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Impact of COVID-19 pandemic on informal employees: The case of Sri Lanka

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Abstract
The COVID-19 pandemic and associated counter measures have caused a number short- and long-term socio-economic consequences. This study aims at evaluating the impact of the above on informal wage employees in Sri Lanka. By employing both descriptive and regression techniques to nationally representative labour force survey data, a number of key findings were dervived. Informal employees account for nearly half of the total informal workforce and majority of them employed in sectors whose labour demand is highly elastic. There is a wage penalty factor for informal employees and wage penalty factor is much higher for low-skilled informal employees that that of their high-skilled counterparts. Above findings imply that informal employees are at a higher risk towards losing jobs and earnings due to the pandemic. Some of the negative impacts are already visible in recent data. Appropriate policy measures are urgently needed in improving labour market conditions of the above group.

Keywords: COVID-19, labour market, informal employees, impact, Sri Lanka

Introduction
The COVID-19 has shaken the whole social fabric of our world and, as of mid-June 2021, 178 million infected cases and around 4 million deaths have been reported [1]. In Sri Lanka, the virus hit at three waves, as of now, around 3.3 million of infected cases and 2435 deaths have been reported (Epidemiology Unit of the Ministry of Health, 2021). The first confirmed case of COVID-19 reported in the early part of 2020 and strict lockdown measures along with various other interventions brought the spread of the virus under controlled by mid-2020. However, the country witnessed the second wave during the latter part of 2020, in contrast to the first one, the infected cases were found in various parts of the country. The third wave, the worst in terms of its spread and causalities, struck quietly unexpectedly at the beginning of the second quarter of 2021. Throughout the pandemic period, some of the essential services, such as public health, utility services, duties of police & armed forces, were provided while activities related to agriculture and exporting were mostly allowed to perform. In most of the other sectors, production and distribution activities were mostly discouraged during the heights of the respective waves and people were encouraged to use online means of performing activities. During the intervals between respective waves, economic activities almost returned to normal, however, the length of such intervals remained very short.

COVID-19 induced travel restrictions and social distancing disturbed the forces of supply of and demand for labour in the economy. In the short-run, it could generally be expected that both labour demand and supply in majority of economic sectors decline during the COVID-19 pandemic. As a result, the pandemic may have had an impact on the level of labour force participation, employment, unemployment, wages, and informality in the labour market. In addition, it is also possible that workers moving from the sectors whose activities are largely disturbed from the pandemic to the sectors that were mostly allowed to amidst the pandemic environment. In the context of Sri Lanka, this paper aims at analyzing some of the short-run labour market effects of COVID-19. In recent months, a number of studies have attempted in analyzing the effect of COVID-19 on labour markets, in particular, in developed countries. Nevertheless, a limited number of attempts have been made in investigating the short-run effects of COVID-19 on the labour markets in developing countries.

[1] As per https://www.worldometers.info/coronavirus/, accessed on 01st July 2021.

It is expected that this study will be an important addition to this limited literature. A brief review on literature in the section two will be followed by a discussion on methodology and data in section three. The first part of the fourth section will discuss some of the policy initiatives introduced by the government in tackling the negative consequences due to COVID-19 related travel restrictions and social distancing measures while the second half present a discussion of the data on recent changes in the labour market. The final section make some concluding remarks along with some recommendation for consideration.

Literature review

According to Guha-Khasnobis *et al*. (2006), writings on the dual nature of the economy date back to the 1940s. In the field of economics, Lewis (1954) and Harris and Todaro (1970) argue that the economy comprises two sectors, namely an urban-sector and a rural-sector. The characteristics of the rural sector closely resembled the informal sector; however, the word "informal" employment was firstly used in the report documented by the International Labour Organization (ILO) Employment Mission in Kenya. In subsequent years, one could observe that the term "informal" employment has been using in heterogeneous contexts with a multiplicity of different and often competing meaning (Guha-Khasnobis *et al*., 2006; World Trade Organization & International Labour Organization, 2009 (henceforth WTO & ILO, 2009)). The lack of clear-cut conceptualization has led to difficulties in defining the term as well as measuring it. According to WTO & ILO (2009), the existing ideas on informal employment could be categorized into three main schools of thoughts: (i) the dualist school, (ii) the structuralist school, and (iii) the legalist school. The dualist school views the informal sector as an inferior segment of a dual labor market with no direct links to the formal sector while the structuralist school defines it as consisting of small firms and unregistered workers subordinated to large capitalist firms. In contrast to both these views, the legalist school characterizes informal sector as an economic segment consisting of micro-entrepreneurs preferring to operate informally to avoid the costs associated with registration and related business and labor regulations (WTO & ILO, 2009).

Based on the idea of multi-segmented labor markets, there emerged an integrated approach for conceptualizing informal employment (Fields, 2005; WTO & ILO, 2009). This new approach encompasses the important elements of the aforementioned three schools. Accordingly, the lower segment are dominated by households engaging in survival activities with few links to the formal economy, as the dualists suggest; the upper segment with micro-entrepreneurs who choose to avoid taxes and regulations, as the legalists suggest; and the intermediate segment with micro-firms and workers subordinated to larger firms, along the lines suggested by the structuralists. Over the years, the ILO along with national statistical agencies has made tireless efforts in developing a definition for the informal sector for the purpose of data collection. In 1993, the 15th International Conference of Labor Statisticians (ICLS: Delhi Group) adopted a statistical definition of the informal sector in terms of economic/production units. However, this definition came under attack due to several limitations (Hussmanns, 2004). As a result, the Expert Groups on Informal Sector Statistics (Delhi Group) agreed that a definition and measurement of employment in the informal sector need to be complemented with the definition and measurement of informal employment. Thus, the enterprise-based definition of employment in the informal sector, adopted in 15th of ICLS, combined with a broader, job-based concept of informal employment adopted at the 17th ICLS. According to this new definition, the informal sector includes: (i) employments in informal enterprises (small-unregistered or unincorporated) including employers, employees, own-account operators, and unpaid family workers) and (ii) informal employment outside the informal sector. Outside the informal sector refers to the formal sector and the household economy.

