# THE NATIONAL RESEARCH INSTITUTE

PAPUA NEW GUINEA

# DISCUSSION PAPER

EFFECT OF COVID-19 PANDEMIC ON THE EMPLOYMENT OF YOUNG PEOPLE IN WHOLESALE AND RETAIL SERVICE SECTOR IN PORT MORESBY, PAPUA NEW GUINEA

Francis Odhuno
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## Authors' contributions

The first author conceived and designed the project, supervised data collection. The second author analysed the data, provided the econometric. All three authors contributed equally to drafting and revising all parts of the paper, including interpretation of the results.

# Abbreviations and Acronyms

| | |
|---|---|
| COVID-19 | Coronavirus Disease 2019 |
| ILO | International Labour Organisation |
| MSME | Micro Small and Medium Enterprises |
| OECD | Organisation for Economic Cooperation and Development |
| PNG | Papua New Guinea |
| TVET | Technical and Vocational Education and Training |

# Abstract

Recent evidence suggest that COVID-19 pandemicwas to blame for severe worldwide labour market shocks in 2020 and 2021. In Papua New Guinea (PNG), however, very little is currently known about the resulting changes in employment or expectations about future of employment situation in the country as a consequence of the pandemic. This study investigated the effect of the pandemic on the employment of young people in the wholesale and retail service sector in Port Moresby, the capital city of PNG, with data collected through a field survey using a convenient sampling method. In addition to descriptive analysis of the data, ordered logit models of three employment outcomes: changes in the weekly number of days the young people work; change in their employment workload; and their feelings about the future of their employment were estimated. The results showed that generally, there was a freeze in hiring and in some instances, layoffs and furloughs affected young people working in the city's retail and wholesale service sector. There were no severe interruptions in the number of working days, although those who worked for three days or less in a week were more pessimistic about the future of their employment. Those who worked for more than four days a week and those who were able to work from home were more likely to report an increase in employment workload than those who did not. While sections such as finance and accounting where automation could replace labour reported reduced number of employees, occupational groups that serve customers in the frontline were less likely to report a decrease in number of employees. Working from home and furloughs (rather than layoffs) should be used cautiously since young people working less days during the pandemic are likely to be pessimistic about their future employment prospects. Employers also need not disrupt employment in essential services in sectors that are not adversely affected by the COVID-19 pandemic.

**Key words:** Employment, COVID-19, Pandemic, Lockdowns, Wholesale, Retail Sector, Young People

# Background

In 2020 and 2021, the ongoing global COVID-19 pandemic led to severe economic and labour market shocks worldwide. The policy response to fight the pandemic resulted in lockdowns and shutdowns that left millions out of work. The impact of the pandemic on youth employment was particularly likely to have been severe given that the youth (15 to 24 years old) are three times more likely to be unemployed than adults (International Labour Organization, 2020). In Papua New Guinea (PNG), this can be explained by the fact that they constitute a large share of the country's employment-to-population ratio at 34 percent compared to the adults 25 years and above at 12 percent (World Bank, 2021). Therefore, the youth, and more generally young people (15 to 35 years old), are likely to be the most affected in case of an economic shock that is detrimental to employment levels in PNG.

Specifically, young people working in the wholesale and retail trade, accommodation and food, fuel and motor vehicle service sectors and/or performing routine manual jobs are likely to be disproportionately affected by the COVID-19 pandemic shock. This may be so since young people make up majority of workers in these service sectors, which are greatly concentrated in large and metropolitan cities like Port Moresby. The implication is that young people performing routine manual jobs in wholesale and retail trade, accommodation and food, fuel and motor vehicle service sectors in Port Moresby are at risk of contracting COVID-19 because they cannot work remotely. In order not to put their workers at risk of contracting the coronavirus, employers are more likely to temporarily relieve their younger employees of their duties, meaning that the pandemic is likely to increase youth unemployment in the city. Yet youth unemployment is already an increasingly pressing social and economic problem in urban PNG; almost 60 percent of urban youth is unemployed and only 7 percent is in formal employment (Woo and Naidoo, 2018). And since Port Moresby has the largest concentration of both urban youth and service sector jobs in PNG, it is probable that the pandemic is or will also be undermining the achievements of the city's Urban Youth Employment Project.

