Volume LVIII Nos. 1 and 2

ISSN 1655-1516
June and December 2021

The Philippine Review of Economics

SPECIAL ISSUE ON THE COVID-19 PANDEMIC

ARTICLES IN THIS ISSUE

A joint publication of the
University of the Philippines School of Economics
and the **Philippine Economic Society**

The Philippine Review of Economics
58(1&2):92-127. DOI:10.37907/5ERP1202JD

Measuring the telework potential of jobs: evidence from the International Standard Classification of Occupations

Ian Nicole A. Generalao*
University of the Philippines

The coronavirus disease (COVID-19) pandemic has triggered and accelerated the shift of firms and businesses to adopt flexible alternative work arrangements such as teleworking or working from home (WFH) set-ups. To effectively transition to the 'new normal' of work, this paper measures the telework potential of jobs or the degree to which a job can be feasibly done at home or offsite. Using the task-based framework, this paper constructs continuous 'teleworkability' indices by implementing a classification process of the occupational tasks listed in the International Standard Classification of Occupations 2008 (ISCO-08) and based on the telework indicators in the literature. The correlates of these indices are estimated. Also, the indices are applied to Philippine occupations. The primary contribution of this paper is the set of 'teleworkability' indices for all 427 occupations (4-digit ISCO) to describe the telework potential of jobs in countries which pattern their local occupational codes to ISCO-08.

JEL classification: J22, J21, J20
Keywords: telework, work arrangements, tasks, occupations, labor market

1. Introduction

The coronavirus disease (COVID-19) pandemic has had unprecedented social and economic impacts worldwide — disrupting international and domestic labor markets, disproportionately affecting certain industries and vulnerable workers, resulting in workplace closures, significant declines in working-hours and labor income losses. To stem its transmission in workplaces [Lan et al. 2020], governments have implemented stringent workplace closures [ILO 2020a], which triggered and accelerated the shift of firms and businesses to adopt flexible alternative work arrangements such as teleworking or working from home (WFH) set-ups. Teleworking or telecommuting refers to a flexible work arrangement, wherein a worker performs his duties and responsibilities, and other authorized activities, from an approved

* Address all correspondence to iageneralao@up.edu.ph.

alternative worksite (e.g., home, telework center) with the use of telecommunication and computer technologies [Republic Act No. 11165 or the Telecommuting Act].

Technological advances brought about by digitalization and the advent of the fourth industrial revolution, coupled with COVID-19, have transformed the nature of work by changing how specific tasks of occupations are performed. Unlike the traditional human capital models, the task-based framework treats occupations or jobs as bundles of tasks rather than as discrete categories, wherein a particular task may be performed by domestic labor, foreign labor (through offshoring), or capital in a workplace (onsite or offsite), according to the usual efficiency criteria. Some of its applications include the analyses of the implications of automation, offshoring, and immigration on employment, skill transferability, and returns to task-specific skills [Generalao 2019]. The framework also implies that some of the tasks of an occupation, which was generally perceived to be impossible to be done at home or offsite, can be performed offsite or at home. For instance, being a doctor has been usually categorized and recognized as an occupation which has always been done on-site or in a medical facility. But to limit the transmission of COVID-19, there have been reports that some of the tasks performed by doctors, such as consulting and prescribing medicines, have been increasingly done offsite [Department of Health 2020]. Given the intricacies and dynamics of the evolving labor market, there is merit to go beyond conventional understanding of occupations and human capital.

Since the peak of the COVID-19 transmission in the first quarter of 2020, burgeoning literature on identifying which jobs are 'teleworkable' or feasible to be done at home or offsite can be observed in the context of different country and development contexts. This is a testament to the growing interest among researchers and policymakers in exploring the plausibility of jobs to be done at home to effectively transition to the 'new normal' of work. Specifically, most studies involve classifying which jobs are 'teleworkable' or not, while relatively few measure the telework potential of a job or the degree to which it can be feasibly done at home or offsite. This is an important step needed to be undertaken to effectively transition to the 'new normal' of work and formulate policies that enable a safe and alternative work environment.

2. Telework literature

Most telework literature are in the context of individual countries such as in the United States (Dingel and Neiman [2020]; Mongey et al. [2020]; Hensvik et al. [2020]; Leibovici et al. [2020]); United Kingdom [British Office for National Statistics 2020]; Norway [Holgersen et al. 2020]; Argentina [Foschiatti and Gasparini 2020]; Portugal [Martins 2020]; Uruguay [Guntin 2020]; Philippines [Gaduena et al. 2020]) while some analyze multiple countries (ILO [2020b]; Sanchez et al. [2020]; Brussevich et al. [2020]; Gottlieb et al. [2020]; Hatayama et al. [2020]; Boeri et al. [2020]). Each study used a unique set of datasets to classify

a job as 'teleworkable' and to estimate the number of workers in these jobs (Table 1). The commonly used datasets are Occupational Information Network (O*NET), Programme for the International Assessment of Adult Competencies (PIAAC), Skills Towards Employability and Productivity (STEP), American Time Use Survey (ATUS), and household and labor force surveys.

TABLE 1. Summary of telework literature by country/ies and datasets used

Literature	Country/ Countries	Datasets used
Dingel and Neiman [2020]	United States	O*NET
Mongey et al. [2020]	United States	Current Population Survey (CPS);
		Panel Study of Income Dynamics (PSID);
		O*NET;
		American Time Use Survey
Hensvik et al. [2020]	United States	American Time Use Survey
Leibovici et al. [2020]	United States	American Community Survey;
		O*NET
Office for National Statistics [2020]	United Kingdom	Annual Population Survey
Holgersen et al. [2020]	Norway	ISCO-08
Foschiatti and Gasparini [2020]	Argentina	O*NET;
		Permanent Household Survey
Martins [2020]	Portugal	Personnel Tables
Guntin [2020]	Uruguay	O*NET;
		Continuous Household Survey
Gaduena et al. [2020]	Philippines	Merged Family Income and Expenditure Survey (FIES) and Labor Force Survey (LFS) data;
		O*NET
ILO [2020]	118 countries	Labor force surveys
Brussevich et al. [2020]	35 countries	Occupation-level classification of feasibility of working from home derived by Dingel and Neiman [2020] for the US;
		Individual-level data from the OECD's Programme for the International Assessment of Adult Competencies (PIAAC)
Sanchez et al. [2020]	107 countries	Occupational-level data for 107 countries from the ILO;
		Individual-level data from labor force surveys
Gottlieb et al. [2020]	57 countries	Labor force and household surveys

TABLE 1. Summary of telework literature by country/ies and datasets used (continued)

Literature	Country/ Countries	Datasets used
Hatayama et al. [2020]	53 countries	Surveys of Adult Skills of Programme for the International Assessment of Adult Competencies (PIAAC);
		STEP (Skills Towards Employability and Productivity);
		Labor Market Panel Surveys (LMPS)
Boeri et al. [2020]	Various European countries (Italy, France, Germany, Spain, Sweden, UK)	O*NET;
		Survey of the Italian Statistical Office and National Institute for Public Policy Analysis (INAPP)

Source: Author's compilation.

The most commonly cited and adopted 'telework' or WFH measure is the binary classification of US occupations by Dingel and Neiman [2020]. It has been applied by Sanchez et al. [2020], Brussevich et al. [2020], Gottlieb et al. [2020], Boeri et al. [2020], Foschiatti and Gasparini [2020], Guntin [2020], and Gaduena et al. [2020] in different country and regional contexts. The primary data sources Dingel and Neiman [2020] used are the "Work Context" and "Generalized Work Activities" surveys of the O*NET. If at least one of the following selected conditions in the surveys are met, then the job is not feasible to be done at home. The conditions in the "Work Context" survey include working outdoors every day, weekly exposure to diseases, infections, burns, etc., infrequent email usage, requires walking and running. On the other hand, the conditions in the "Generalized Work Activities" survey are performance of physical activities, operating, maintaining and repairing vehicles, mechanized devices, or equipment are working with the public. They classified an O*NET US occupation as either feasible to be done at home or not and combined these with information from the US Bureau of Labor Statistics (BLS) on the aggregate frequency of these occupations and their corresponding area and industry codes. They found that the 37 percent of US jobs can be plausibly performed at home to significantly vary across cities and industries. They also employed an alternative classification scheme, which manually assigns an occupation values of 0, 0.5 or 1 based on introspection. This alternative measure estimated that approximately 32 percent of all US jobs can be performed almost entirely at home.

Hatayama et al. [2020] constructed a continuous WFH index of occupations in 53 countries using multiple datasets, which are the Surveys of Adult Skills of the PIAAC of Organization for Economic Co-operation and Development (OECD), STEP of World Bank, and Labor Market Panel Surveys (LMPS). In their

classification process, they used four task indices which are related to manual, face to face, information and communication technology (ICT) use and internet connection. However, contrary to the methodology of Dingel and Neiman [2020], they did not use the classification criterion of at least one sufficient condition but instead argue that the more (less) these WFH conditions are met, the lower (higher) the plausibility of a given job to be carried out at home.

Internet access as a key determinant in determining the 'teleworkability' of an occupation is highlighted by Sanchez et al. [2020]. Moreover, Mongey et al. [2020] account for physical proximity in analyzing the 'teleworkability' of US occupations by merging the occupational information from O*NET and Occupational Employment Statistics (OES) of the US Bureau of Labor Statistics. To determine heterogeneity across demographic characteristics, they matched these with the Current Population Survey (CPS) and the Panel Study of Income Dynamics (PSID).

On the other hand, ILO [2020b] uses the Delphi approach, which asks labor market specialists to calculate the probabilities that an occupation category can be feasibly done at home, for 118 countries. To reduce the potential idiosyncratic effects of each respondent, the estimates are pooled. Then, household surveys and labor market administrative data are used to provide the employment profiles for each occupation group. For countries with available occupational data at least at the 3-digit level, a single standard was used, which is the International Standard Classification of Occupations (ISCO-08). Similarly, in Norway, Holgersen et al. [2020] involved respondents from an online labor marketplace, Amazon Mechanical Turk (MTurk), to evaluate the likelihood that the tasks of occupations outlined in ISCO-08 be performed from home. However, it must be noted that in occupations where there are both 'teleworkable' and 'non-teleworkable' tasks, respondents are obliged to come up with a binary index by deciding which set of tasks constitute the substantial part of the occupation of interest.

In the context of the Philippine labor market, Gaduena et al. [2020] estimated the telework potential of Philippine jobs by directly applying the WFH classification of Dingel and Neiman [2020]. The matching of Philippine and US occupations are based on Francisco et al. [2020]. They found that 105 out of 408 unique occupations (25.7 percent) in the Philippine Standard Occupational Classification (PSOC) can be performed at home. Using the merged 2015 Family Income and Expenditure Survey (FIES) and 2016 Labor Force Survey (LFS), they determined that only about 12 percent of the employed workers are in 'teleworkable' occupations. They also described the demographic and employment-related characteristics of workers in these occupations and their industry distribution.