Lee *et al.,* (2020) argue unemployment does not reflect the actual scale of disruption for workers in the case of COVID-19 pandemic due to few reasons. First, many keep jobs but are not working, hence, they are counted as employed. Second, some have lost their jobs, but do not engage in searching for jobs due to low probability of finding a job, and they are counted as inactive. Finally, some are working fewer hours than previous, and are counted as employed though their actual earnings remain low. Moreover, the authors argue that the impact of COVID-19 have been disproportionate, particularly making certain segments of the workforce even more vulnerable. In particular, informal workers, youth, and females are at disadvantage position compared to other workers. COVID-19 affected young people in three ways; namely (a) disruption to education, training, and work-based learning, (b) increased difficulties for jobseekers and new labour market entrants, and (c) job and income losses, along with deteriorating quality of employment. Lemieux, *et.al.,* (2020) found that COVID-19 caused a 32 per cent decline in aggregate weekly work hours among workers aged 20-64 during Febuary 2020 – April 2020 in the Canadian labour market. Moreover, the authors found that half of the total job losses are attributed to workers in the bottom earnings quartile. Beland *et al.,* (2020) examined the short-term effect of COVID-19 on Self-employed workers in Canada for the period of February 2020-May 2020. The authors found that COVID-19 had a negative impact on entrepreneurship, in particular, a sizable share small businesses run by women, less educated persons, in the sectors such as art, culture, & recreation and sales and service occupations went out of business. Webster *et al.,* (2020), using enterprise surveys conducted by the World Bank, examined the impact of COVID-19 on labour market in Southern European countries. The authors found that despite various measures adopted by governments in supporting firms, a sizable share of small firms closed down in sectors such as hospitality and non-essential travel and retail services. Balde *et al.,* (2020) examined the impact of COVID-19 on the informal sector in three Sub-Saharan countries; namely Burkina Faso, Mali, and Sengal. The authors found that COVID-19 had a severe effect on workers in the informal sector. In particular, a sizable share of informal workers working in high risk sectors lost their jobs and the other informal workers witnessed a decline in their earnings. Francis-Devine and Powell (2021) found, during the pandemic period, that employment levels for those age 16-24 and 65+ have fallen by 8 per cent in United Kingdom. This is much higher compared to 0.4 per cent decline in employment for people aged 25-64. The authors found the ethnic minority groups, females, and low paid

workers have severely affected due to the COVID-19 pandemic. Djoumessi (2021) found that a larger proportion of workers suffered a wage cut while around one-third witnessed a temporary job suspension in Cameroon. In contrast, around 7 per cent of workers in the sample of 1,310. Masri, *et al.*, (2021) examined the short-term impact of COVID-19 on Labour market, poverty, and inequality in Brazil.

The authors found that sector most susceptible to the shock because they are more contact-intensive and less teleworkable, such as construction, domestic service, and hospitality suffered large job losses and reduction in hours in Brazil. In addition, their analyses indicated the low income workers experience the largest decline in earnings. Schotte *et al.*, (2021), using a difference-in-difference design, found that informal self-employed persons were most often forced to stop their activities during the lockdown. Similarly, recovery of employment is somewhat slower for women than that of for men. In addition, there is a persistent negative effect on working hours and earnings related to self-employed workers and women. International Labour Organization (ILO, 2020) examined the effect of COVID-19 on labour market in Philippines and predicted that one quarter of the total employment in the Philippines is likely to face job disruption due to the COVID-19 pandemic. Moreover, the study found that some of the sectors that display medium to high risk of being disrupted by COVID-19 also have large shares of workers in occupations likely to be disrupted by digitalization. The ILO (2020) conducted that the negative labour market impact of the pandemic is more pronounce among vulnerable and part-time workers, young people, overseas workers, and women. Kapoor (2020) argues that, in the context of the labour market in India, a sizable share of informal workers could be affected due to dual shock of pandemic and lockdown. In particular, the author argues that COVID-19 could affect most informal workers in terms of income and job losses. Barker *et al.*, (2020) examined the impact of COVID-19 on labour migration in Bangladesh and Nepal and found that rate of out migration and remittance per migrant has declined during the pandemic period. The author argued that these effects could lead to greater prevalence of food insecurity among migrant households.

3. Methodology and Data

This study employs both descriptive and regression based data analytical tools and techniques in analyzing both micro- and macro-level data to explore vulnerabilities, in terms of earnings and job losses, associated with informal wage employees.

Mean and quantile regression

In the literature, it is argued that informal wage employees are exploited in the job market (Badaoui *et al.*, 2007). In particular, an informal wage employee is paid a salary which is lower than what is paid for a formal wage employee even if both workers are identical in all observable characteristics except the status of the job, i.e. informal vs. formal. The size of the wage differentials, however, is determined by labour market conditions including labour market institutions. In the context of Sri Lanka, this study employs mean and quantile regression approachs to estimate above wage differential both at the mean and at different quantiles along the wage distribution. The following section briefly outline the mean and quantile regression approaches adopted in investigating wage penalty associated with an informal employee.

Following Mincer (1973) and subsequent literature;

$$y = X\beta + \varepsilon \qquad (1)$$

In eq. (2), *y* is a vector, the dependent variable, representing log monthly wage, and X is a matrix consists of variables such as age, age-square, highest level of education, gender, ethnicity, and marital status. The matrix X also contains a dummy vector that takes 1 if a worker is a wage employee holding an informal job, and zero otherwise and ε is the id disturbance term.