It is evident, in light of the above, that young people currently in formal employment might be facing an uncertain future, more so because the impact of COVID-19 pandemic is likely to be prolonged for a while. A study of the impact of COVID-19 on employment of young people in Port Moresby will therefore, be particularly informative because the city has been in lockdown twice since the pandemic started in January 2020. By the time we began writing in October 2021, PNG was believed to have been reporting increasing community transmission or spreading of the deadly Delta variant of the coronavirus disease (Pryke and Crabb, 2021), which created fears that another lockdown was imminent. Yet, in PNG, very little was known at the time about the changes in young people's employment situation and their expectations about the future of their employment. This paper examines this issue to shed light on the impact of the pandemic on the employment of young people working in the wholesale and retail service sector in PNG's capital city, Port Moresby.

The specific objectives of this study were twofold. First, was to empirically estimate the perceived impact of COVID-19 on three employment outcomes: changes in the weekly number of days the young people worked; changes in their employment workload; and their feelings about the future of their employment. Since the labour market is of key importance to the PNG Government's development programs, the second objective was to prescribe targeted policies that might be needed to help the affected young workers in the country's wholesale and retail service sector in the event of a similar shock in future.

The rest of the paper proceeds as follows: A brief review of the literature on the effect of COVID-19 pandemic on employment in general, and on the employment of young people in particular, is presented in the next section (Section 2). Section 3 describes the survey, sampling technique and the methodology used to analyse the employment outcomes of young people in Sections 4 (descriptive analysis) and 5 (econometric analysis). Section 6 conclude the paper with a brief summary and recommendations for policy.

# Literature review

## The effects of COVID-19 on employment

Between February and April 2020, industrial production declined by an average of around 28 percent in G20 countries (ILO-OECD, 2020). Larger declines of between 40 and 60 percent were recorded in India, Indonesia, Italy and South Africa and relatively small declines occurred in Korea and Russia (ILO-OECD, 2020). Due to the general reduction in production, ILO-OECD (2020) found many workers in highly feminised airlines, retail and accommodation, food services, or the textile and garment sectors in G20 countries had to accept shorter hours and/or wage cuts. In some instances, these wage cuts were negotiated in collective agreements between workers and employers. ILO-OECD (2020) also reported that, for workers who retained their jobs and were holding them as at April 2020, their wage income reduced by significant margins in March 2020 compared to earlier months. For example, wage incomes were reduced by 35 percent in the United States of America (USA), by 30 percent in the United Kingdom (UK) and by 20 percent in Germany.

The loss of employment income during the COVID-19 pandemic period may have been widespread, but it was certainly not uniform. Congressional Research Service (2020) reported that almost half of all households in the USA experienced at least some loss of employment income in the period of March to October 2020 when the economic effects of the pandemic were apparent. However, the loss was disproportionate. The largest proportion of households that lost employment income were those with low income (households with an annual income of less than USD 25,000) and those with children. Congressional Research Service (2020) noted that households without children and those aged 65 and older were the least likely to lose employment income.

Center on Budget and Policy Priorities (2021) noted that in April 2020, unemployment rate in USA jumped to a level that had last been witnessed only in the 1930s, and that in September 2021 the national unemployment rate in the USA stood at 4.8 percent. This was a gradual increase from 3.5 percent that had been recorded in February 2020. The Center on Budget and Policy Priorities' (2021) disaggregated analysis revealed that a majority of jobs lost in the COVID-19 pandemic period had been in industries that pay low average wages, with the lowest-paying industries accounting for 56 percent of the jobs lost from February 2020 to September 2021.

Carranza et al. (2020) reported that as of June 2020, nine in 10 workers resided in economies where workplace disruptions and shutdowns were in place. Between April and June 2020, total hours worked were almost 20 percent below the average that was recorded in the last quarter of 2019. The study estimated that three quarters of informal employment worldwide was significantly impacted by the lockdown measures. Women and youths were the worst affected, thus worsening existing inequalities in the world of work.