However, amidst this expanding strand of 'telework' literature, there are still gaps. First, applying the binary index of Dingel and Neiman [2020] to other countries, especially cross-country comparisons (i.e., matching 5-digit SOC level for US to 1- to 2-digit ISCO), is problematic for two reasons. Heterogeneity across

narrower occupational groups (5-digit SOC) is lost when its WFH classification is applied to broader groups (1- to 2-digit ISCO). Also, the cross-country differences in the production processes and technological capacity makes the comparison in terms of the 'teleworkability' of the same occupation questionable. Second, there are relatively few studies in the context of low-income countries which can be attributed to the lack of quality data, experts, and data infrastructure. Finally, except for a few studies (Hatayama et al. [2020]; Mongey et al. [2020]; Leibovici et al. [2020]), the primary goal has been to classify which jobs can be done at home, by constructing binary 'teleworkability' or WFH indices. This ignores the possibility that some tasks of a particular job can be done at home. This suggests that a continuous 'teleworkability' index is more useful and relevant than the binary index. This study attempts to address these gaps by adopting a task-based framework and constructing continuous 'teleworkability' indices of occupations.

3. Telework classification of occupational tasks

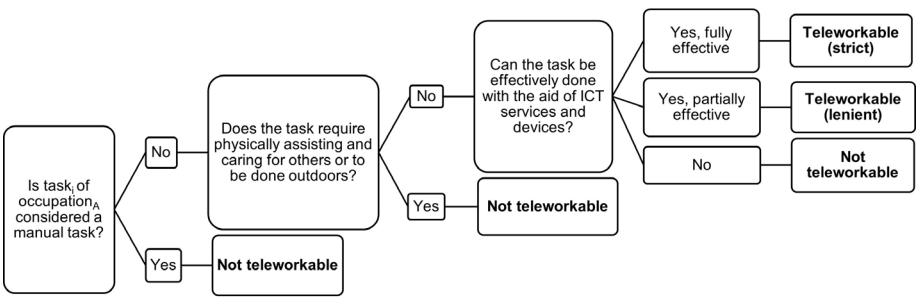
To apply the task-based framework, this study uses the International Standard Classification of Occupations 2008 (ISCO-08) of the International Labour Organization (ILO) which contains the needed task information of occupations. It also provides internationally comparable occupational data. It is a four-level hierarchically structured classification that allows jobs to be classified into 436-unit groups (4-digit), 130 minor groups (3-digit), 43 sub major groups (2-digit) and ten major groups (1-digit). Only 427 occupations are included in the analyses because the other nine occupations do not have task information. These are the services managers not elsewhere classified, process control technicians not elsewhere classified, other artistic and cultural associate professionals, sales workers not elsewhere classified, handicraft workers not elsewhere classified, stationary plant and machine operators not elsewhere classified, commissioned armed forces officers, non-commissioned armed forces officers, and armed forces occupations (other ranks).

The first step in deriving the 'teleworkability' indices requires individually classifying each of the 3,281 tasks performed in all 427 occupations as 'teleworkable' or 'non-teleworkable.' Each task will undergo the classification process depicted in Figure 1. There are three rounds in this classification process which aim to classify the task as belonging to one of the following categories:

1. Manual (Autor et al. [2003]; Spitz Oener [2006]; Antonczyk et al. [2009]; Generalao [2019]; Dingel and Neiman [2020]; Foschiatti and Gasparini [2020])
2. Outdoors (Dingel and Neiman [2020]; Foschiatti and Gasparini [2020]; Boeri et al. [2020])

3. Assisting and caring for others (Acemoglu and Autor [2011]; Dingel and Neiman [2020]; Firpo et al. [2011]; Jensen and Kletzer [2010]; Foschiatti and Gasparini [2020])
4. Use of ICT devices and services [e.g., internet connection] (Sanchez et al. [2020]; Hatayama et al. [2020]; Jensen and Kletzer [2010])
5. Teleworkable (strict)
6. Teleworkable (lenient)

FIGURE 1. The telework classification process of tasks



Source: Author's illustration.

Table 2 lists some of the relevant keywords used in the literature to guide the classification process. Note that in the first round of the process, we can use the results of the task classification process of Generalao [2019] because his task classification process of occupations is also based on ISCO-08 and classified occupations as manual (e.g., non-routine or routine manual). The last two columns of Table 2 suggest that a task which involves some sort of directing, supervising, leading, negotiating, is not 'teleworkable' because it is not effective if not done onsite. We also identify some keywords that pertain to tasks that can still be carried over through the use of ICT services and devices, but only partially effective. For instance, we can observe the prevalence of entertainment shows done virtually. Although it results in diminished entertainment experience of the viewers, the task is still performed. Hence, we add the keywords: act or perform. The next step requires us to randomly verify at least 10 percent of the tasks classified.

TABLE 2. Selected keywords used in the classification process

Manual	Outdoors/ Onsite	Assisting and Caring for Others	Use of ICT Devices and Services	
			Effectivity Issue	*Partial Effectivity Issue*
Equip or operate	Deliver	Nurse	Direct	Consult
Repair or renovate	Escort	Heal	Supervise	Advise
Install	Inspect	Treat	Lead	Represent
Clean	Secure	Disease	Negotiate	Preside
Serve	Monitor	Administer	Evaluate	Confer
Pack	Sort	Care	Discipline	Liaise
Fabricate	Examine	Observe	Assessing (context-based)	Buy or sell (context-based)
Transport	Distribute	Diagnosing	Oversee	Collaborate
Stock	Travel	Conducting	Manage	Act or perform

Source: Compilation of the author from multiple sources.

After the classification process of all tasks, the 'teleworkability' score of Occupation A is calculated following Equation 1. In order to compare the scores across occupations, we normalize these values with mean zero and standard deviation equal to one.

$$Score_A = (Number\ of\ teleworkable\ tasks / Total\ number\ of\ tasks) \times 100 \quad (1)$$

For better understanding of the classification process, the case of aged care service managers (ISCO-08 4-digit code: 1343) is examined (Table 3). There are ten tasks performed by aged care service managers. As previously mentioned, in the first round, we use the task type classification of Generalao [2019] to classify manual tasks as 'non-teleworkable.' Since no tasks have been identified as either non-routine manual or routine manual, all the tasks survive the first round. Now we check whether each task satisfies any of the keywords we listed before. To effectively monitor procedures, direct, supervise and evaluate the work activities of the staff, an aged care service manager must be on-site. Since one of its tasks requires negotiating, then that particular task faces an effectivity issue. On the other hand, the last task of budget planning and report preparation can be effectively done at home.

TABLE 3. Telework task classification of aged care service managers

Task	Task type (Source: Generalao [2019])	Type	Teleworkable classification	
			Lenient	Strict
Providing overall direction and management for a service, facility, organization or centre;	Routine cognitive	Partial effectivity issue	Teleworkable	Not leworkable
Developing, implementing and monitoring procedures, policies and performance standards for nursing, personal care, technical and administrative staff;	Non-routine analytical	Outdoors/ On-site	Not Teleworkable	Not Teleworkable
Establishing objectives and evaluative or operational criteria for units they manage;	Non-routine interpersonal	Partial effectivity issue	Teleworkable	Not Teleworkable
Directing or conducting recruitment, hiring and training of personnel;	Non-routine analytical	Effectivity issue	Not Teleworkable	Not Teleworkable
Coordinating and administering welfare programs and care services for the elderly;	Non-routine interpersonal	Teleworkable	Teleworkable	Teleworkable
Liaising with other health and welfare providers, boards and funding bodies to coordinate the provision of services;	Routine cognitive	Partial effectivity issue	Teleworkable	Not Teleworkable
Directing, supervising and evaluating the work activities of medical, nursing, technical, clerical, service, maintenance and other personnel;	Non-routine analytical	Outdoors/ On-site	Not Teleworkable	Not Teleworkable
Advising government bodies about measures to improve health and welfare services and facilities;	Non-routine interpersonal	Partial effectivity issue	Teleworkable	Not Teleworkable
Representing the organization in negotiations, and at conventions, seminars, public hearings and forums;	Non-routine analytical	Effectivity issue	Not Teleworkable	Not Teleworkable
Controlling administrative operations such as budget planning, report preparation, and expenditure on supplies, equipment and services.	Non-routine interpersonal	Teleworkable	Teleworkable	Teleworkable

The results of the telework task classification process of all occupations are available upon request from the author.
Source: Author's classification process.

4. 'Teleworkability' indices of occupations

To compare the 'teleworkability' across occupations, the values derived from Equation 1 are then normalized. Table 4 shows the comparison of three occupations; namely, aged care service managers, security guards, and financial analysts, in terms of 'teleworkability.' Regardless of definition, security guards perform tasks that are classified as 'non-teleworkable' while the tasks of financial analysts are all 'teleworkable.' The definition seems to play a role in the 'teleworkability' of an aged care services manager. If the lenient definition is adopted, then 50 percent of its tasks are 'teleworkable.' If the strict one is used, then only 30 percent of its tasks are deemed 'teleworkable.' These results clearly suggest that the most 'teleworkable' occupation among the three is the financial analyst, followed by aged care services manager, and then the security guard. Applying this classification process across all occupations results in the estimation of the 'teleworkability' scores of all 427 occupations listed in Table A1 in the Appendix.

The distribution of occupations by 'teleworkability' or telework potential is presented in Table 5. Out of the 427 occupations, only 35 to 43 occupations (8 to 10 percent) have tasks that are all classified as 'teleworkable.' On the other hand, a higher number of occupations, 152 to 157 (35 to 37 percent) only require performance of 'non-teleworkable' tasks. The rest of the occupations consists a combination of both 'teleworkable' and 'non-teleworkable' tasks and comprises the largest share (54 to 55 percent). If we lower the threshold from 100 percent to only 80 percent of tasks, then there will be an additional 23 to 26 occupations from the base list of occupations.

Table 6 lists all the occupations where all tasks are classified as 'teleworkable'. These are occupations that primarily involve non-routine cognitive tasks, which involve analysis and interpretation of data and information and creative thinking, and routine cognitive tasks such as repetitive tasks and that require accuracy in execution. The last column pertains to the additional occupations included if we use the lenient definition.

TABLE 4. 'Teleworkability' scores of selected occupations by classification

Classification	Aged Care Services Managers		Security Guards		Financial Analysts	
	%	Normalized Values	%	Normalized Values	%	Normalized Values
Teleworkable (lenient)	50	0.517	0	-0.989	100	2.023
Teleworkable (strict)	30	0.011	0	-0.954	100	2.263

Source: Results of author's calculations.