As Buchinsky (1994) suggests, mean regression techniques have never been satisfactory approaches when considering heterogeneous populations. To consider the potential heterogeneous impacts, we specify the q^{th} – quantile ($0< q<1$) of conditional distribution of the dependent variable, given a set of variables Xs, as follows:

$$y_q = X\beta_q + \varepsilon_q \qquad (2)$$

Cameron and Trivedi (2009) show that estimation of equation (1) based on the q^{th} quantile regression involves minimizing the absolute value of the residual using the following objective function:

$$Q_N(\beta_q) = \min_{\beta} \sum_{i=1}^{N} [|y - X^i\beta_q|] = min\left[\sum_{i:y\geq X^i\beta} q|y - X^i\beta_q| + \sum_{i:y<X^i\beta} 1-q|y - X^i\beta_q|\right] \qquad (3)$$

This study makes use of Labour Force Survey (LFS) 2018, collected and disseminated by the Department of Census and Statistics (DCS) of Sri Lanka, for estimating above regression models. The LFS is a nationally representative survey which collects data on quarterly basis and covers around 25,000 households in a year. It collects demographic and education related data for all the individuals residing in a selected household whereas labour market related data are collected for people who are age 15 and above. It covers areas such as labour force participation, employment, unemployment, underemployment, labour market informality, social security contribution, secondary job holdings, wages & remuneration, and training. According to the DCS, informal employment consists of (a) *all unpaid family workers,* (b) *all employers and own account workers in informal sector*, (c) *all paid employees who do not have a permanent employer*, and (d) a*ll paid employees whose employers are not contributing to pension scheme or provident fund on their behalf.* Accordingly, the last two categories fall into study area of this study; i.e. paid employees who either do not have an employer and employees whose employers are not contributing to social security schemes such as pension and provident fund.

The log monthly wage is considered as the dependent

variable where monthly wage for a daily-paid worker was calculated as; daily wage rate multiplied by the number of days worked per a month. For a monthly-wage earner, monthly gross salary (including all usual receipts) was considered. The LFS collects data on highest level of education achieved by individuals currently not pursuing education, and based on the information, five dummies were constructed for the regression analysis [2]. Similarly, dummies to represent ethnic groups and marital status were constructed and our variable of interest, informal employees, is a dummy variable which takes 1 if an employee holds an informal employment, and zero otherwise. In addition to age, age-square variable was included into the regression to capture any non-linear relationship between age and monthly wage.

Employment elasticity

In the empirical literature, there are two methods that have generally been used for calculation of employment elasticities. These are based on compound annual growth rate (CAGR) approach that gives the 'arc' elasticity and regression approaches that provide point elasticity (Misra and Suresh, 2014). The formula for calculation of 'arc' elasticity of employment can be presented as follows:

$$e_j = \frac{\Delta L_j / L_j}{\Delta Y_j / Y_j} \qquad (4)$$

Where L_j denotes employment of the j^{th} sector and Y_j denotes output of j^{ith} sector. The numerator refers to the percentage change in employment, while the denominator refers to the percentage change in income, which is essentially the GDP growth rate, in j^{th} sector. Elasticity was estimated using data for 2015-2019 and the average (of employment and output of each sector) of nearby two years; i.e. 2015 and 2016 for the beginning period and 2018 and 2019 for the end period, were considered in order to avoid any year specific fluctuation in employment and GDP data.

COVID-19 induced Policy Responses

It was reported in the media that the Department of Labour initiated a tripartite dialog where employers' and workers' unions along with the ministry officials conducted regular meetings to discuss issues arising from the COVID-19 pandemic (Daily News, 2021) [3]. In most sectors, workers' unions broadly agreed to some wage cuts while employers' associations agreed to avoid firing of workers. However, it is not clear to what extent those agreements materialized in practice. The government and the Central Bank introduced a number of policy measures in countering the negative effects emanating from COVID-19 pandemic which kept fast spreading around the world and in the country. The policy interventions covered some of the areas such as monetary sector, financial sector, public expenditure, export & imports, agriculture production, tax revisions, and external financial arrangements. In this paper, our focus is mainly on areas which may directly have influenced on labour market outcomes. In particular, the government aimed at granting some financial reliefs to businesses which were affected hard by the COVID-19 pandemic and households whose income generating activities were affected due to travel restrictions and social distancing measures. Central Bank of Sri Lanka reduced its policy rates in the beginning of the year and continued to lower it significantly in subsequent months to stimulate private investments [4]. The private sector firms, largely battered by the COVID-19 related demand and supply shocks and uncertain future, faced difficulties in financing new investments and working capital requirements at the interest rated prevailed prior to witnessing the pandemic. In addition the Central Bank of Sri Lanka reduced both Bank Rate and the Statutory Reserve Ratio. All these measures contributed to enhance the liquidity in the market at lower financing costs thereby allowing businesses to access finance for investment and working capital requirements.

Table 1: Selected COVID-19 Induced Policy Responses

Monetary policy	**Action**
Standing Deposit/Lending Facility Rates	Reduced
Bank Rate and Statutory Reserve Ratio	Reduced
Special credit schemes	Introduced
More funds for self-employment promotion	Expanded
More working capital facilities for Small & Medium firms	Expanded
Concessional loan scheme of LKR 150 billion to assist micro, small & medium, and self-employment	Introduced and expanded
Financial sector	
Extending moratorium period for COVID-19 affected businesses	Introduced and expanded
Setting interest rate upper ceilings	Introduced
Import/export related measures	
Import restrictions on unessential imports, motor vehicle, luxury goods	Introduced and expanded
Removal of Cess on exports	Introduced
Removal of some taxes on imports (health related goods)	Introduced
Government expenditure	
Expansion of fertilizer subsidies	Introduced
Provision of subsidies for low income families	Few rounds

Source: Annual Report 2020, Central Bank of Sri Lanka

The Central Bank of Sri Lanka also introduced a special credit scheme to help businesses, self-employment, micro, small & medium, which were affected by the COVID-19 pandemic related demand and supply shocks. In the financial sector, the government requested financial institutions to grant a debt/interest moratorium for businesses severely affected by the COVID-19 pandemic. The government of Sri Lanka introduced a number of restrictions on imports. Some imports, in particular motor vehicles and luxury goods, were banned from importing while quantitative restrictions were imposed on some other imported goods and services. Nevertheless, in order to facilitate the efforts on countering the pandemic, import duties were reduced on some imported medical equipment and goods. Further, the government removed/reduced Cess on some exports to facilitate trade during the pandemic

[2] These include; (a) less than Grade 8, (b) Grade 8-10, (c) GCE O/L passed, (d) GCE A/L passed, and (e) degree & above.

