	8.6	9.8	6.0	7.9
Management	10.0	5.3	6.1	6.5
Professional	24.7	24.4	12.2	12.0
Technical and paraprofessional	10.2	14.8	8.8	13.3
Administration and administrative support	5.0	13.3	6.6	7.1
Sales	7.3	6.5	7.1	5.9
Personal and customer information services	9.7	22.8	6.4	10.3
Industrial, construction and equipment operation	10.2	0.5	5.7	8.9
Workers and labourers	9.4	0.8	6.4	6.6
Natural resources, agriculture, etc.	2.5	0.7	5.6	8.1
Occupations in manufacturing and utilities	2.4	1.0	3.1	3.7

Note: NOC: North American Occupational Classification; ISCO: International Standard Classification of Occupants.

Sources: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database (CEEDD) and the CEEDD–Census computed for 2016.

7 Conclusions

This study found that from 2005 to 2016, the percentage of gig workers in Canada generally rose from 5.5% to 8.2%. The increase was observed for both men (from 4.8% to 7.2%) and women (from 6.2% to 9.1%). The increase was driven by the growth in both the percentage of gig workers who earned no wage or salary (T4 income) and the percentage of gig workers who combined gig work with a wage or salary.

The results indicate that the annual income of a typical gig worker is usually low: the median net gig income was only \$4,303 in 2016. Workers in the bottom 40% of the annual income distribution were about twice as likely to be involved in gig work as other workers. For most gig workers, gig work is only a temporary activity. Roughly half of the people who enter gig work in a given year have no gig income the next year. However, a non-negligible share of gig work entrants—about one-quarter—remain gig workers for three or more years.

Workers whose main occupations are in arts, entertainment and recreation were about four times more likely to be gig workers than workers whose main occupations are in management of companies and enterprises. Workers whose main occupations are in manufacturing and utilities were least likely to be gig workers. This study also found that gig work was more prevalent among immigrants than among Canadian-born people. In fact, 10.8% of male immigrant workers who had been in Canada for less than five years were gig workers in 2016, compared with 6.1% of male Canadian-born workers.

The main methodological advantage of this study is that it is based on a clear conceptual framework that applies specifically to tax data. However, the methodological approach taken in this study is not without limitations. Admittedly, this approach is unlikely to capture activities such as occasional babysitting, dog walking, lawn mowing or similar informal activities usually settled between family members, friends and neighbours.²⁷ These activities have always been part of daily life, but are not usually considered labour market activities, and are therefore a lesser priority for researchers interested in labour market dynamics.