TABLE 5. Distribution of occupations by 'teleworkability' score

Threshold (%)	Telework classification			
	Strict		Lenient	
	Total	% (n= 427)	Total	% (n= 427)
100	35	8.2	43	10.07
≥ 80	58	13.58	69	16.16
≥ 60	90	21.08	109	25.53
≥ 40	148	34.66	168	39.34
≥ 20	220	51.52	225	52.69
≥ 0	270	63.23	275	64.4
0	157	36.77	152	35.6

Source: Results of author's calculations.

TABLE 6. Occupations with 100 percent 'teleworkable' tasks by classification

Strict				Lenient
Legal Professionals Not Elsewhere Classified	Web and Multimedia Developers	Clearing and Forwarding Agents	Coding, Proof-reading and Related clerks	Town and Traffic Planners
Systems Administrators	Database Designers and Administrators	Web Technicians	Inquiry Clerks	Advertising and Marketing Professionals
Announcers on Radio, Television and Other Media	Computer Network Professionals	Debt Collectors and Related Workers	Statistical, Finance and Insurance Clerks	Policy Administration Professionals
Translators, Interpreters and Other Linguists	Software and Applications Developers and Analysts Not Elsewhere Classified	Data Entry Clerks	Bank Tellers and Related Clerks	Database and Network Professionals Not Elsewhere Classified
Systems Analysts	Economists	General Office Clerks	Typists and Word Processing Operators	Actors
Financial Analysts	Credit and Loans Officers	Scribes and Related Workers	Clerical Support Workers Not Elsewhere Classified	Musicians, Singers and Composers
Authors and Related Writers	Government Social Benefits Officials	Personnel Clerks	Payroll Clerks	Commercial Sales Representatives
Financial and Investment Advisers	Government Tax and Excise Officials	Accounting and Bookkeeping Clerks	Contact Centre Salespersons	Contact Centre Information Clerks
Applications Programmers	Employment Agents and Contractors	Secretaries (general)	Coding, Proof-reading and Related clerks	

Source: Results of author's classification process.

On the other hand, Table 7 enumerates selected occupations where all of its tasks are considered 'non-teleworkable'. These occupations are mostly non-routine manual and routine manual in nature. Non-routine manual occupations involve the performance of tasks that are associated with finger and hand dexterity, spatial orientation, and operating vehicles or mechanized devices, while routine manual occupations are highly dependent on the speed of equipment and controlling machines and processes.

TABLE 7. Selected occupations with 100 percent 'non-teleworkable' tasks (strict classification)

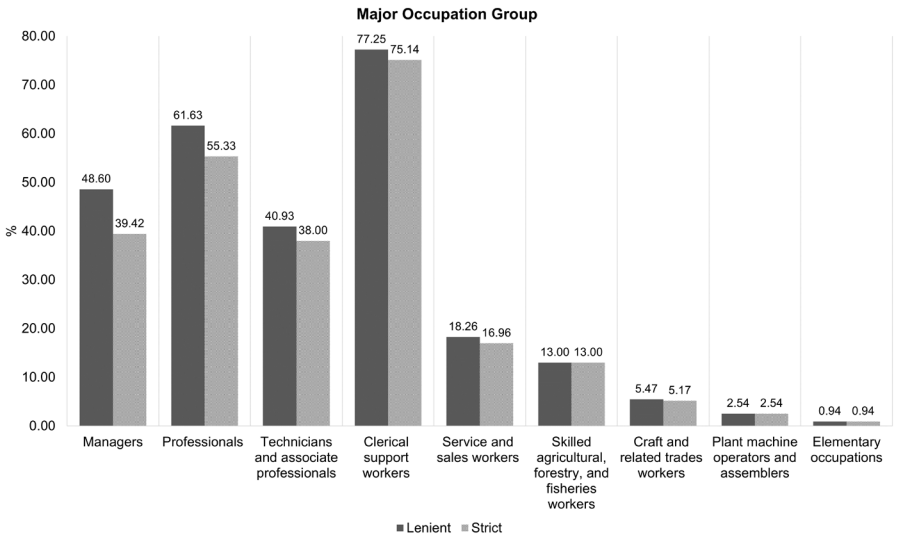
Chemical and Physical Science Technicians	Bartenders	Building Frame and Related Trades Workers Not Elsewhere Classified	Dairy Products Makers	Food and Related Products Machine Operators
Civil Engineering Technicians	Domestic Housekeepers	Floor Layers and Tile Setters	Fruit, Vegetable and Related Preservers	Glass and Ceramics Plant Operators
Construction Supervisors	Companions and Valets	Glaziers	Cabinet-makers and Related Workers	Bus and Tram Drivers
Chemical Processing Plant Controllers	Fashion and Other Models	Building Structure Cleaners	Fumigators and Other Pest and Weed Controllers	Earthmoving and Related Plant Operators
Agricultural Technicians	Forestry and Related Workers	Agricultural and Industrial Machinery Mechanics and Repairers	Craft and Related Workers Not Elsewhere Classified	Crane, Hoist and Related Plant Operators
Forestry Technicians	Deep-sea Fishery Workers	Bicycle and Related Repairers	Chemical Products Plant and Machine Operators	Domestic Cleaners and Helpers
Air Traffic Controllers	Bricklayers and Related Workers	Electrical Mechanics and Fitters	Fiber Preparing, Spinning and Winding Machine Operators	Cleaners and Helpers in Offices, Hotels and Other Establishments
Air Traffic Safety Electronics Technicians	Concrete Placers, Concrete Finishers and Related Workers	Electrical Line Installers and Repairers	Bleaching, Dyeing and Fabric Cleaning Machine Operators	Crop Farm Laborers
Ambulance Workers	Carpenters and Joiners	Butchers, Fishmongers and Related Food Preparers	Fur and Leather Preparing Machine Operators	Garden and Horticultural Laborers

Source: Results of author's classification process.

5. Correlates of 'teleworkability' or telework potential

Figure 2 summarizes the average 'teleworkability' scores of occupations by major occupation group (ISCO-08 1-digit). As expected, those occupations under the clerical support workers, professionals, and managers recorded the highest telework potential. It is lowest among elementary, plant machine operators and assemblers, and craft and related trade workers. The results of the classification process are also intuitive in terms of skill level and formal education requirement (Figures 3 and 4). That is, the higher (lower) the skill level and formal educational requirement that an occupation entails, the higher (lower) its telework potential.

FIGURE 2. Average 'teleworkability' by major occupation group, ISCO-08

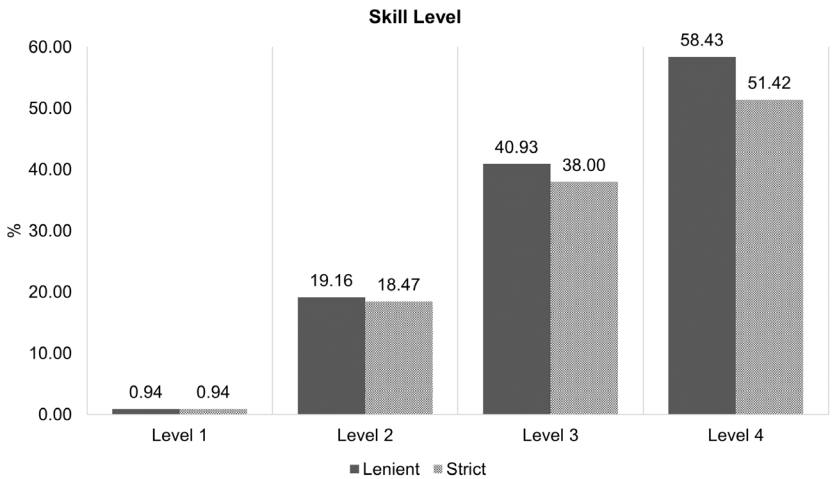


Notes: The means of the teleworkability indices are calculated within major occupation groups. Color shows details about the teleworkability index classification adopted.
Source: Author's calculations.

6. Application of the 'teleworkability' indices: case of Philippine jobs

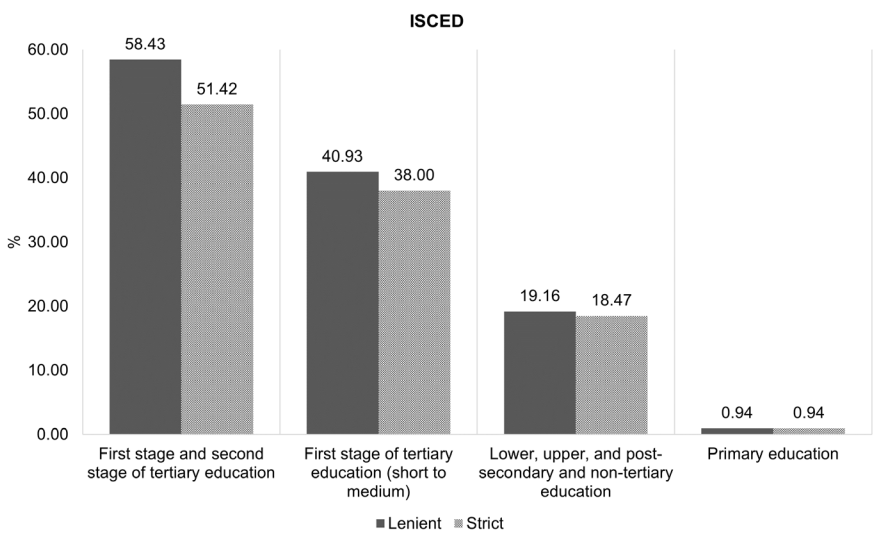
The 'teleworkability' indices we developed from ISCO-08 can be applied to Philippine jobs for two important reasons. The local occupational code in the Philippines, the 2012 Philippine Standard Occupational Classification (PSOC), is basically patterned after ISCO-08 with few modifications. This allows us to match 4-digit ISCO-08 with that of 4-digit PSOC. Moreover, in terms of task contents, there is no significant difference among ISCO-08, PSOC and BLE Career Guide as elaborated by Generalao [2019].

FIGURE 3. Average 'teleworkability' by skill level, ISCO-08



Notes: The means of the teleworkability indices are calculated within skill levels. Color shows details about the teleworkability index classification adopted.
Source: Author's calculations.

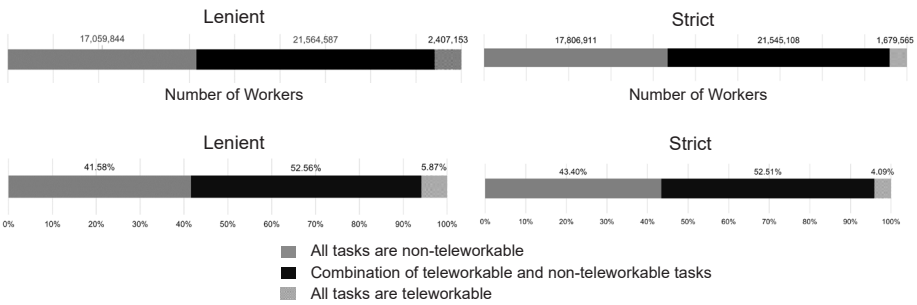
FIGURE 4. Average 'teleworkability' by formal education requirement, ISCED-97



Source: Author's calculations.