[3] For more information; https://dailynews.lk/2021/05/01/features/248005/%E2%80%98govt-fully-backing-labour-force-amidst-challenges%E2%80%99

[4] In response to adverse economic situation, the Central Bank of Sri Lanka reduced the Standing Deposit Facility Rate (SDFR) and the Standing Lending Facility Rate (SLFR) by 50 basis points on 30th January 2020. This and the subsequent revisions into to both rates resulted SDFR and SLFR to stand at 4.5 and 5.5 per cent respectively by the mid July by 2020.

period. With respect to public expenditure, the government granted a small cash transfer (LKR 5,000 per poor households) to facilitate consumption expenditure and this cash transfer was implemented few times during the pandemic. In particular, the government encouraged domestic food production by granting fertilizer subsidies as well as certified prices for 16 selected crops. It aimed at guaranteeing domestic food security. Broadly speaking, above measures may have provided some reliefs to labour market participants and businesses which were severely affected directly and indirectly during the lock down periods. In addition, it is important to note that the government provided a special permission for some businesses (such as exporting firms) to operate during the lockdown period.

Impact of COVID-19 on Informal Employees

Sri Lanka's Labour Market: Some Stylist Facts

The effects of COVID19 on Sri Lanka's labour market will be determined by a number of factors such as the length of the travel restrictions and social distancing measures in operation, the efficacy of the government policy interventions, decisions made at household- and individual-levels, and the characteristics of the prevailing labour market. Sri Lanka's labour market faces some long-standing issues, among them, high level of informality, youth unemployment, and NEET rate are critical in determining the impacts of the COVID-19 on the labour market outcomes. According to DCS, over two-third (67 per cent) of total employed persons engage in in the informal employment and this share has slightly declined during 2014-2019. Out of the informally employed person, 43 per cent work as informal employees. In fact, this ratio has increased over the time (see Table 2). In addition, the share of informal employee in the *formal sector* has increased during the last decades, raising concerns over in formalization of the formal sector. For instance, the share of informal employee in the formal sector increased from 7.3 per cent in 2006 to 8.5 per cent in 2019. Agriculture sector has traditionally been one of the major sectors which rooms for a sizable share of informal workers. Out of the total informal workers, nearly one-third of the informal workers engage in the agriculture sector. It needs to be noted that informal employees represent over 80 per cent of total informal workers in the non-agriculture. In absolute terms, non-agriculture sector informal employees numbered to 1.9 million in 2019. Table 3 reports data on economic sector-wise distribution of informal employees. Accordingly, around 20 per cent of total informal employees was in the construction and related sector, and retain and whole sales sector accounted for around 10 per cent of the total informal employees. Sectors such as domestic servants and transport and storage account for around 5 per cent of the informal employees. Informal employees are not protected by labour laws/regulations and they are not entitled to social security contribution or paid leaves. Most of them are paid on daily and weekly basis. In Sri Lanka, informal employments have largely been concentrated among less educated individuals. For instance, around 89 per cent of the total workers, studied at most up to Grade 5, and 80 per cent of the total workers, schooled at most Grade 10, were holding informal employments in 2019.

As highlighted above, there are at least three key concerns regarding informal employment discussed above. First, over two-third of the total workforce continues to hold informal employment. Second, over 2 million of workers work as informal employees in the non-agriculture sector. Finally, informal employments are mostly held by less educated members in the labour market. It could reasonably expected that informal employees in the non-agriculture sector were severely at distress due to the travel restriction, social distancing measures, and lockdowns imposed in reducing the spread of the pandemic.

Table 2: Labour Market Informality

Year	Informal workers (% out of total employment)	Informal employee (% out of total informal employment)	Informal workers in non-agriculture sector (% of total informal workers)	Informal employee in non-agriculture sector (% out of total informal employment in the sector)
2014	69.8	42.1	61.9	80.1
2015	69.4	41.3	63.1	78.8
2016	69.7	43.6	64.8	80.3
2017	68.1	43.2	65.9	80.1
2018	68.0	43.3	65.8	80.7
2019	66.7	43.0	65.1	80.1

Source: Author's calculation based on Labour Force Survey, 2019

Table 3: Informal Employees (as % of Total Informal Employees)

Agriculture	19.90
Non-Agriculture	80.10
Construction and related sectors	19.93
Retail and whole sales	10.09
Domestic servants and related activities	6.06
Transport & storage	4.94
Food manufacturing	3.72
Textile & apparel related	4.00
Furniture and timber related activities	3.76
Education activity related	2.24
Motor vehicle repairing and sales	2.21
Hotels & restaurants related	2.19
Other industries	20.10

Source: Author's calculation based on Labour Force Survey, 2019

Table 4: Informal Employments vs. Education Level

	% of informal employment held (relative to total employed under each category)	% of informal workers (relative to total informal workers under each category)
Grade 5 & below	89.8	19
Grade 6-10	80.1	55
GCE (O/L)	61.5	16
GCE (A/L) & above	29.8	10
Total	66.7	100

Source: Author's calculation based on Labour Force Survey, 2019

Size of the wage penalty for informal employees?

A number of studies have found that there is a wage penalty associated with informal employment (…….). This study estimated the wage penalty factor for informal employees at mean and quintiles (0.2, 0.4, 0.6, and 0.8). Table 5 reports the estimated results.