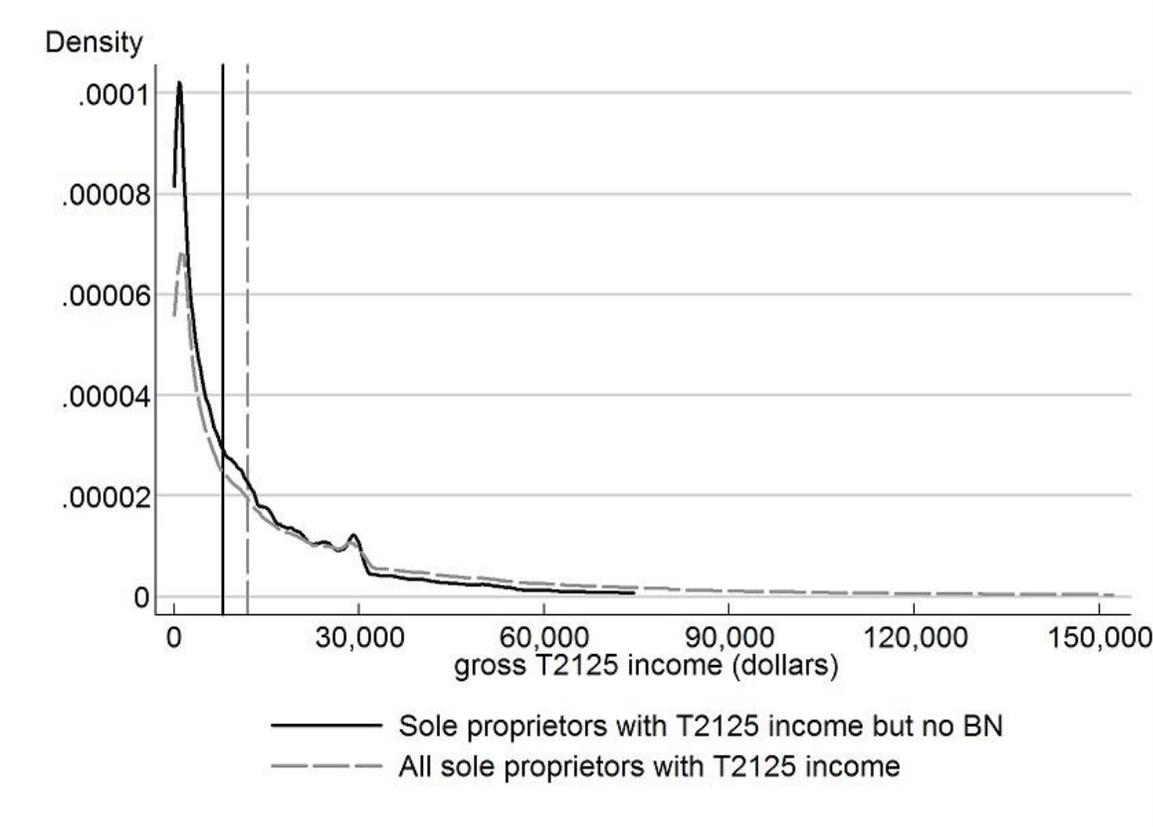
Finally, an additional benefit of identifying gig workers using administrative data is that the data sources used in this study, such as individual and corporate tax data, will remain available with regular frequency in the future, therefore allowing the gig economy to be measured consistently over time in Canada. Consistency is essential for an accurate view of the evolution of the gig economy in Canada. Future research efforts will likely concentrate on how gig work is related to individuals' career paths, their efforts to balance work and family, and older workers' transitions to retirement.

27. According to a recent Canadian study based on data from the Canadian Survey of Consumer Expectations, about 30% of respondents reported that they participated in some form of paid informal activity. However, when those who participated in such activities for fun were excluded, the share dropped to 18% (Kostyshyna and Luu 2019). The measure of gig work used by Kostyshyna and Luu (2019) includes babysitting, house-sitting, dog walking, lawn care and housecleaning, of which housecleaning was the most frequently mentioned activity (9.2% of respondents).

Appendix

Figures

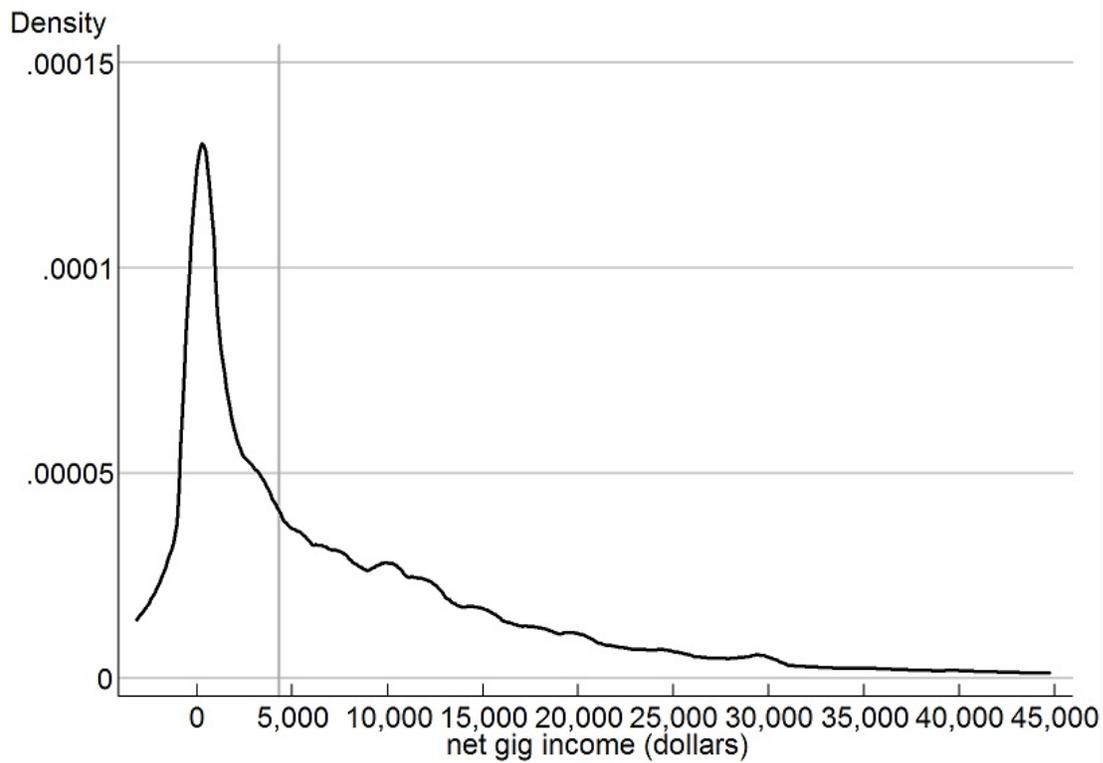
Figure 1
Estimated kernel density of the gross T2125 income, sole proprietors, 2016