This study estimates that only 1.7 to 2.4 million workers or 4 to 6 percent of the employed workers are in occupations where all tasks are 'teleworkable.' On the other hand, 17 to 18 million (42 to 43 percent) are in occupations where all tasks are 'non-teleworkable.' The majority of workers, about 22 million or 53 percent, are in occupations with a mix of the two types of tasks (Figure 5).

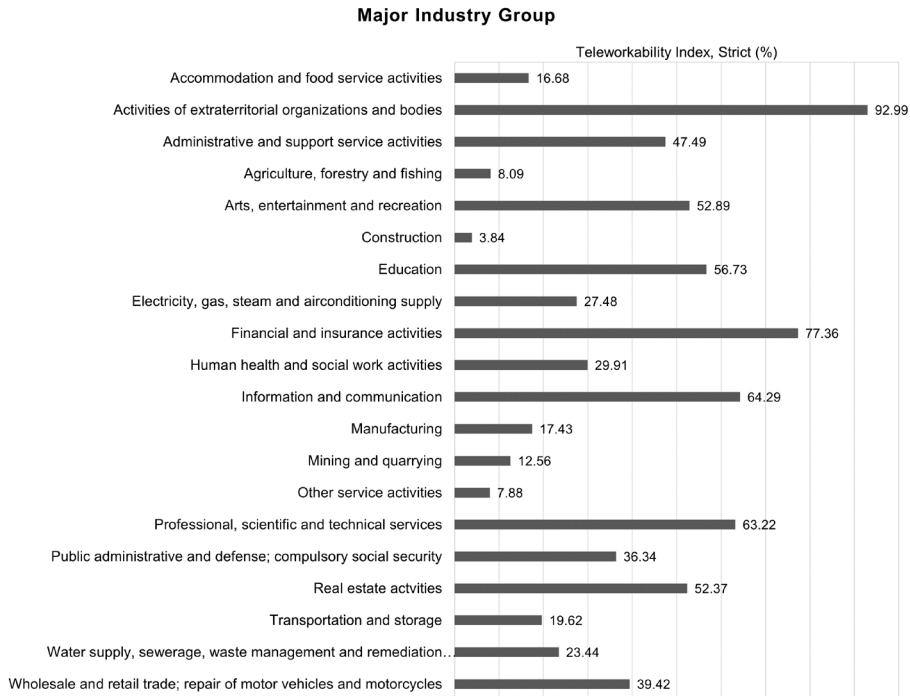
FIGURE 5. Distribution of workers by 'teleworkability' classification



Source: Author's calculations.

The weighted average 'teleworkability' of occupations across industries are presented in Figure 6. Occupations in the construction, other services, agriculture and mining industries recorded the lowest average telework potential. On the other hand, occupations with the highest telework potential are in the industries of information and communication, financial and insurance, and extraterritorial organizations. These results have important implications on the magnitude of labor market disruptions caused by pandemics, such as COVID-19. To stem the transmission of the virus, international and domestic borders and physical workplaces were temporarily closed in varying degrees multiple times and for an uncertain period of time. Workers employed in occupations with high risk of transmission (i.e., requires close contact and presence in physical offices and workplaces, etc.) will be disproportionately at heightened risk of experiencing job disruptions, such as massive lay-offs, furloughs, and reduced working hours. In fact, ILO (2020c) identified the industries facing the highest risk of job disruption due to the COVID-19 crisis, namely, manufacturing; transportation and storage; accommodation and food service activities; arts, entertainment and recreation; and tourism. Using the latest available data, the study also found that the industries under this risk classification recorded the highest actual job losses and reductions in working hours. Unsurprisingly, Figure 6 shows that these industries are also those with occupations with the lowest telework potential. Thus, these findings can potentially guide policymakers in determining which industries can be excluded in lockdown or community quarantine measures. In terms of income support, the government can use the telework classification to restructure and prioritize the aid distribution among workers affected by the pandemic.

FIGURE 6. Weighted average 'teleworkability' of Philippine occupations by major industry group, 2018



Source: Author's calculations.

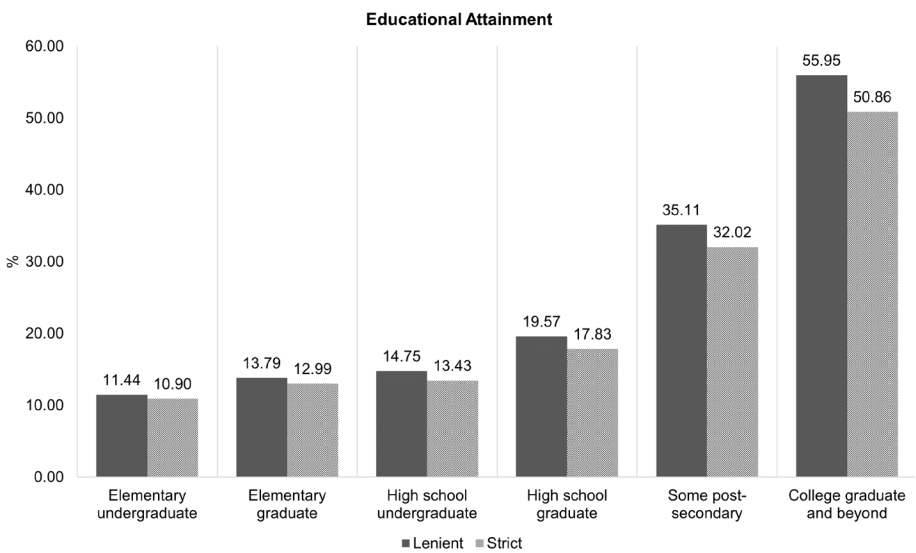
The relationship between the telework potential of Philippine jobs and the educational attainment of workers is consistent with that of ISCO-08. That is, individuals with higher educational attainment are employed in jobs with higher telework potential (Figure 7). This suggests that workers who are better educated are less likely to suffer from workplace closures and quarantine protocols imposed to contain the transmission of COVID-19. Also, more educated individuals are better positioned to reap the benefits of technological advances, coupled with the circumstances of the pandemic, as firms and businesses transition to alternative work arrangements, such as teleworking. The government can facilitate this shift by equipping workers with the necessary skills to upskill and reskill through engagement in technical and vocational education and training (TVET).

Finally, it is expected to see that highly 'teleworkable' jobs are predominantly located in developed regions such as National Capital Region (NCR), CALABARZON, and Central Luzon while those with jobs with low telework potential are in less developed ones which include Bicol, ARMM, SOCCSKSARGEN, Zamboanga Peninsula, and Cagayan Valley (Figure 8). The unequal development and access to ICT devices and services across regions

reflect the disparity in the quality of jobs available to the workforce. Investments in adequate ICT infrastructure, especially among geographically isolated and disadvantaged areas, can level the playing field and spur growth in higher skilled, better paying, 'teleworkable' jobs.

As previously noted, this is not the first attempt to estimate the telework potential of Philippine jobs. Gaduena et al. [2020] estimated that 25.7 percent of the total number of unique occupations (408 4-digit PSOC) can be done at home. Also, they found that a smaller proportion, 12 percent of the total number of employed workers are currently working in these occupations. They relied on the WFH classification of US occupations by Dingel and Neiman [2020] and matched these with Philippine occupations to derive a binary WFH or 'teleworkable' index. However, their index may suffer from two issues as elaborated in a previous discussion in this paper. The first one is the difference in the work profiles and ICT infrastructure between the two countries which may lead to inaccurate estimates of WFH classification. The second is the binary nature of the index which disregards the possibility that there are certain tasks of an occupation that can be feasibly done at home.

FIGURE 7. Weighted average 'teleworkability' of Philippine jobs by educational attainment of workers, 2018

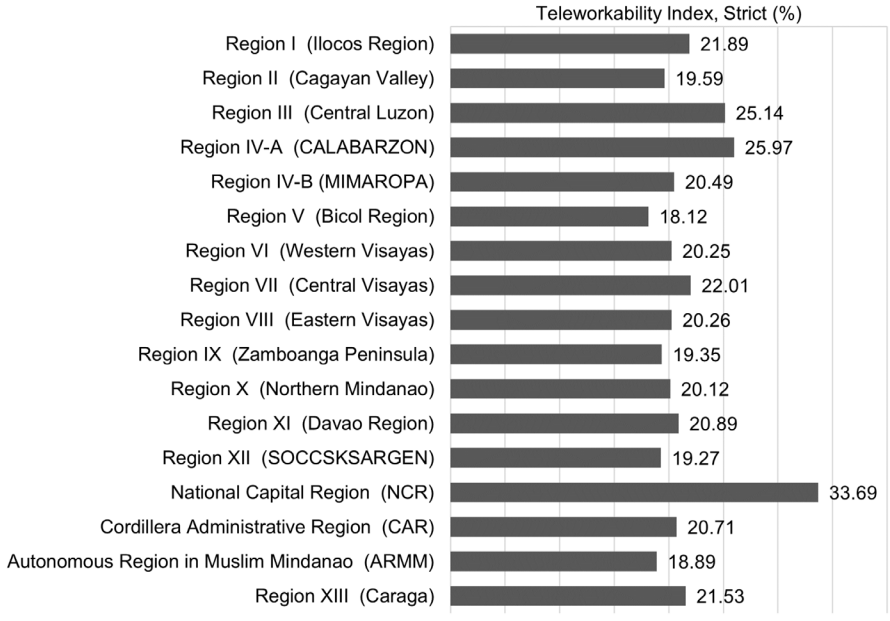


Source: Author's calculations.

Nevertheless, the indices developed in this study also have key limitations. There are other unaccounted factors in the index developed which affect the degree to which a task can be performed offsite. These include the level of internet connectivity in the alternative worksite and the availability and quality of ICT devices. Thus, increased productivity is not necessarily guaranteed and may even decline from these accelerated work adjustments. Clear monitoring and implementing guidelines for alternative work arrangements (e.g., teleworking), derived from exhaustive consultations and review, are needed to properly guide employers and employees with their corresponding rights, duties, and responsibilities.

There are also drawbacks from the dataset and methodology used to derive the indices. For one, due to the nature of the task contents elaborated in ISCO-08, the relative intensity of each task in each occupation are unaccounted for. That is, we do not have information on how more frequent and thus more intensive a task of a particular occupation. Another limitation is the relatively static nature of the task contents in ISCO-08. Finally, the method we used assumes that the ICT infrastructure in the country of interest can effectively support teleworking.