Table 5: Informal Employee Wage Penalty

	Mean regression	q.(0.2)	q.(0.4)	q.(0.6)	q.(0.8)
Constant	9.10(0.05)***	8.66(0.07)***	9.07(0.08)***	9.31(0.06)***	9.46(0.07)***
Informality (informal employee=1) Education (ref. group: < Gr.8)	-0.34(0.01)***	-0.44(0.01)***	-0.34(0.02)***	-0.29(0.009)***	-0.22(0.01)***
Gr.8-10	0.22(0.02)***	0.24(0.03)***	0.21(0.02)***	0.21(0.02)***	0.20(0.03)***
GCE O/L passed	0.36(0.02)***	0.40(0.03)***	0.34(0.02)***	0.35(0.02)***	0.36(0.03)***
GCE A/L passed	0.54(0.02)***	0.53(0.02)***	0.50(0.02)***	0.53(0.02)***	0.55(0.03)***
Degree & above	0.83(0.02)***	0.79(0.03)***	0.69(0.02)***	0.70(0.03)***	0.84(0.04)***
Gender (Male=1)	0.30(0.001)***	0.27(0.01)***	0.25(0.01)***	0.25(0.006)***	0.28(0.01)***
Age	0.03(0.002)***	0.04(0.004)***	0.03(0.004)***	0.03(0.003)***	0.02(0.003)***
Age square	0.0003(0.00002)***	-0.0004(0.00004)***	-0.003(0.00005)***	-0.0003(0.00003)***	-0.0002(0.00004)***
Ethnicity effect	Yes	yes	yes	yes	yes
Marital effect	yes	yes	yes	yes	yes
R^2		0.3	0.29	0.24	0.21
No of observations		10552			

Source: Author's estimation based on LFS, 2018

The estimated coefficient of informality dummy - which takes 1 if a worker is an informal wage employee, and zero otherwise – is negative and statistically significant at conventional level of significance both at mean regression as well as at every quintiles indicating that informal wage employees are paid less in the job market compared to their counterparts holding formal jobs. For instance, the wage penalty factor at the mean is -0.34 and it implies, monthly wage of an informal employee is 34 per cent lower than an identical worker holding a formal job. The quantile regression results indicate that the size of the wage penalty factor gets smaller at upper quintiles. For instance, at the lowest quintile, the estimated coefficient of informality dummy is 0.44 while at the top quintile it is 0.22. It implies that monthly wages of informal employees in the lower end of the wage distribution earn much lower wage compared to their counterparts. In contrast, the gap between informal and formal wages at the upper part of the wage distribution remain somewhat smaller. In other words, low-wage informal workers, who are generally the low skilled workers, ate at higher disadvantage position compared to high-wage informal workers, who are generally the skilled workers. During the COVID-19 pandemic, most private sector businesses laid off their workforce and/or cut wages to absorb the negative demand and supply shocks. It is highly probable that such decisions inflicted a disproportionate impact on informal wage employees in general, in particular, on low-wage informal wage employee.

Employment elasticity: Sectoral Analysis

As discussed previously, the governments around the world introduced travel restrictions and social distancing measures in preventing the spread of COVID-19 pandemic. By the end of June, 2021, the number of COVID-19 cases reached 182 million people and the number of death passed 4 million. In Sri Lanka, around 250 thousand people were infected and closer 3000 people died due to the pandemic. All of the above resulted either supply or demand shocks to the economy. Those supply and demand shocks translated into reduction in output. The responsiveness of employment to output, or employment elasticity, provides a useful information in estimating the COVID-19 related employment effect in an economy.

Table 6 reports elasticity estimation by sub-sectors in the economy. Accordingly, employment elasticity in agriculture sector is negative (-1.70), indicating growth of agricultural output is associated with decline in employment. It is expected that labour moves to the other sectors during the process of economic development. However, reduction in output, in particular due to pandemic related situation, could increase the employment in the sector. According to our estimates, over 85 thousand employment opportunities were created within the agriculture sector during the year of 2020. This elasticity based forecast is somewhat closer to the actual number of employment opportunities created within the agriculture sector (97 thousand), as estimated based on the Labour Force Survey 2020, by the DCS (2020). According to our elasticity estimates, economic growth has strong positive relationships with sector such as construction, education, and accommodation & food services sectors [5]. For instance, 1 per cent output growth in

[5] Construction sector include sub-sectors such as construction, electricity, gas steam and air conditioning supply, water supply, sewerage, waste management and remediation activities

construction and education sectors associates with 2 per cent and 2.6 per cent, respectively, increase in employment. Similarly, 1 per cent growth of output in accommodation & food services leads to 1.5 per cent growth in employment. According to our estimates, the construction and accommodation & food services sectors are expected to witness job losses amounting to 155 thousands and 134 thousands respectively. It could be expected that some of these workers, in particular migrants from rural areas, may have gone back to their native areas and employed in agriculture sector. Some of the sectors such as information & communication, financial services, health & social services, and education may have created employment opportunities during the pandemic. Accordingly, in terms of employment losses, construction, accommodation & food services, manufacturing, and other activities were the most vulnerable sectors during the pandemic period. Among the sub-sectors in the other activity category, the real estate activities and Arts, entertainment and recreation were mostly vulnerable during the pandemic. It is important to note that the share of informal employees is higher in sectors such as construction, agriculture, accommodation & food services, and education and there is a greater likelihood that employers in those sectors to lay off some informal employees in response to COVID-19 induced demand and supply shocks.