Note: The vertical lines correspond to the median incomes. To avoid long tails, the graph shows only the distribution for incomes between the 5th and 95th percentiles. BN: business number.

Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

Figure 2
Estimated kernel density of the net gig income, 2016

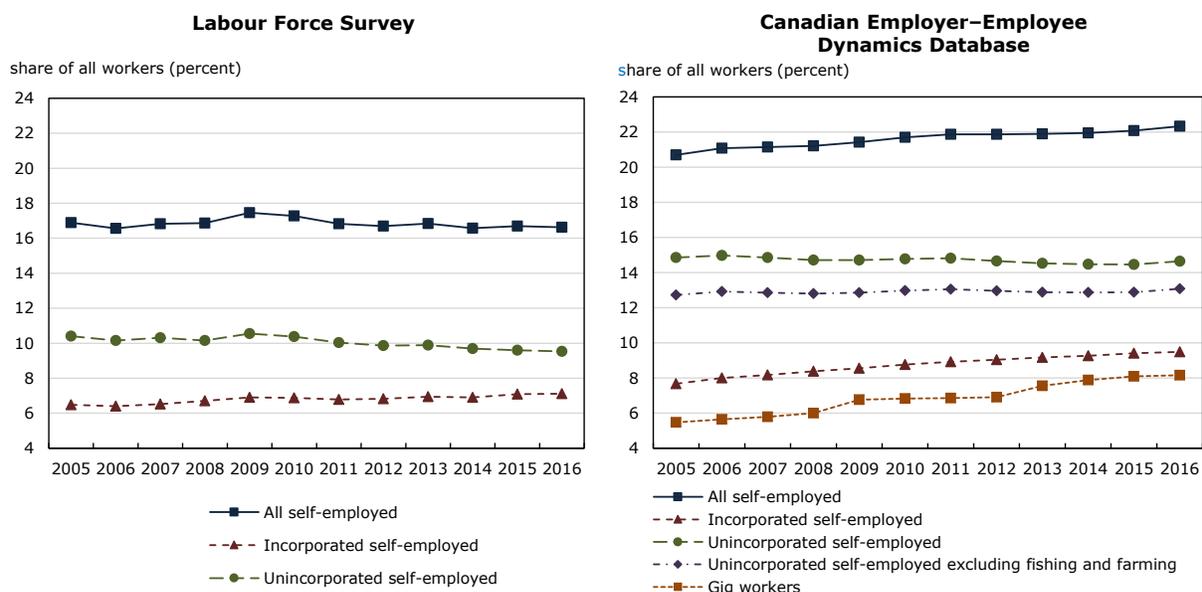


Note: The vertical line corresponds to the median net gig income (\$4,303). To avoid long tails, the graph shows only the distribution for incomes between the 5th and 95th percentiles.

Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

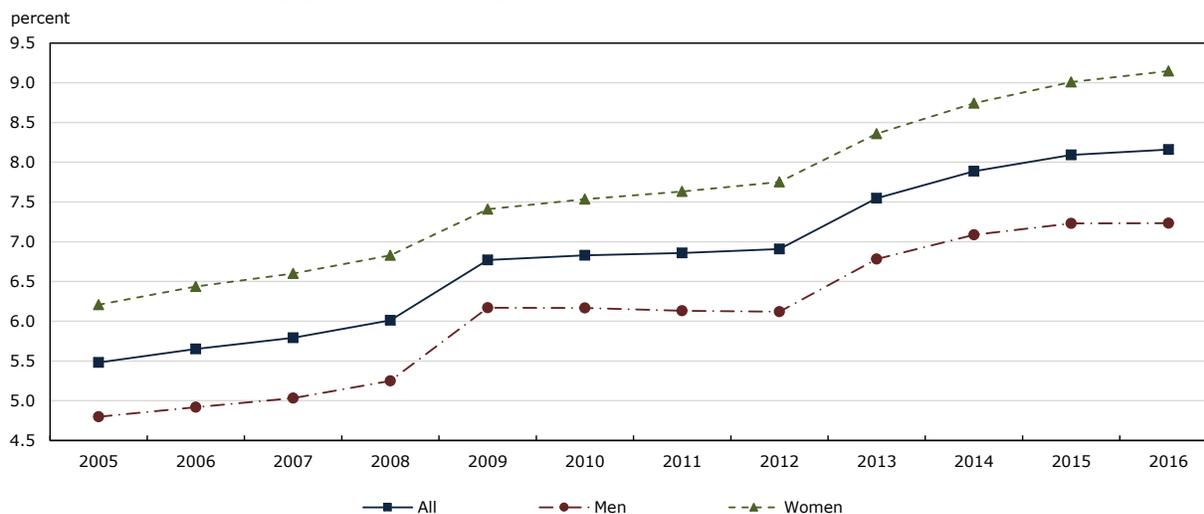
Charts

Chart 1
Changes in the shares of self-employed workers aged 15 or older in survey and administrative data, 2005 to 2016



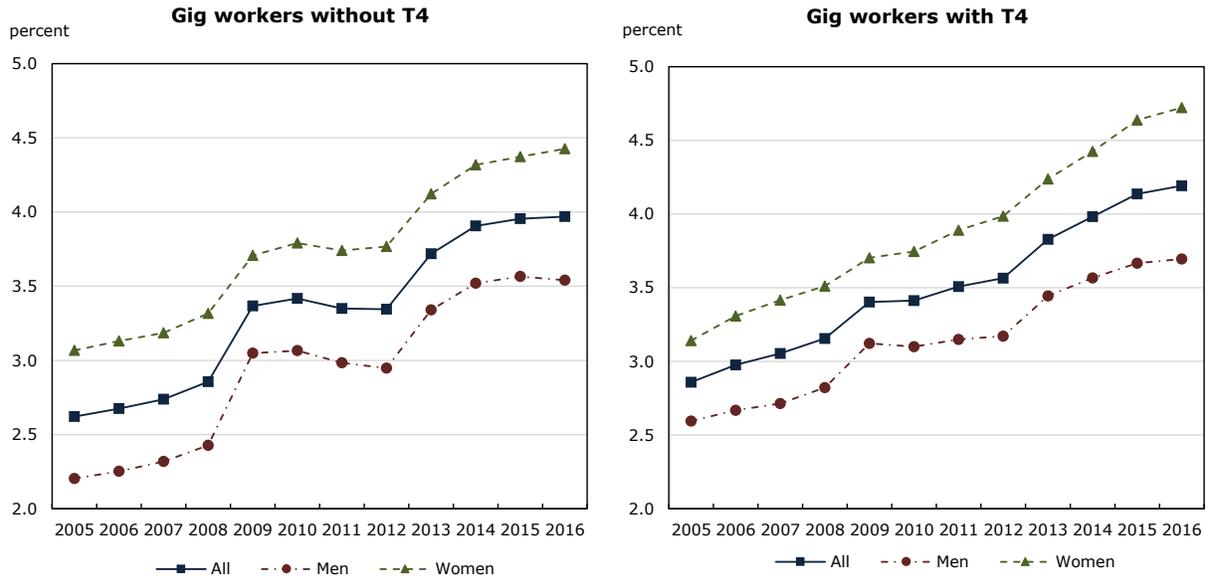
Sources: Statistics Canada, authors' calculations based on data from the Labour Force Survey and the Canadian Employer-Employee Dynamics Database.