FIGURE 8. Weighted average 'teleworkability' of Philippine occupations by region, 2018



Notes: Using the 2018 labor force survey (LFS), the teleworkability indices are calculated within regions among employed workers. The estimates are weighted using sampling weights.
Source: Author's calculations.

7. Conclusions and ways forward

Together with fast-paced technological advances, COVID-19 has transformed the nature of work by changing how specific tasks are performed. The resulting pandemic has triggered and accelerated the shift of firms and businesses to adopt flexible alternative work arrangements such as teleworking or WFH set-ups. Effectively harnessing these developments and transitioning to the 'new normal' of work require an understanding of the telework potential of jobs or the degree to which a job can be feasibly done at home or offsite. However, most studies in the growing telework literature identified which jobs are 'teleworkable' or plausible to be done at home or offsite using a binary WFH index. This ignores the possibility that some tasks of a particular job can be feasibly done at home. Thus, this study adopts the task-based framework by constructing continuous 'teleworkability' indices.

Using the occupational task contents of ISCO-08, this study derives two 'teleworkability' indices, the values of which, quantify the telework potential of jobs. The correlates of these occupations, in terms of occupational groups, skill level, and formal education requirement, are also determined. Also, the indices are applied to Philippine occupations where distributions across industries, job and individual characteristics are also estimated.

The findings of this paper can potentially aid both the public and private sectors to restructure the nature of certain jobs. This can lead to the reduction of work hours onsite, spur improvements in work productivity, and decongest physical infrastructures, especially in densely populated areas. In addition, as high-income countries increase their propensity to offshore 'teleworkable' jobs for cost and efficiency purposes, this growth in international demand may expand opportunities for capable and quality domestic workers to gain more productive and higher paying jobs. However, to fully realize this potential, an adequate ICT infrastructure must be put into place. Effective training and social protection policies must exist to help the school-to-work and work-to-work transitions of the labor force. Laws should also be crafted to ascertain and institutionalize the protection of the rights of teleworkers.

The indices developed in this study have key limitations which include unaccounted factors, such as the level of internet connectivity in the alternative worksite and the availability and quality of ICT devices. Moreover, the dataset used, ISCO-08, does not account for the relative intensity of each task in each occupation and the tasks are relatively static in nature. Thus, assigning weights to the tasks of an occupation can be further explored to improve the 'teleworkability' indices developed. Incorporating the ICT infrastructure of particular regions or countries in the index can also significantly improve the measure. Finally, the indices derived in this study can be applied not only to Philippine jobs but to local jobs of countries which pattern their local occupation classification with ISCO-08.

References

Acemoglu, D. and D.H. Autor [2011] "Skills, tasks and technologies: implications for employment and earnings", *Handbook of Labor Economics* 4b:1043-1171.

Antonczyk, D., B. Fitzenberger, and U. Leuschner [2009] "Can a task-based approach explain the recent changes in the German wage structure?", *Jahrbücher für Nationalökonomie und Statistik (Journal of Economics and Statistics*) 229(2–3):214–238.

Autor, D.H., F. Levy, and R.J. Murnane [2003] "The skill content of recent technological change: an empirical exploration", *The Quarterly Journal of Economics* 116(4):1279-1333.

Boeri, T., A. Caiumi, and M. Paccagnella [2020] "Mitigating the work-safety trade-off", *Covid Economics: Vetted and Real-Time Papers* 2:60-67.

British Office for National Statistics [2020] "Coronavirus and homeworking in the UK labour market: 2019", https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/coronavirusandhomeworkingintheuklabourmarket/2019. Accessed March 2021.

Brussevich, M., E. Dabla-Norris, and S. Khalid [2020] "Who will bear the brunt of lockdown policies? evidence from tele-workability measures across countries" *IMF Working Paper No.* 20/88, June.

Department of Health (DOH) [2020] "DOH's telemedicine initiative strengthens provision of primary health care services", https://doh.gov.ph/press-release/DOH%27S-TELEMEDICINE-INITIATIVE-STRENGTHENS-PROVISION-OF-PRIMARY-HEALTH-CARE-SERVICES. Accessed August 2021.

Dingel, J., and B. Neiman [2020] "How many jobs can be done at home?" *NBER Working Papers* 26948, April.

Firpo, S., N. Fortin, and T. Lemieuz [2011] "Occupational tasks and changes in the wage structure," *IZA Discussion Papers* 5542, Institute of Labor Economics (IZA).

Foschiatti, C.B., and L. Gasparini [2020] "El impacto asimétrico de la cuarentena: estimaciones en base a una caracterización de ocupaciones." *CEDLAS Working Paper* No. 261, CEDLAS-Universidad Nacional de la Plata.

Francisco, J., S. Flores, T. Canare, C. Caboverde, B. Borja, and C. Monterola [2019] "Mapping Philippine workers at risk of automation in the Fourth Industrial Revolution." *AIM Rizalino S. Navarro Policy Center for Competitiveness Working Paper*, 2019-001. July.

Gaduena, A., C.E. Caboverde, and J.P. Flaminiano [2020] "Telework Potential in the Philippines" *AIM RSN PCC Discussion Paper*, 2020-004, November.

Generalao, I.N. [2019] "Mapping tasks to occupations using Philippine data," University of the Philippines School of Economics DP 2019-04, Diliman, Quezon City, November.

Gottlieb, C., J. Grobovšek, and M. Poschke [2020] "Working from Home across Countries" *Cahier 07-2020*. Centre Interuniversitaire de Recherche en Économie Quantitative.

Guntin, R. [2020] "Trabajo a Distancia y con Contacto en Uruguay," mimeo.

Hatayama, M., M. Viollaz, and H. Winkler [2020] "Jobs' amenability to working from home: evidence from skills survey for 53 countries." *World Bank Policy Research Working Paper 9241*. https://doi.org/10.1596/1813-9450-9241.

Hensvik, L., T. Le Barbanchon, and R. Rathelot, R. [2020] "Which jobs are done from home? Evidence from the American time use survey." *IZA DP No. 13138*. IZA Institute of Labor Economics.

Holgersen, H., Z. Jia, and S. Svenkerud [2020] "Who and how many can work from home in Norway? Evidence from task descriptions." *Discussion Papers 935*, Statistics Norway, Research Department.

International Labour Organization (ILO) [2020a] *ILO Monitor: COVID-19 and the world of work*. Sixth edition. Geneva: International Labour Office.

——— [2020b] *Working from Home: Estimating the worldwide potential*. Geneva: International Labour Office.

——— [2020c] COVID-19 *labour market impact in the Philippines: Assessment and national policy responses*. Geneva: International Labour Office.

Jensen, J.B., and L.G. Kletzer [2010] "Measuring tradable services and the task content of offshorable services jobs" Chapter 8 in *Labor in the New Economy*:309-335. University of Chicago Press

Lan, F.Y., C.F. Wei, Y.T. Hsu, D.C. Christiani, S.N. Kales [2020] "Work-related COVID-19 transmission in six Asian countries/areas: A follow-up study." *PLOS ONE* 15(5):e0233588. https://doi.org/10.1371/journal.pone.0233588.

Leibovici, F., A.M. Santacreu, and M. Famiglietti [2020] "Social distancing and contact-intensive occupations", https://www.stlouisfed.org/on-the-economy/2020/march/social-distancing-contact-intensive-occupations. Accessed March 2021.

Martins, P.S. [2020] "O potencial de teletrabalho em Portugal", https://observador.pt/especiais/o-potencial-do-teletrabalho-em-portugal/.

Mongey, S., L. Pilossoph, and A. Weinberg [2020] "Which workers bear the burden of social distancing policies?" *Working Paper No. 2020-51*. Becker Friedman Institute.

Republic Act (RA) No. 11165 [2018] An act institutionalizing telecommuting as an alternative work arrangement for employees in the private sector. Philippines.

Sanchez, D.G., N.G. Parra, C. Ozden, B. Rijkers, M. Viollaz, and H. Winkler [2020] "Who on Earth can work from home?" *Policy Research Working Paper 9347*. World Bank Development Research Group. July.

Spitz-Oener, A. [2006] "Technical change, job tasks, and rising educational demands: Looking outside the wage structure", *Journal of Labor Economics* 24(2):235-270.

Appendix

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
2411	Accountants	87.5	75	1.6467	1.4585
4311	Accounting and Bookkeeping Clerks	100	100	2.0232	2.2627
3313	Accounting Associate Professionals	83.33	83.33	1.5212	1.7266
2655	Actors	100	85.71	2.0232	1.8032
3343	Administrative and Executive Secretaries	87.5	87.5	1.6467	1.8606
2431	Advertising and Marketing Professionals	100	77.78	2.0232	1.5479
1222	Advertising and Public Relations Managers	25	25	-0.2357	-0.1497
1343	Aged Care Services Managers	50	30	0.5173	0.0111
1311	Agricultural and Forestry Production Managers	16.67	16.67	-0.4867	-0.4178
7233	Agricultural and Industrial Machinery Mechanics and Repairers	0	0	-0.9887	-0.9539
3142	Agricultural Technicians	0	0	-0.9887	-0.9539
7127	Air Conditioning and Refrigeration Mechanics	25	25	-0.2357	-0.1497
3154	Air Traffic Controllers	0	0	-0.9887	-0.9539
3155	Air Traffic Safety Electronics Technicians	0	0	-0.9887	-0.9539
7232	Aircraft Engine Mechanics and Repairers	10	10	-0.6875	-0.6322
3153	Aircraft Pilots and Related Associate Professionals	14.29	14.29	-0.5584	-0.4944
3258	Ambulance Workers	0	0	-0.9887	-0.9539
6129	Animal Producers Not Elsewhere Classified	22.22	22.22	-0.3194	-0.2391
2656	Announcers on Radio, Television and Other Media	100	100	2.0232	2.2627
6123	Apiarists and Sericulturists	28.57	28.57	-0.1281	-0.0349
2514	Applications Programmers	100	100	2.0232	2.2627
1312	Aquaculture and Fisheries Production Managers	7.69	7.69	-0.757	-0.7065
6221	Aquaculture Workers	40	40	0.2161	0.3327
2621	Archivists and Curators	30	30	-0.0851	0.0111
8219	Assemblers Not Elsewhere Classified	20	20	-0.3863	-0.3106
5161	Astrologers, Fortune-tellers and Related Workers	33.33	33.33	0.0153	0.1183
3421	Athletes and Sports Players	12.5	12.5	-0.6122	-0.5518