Table 6: Elasticity of Employment by Sub-sector

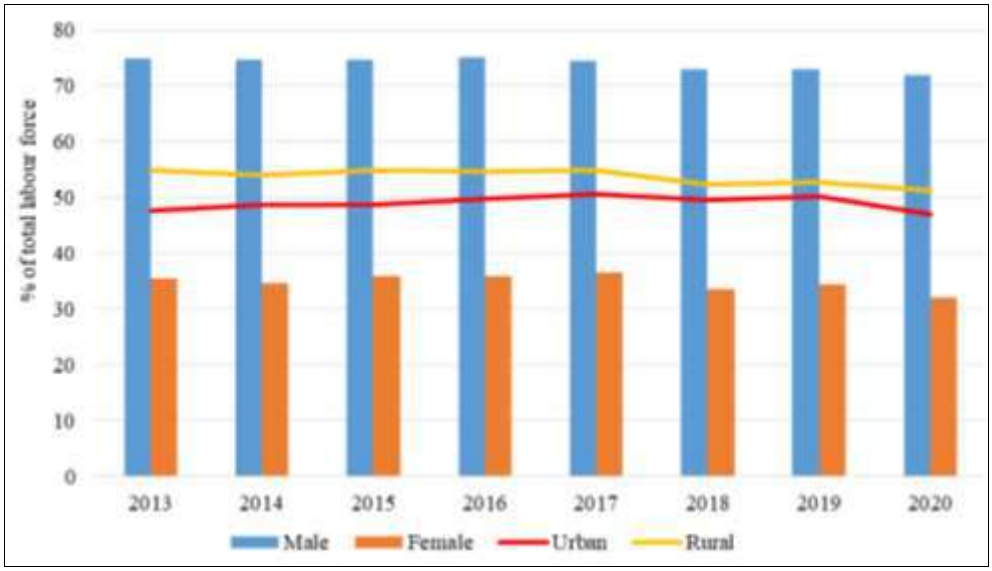
	Growth of output (2015-2019) (A)	Growth of employment (2015-2019) (B)	Employment elasticity (C=B/A)	Growth of output during 2020 (D)	Employment in 2019 (E)	Expected employment change during 2020 [F=(C*D*E)/100)]
Agriculture, forestry and fishing	3.94	-6.43	-1.70	-2.42	2,071,940	85,400
Mining & quarrying	11.91	2.09	0.18	-12.51	60,902	(1,387)
Manufacturing	10.54	4.94	0.48	-3.87	1,504,314	(27,874)
Construction, electricity, gas steam and air conditioning supply, water supply, sewerage, waste management and remediation activities	9.71	20.55	2.04	-10.98	693,205	(154,959)
Wholesale and retail trade, repair of motor vehicles and motor cycles	11.74	5.26	0.46	1.41	1,134,496	7,335
Transportation and storage	8.85	2.02	0.23	-6.71	514,469	(8,091)
Accommodation and food services activities	10.61	15.92	1.47	-39.42	232,344	(134,892)
Information and communication	34.45	5.01	0.16	13.72	64,382	1,423
Financial and insurance activities	32.49	18.90	0.61	9.40	187,933	10,758
Education	9.93	27.40	2.60	0.86	425,931	9,531
Human health and social work activities	12.30	11.78	0.96	4.34	169,232	7,043
Other activities	7.22	-6.83	-1.00	-3.08	1,121,545	34,568

Source: Author's calculation based on Labour Force Survey Annual Reports, DCS

COVID-19 and Labour Market: Short-term Impacts

In this section, a number of labour market indicators will be examined in order to assess the short-term impacts of the COVID-19. As mentioned in the methodology section, the relevant data for this assessment are extracted from the reports published by the Department of Census and Statistics based on its Labour Force Surveys. At the time of this study, the DCS has not published the Annual Labour Force Survey report for 2020, instead it has published an annual bulletin which contains, as usual, only a snap short on some key labour market indicators. Hence, this limitation prevents this study from conducting an in-depth analysis into the effects of COVID-19 on Sri Lanka's labour market. It is expected to enrich this study in future when disaggregated data are available in future.

Figure 1 reports data on labour force participation by gender and economic sector for the period of 2013-2020. In Sri Lanka, low female labour force participation has been identified as one of the major labour market issues and a number of initiatives have been taken by successive government in encouraging females to enter into the labour market (ILO, 2016). During 2020, compared to previous years, overall labour force participation has declined, and, in particular, female labour force participation has declined significantly compared to that of the male. For instance, male labour force participation declined from 73 per cent in 2019 to 72 per cent in 2020, while female labour force participation declined from 34.5 per cent in 2019 to 32 per cent in 2020. Low female labour force participation could be due to two factors, (a) fewer number of females join the labour force (either received jobs or started looking for jobs), and/or (b) some females lost their jobs and majority of them avoided searching for alternative employment opportunities. It could be argued that some females avoided joining the labour force for reasons such as (a) lack of sureness on finding a suitable job due to uncertainty surrounding both the pandemic and present economic environment, (b) increased responsibility at household level due to closer of schools, kindergartens, and day-care centers, (c) limited access to financial and social capital, and (d) not being able to complete training/education due to the pandemic. Labour force participation in urban sector has declined drastically compared to that of rural indicating COVID-19 has affected disproportionately. This may be partly due to the fact that some urban centers, in particular within the Western Province, witnessed prolonged lockdowns in 2020. Moreover, travel restrictions and social distancing measures brought about a severe blow to economic activities in the urban centers compared to that in the rural sector.



Source: Annual Report Labour Force Surveys 2019 & LFS Annual Bulletin, 2020

Fig 1: Labour Force Participation by Gender and Sector: 2013-2020

The argument, some females lost their jobs and majority of them avoided searching for alternative employment opportunities, could partially be supported through published data on female share of total employed persons in 2020. According to DCS (2020), the share of females in total employed declined from 34.4 per cent in 2019 to 32.8 per cent in 2020. In absolute terms, the total number of jobs lost during 2020 was 181 thousand and the number jobs lost among females was 185 thousands. In fact, the number of jobs among male increased by around 4 thousands in year 2020. Among the three major economic sectors, agriculture sector created around 98 thousands jobs during 2020 and both industrial and services sectors witnessed some employment losses. The industrial sector los around 105 thousands job while the job losses in the services sector amounted to 173 thousands. It is highly probable that sectors whose activities were severely disrupted due to travel restrictions and social distancing measures - such as construction, accommodation & food services, entertainments & recreation, and real estate sub-sectors – may have witnessed those job losses. In contrast, the government declared the agriculture related activities as essential and allowed people who engage in those activities to normally function during the lockdown period. As a result, the agriculture sector was minimally affected by the pandemic related travel restrictions and social distancing measures.

In 2020, the share of female workers declined with respect to all the employment status [6]. In particular, the decline was somewhat significant with respect to *own account worker* and *contributing family worker* categories. The female share in *own account worker* category declined from 26.2 per cent in 2019 to 24.1 per cent in 2020 whereas for the case of *contributing family worker*, the above share declined by around 2.2 per cent for the same period. With respect to *employee* category, the female share declined by around 1 per cent in 2020 compared to the year 2019. It could reasonably expected that the majority of females who lost jobs fall into the employment status of *employee* and *own account worker*.

