



Measurement of the Self-employed in Singapore

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Abstract

The COVID-19 pandemic has changed the way we view the concept of work. As digitalization accelerates and industries get disrupted, a rising trend of the gig economy has emerged in recent years. In Singapore, the number of gig workers has increased substantially, especially since the pandemic started. It is therefore important to compile accurate statistics of the self-employed to develop policies that protect their employment rights and enhance their retirement adequacy. Singapore is in a unique situation whereby there are various regulatory bodies that regulate the common self-employed occupations, and many of such gig workers need to obtain licenses before they can commence work. For the less regulated occupations, web scrapping techniques have been utilized in order to get a sense of their numbers. In addition, self-employed residents in Singapore have to contribute part of their income to the Central Provident Fund, which is a compulsory savings scheme. Hence, there is a wealth of administrative data available which we are able to tap on to supplement our Labour Force Surveys, which is the main source of self-employed statistics. Questions in the Labour Force Survey have also been expanded to cover the qualitative aspects of the gig workers, such as their motivations and working conditions. Through a comprehensive suite of quantitative and qualitative measures, Singapore is able to obtain an accurate profile of the self-employed for policy review and development. The paper discusses how the self-employed pool is measured in Singapore, the advantages and limitations of these methods, and how technological advances are able to improve the measurement of the gig economy in future.

Section I: Introduction

The number of self-employed workers has increased over recent years, as technology has helped enable a growing group of gig workers find work in today's employment landscape. Policymakers around the world are taking an active view on their rise, as they traditionally do not operate like the majority of the workforce, which are made up of employees. Yet the gig workers provide an important source of goods and services to the population and contribute to the country's economic growth and output. Therefore, it is important to identify and measure the self-employed pool so that their economic contributions can be recognized and adequately measured. As many of them are working on a freelance basis and do not fall under traditional employment laws, policies can be developed to protect their working rights and provide an adequate financial safety net.

Statisticians around the world recognize the challenges in measuring the self-employed and policymakers seek to obtain up-to-date information so that they can develop policies to cater to this growing group. There is currently no one-size-fits-all method for measuring the self-employed, though there are similarities across different countries. For example, the labour force surveys are still a commonly-used tool for measurement. However, as the employment landscape becomes more complex, it is difficult to solely rely on traditional methods for measurement. Many countries have started to collect data beyond surveys, but the availability of data from other sources is a limiting factor for different countries. Singapore uses a combination of survey and administrative data sources to compile official statistics on the self-employed. In this paper, we will focus on the measurement of the self-employed in Singapore's context, where it can also be tweaked and generalized to a wider international community.

Section II: Definition

Before measuring the number of self-employed, we need to know how to define and identify a self-employed person. It has become increasingly difficult to have a standardized definition as the nature of work evolves and the lines across various forms of work become blurred. In general, the self-employed are divided into (i) employers, (ii) own account workers, (iii) contributing family workers and (iv) members of producers' cooperatives.

As a form of distinction, the self-employed are persons who perform work for others under a contract of service. In a contract for service, an independent contractor is engaged for a fee to work on a project. This contrasts with a contract of service, which is an agreement between an employer and employee.

The main differences are summarized in the table below.

Contract of service	Contract for service
Has an employer-employee relationship	Has a client-contractor relationship
Employee does business for the employer	Contractor carries out business on their own account
May be covered by employment laws	Not covered by employment laws
Includes terms of employment such as working hours, leave benefits, etc	Statutory benefits are not applicable

(i) Employers

An employer refers to a person operating a business whether wholly or partially owned by him/her and employs at least one paid employee to assist in the operation. Employers can operate as a company, sole proprietorship or partnership. The key difference between an employer and other types of self-employed is that an employer hires at least one paid employee.

(ii) Own account workers

These workers operate their own business or trade without employing any paid worker in the conduct of their business or trade. Their numbers have been steadily growing in recent years, partly due to the rise of the gig economy and the availability of digital platforms to find work. In a gig economy, people typically work for themselves under temporary, flexible jobs instead of working for others under a fixed employment contract. They provide goods and services to companies or consumers in return for compensation.

(iii) Contributing family workers

These workers hold a self-employment job in a market-oriented establishment operated by a related person living in the same household. They typically do not spend as much working time and do not receive regular wages. They are not to be counted as partners or employees as they do not have an explicit employment contract. Many of the contributing family workers also tend to be retirees, homemakers or students who work when they have free time.

(iv) Members of producers' cooperatives

These people hold a self-employment job in an establishment organized as a cooperative, in which each member takes part on an equal footing with other members in determining the organization of production, sales, investments and distribution of the proceeds among the members. There are also other types of cooperatives such as consumers' cooperatives and worker cooperatives that may fall into other categories, so it is crucial not to wrongly classify or double count the number of self-employed.

In Singapore, producers' cooperatives are uncommon and hence the number of members of producers' cooperatives is negligible.