Focusing on developing countries and more specifically on Sub-Saharan Africa, Danquah, Schotte and Sen (2020) observed that workplace and market closures, restrictions on mobility, the suspension of some economic activities (e.g. closure of schools, hotels and restaurants) resulted in a slowdown in production and caused a reduction in working hours and labour earnings. This especially affects workers in the large informal sector, accounting for 80 percent of all non-agricultural employment in the Sub-Saharan African region. The study further observed that lockdown measures had reduced business activity by more than half, and that micro, small and medium enterprises (MSMEs) experienced a larger decline in activity compared to medium and large enterprises (also see Lakuma and Sunday, 2020). On average, one out of four workers in Senegal, Mali, and Burkina Faso had lost their jobs during the pandemic in 2020, and one out of two workers in these countries had experienced a decline in earnings.

Chacha, Kirui and Wiedemann (2021) assessed the short-term impact of the COVID-19 shock on employment in formal firms in Kenya between April 2019 and April 2020. They found that employment in the manufacturing sector was the worst affected with a fall of over 31,000 jobs (13 percent of total employment). In relative terms, however, the hospitality and tourism sector witnessed the most pronounced impact with a 33 percent drop in employment, in the same period. The sectors that recorded the least impact in job losses in the same period were the financial sector as well as the wholesale and retail sector.

## The effects of COVID-19 on employment of young people

Young career starters are more likely to start their occupations in relatively low paid jobs (Dias, Joyce and Keiller, 2020). Unfortunately, many of the low-paying occupations are in hospitality and the non-food retail sectors that are hardest hit by the COVID-19 crisis (Dias, Joyce and Keiller, 2020). The COVID-19 pandemic has therefore, severely dented the career prospects of young people and threatens to have a prolonged negative economic impact on them as a result. The ILO (2020b) established, for example, that the pandemic had significant negative effects on employment and career prospects of young workers around the globe. Seventeen percent (17%) of young people (18-24 years old) who were employed before the outbreak of COVID-19 stopped working. This mostly affected young people in clerical support, services, sales, crafts and related trades where the ILO (202b) established that the young people lost two hours (of working) a day, while 42 percent of the young people also reported a reduction in their income.

Similar results were obtained for Europe by Brazienė and Petkovic (2021) who found that since the onset of the pandemic, youth unemployment rate in the European Union had risen from 14.9 percent to 17.1 percent. Young people in marginalised situations (15.4 percent) were found to be more than twice as likely to have stopped working compared to their non-marginalised counterparts (7.4 percent). Brazienė and Petkovic (2021) also noted, moreover, that young women were also more severely affected with 12.9 percent of them reporting having stopped working, compared to 9.8 percent of young men.

The OECD (2021) acknowledged the fact that unemployment rate among 15 to 29 year olds in OECD countries was persistently high even before the advent of the COVID-19 pandemic. However, COVID-19 has exacerbated the situation, increasing the unemployment rate among young people in OECD countries. The weighted average OECD unemployment rate among the young people (15-29 year olds) increased from 8.6 percent at the end of 2019 to 11.5 percent at the end of 2020. This was against an overall unemployment rate of 7.1 percent as at end of 2020. The study identified various reasons that explain why young people have been hit harder in the labour market: first, young workers are over-represented in industries and sectors most affected by the crisis, and are more likely to work on temporary contracts, exposing them to a higher risk of job loss. In 2019, across the OECD countries, 25.7 percent of the 15 to 24 year olds were likely to be on temporary contracts. This was twice the total working population (11.8%) that was likely to be on temporary contracts (OECD, 2021). Second, young people tend to have less company-specific knowledge and skills and are therefore often the first to be laid off. Third, young people who are looking for work for the first time are doing so at a time of limited vacancies and are also facing fierce competition from more experienced jobseekers. This is making their labour market integration more difficult (OECD, 2021).