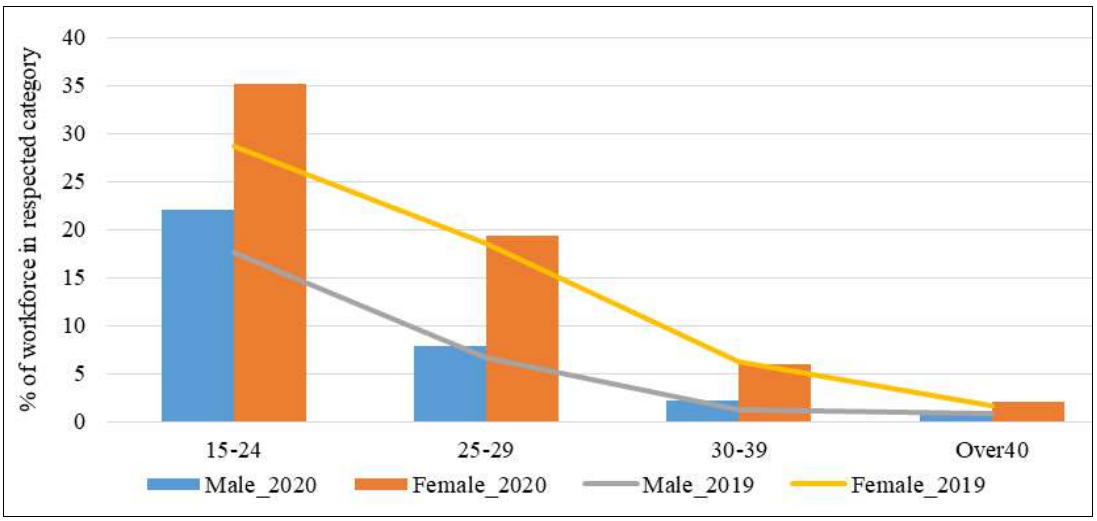
Economic slowdown, largely due to COVID-19, resulted in an increase in unemployment during 2020. For instance, the overall unemployment rate has increased from 4.8 per cent in 2019 to 5.5 per cent in 2020. The female unemployment rate increased from 7.4 per cent in 2019 to 8.5 per cent in 2020 whereas among male, unemployment rate increased from 3.3. Percent to 4 per cent during the above two years. As discussed in the literature, an increase in unemployment rate during the COVID-19 was found in a number of countries. In particular, firms witnessed supply and demand shocks owing to measures taken for controlling the spread of the pandemic and most of them were cautious in new recruitments. Instead, some firms laid down workers to face the negatives associated with the pandemic though the government implemented a number of measures to redress the severely affected sectors. In addition, government initiated a tripartite dialog among stakeholders (employee unions and employer associations) to avoid job losses and severe wage cuts. However, such mechanisms were mostly operated in the formal sector.

Unemployment data at disaggregated level, by age-gender, show that unemployment rate was higher for young and females across all the age groups. More importantly, unemployment rate for youth and females has increased sharply in 2020 compared to that of older unemployment rate. This implies that effect of COVID-19 on unemployment has disproportionately distributed by gender and age group. In particular, young females have become the most vulnerable group in the labour market due to the pandemic. OECD (2020) also found that young and females were at higher risk of falling into unemployment due to the pandemic. It is also highly probable that the share of NEET youth may have increased during the pandemic thereby idling young human resources in the economy.

Average hours worked per week is one of the other labour market indicators that may have affected due to travel restrictions and social distancing measures adopted in containing the spread of the COVID-19 pandemic. As theoretically expected, the share of total workers who work 0 hours during the preceding week, i.e. the work has a job but not at work during the reference week, increased from 6.4 per cent in 2019 to 14.6 in 2020 (see Figure 3). During

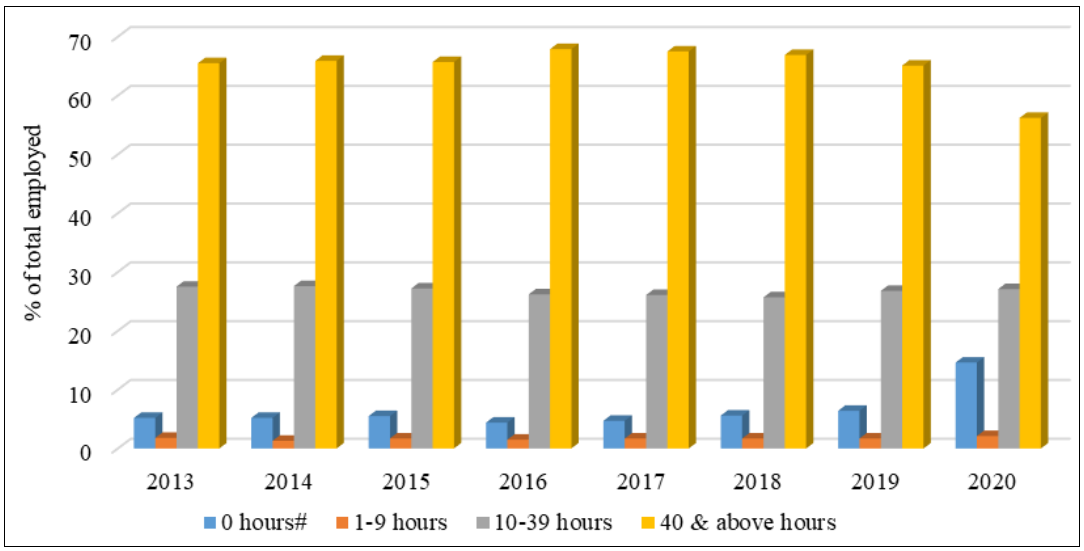
[6] Employment status consists of four categories; namely (a) employees, (b) employers, (c) own account workers, and (d) contributing family workers.

the second quarter of 2020, government imposed country-wide traveling restrictions, and later such restrictions were extended only for the Western Province. Moreover, restrictions on selected economic activities, such as personal services, accommodation, entertainments & recreations, and hotel & restaurants, were partially restricted for a longer period. It is highly probable that the increase in the share of workers who work 0 hours may have reduced their income. It is also notable that the share of workers who engage in 40 or more hours during the reference week has declined in 2020 compared to its corresponding value for 2019. For instance, the share of total workforce engages in 40 or more hours per week declined from 65 per cent in 2019 to 56 per cent in 2020. This implies that a sizable number of workers who usually engage in 40 or more hours of work per week stayed at home due to the COVID-19 pandemic. It is notable that the share of workers who engage in 10-39 hours of work per week has slightly changed during the pandemic period.