Chart 2
Trends in the share of gig workers among all workers, by sex, 2005 to 2016



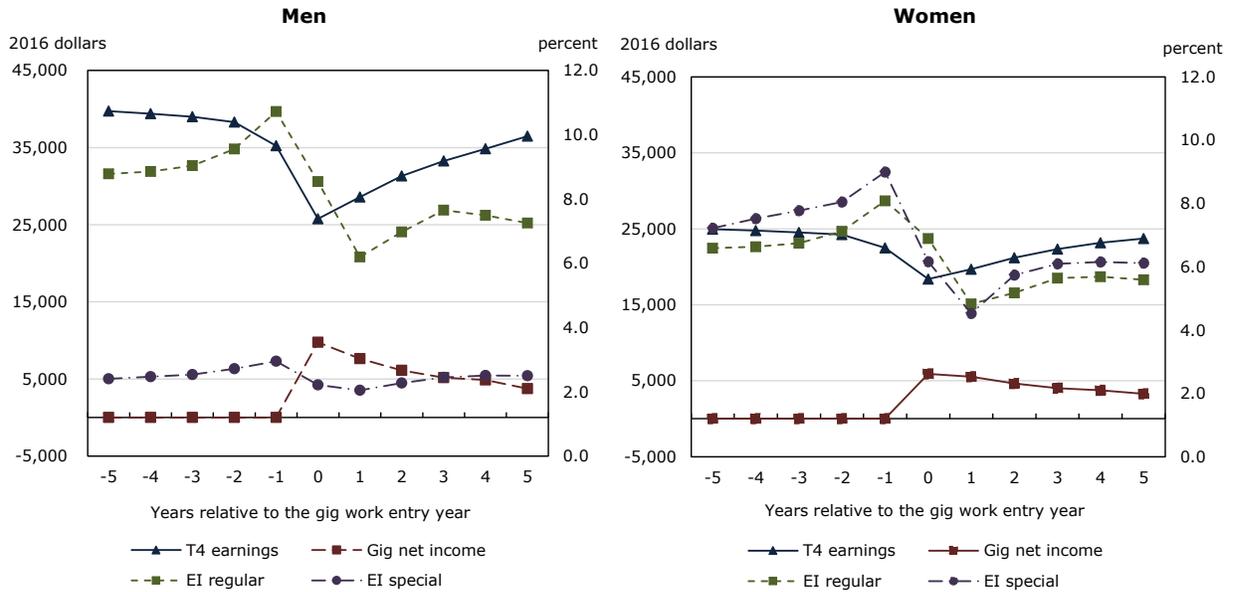
Source: Statistics Canada, authors' calculations based on data from the Canadian Employer-Employee Dynamics Database.

Chart 3
Trends in the shares of gig workers with and without wage employment earnings, 2005 to 2016



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

Chart 4
T4 earnings and employment insurance benefits around the time of entry into gig work

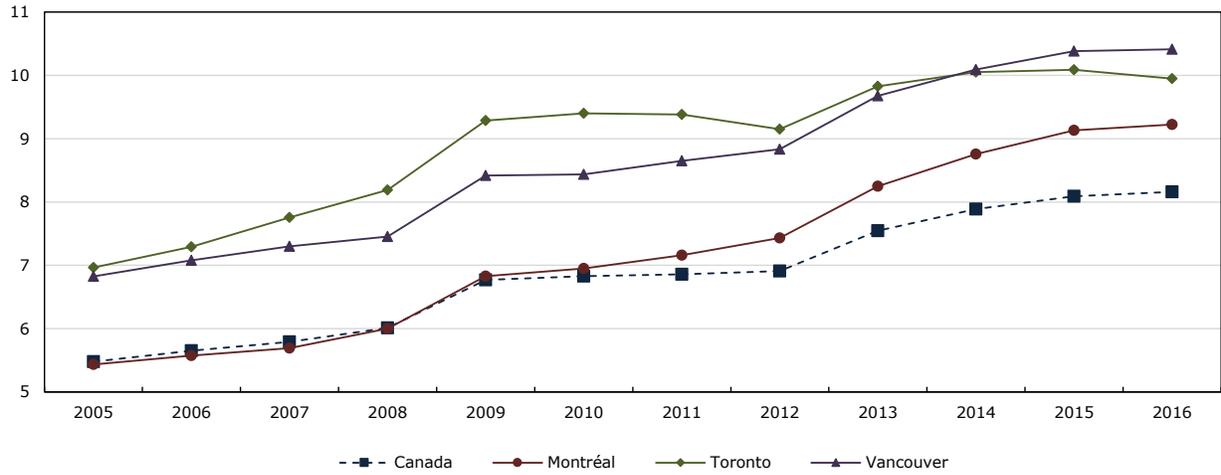


Note: EI: employment insurance.

Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

Chart 5
Trends in the share of gig workers, Canada and census metropolitan areas, 2005 to 2016

percent



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

References

- Abraham, K.G., J.C. Haltiwanger, K. Sandusky, and J.R. Spletzer. 2018. *Measuring the Gig Economy: Current Knowledge and Open Issues*. NBER Working Paper Series, no. 24950. Cambridge, Massachusetts: National Bureau of Economic Research.
- Bajwa, U., L. Knorr, E. Di Ruggiero, D. Gastaldo, and A. Zendel. 2018. *Towards an Understanding of Workers' Experiences in the Global Gig Economy*. Global Migration & Health Initiative.
- Block, S., and T. Hennessy. 2017. "Sharing Economy" or On Demand Service Economy? Canadian Centre for Policy Alternatives.
- Collins, B., A. Garin, E. Jackson, D. Koustas, and M. Payne. 2019. *Has the Gig Economy Replaced Traditional Jobs Over the Last Two Decades? Evidence from Tax Returns*. Working paper.
- CTV News Online. 2014. Uber ride share: taxi or tech company? <https://www.ctvnews.ca/business/uber-ride-share-taxi-or-tech-company-1.2044508>. CTV News online. Accessed: November 18, 2019.
- Green, D., H. Liu, Y. Ostrovsky, and G. Picot. 2016. *Immigration, Business Ownership and Employment in Canada*. Analytical Studies Branch Research Paper Series, no. 375. Statistics Canada Catalogue no. 11F0019M. Ottawa: Statistics Canada.
- Grekou, D., and H. Liu. 2018. *The Entry into and Exit out of Self-employment and Business Ownership in Canada*. Analytical Studies Branch Research Paper Series, no. 407. Statistics Canada Catalogue no. 11F0019M. Ottawa: Statistics Canada.
- Hall, J.V., and A.B. Krueger. 2018. "An analysis of the labor market for Uber's driver-partners in the United States." *ILR Review* 71 (3): 705-732.
- Jeon, S.-H., and Y. Ostrovsky. 2019. "Balancing family and work: Transitions to self-employment among new mothers." *Oxford Economic Papers* 71 (1): 47–72.
- Katz, L.F., and A.B. Krueger. 2016. *The Rise and Nature of Alternative Work Arrangements in the United States, 1995–2015*. NBER Working Paper Series, no. 22667. Cambridge, Massachusetts: National Bureau of Economic Research.
- Katz, L.F., and A.B. Krueger. 2019. *Understanding Trends in Alternative Work Arrangements in the United States*. NBER Working Paper Series, no. 25425. Cambridge, Massachusetts: National Bureau of Economic Research.
- Kostyshyna, O., and C. Luu. 2019. *The Size and Characteristics of Informal ("Gig") Work in Canada*. Canadian Economic Analysis Department, Staff Analytical Note 2019-6. Ottawa: Bank of Canada.
- Koustas, D. 2019. "What do big data tell us about why people take gig economy jobs?" *AEA Papers and Proceedings* 109 (2): 367–371.
- Oxford Music Online. 2002. Gig. <https://www.oxfordmusiconline.com/search?q=gig&searchBtn=Search&isQuickSearch=true>. Accessed: November 18, 2019.
- Saez, E. 2010. "Do taxpayers bunch at kink points?" *American Economic Journal: Economic Policy* 2 (3): 180–212.

Statistics Canada. 2011. *Methodology for the Processing and Estimation of Unincorporated Businesses (T1)*. Ottawa: Statistics Canada. Internal report.

Statistics Canada. 2017. "The sharing economy in Canada." *The Daily*. February 28. Statistics Canada Catalogue no. 11-001-X.

Yssaad, L., and V. Ferrao. 2019. "Self-employed Canadians: Who and why?" *Labour Statistics at a Glance*. Statistics Canada Catalogue, no. 71-222-X. Ottawa: Statistics Canada.