# Survey, data and methods

## The survey and data

The study used data from a survey of 1,265 wholesale and retail sector employees in Port Moresby. For the data collection instrument, we used a questionnaire adapted from Alekseev, et al. (2020). The first part of the questionnaire asked the respondents about their employment experiences, outcomes and expectations during these trying times of COVID-19 pandemic and its containment policies. The second part of the questionnaire comprised specific demographic factors of the survey participants including; age, income, gender, marital status, nationality, occupation and education. The survey also allowed participants to make any comments in relation to the effect of COVID-19 pandemic on their work. The survey instrument was pilot tested using online Microsoft Forms questionnaire distributed by email and posted on Twitter, Facebook and LinkedIn social media.[1] A small group of 20 individuals working in wholesale and retail businesses responded to the online pilot survey, which was useful in informing and refining the survey methodology and questionnaire content.

Given the limited response to the online survey, we decided to, instead, collect primary data using survey enumerators and personal (face-to-face) delivery/distribution of questionnaire papers. The survey was independently administered by a contracted private consulting firm between 18 and 31 October 2021. It was not possible to use random sampling techniques to target individual respondents. Instead, sample selection was in two stages. Introductory letters were presented to chief executives of the selected businesses seeking their consent to allow our survey team to approach their employees who would be asked to voluntarily take part in the survey. The choice of businesses to approach was made on grounds of practical convenience. Since we were not going to reach every employee in each wholesale and/or retail outlet where access was permitted within this time, we did not set a minimum or maximum cap on the number of questionnaires to be distributed each day in each company. We therefore assigned a survey team of eight people who canvased the wholesale and retail sector employers and continued to attempt to contact their employees to complete the survey.[2]

We continued to give out as many questionnaires as possible (approximately 100 per day) until we reached the end of the predetermined field work period. We ended up hand-delivered 1,400 questionnaires directly to consenting employees across 86 wholesale and retail business outlets in nine commercial centres across Port Moresby. Some of the consenting employees chose to complete the survey questionnaires later. Therefore, to increase the response rate, the survey enumerators made phone calls and personal visits to remind these potential respondents to return the completed questionnaires. We also made at least two further attempts to get more completed questionnaires returned to us during the week after the end of the predetermined field work period. As a result of these efforts, we achieved a final sample of n=1,265 (response rate 90 percent), comprising of 77 percent young people aged 15 to 35 year old and 23 percent older than 35. Since the National Youth Policy (National Capital District Commission, 2015) recognised that there were people over 25 but still identified as "young" because they maintain active involvement in community youth activities, our analysis in the paragraphs that follow focuses on the 15 to 35 year olds youth segment of this sample ($n$ = 979).

## Econometric model

We estimated three ordered logit models to assess the impact of COVID-19 on employment of young people currently in the wholesale and retail service sector in Port Moresby. An ordered logit model is ideal for the estimations because the response variables are ordinal; but an ordered logit model is also a convenient framework for analysing our data with both discrete and ordered dependent variables (Greene, 2000). If $y_j$ is an ordered

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[1] Initially we had approached four (4) relatively large private wholesale and retail businesses in Port Moresby that were likely to have a large number of employees in different but clearly distinguishable occupations and job grades. We sent introductory letters to the chief executives of the selected companies seeking their consent to allow our survey team to approach their employees who would be asked to voluntarily take part in the survey. Unfortunately, none of the chief executive officers (CEOs) responded to our request, despite numerous follow-ups.

[2] The data collection was informed by a comprehensive approach to research ethics that ensured participants were able to voluntarily participate with informed consent, while managing risk of COVID-19 transmission and protecting their identities.

response taking on the values {1,2,…,J}, an ordered logit can be derived from a latent variable model:

$$y_j^* = \beta_1 x_{1j} + \ldots + \beta_k x_{kj} + \varepsilon_i$$
$$= \boldsymbol{x}_j \beta + \varepsilon_j$$