Gig workers

The term "gig workers" has gained popularity in recent years, as they refer to people who work in temporary jobs as an independent contractor or freelancer. The evolution of the nature of work has caused society and individuals to view employment as a less permanent feature and become more flexible and dynamic. In many gig jobs, workers do not need to be physically stationed at a workplace and working hours are decided at the discretion of the worker. It is a proposition that is enticing for many of the younger adults. Many digital platforms are also set up to cater to this growing trend, where workers perform various freelance jobs and are paid on an ad-hoc basis. There is also a shift in employers' mindset, where they can tap onto the pool of gig workers instead of hiring permanent employees.

Section III: Measurement

In this section, we explore the measurement of the different types of self-employed through a variety of data sources.

Data on self-employed persons are typically collected via household surveys such as labour force surveys. However, these are largely self-reported and they can be confusing for the respondent as they might not understand the statistical definitions and hence not provide accurate information. As such, administrative data and big data can be used as alternatives or to act as supplements to fill in any gaps in survey data.

Labour Force Surveys

Surveys are still the main source of information for measuring self-employed, and in particular labour force surveys. However, the reliance on labour force surveys has been reduced in recent years, especially with technological advances and the increasing availability of administrative data. Accurate collection of data through surveys depends largely on the understanding of definitions by both respondents and interviewers. The questionnaire has to be designed to be simple and intuitive. Questions and options are kept short and succinct and technical jargon is avoided. Online survey forms are utilised instead of hardcopy forms as they better facilitate data collection. Tooltips and help windows are incorporated into the online questionnaire that provide the definition of the various options. As such, respondents are able to read and comprehend the definitions before answering the questions. For phone and face-to-face interviews, interviewers are trained to ask the relevant questions and provide prompts where necessary. This is made easier as interviewers have access to the online survey system through their mobile devices, so they can follow through the survey flow specially designed for them. These are not only applicable to questions pertaining to the self-employed but all questions in general.

While participating in the surveys, there are validation rules and question prompts put in place to ascertain that the respondent has provided information that is as accurate as possible. These are built into the online survey system so that respondents can rectify the information on the spot when they participate in the survey online. Interviewers would also verify survey information with the respondents directly when the mode of survey is either through phone or face-to-face interviews. After the survey is completed, an additional layer of checks is conducted to flag out any errors that might have been missed out during data collection. As a follow-up, sometimes respondents are re-contacted to provide the correct information. These two layers of data validation help to minimize the number of inaccuracies and inconsistencies in survey data.

Administrative Sources

Compared to survey data, administrative data is typically more accessible and do not require as much time and resources to obtain. However, administrative data typically exist to serve a different purpose other than the main scope of the survey. Nevertheless, it is still a useful source of information that can provide insights to the government.

In Singapore, there are various administrative sources pertaining to the self-employed. These records can be from government organisations or private entities who maintain a database of these groups of workers. There are also regulatory bodies that help to regulate the group of workers in the industry, hence they have various information pertaining to its workers.

Central Provident Fund

The Central Provident Fund (CPF) is a key pillar of Singapore's social security system. CPF helps Singapore residents set aside funds to build a strong foundation for retirement. As they work, residents have to make CPF contributions to their CPF account. Employers have to make contributions to their employees' CPF account too. As such, CPF records contain a large database of all employees and their CPF contributions. Even for the self-employed, they have to make contributions to the Medisave component of their CPF account. As such, we would have the overall count of the self-employed but not all their job details such as occupation, industry and company.

The CPF records contain more job-specific information on employees than the self-employed, due to the way CPF contributions are mandated. Therefore, greater efforts would be required to obtain more detailed information on the self-employed through other means.

Sole Proprietorships and Partnerships

All employers have to register their businesses in Singapore with the Accounting and Corporate Regulatory Authority (ACRA). With ACRA records, we can identify survey respondents who are potentially employers. This is especially useful for identifying sole proprietorships and partnerships, who are generally individuals and part of the survey sample. However, the drawback is that there are some sole proprietorships or partnerships that have closed down or are dormant, and ACRA records may not reflect up-to-date information. Hence, additional verification work has to be done to ascertain the active employers.

The following are some of the common self-employed occupations in Singapore. They are regulated by different regulatory bodies and the administrative records from these regulatory bodies are acquired under the Statistics Act to obtain first-level information of these occupations.

Taxi drivers

To work as a taxi driver, one has to obtain a Taxi Driver's Vocational License (TDVL) first. This is issued by the Land Transport Authority (LTA) and involves passing a test and undergoing a medical check-up to ensure that the individual is qualified to be a taxi driver. As such, the government agency LTA has up-to-date records of individuals who have such licenses.

Private hire car drivers

Similarly, to work as a private hire car driver, one has to obtain a Private Hire Car Driver's Vocational License (PDVL) first. Therefore, the government has access to records of individuals with PDVLs.