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
2266	Audiologists and Speech Therapists	42.86	42.86	0.3021	0.4246
2641	Authors and Related Writers	100	100	2.0232	2.2627
7512	Bakers, Pastry-cooks and Confectionery Makers	0	0	-0.9887	-0.9539
4211	Bank Tellers and Related Clerks	100	100	2.0232	2.2627
5132	Bartenders	0	0	-0.9887	-0.9539
5142	Beauticians and Related Workers	25	25	-0.2357	-0.1497
7234	Bicycle and Related Repairers	0	0	-0.9887	-0.9539
2131	Biologists, Botanists, Zoologists and Related Professionals	37.5	37.5	0.1408	0.2523
7221	Blacksmiths, Hammersmiths and Forging Press Workers	14.29	14.29	-0.5584	-0.4944
8154	Bleaching, Dyeing and Fabric Cleaning Machine Operators	0	0	-0.9887	-0.9539
4212	Bookmakers, Croupiers and Related Gaming Workers	80	80	1.4208	1.6194
7112	Bricklayers and Related Workers	0	0	-0.9887	-0.9539
3521	Broadcasting and Audiovisual Technicians	28.57	28.57	-0.1281	-0.0349
7411	Building and Related Electricians	25	25	-0.2357	-0.1497
2161	Building Architects	66.67	55.56	1.0193	0.8331
5153	Building Caretakers	25	25	-0.2357	-0.1497
9313	Building Construction Labourers	0	0	-0.9887	-0.9539
7119	Building Frame and Related Trades Workers Not Elsewhere Classified	0	0	-0.9887	-0.9539
7133	Building Structure Cleaners	0	0	-0.9887	-0.9539
8331	Bus and Tram Drivers	0	0	-0.9887	-0.9539
3339	Business Services Agents Not Elsewhere Classified	83.33	83.33	1.5212	1.7266
1219	Business Services and Administration Managers Not Elsewhere Classified	40	40	0.2161	0.3327
7511	Butchers, Fishmongers and Related Food Preparers	0	0	-0.9887	-0.9539
3323	Buyers	70	40	1.1197	0.3327
7522	Cabinet-makers and Related Workers	0	0	-0.9887	-0.9539
8322	Car, Taxi and Van Drivers	12.5	12.5	-0.6122	-0.5518
7115	Carpenters and Joiners	0	0	-0.9887	-0.9539
2165	Cartographers and Surveyors	50	37.5	0.5173	0.2523
5230	Cashiers and Ticket Clerks	62.5	62.5	0.8938	1.0565

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
8114	Cement, Stone and Other Mineral Products Machine Operators	10	10	-0.6875	-0.6322
3434	Chefs	20	20	-0.3863	-0.3106
3111	Chemical and Physical Science Technicians	0	0	-0.9887	-0.9539
3116	Chemical Engineering Technicians	60	60	0.8185	0.976
2145	Chemical Engineers	50	50	0.5173	0.6544
3133	Chemical Processing Plant Controllers	0	0	-0.9887	-0.9539
8131	Chemical Products Plant and Machine Operators	0	0	-0.9887	-0.9539
2113	Chemists	44.44	44.44	0.35	0.4757
1341	Child Care Services Managers	44.44	44.44	0.35	0.4757
5311	Child Care Workers	12.5	12.5	-0.6122	-0.5518
9312	Civil Engineering Labourers	0	0	-0.9887	-0.9539
3112	Civil Engineering Technicians	0	0	-0.9887	-0.9539
2142	Civil Engineers	14.29	14.29	-0.5584	-0.4944
9112	Cleaners and Helpers in Offices, Hotels and Other Establishments	0	0	-0.9887	-0.9539
5151	Cleaning and Housekeeping Supervisors in Offices, Hotels and Other Establishments	12.5	12.5	-0.6122	-0.5518
3331	Clearing and Forwarding Agents	100	100	2.0232	2.2627
4419	Clerical Support Workers Not Elsewhere Classified	100	100	2.0232	2.2627
4229	Client Information Workers Not Elsewhere Classified	66.67	66.67	1.0193	1.1905
4413	Coding, Proof-reading and Related clerks	100	100	2.0232	2.2627
3322	Commercial Sales Representatives	100	71.43	2.0232	1.3436
3253	Community Health Workers	20	20	-0.3863	-0.3106
5162	Companions and Valets	0	0	-0.9887	-0.9539
3513	Computer Network and Systems Technicians	83.33	83.33	1.5212	1.7266
2523	Computer Network Professionals	100	100	2.0232	2.2627
7114	Concrete Placers, Concrete Finishers and Related Workers	0	0	-0.9887	-0.9539
3332	Conference and Event Planners	71.43	57.14	1.1627	0.8841
1323	Construction Managers	45.45	36.36	0.3804	0.2158
3123	Construction Supervisors	0	0	-0.9887	-0.9539

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
4222	Contact Centre Information Clerks	100	83.33	2.0232	1.7266
5244	Contact Centre Salespersons	100	100	2.0232	2.2627
5120	Cooks	16.67	16.67	-0.4867	-0.4178
7549	Craft and Related Workers Not Elsewhere Classified	0	0	-0.9887	-0.9539
8343	Crane, Hoist and Related Plant Operators	0	0	-0.9887	-0.9539
2659	Creative and Performing Artists Not Elsewhere Classified	25	25	-0.2357	-0.1497
3312	Credit and Loans Officers	100	100	2.0232	2.2627
9211	Crop Farm Labourers	0	0	-0.9887	-0.9539
3351	Customs and Border Inspectors	37.5	25	0.1408	-0.1497
7513	Dairy Products Makers	0	0	-0.9887	-0.9539
2653	Dancers and Choreographers	50	33.33	0.5173	0.1183
4132	Data Entry Clerks	100	100	2.0232	2.2627
2529	Database and Network Professionals Not Elsewhere Classified	100	87.5	2.0232	1.8606
2521	Database Designers and Administrators	100	100	2.0232	2.2627
4214	Debt Collectors and Related Workers	100	100	2.0232	2.2627
6223	Deep-sea Fishery Workers	0	0	-0.9887	-0.9539
3251	Dental Assistants and Therapists	12.5	12.5	-0.6122	-0.5518
2261	Dentists	16.67	16.67	-0.4867	-0.4178
2265	Dieticians and Nutritionists	71.43	57.14	1.1627	0.8841
3254	Dispensing Opticians	25	25	-0.2357	-0.1497
9111	Domestic Cleaners and Helpers	0	0	-0.9887	-0.9539
5152	Domestic Housekeepers	0	0	-0.9887	-0.9539
5243	Door-to-door Salespersons	42.86	42.86	0.3021	0.4246
3118	Draughtspersons	87.5	87.5	1.6467	1.8606
9332	Drivers of Animal-drawn Vehicles and Machinery	0	0	-0.9887	-0.9539
5165	Driving Instructors	50	33.33	0.5173	0.1183
2342	Early Childhood Educators	33.33	22.22	0.0153	-0.2391
8342	Earthmoving and Related Plant Operators	0	0	-0.9887	-0.9539
2631	Economists	100	100	2.0232	2.2627
1345	Education Managers	36.36	27.27	0.1066	-0.0766
2351	Education Methods Specialists	70	70	1.1197	1.2977

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
8212	Electrical and Electronic Equipment Assemblers	20	20	-0.3863	-0.3106
3113	Electrical Engineering Technicians	50	50	0.5173	0.6544
2151	Electrical Engineers	50	33.33	0.5173	0.1183
7413	Electrical Line Installers and Repairers	0	0	-0.9887	-0.9539
7412	Electrical Mechanics and Fitters	0	0	-0.9887	-0.9539
3114	Electronics Engineering Technicians	42.86	42.86	0.3021	0.4246
2152	Electronics Engineers	25	25	-0.2357	-0.1497
7421	Electronics Mechanics and Servicers	22.22	11.11	-0.3194	-0.5965
9629	Elementary Workers Not Elsewhere Classified	0	0	-0.9887	-0.9539
3333	Employment Agents and Contractors	100	100	2.0232	2.2627
2149	Engineering Professionals Not Elsewhere Classified	22.22	22.22	-0.3194	-0.2391
2263	Environmental and Occupational Health and Hygiene Professionals	40	40	0.2161	0.3327
3257	Environmental and Occupational Health Inspectors and Associates	50	40	0.5173	0.3327
2143	Environmental Engineers	44.44	22.22	0.35	-0.2391
2133	Environmental Protection Professionals	42.86	42.86	0.3021	0.4246
2132	Farming, Forestry and Fisheries Advisers	41.67	25	0.2663	-0.1497
5241	Fashion and Other Models	0	0	-0.9887	-0.9539
9411	Fast Food Preparers	0	0	-0.9887	-0.9539
8151	Fibre Preparing, Spinning and Winding Machine Operators	0	0	-0.9887	-0.9539
6111	Field Crop and Vegetable Growers	18.18	18.18	-0.441	-0.3691
4415	Filing and Copying Clerks	60	60	0.8185	0.976
2654	Film, Stage and Related Directors and Producers	42.86	42.86	0.3021	0.4246
1211	Finance Managers	62.5	37.5	0.8938	0.2523
2413	Financial Analysts	100	100	2.0232	2.2627
1346	Financial and Insurance Services Branch Managers	81.82	63.64	1.4756	1.093
2412	Financial and Investment Advisers	100	100	2.0232	2.2627
5411	Firefighters	16.67	16.67	-0.4867	-0.4178
9216	Fishery and Aquaculture Labourers	0	0	-0.9887	-0.9539
3423	Fitness and Recreation Instructors and Programme Leaders	16.67	16.67	-0.4867	-0.4178

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
7122	Floor Layers and Tile Setters	0	0	-0.9887	-0.9539
7515	Food and Beverage Tasters and Graders	20	20	-0.3863	-0.3106
8160	Food and Related Products Machine Operators	0	0	-0.9887	-0.9539
5246	Food Service Counter Attendants	12.5	12.5	-0.6122	-0.5518
6210	Forestry and Related Workers	0	0	-0.9887	-0.9539
9215	Forestry Labourers	0	0	-0.9887	-0.9539
3143	Forestry Technicians	0	0	-0.9887	-0.9539
9333	Freight Handlers	0	0	-0.9887	-0.9539
7514	Fruit, Vegetable and Related Preservers	0	0	-0.9887	-0.9539
7544	Fumigators and Other Pest and Weed Controllers	0	0	-0.9887	-0.9539
8155	Fur and Leather Preparing Machine Operators	0	0	-0.9887	-0.9539
3433	Gallery, Museum and Library Technicians	44.44	44.44	0.35	0.4757
9611	Garbage and Recycling Collectors	0	0	-0.9887	-0.9539
9214	Garden and Horticultural Labourers	0	0	-0.9887	-0.9539
6113	Gardeners, Horticultural and Nursery Growers	16.67	16.67	-0.4867	-0.4178
7532	Garment and Related Patternmakers and Cutters	16.67	16.67	-0.4867	-0.4178
4110	General Office Clerks	100	100	2.0232	2.2627
2211	Generalist Medical Practitioners	45.45	45.45	0.3804	0.5082
2114	Geologists and Geophysicists	33.33	33.33	0.0153	0.1183
8181	Glass and Ceramics Plant Operators	0	0	-0.9887	-0.9539
7315	Glass Makers, Cutters, Grinders and Finishers	7.69	7.69	-0.757	-0.7065
7125	Glaziers	0	0	-0.9887	-0.9539
3354	Government Licensing Officials	80	80	1.4208	1.6194
3359	Government Regulatory Associate Professionals Not Elsewhere Classified	50	50	0.5173	0.6544
3353	Government Social Benefits Officials	100	100	2.0232	2.2627
3352	Government Tax and Excise Officials	100	100	2.0232	2.2627
2166	Graphic and Multimedia Designers	80	80	1.4208	1.6194
5141	Hairdressers	25	25	-0.2357	-0.1497
9331	Hand and Pedal Vehicle Drivers	0	0	-0.9887	-0.9539
9121	Hand Launderers and Pressers	0	0	-0.9887	-0.9539