In the first model, $y_j^*$ is a latent variable of reported workload changes in the period of COVID-19 pandemic where j=1 (Higher than normal), 2 (Same as normal) and 3 (Lower than normal). In the second model, $y_j^*$ is a latent variable of reported change in the number of employees in the period of COVID-19 pandemic where j= 1 (Increased), 2 (Remained the same) and 3 (Reduced). The latent variable is not observable; hence, the choices are observed according to the following:

$$y_j = 1 \text{ if } y_j^* \leq \alpha_1$$
$$y_j = 2 \text{ if } \alpha_1 < y_j^* \leq \alpha_2$$
$$y_j = 3 \text{ if } \alpha_2 < y_j^* \leq \alpha_3$$

Where $\alpha_j$ are unknown threshold parameters, $\boldsymbol{x}$ is a vector of explanatory variables, which include; number days worked in a week during the times that the government imposed lockdown to contain the spread of COVID-19, place of residence and work, occupation group, business section, employment workload during the period of COVID-19, change in number of employees during the period of COVID-19, household responsibilities, COVID-19 vaccination status, age, education, gender and level of income. $\beta$ is a vector of unknown parameters to be estimated, $\varepsilon$ is a random disturbance having logistic distribution with mean zero and corresponds to standard deviation $\sigma_\varepsilon = 1.81$. Detailed definitions of the variables in the model are given in Table A1, in the appendix. After fitting the ordered logit model, marginal effects were computed to obtain the simulated probabilities for each sales response.

# Results 1: Descriptive analysis

## Data characteristics

As noted before, only the sub-sample of young people aged 35 years and below were considered in this study. In terms of age, 1 percent were aged 15 to 19 years while 99 percent were aged 20 to 35 years. In the sample, 57 percent were male while 43 percent were female. In terms of marital status, 60 percent of the interviewed young employees were single/never married, 37 percent were married, 2 percent were divorced or separated while 1 percent were widowed. Thirty four percent (34%) of the interviewed young employees lived in a big city, 25 percent lived in an urban centre (big town), 36 percent lived in a suburban centre (small town) while 5 percent lived in a remote or rural area. Ninety nine percent (99%) of all the respondents were PNG nationals.

With regard to human capital, 32 percent of the respondents had up to secondary education (grade 10) and below, while 36 percent had high school education (up to grade 12). Those who proceeded to tertiary level education and held a certificate or TVET training were 15 percent, diploma or advanced diploma were 11 percent, while Bachelor Degree holders combined with those with post graduate level of education were 6 percent. This, therefore, implies that 68 percent of the employees in the sample did not hold post-high school qualifications. With reference to the respondents' occupation, 3 percent were drivers or generally worked in the transport and logistics department; managers and assistant managers were 3 percent; professional and technical staff were 5 percent; trade persons and those in maintenance were 4 percent; labourers, shelf stockers and baggers were 6 percent; production, warehouse, and store workers were also 6 percent; clerical, sales, cashier, customer service staff were the largest group at 62 percent; while other categories of occupational groups not specified constituted 11 percent.

With respect to employment status of respondents at the time of data collection, full time employees, that is, those who worked at least 40 hours a week were 90 percent while part time employees (those who worked for less than 40 hours a week) were 6 percent. Those who were categorised as temporary, casual or leased were 4 percent.

## Effects of COVID-19 on employment workload

Young people working in wholesale and retail service sector in Port Moresby were asked how their employment workload had changed since the start of COVID-19. Figure 1 indicates the outcome of the survey.

From Figure 1, 16.2 percent of young people that were interviewed reported that they had a higher than normal workload. At the same time, for those who had a higher than normal workload, 60.1 percent reported that there was staff reduction in their section/department while 32.9 percent reported that the number of staff in their section/department did not change. Only 7 percent of the staff who reported a higher than normal workload also reported an increase in staff in their section/department. This implies that increased workload resulted from layoffs or unmatched increase in staff as workload grew. An important finding of the study is that 49.1 percent of the employees that were interviewed reported same as normal workload while 34.7 percent reported lower than normal workload after the emergence of COVID-19. For those who reported same as normal workload, 16.3 percent reported that there was staff reduction in their section/department while 81.4 percent reported that the number of staff in their section/department did not change. This implies that generally, there was a freeze in hiring and in some instances, there were layoffs and furloughs. (These are discussed later.)