Source: Annual Report Labour Force Surveys 2019 & LFS Annual Bulletin, 2020.

Fig 2: Unemployment Rate (%) by Gender and Age-Group 2019 vs. 2020



Source: Annual Report Labour Force Surveys 2019 & LFS Annual Bulletin, 2020

Fig 3: Hours Worked Per Week: 2013-2020

In addition to labour market indicators discuss above, it could reasonably be expected that COVID-19 may have influenced businesses to introduce downward adjustments to wages so that firms could improve their resilience to face the supply and demand shocks emanating from COVID-19 pandemic. Figure 4 reports data on annual average change in real wage rate indices for employees representing formal private, informal, and public sectors. Both formal private and informal sectors witnessed a decline in real wages during the pandemic period while the real wages of the public sector employees showed an increase in 2020 compared to the previous year. According to Central Bank (2020) some firms revised salaries downwards as their cash flows were severely affected with the disruptions to their business activities. Moreover, tripartite agreement, reach between the ministry of labour, the employers' federations, and labour unions on paying 50 per cent of the last paid basic salary or the minimum wages where employees were required to stay at home due to pandemic conditions. Central Bank (2020) highlighted that the COVID-19 related disruptions had a severe effect on informal sector workers' capacity to earn a living.

Source: Annual Report – 2020, Central Bank of Sri Lanka

Fig 4: Annual Average Change in Real Wage Rate Indices

Nominal wages of the informal private sector employees decreased during the first and the second waves of the pandemic though some recovery was reported towards the end of the year 2020. With the addition of a new non-pensionable monthly interim allowance, wages of public sector employees increased amidst the pandemic. Accordingly, real wages of the public sector employees increased by 2.9 per cent in 2020 compared to the last year.

6. Conclusion

The COVID-19 pandemic has swept across the world since the early 2020 and many countries continue struggling to bring their economies to pre-pandemic situation. The vaccination efforts have shown some positive results to the relief of masses around the world in general and to the people who witnessed the devastating consequences in particular. The COVID-19 pandemic as well as associated travel restrictions and social distancing measures have caused a number short- and long-term socio-economic consequences needing the attentions of policy makers both at national and global-levels. Some of the short-term effects could be established using data collected by national statistical agencies in recent months. This study aims at assessing the effects of COVID-19 on informal wage employees in Sri Lanka. Using data from nationally representative labour force surveys, conducted and disseminated by the Department of Census and Statistics, this study employs both descriptive and regression analytical techniques investigating some facets related to informal wage employees and reflect on such findings to draw potential impacts. The literature survey clearly indicated evidences to suggest that the short-term effects of the COVID-19 could be visible in number of labour market indicators such as labour force participation, total employment, informality, unemployment, hours of work, and wages.

This study discussed some of the policy measures taken by the government in preventing the spread of the pandemic and in mitigating some of the effects of COVID-19 on the society, in particularly to the economy. A brief overview on the key characteristics of informal workforce was discussed to provide a wider perspective on the possible effects on informal wage employees. The analysis revealed that Sri Lanka labour market suffers from a number of issues such as low female labour force participation, high level of informality, youth unemployment. Our analysis showed that, mostly, people with less education hold the majority of informal employment. These undelaying labour market conditions are critical in understanding the short-term effects of COVID-19 on Sri Lanka's labour market. Both mean and quintile regression frameworks strongly confirm that there is a wage penalty for informal employment. The regression results clearly confirmed the presence of a wage penalty factor for informal wage employees. More importantly, wage penalty factor is somewhat higher for informal wage employees in the lower end of the wage distribution compared to the informal wage employee fall into the upper region of the wage distribution. Accordingly, on average, monthly wage of an informal wage employee is around 34 per cent lower than the wage received by formal wage employees where the both workers are identical with respect to observable characteristics. It is also found that the wage penalty factor is somewhat larger for informal wage workers who fall into the lower end of the wage distribution (low-skilled employees) compared to the informal employees who are in the upper end of the wage distribution (skilled informal employees). Our employment elasticity estimates revealed that output reduction, due to supply and demand shocks caused by the pandemic, may have associated with larger employment losses in Construction, accommodation & food services, manufacturing, entertainments & recreation, and real estate sectors. In other words, in terms of employment losses due to the pandemic, those sectors face greater risks than the other sectors. The share of informal employees in the total workforce in those industries remain high as well as the labour demand is elastic.

The presence of a wage penalty for informal wage

employees and elastic labour demand in sectors where informal wage employees constitute a larger share, imply that the pandemic and the associated travel restrictions and social distancing measures may have inflicted a significant blow to the employment and earning of informal wage employees.

Based on DCS (2019; 2020), this study briefly examined the changes into some of the selected labour market indicators during 2020. A detailed analysis cannot be conducted since the DCS has yet to publish the annual report based on the Labour Force Survey of 2020. Our analysis showed that the short-term effects of COVID-19 has distributed disproportionately where females have suffered severely compared to their counterparts. In terms of job losses, females lost around 185 thousand jobs while male gained around 4 thousand jobs during 2020. In addition, unemployment has increased among young females in 2020 compared to that of the young males. In addition, number of hours of work has declined significantly where the share of total workers who engage 0 hours of work per week has increased whereas the share of workers who engage 40 or more hours per week has declined in 2020. More importantly, private sector employees, both formal and informal, have witnessed a decline in their real wages while public sector employees witnessed the opposite.

Our findings clearly indicate that female workers and workers holding informal jobs were at high risk towards losing jobs and earnings, in particular, those who engage in high risk industries identified above. The labour market outcomes discussed in this paper mostly reflects the effects of that pandemic at its first and the second waves. It is expected that the third wave has much severe effects given its spread and some of the measures taken in preventing its spread. Hence, it is imperative that policy makers pay attention to this situation and come up with appropriate policy measures to improve their labour market conditions.

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