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
9321	Hand Packers	0	0	-0.9887	-0.9539
7318	Handicraft Workers in Textile, Leather and Related Materials	0	0	-0.9887	-0.9539
7317	Handicraft Workers in Wood, Basketry and Related Materials	0	0	-0.9887	-0.9539
3259	Health Associate Professionals Not Elsewhere Classified	25	25	-0.2357	-0.1497
5321	Health Care Assistants	0	0	-0.9887	-0.9539
2269	Health Professionals Not Elsewhere Classified	12.5	12.5	-0.6122	-0.5518
1342	Health Services Managers	40	20	0.2161	-0.3106
8332	Heavy Truck and Lorry Drivers	16.67	16.67	-0.4867	-0.4178
5322	Home-based Personal Care Workers	0	0	-0.9887	-0.9539
1411	Hotel Managers	10	10	-0.6875	-0.6322
4224	Hotel Receptionists	77.78	33.33	1.3539	0.1183
7111	House Builders	0	0	-0.9887	-0.9539
1212	Human Resource Managers	54.55	36.36	0.6542	0.2158
6224	Hunters and Trappers	0	0	-0.9887	-0.9539
3132	Incinerator and Water Treatment Plant Operators	0	0	-0.9887	-0.9539
2141	Industrial and Production Engineers	50	30	0.5173	0.0111
7422	Information and Communications Technology Installers and Servicers	14.29	14.29	-0.5584	-0.4944
3511	Information and Communications Technology Operations Technicians	37.5	37.5	0.1408	0.2523
2434	Information and Communications Technology Sales Professionals	71.43	28.57	1.1627	-0.0349
1330	Information and Communications Technology Services Managers	72.73	54.55	1.2018	0.8006
3512	Information and Communications Technology User Support Technicians	77.78	77.78	1.3539	1.5479
2356	Information Technology Trainers	83.33	83.33	1.5212	1.7266
6222	Inland and Coastal Waters Fishery Workers	0	0	-0.9887	-0.9539
4225	Inquiry Clerks	100	100	2.0232	2.2627
7124	Insulation Workers	0	0	-0.9887	-0.9539
3321	Insurance Representatives	50	50	0.5173	0.6544
3432	Interior Designers and Decorators	70	60	1.1197	0.976
7313	Jewellery and Precious metal Workers	0	0	-0.9887	-0.9539

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
2642	Journalists	90	90	1.722	1.941
2612	Judges	28.57	28.57	-0.1281	-0.0349
9412	Kitchen Helpers	0	0	-0.9887	-0.9539
2162	Landscape Architects	66.67	55.56	1.0193	0.8331
8157	Laundry Machine Operators	0	0	-0.9887	-0.9539
2611	Lawyers	40	40	0.2161	0.3327
3411	Legal and Related Associate Professionals	60	60	0.8185	0.976
2619	Legal Professionals Not Elsewhere Classified	100	100	2.0232	2.2627
3342	Legal Secretaries	85.71	85.71	1.593	1.8032
1111	Legislators	62.5	50	0.8938	0.6544
2622	Librarians and Related Information Professionals	44.44	44.44	0.35	0.4757
4411	Library Clerks	16.67	16.67	-0.4867	-0.4178
3141	Life Science Technicians (excluding Medical)	15.38	15.38	-0.5253	-0.459
8344	Lifting Truck Operators	0	0	-0.9887	-0.9539
6121	Livestock and Dairy Producers	15.38	15.38	-0.5253	-0.459
9212	Livestock Farm Labourers	0	0	-0.9887	-0.9539
8311	Locomotive Engine Drivers	0	0	-0.9887	-0.9539
4412	Mail Carriers and Sorting Clerks	0	0	-0.9887	-0.9539
2421	Management and Organization Analysts	55.56	55.56	0.6846	0.8331
1120	Managing Directors and Chief Executives	72.73	63.64	1.2018	1.093
9329	Manufacturing Labourers Not Elsewhere Classified	0	0	-0.9887	-0.9539
1321	Manufacturing Managers	50	41.67	0.5173	0.3863
3122	Manufacturing Supervisors	50	50	0.5173	0.6544
2120	Mathematicians, Actuaries and Statisticians	80	80	1.4208	1.6194
3115	Mechanical Engineering Technicians	37.5	37.5	0.1408	0.2523
2144	Mechanical Engineers	42.86	14.29	0.3021	-0.4944
8211	Mechanical Machinery Assemblers	20	20	-0.3863	-0.3106
3214	Medical and Dental Prosthetic Technicians	30	20	-0.0851	-0.3106
3212	Medical and Pathology Laboratory Technicians	0	0	-0.9887	-0.9539

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
3256	Medical Assistants	40	40	0.2161	0.3327
3211	Medical Imaging and Therapeutic Equipment Technicians	0	0	-0.9887	-0.9539
3252	Medical Records and Health Information Technicians	50	50	0.5173	0.6544
3344	Medical Secretaries	87.5	87.5	1.6467	1.8606
9621	Messengers, Package Deliverers and Luggage Porters	16.67	16.67	-0.4867	-0.4178
8122	Metal Finishing, Plating and Coating Machine Operators	0	0	-0.9887	-0.9539
7211	Metal Moulders and Coremakers	0	0	-0.9887	-0.9539
7224	Metal Polishers, Wheel Grinders and Tool Sharpeners	0	0	-0.9887	-0.9539
8121	Metal Processing Plant Operators	0	0	-0.9887	-0.9539
3135	Metal Production Process Controllers	14.29	14.29	-0.5584	-0.4944
7223	Metal Working Machine Tool Setters and Operators	0	0	-0.9887	-0.9539
2112	Meteorologists	44.44	44.44	0.35	0.4757
9623	Meter Readers and Vending-machine Collectors	14.29	14.29	-0.5584	-0.4944
3222	Midwifery Associate professionals	25	25	-0.2357	-0.1497
2222	Midwifery Professionals	25	25	-0.2357	-0.1497
8112	Mineral and Stone Processing Plant Operators	0	0	-0.9887	-0.9539
8111	Miners and Quarriers	0	0	-0.9887	-0.9539
3117	Mining and Metallurgical Technicians	37.5	37.5	0.1408	0.2523
9311	Mining and Quarrying Labourers	0	0	-0.9887	-0.9539
2146	Mining Engineers, Metallurgists and Related Professionals	33.33	22.22	0.0153	-0.2391
1322	Mining Managers	60	50	0.8185	0.6544
3121	Mining Supervisors	60	60	0.8185	0.976
6130	Mixed Crop and Animal Producers	40	40	0.2161	0.3327
9213	Mixed Crop and Livestock Farm Labourers	0	0	-0.9887	-0.9539
6114	Mixed Crop Growers	18.18	18.18	-0.441	-0.3691
8341	Mobile Farm and Forestry Plant Operators	0	0	-0.9887	-0.9539
7231	Motor Vehicle Mechanics and Repairers	0	0	-0.9887	-0.9539
8321	Motorcycle Drivers	0	0	-0.9887	-0.9539

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
7312	Musical Instrument Makers and Tuners	0	0	-0.9887	-0.9539
2652	Musicians, Singers and Composers	100	87.5	2.0232	1.8606
3221	Nursing Associate professionals	0	0	-0.9887	-0.9539
2221	Nursing Professionals	30	30	-0.0851	0.0111
9622	Odd-job Persons	0	0	-0.9887	-0.9539
3341	Office Supervisors	50	33.33	0.5173	0.1183
2267	Optometrists and Ophthalmic Opticians	28.57	28.57	-0.1281	-0.0349
2355	Other Arts Teachers	60	60	0.8185	0.976
9129	Other Cleaning Workers	0	0	-0.9887	-0.9539
2353	Other Language Teachers	50	50	0.5173	0.6544
2354	Other Music Teachers	72.73	72.73	1.2018	1.3854
8183	Packing, Bottling and Labelling Machine Operators	0	0	-0.9887	-0.9539
7131	Painters and Related Workers	0	0	-0.9887	-0.9539
8143	Paper Products Machine Operators	0	0	-0.9887	-0.9539
2240	Paramedical Practitioners	22.22	22.22	-0.3194	-0.2391
4213	Pawnbrokers and Money-lenders	40	40	0.2161	0.3327
4313	Payroll Clerks	100	100	2.0232	2.2627
7535	Pelt Dressers, Tanners and Fellmongers	0	0	-0.9887	-0.9539
5329	Personal Care Workers in Health Services Not Elsewhere Classified	0	0	-0.9887	-0.9539
5169	Personal Services Workers Not Elsewhere Classified	0	0	-0.9887	-0.9539
2423	Personnel and Careers Professionals	80	60	1.4208	0.976
4416	Personnel Clerks	100	100	2.0232	2.2627
5164	Pet Groomers and Animal Care Workers	0	0	-0.9887	-0.9539
3134	Petroleum and Natural Gas Refining Plant Operators	0	0	-0.9887	-0.9539
3213	Pharmaceutical Technicians and Assistants	11.11	11.11	-0.654	-0.5965
2262	Pharmacists	53.85	46.15	0.6331	0.5307
2633	Philosophers, Historians and Political Scientists	62.5	62.5	0.8938	1.0565
3431	Photographers	37.5	37.5	0.1408	0.2523
8132	Photographic Products Machine Operators	0	0	-0.9887	-0.9539
3119	Physical and Engineering Science Technicians Not Elsewhere Classified	0	0	-0.9887	-0.9539