Figure 1: Change in employment workload since the start of COVID-19



Figure 2: Change in number of employees
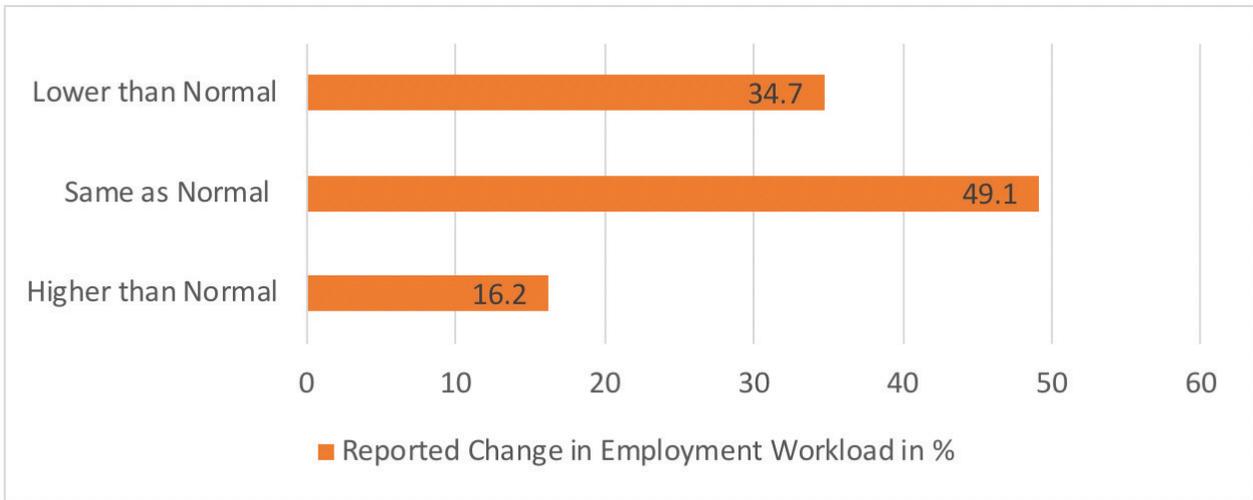
## Employee layoffs and furloughs

Initially, respondents were asked how the number of employees/workers in the department/section where they worked changed as a result of the coronavirus (COVID 19) pandemic. As Figure 2 shows, 36.3 percent of young employees of wholesale and retail service sector businesses in Port Moresby reported a reduction in the number of staff in their section/department since the emergence of COVID-19 while 60.3 percent reported no change in number of staff in their section/department. Only 3.4 percent of young employees reported an increase in the number of staff in their section/department since the emergence of COVID-19. These results indicate that in the period of COVID-19, hiring of employees has to a large extent been frozen (60.3 percent) and layoff of staff has also been evident (36.3 percent).