Real estate agents

The Council for Estate Agencies (CEA) administers licenses for individuals who want to be real estate agents. They also regulate and control the practice of the agents in real estate transactions. As such, the CEA has a database of all real estate agents in Singapore.

Insurance agents

To be an insurance agent, one has to be registered with the Agents' Registration Board (ARB) through the principal insurers that they wish to represent. The ARB has records of all registered insurance agents in Singapore.

Hawkers

Before being a hawker, one has to bid for a hawker stall first. When the tender bid is successful, the person has to complete the Basic Food Hygiene Course (BFHC) and apply for a hawker's license. The National Environment Agency (NEA) is the agency that assesses the bids and issues these licenses and hence has the records of all hawkers in Singapore.

Limitations

There are some limitations of using these administrative records. One such limitation is that there are individuals with licenses who do not actively practise the trade. For example, someone who has a taxi-driver license could be working as an employee in another company and not be driving a taxi. The individual could also be retired and not part of the labour force. The latter scenario is harder to ascertain as there are no current CPF records of the individual.

Nevertheless, the number of individual records in administrative databases serve as an upper bound for the number of self-employed in that occupation. For instance, the number of taxi-drivers cannot exceed the number of active taxi driver licenses.

Pre-population of administrative data

The value of administrative data comes to the fore when it is used as a precursor to survey data collection. Data from various administrative sources are extracted and matched with the survey sample. This provides certain information about the survey respondents before the survey is launched. The information is pre-populated into the survey system and respondents only need to provide information that is not pre-populated. If the pre-populated information is inaccurate or outdated, respondents can update the information in the survey system and the most up-to-date information is reflected.

Pre-population of data reduces respondent burden and decreases the time and resources used to collect the information. With increasing data needs from the government and policymakers, the number of surveys and data items collected have been increasing over the years. Therefore, initiatives to reduce survey burden from public respondents would be beneficial. The cost of conducting surveys would also be reduced accordingly as manpower costs are reduced.

For the self-employed and gig workers in particular, the administrative data acquired from the various regulatory agencies would be pre-populated as well. This would provide a sensing of the respondents that are potentially gig workers and the survey questions are customized according to each respondent. If the respondent has an appropriate license, further questions are asked such as whether they are practising the trade followed by questions on income and working hours. On the other hand, if a respondent does not appear in the records, we can eliminate the corresponding occupations as a possible survey response.

Web scraping data

Web scraping is useful in identifying the different types of jobs in the gig economy. Due to the dynamic and transient nature of these jobs, the respective occupations and industries can be difficult to classify. Many freelance jobs are posted online by companies and individuals and so we are able to employ web scraping techniques to extract data from the web, especially from job portals. Digital applications also contain similar information, although they can be harder to extract. With knowledge of the freelance jobs, we are able to fine-tune the data collection process to obtain more targeted information. The survey questionnaires can be customized to include these jobs and more accurate job classification can be done backend. Although it is difficult to measure the number of gig workers through these means, we are able to estimate the job openings available. This would give a sense of the jobs that are in demand and out of demand, so that the questionnaires can be designed according to these trends.

Section IV: Computation

Based on the labour force survey, we are able to estimate the number of self-employed workers in the economy. It is the summation of the four different types of self-employed defined earlier, aggregated up to the population level. To estimate the number of gig workers, it would depend on the scope of its definition. A simple and convenient proxy would be to use the number of own account workers in the economy.

The labour force survey only captures people with self-employed jobs as their primary job, where they typically spend the most hours on. There are people who take on self-employed and contract jobs as their secondary jobs, often working on a part-time basis as a means to earn additional income. Hence, the number of people working in gig jobs is sometimes underestimated. To have a better sense of the size of the gig economy, we have a supplementary survey to capture workers who engage in some form of contract or gig work, regardless of whether it is their primary job. This includes many freelance jobs, where people go to digital platforms to search for work to do on an ad-hoc basis. Depending on the policy purpose and needs, different measures can be used to understand the state of the gig economy in the country.

Being more widespread in recent years, administrative data is able to supplement or augment survey data, and can even replace survey data, depending on the quality of the source. Putting the two together, we are able to have more robust statistics on the self-employed.

Section V: Conclusion

The pool of self-employed remain an integral part of the workforce and policies are also needed to help this group. Methods to estimate the number of self-employed in an economy are constantly evolving. With advances in technology and survey methods, data collection can be more efficient. Survey data, administrative data and even big data can be used in conjunction with each other to paint an accurate representation of the economy.

With so many different data sources, it is sometimes easier for a central body to have a consolidated database of the self-employed. A central authority can be empowered to protect the integrity of the data and to use it ethically for the benefit of the country as a whole. Having a regulated industry can have a side benefit of having access to more data on hand, although imposing too many barriers or controls could stifle the viability of the business. It is a balancing act for governments to deal with, but as long as the data is put to good use, the benefits for policy-making can far outweigh the costs.