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
2111	Physicists and Astronomers	54.55	45.45	0.6542	0.5082
2264	Physiotherapists	14.29	14.29	-0.5584	-0.4944
3255	Physiotherapy Technicians and Assistants	16.67	0	-0.4867	-0.9539
7123	Plasterers	0	0	-0.9887	-0.9539
8142	Plastic Products Machine Operators	0	0	-0.9887	-0.9539
7126	Plumbers and Pipe Fitters	20	20	-0.3863	-0.3106
3355	Police Inspectors and Detectives	0	0	-0.9887	-0.9539
5412	Police Officers	0	0	-0.9887	-0.9539
2422	Policy Administration Professionals	100	85.71	2.0232	1.8032
1213	Policy and Planning Managers	44.44	22.22	0.35	-0.2391
7314	Potters and Related Workers	9.09	9.09	-0.7149	-0.6615
6122	Poultry Producers	16.67	16.67	-0.4867	-0.4178
3131	Power Production Plant Operators	0	0	-0.9887	-0.9539
7311	Precision-instrument Makers and Repairers	0	0	-0.9887	-0.9539
7321	Pre-press Technicians	14.29	14.29	-0.5584	-0.4944
2341	Primary School Teachers	60	50	0.8185	0.6544
7323	Print Finishing and Binding Workers	0	0	-0.9887	-0.9539
7322	Printers	11.11	11.11	-0.654	-0.5965
5413	Prison Guards	0	0	-0.9887	-0.9539
2163	Product and Garment Designers	55.56	55.56	0.6846	0.8331
7543	Product Graders and Testers (excluding Foods and Beverages)	33.33	33.33	0.0153	0.1183
4322	Production Clerks	60	60	0.8185	0.976
1349	Professional Services Managers Not Elsewhere Classified	55.56	44.44	0.6846	0.4757
5419	Protective Services Workers Not Elsewhere Classified	20	20	-0.3863	-0.3106
2634	Psychologists	66.67	66.67	1.0193	1.1905
2432	Public Relations Professionals	87.5	62.5	1.6467	1.0565
8171	Pulp and Papermaking Plant Operators	0	0	-0.9887	-0.9539
8312	Railway Brake, Signal and Switch Operators	0	0	-0.9887	-0.9539
3334	Real Estate Agents and Property Managers	71.43	57.14	1.1627	0.8841
4226	Receptionists (general)	60	60	0.8185	0.976
9612	Refuse Sorters	0	0	-0.9887	-0.9539

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
3413	Religious Associate Professionals	33.33	0	0.0153	-0.9539
2636	Religious Professionals	44.44	22.22	0.35	-0.2391
1223	Research and Development Managers	50	37.5	0.5173	0.2523
1412	Restaurant Managers	40	40	0.2161	0.3327
1420	Retail and Wholesale Trade Managers	57.14	57.14	0.7324	0.8841
7215	Riggers and Cable Splicers	0	0	-0.9887	-0.9539
7121	Roofers	0	0	-0.9887	-0.9539
8141	Rubber Products Machine Operators	0	0	-0.9887	-0.9539
1221	Sales and Marketing Managers	62.5	50	0.8938	0.6544
5242	Sales Demonstrators	40	40	0.2161	0.3327
4414	Scribes and Related Workers	100	100	2.0232	2.2627
2330	Secondary Education Teachers	72.73	72.73	1.2018	1.3854
4120	Secretaries (general)	100	100	2.0232	2.2627
3311	Securities and Finance Dealers and Brokers	80	80	1.4208	1.6194
5414	Security Guards	0	0	-0.9887	-0.9539
1112	Senior Government Officials	88.89	77.78	1.6886	1.5479
1114	Senior Officials of Special-interest Organizations	66.67	66.67	1.0193	1.1905
5245	Service Station Attendants	25	25	-0.2357	-0.1497
8153	Sewing Machine Operators	0	0	-0.9887	-0.9539
7533	Sewing, Embroidery and Related Workers	0	0	-0.9887	-0.9539
7213	Sheet Metal Workers	0	0	-0.9887	-0.9539
9334	Shelf Fillers	0	0	-0.9887	-0.9539
8350	Ships' Deck Crews and Related Workers	0	0	-0.9887	-0.9539
3152	Ships' Deck Officers and Pilots	0	0	-0.9887	-0.9539
3151	Ships' Engineers	0	0	-0.9887	-0.9539
7536	Shoemakers and Related Workers	15.38	15.38	-0.5253	-0.459
8156	Shoemaking and Related Machine Operators	0	0	-0.9887	-0.9539
5223	Shop Sales Assistants	20	0	-0.3863	-0.9539
5222	Shop Supervisors	25	25	-0.2357	-0.1497
5221	Shopkeepers	57.14	42.86	0.7324	0.4246
7542	Shotfirers and Blasters	9.09	9.09	-0.7149	-0.6615
7316	Signwriters, Decorative Painters, Engravers and Etchers	35.71	35.71	0.087	0.1949

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
1344	Social Welfare Managers	60	40	0.8185	0.3327
2635	Social Work and Counselling Professionals	36.36	27.27	0.1066	-0.0766
3412	Social Work Associate Professionals	40	40	0.2161	0.3327
2632	Sociologists, Anthropologists and Related Professionals	66.67	66.67	1.0193	1.1905
2519	Software and Applications Developers and Analysts Not Elsewhere Classified	100	100	2.0232	2.2627
2512	Software Developers	87.5	62.5	1.6467	1.0565
2352	Special Needs Teachers	72.73	54.55	1.2018	0.8006
2212	Specialist Medical Practitioners	41.67	41.67	0.2663	0.3863
3422	Sports Coaches, Instructors and Officials	54.55	54.55	0.6542	0.8006
1431	Sports, Recreation and Cultural Centre Managers	44.44	44.44	0.35	0.4757
7132	Spray Painters and Varnishers	0	0	-0.9887	-0.9539
5211	Stall and Market Salespersons	28.57	28.57	-0.1281	-0.0349
4312	Statistical, Finance and Insurance Clerks	100	100	2.0232	2.2627
3314	Statistical, Mathematical and Related Associate Professionals	87.5	87.5	1.6467	1.8606
8182	Steam Engine and Boiler Operators	0	0	-0.9887	-0.9539
4321	Stock Clerks	40	40	0.2161	0.3327
7113	Stonemasons, Stone cutters, Splitters and Carvers	0	0	-0.9887	-0.9539
9510	Street and Related Services Workers	0	0	-0.9887	-0.9539
5212	Street Food Salespersons	20	20	-0.3863	-0.3106
9520	Street Vendors (excluding Food)	0	0	-0.9887	-0.9539
7214	Structural Metal Preparers and Erectors	0	0	-0.9887	-0.9539
6310	Subsistence Crop Farmers	0	0	-0.9887	-0.9539
6340	Subsistence Fishers, Hunters, Trappers and Gatherers	0	0	-0.9887	-0.9539
6320	Subsistence Livestock Farmer	0	0	-0.9887	-0.9539
6330	Subsistence Mixed Crop and Livestock Farmers	0	0	-0.9887	-0.9539
1324	Supply, Distribution and Related Managers	41.67	33.33	0.2663	0.1183
4227	Survey and Market Research Interviewers	40	40	0.2161	0.3327
9613	Sweepers and Related Labourers	0	0	-0.9887	-0.9539

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
2522	Systems Administrators	100	100	2.0232	2.2627
2511	Systems Analysts	100	100	2.0232	2.2627
7531	Tailors, Dressmakers, Furriers and Hatters	0	0	-0.9887	-0.9539
5312	Teachers' Aides	14.29	14.29	-0.5584	-0.4944
2359	Teaching Professionals Not Elsewhere Classified	81.82	54.55	1.4756	0.8006
2433	Technical and Medical Sales Professionals (excluding ICT)	75	66.67	1.2703	1.1905
3522	Telecommunications Engineering Technicians	60	60	0.8185	0.976
2153	Telecommunications Engineers	28.57	28.57	-0.1281	-0.0349
4223	Telephone Switchboard Operators	80	80	1.4208	1.6194
8159	Textile, Fur and Leather Products Machine Operators Not Elsewhere Classified	0	0	-0.9887	-0.9539
7516	Tobacco Preparers and Tobacco Products Makers	0	0	-0.9887	-0.9539
7222	Toolmakers and Related Workers	27.27	27.27	-0.1672	-0.0766
2164	Town and Traffic Planners	100	50	2.0232	0.6544
3324	Trade Brokers	66.67	50	1.0193	0.6544
3230	Traditional and Complementary Medicine Associate Professionals	33.33	16.67	0.0153	-0.4178
2230	Traditional and Complementary Medicine Professionals	28.57	28.57	-0.1281	-0.0349
1113	Traditional Chiefs and Heads of Villages	14.29	14.29	-0.5584	-0.4944
2424	Training and Staff Development Professionals	87.5	62.5	1.6467	1.0565
2643	Translators, Interpreters and Other Linguists	100	100	2.0232	2.2627
4323	Transport Clerks	33.33	33.33	0.0153	0.1183
5112	Transport Conductors	0	0	-0.9887	-0.9539
5111	Travel Attendants and Travel Stewards	0	0	-0.9887	-0.9539
4221	Travel Consultants and Clerks	85.71	85.71	1.593	1.8032
5113	Travel Guides	11.11	11.11	-0.654	-0.5965
6112	Tree and Shrub Crop Growers	18.18	18.18	-0.441	-0.3691
4131	Typists and Word Processing Operators	100	100	2.0232	2.2627
5163	Undertakers and Embalmers	16.67	16.67	-0.4867	-0.4178
7541	Underwater Divers	0	0	-0.9887	-0.9539

TABLE A1. 'Teleworkability' scores of all 427 occupations (4-digit ISCO-08) by telework classification (continued)

ISCO-08 (4-digit)	Occupations	'Teleworkability' score		Normalized score	
		Lenient	Strict	Lenient	Strict
2310	University and Higher Education Teachers	88.89	88.89	1.6886	1.9053
7534	Upholsterers and Related Workers	8.33	0	-0.7377	-0.9539
3315	Valuers and Loss Assessors	20	20	-0.3863	-0.3106
9122	Vehicle Cleaners	0	0	-0.9887	-0.9539
2250	Veterinarians	11.11	11.11	-0.654	-0.5965
3240	Veterinary Technicians and Assistants	10	0	-0.6875	-0.9539
2651	Visual Artists	62.5	62.5	0.8938	1.0565
2320	Vocational Education Teachers	60	60	0.8185	0.976
5131	Waiters	0	0	-0.9887	-0.9539
9624	Water and Firewood Collectors	0	0	-0.9887	-0.9539
8152	Weaving and Knitting Machine Operators	0	0	-0.9887	-0.9539
2513	Web and Multimedia Developers	100	100	2.0232	2.2627
3514	Web Technicians	100	100	2.0232	2.2627
7212	Welders and Flame Cutters	0	0	-0.9887	-0.9539
8113	Well Drillers and Borers and Related Workers	0	0	-0.9887	-0.9539
9123	Window Cleaners	0	0	-0.9887	-0.9539
8172	Wood Processing Plant Operators	0	0	-0.9887	-0.9539
7521	Wood Treaters	0	0	-0.9887	-0.9539
7523	Woodworking Machine Tool Setters and Operators	16.67	16.67	-0.4867	-0.4178

Source: Author's calculations.