Figure 2: Change in number of employees
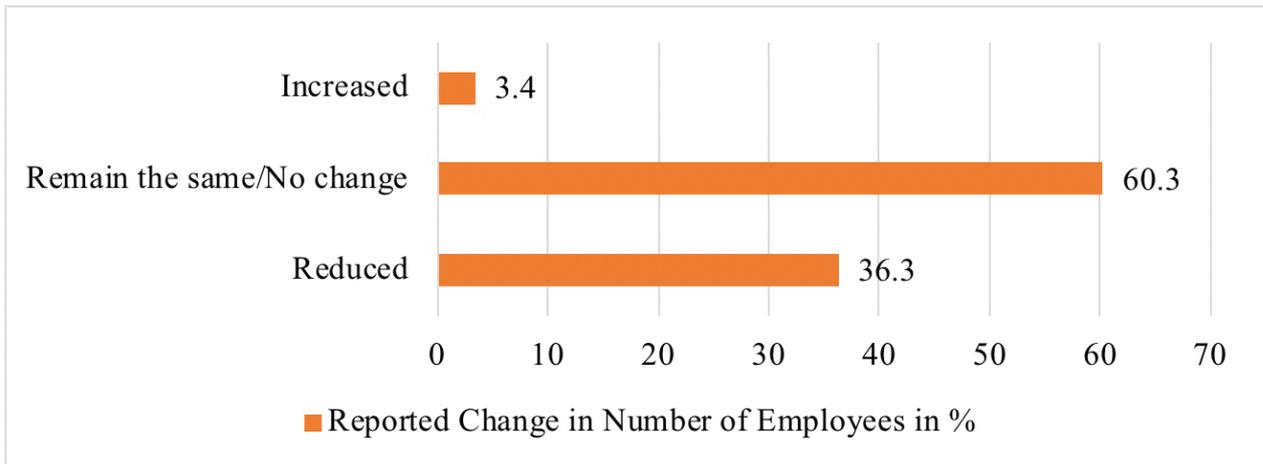


Figure 3 makes this clearer by picking out and reporting the nature of the layoffs. Respondents were asked whether any of their colleagues in the department/section had been laid off or furloughed (temporarily laid off). 10.4 percent responded that all employees in their section/department had been furloughed, 83.4 percent reported that some had been furloughed, 5.1 percent reported that some had been laid-off while 1.1 percent reported that all had been laid off. This result implies that 93.8 percent of the reported cases by young employees were not total layoffs; the affected employees had a hope of returning to their positions in future.

Figure 3: The nature of layoffs and furlough
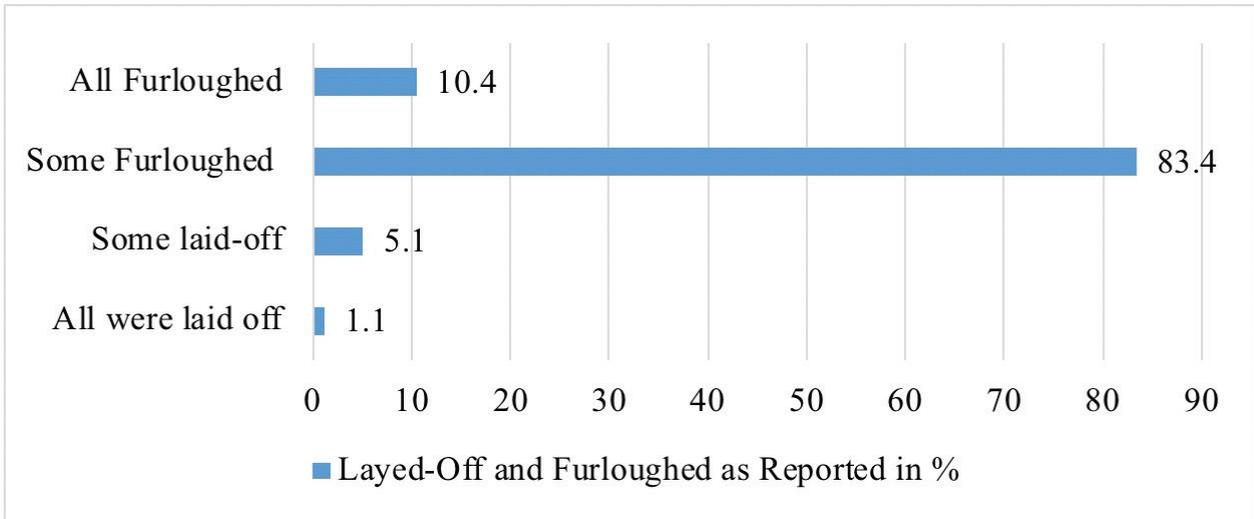


Effects of lockdown on work and employment

Lockdowns that emanated from COVID-19 containment measures had an impact on work and employment of young people. Respondents were asked to indicate the number of days they worked during the times that the government imposed lockdown to contain the spread of coronavirus (COVID-19). Figure 4 shows that 72 percent of respondents who were still on employment worked for six to seven days a week. Those who worked for four to five days a week were 15.5 percent, those who worked for two to three days were 10.4 percent while those who worked for one day a week were 2.1 percent. It is therefore, evident that for those who were still employed, only 28 percent of the respondents had reduced working days. The lockdown did not cause severe interruptions in the number of working days for young employees who were still working.

Figure 4: Number of days worked in a week
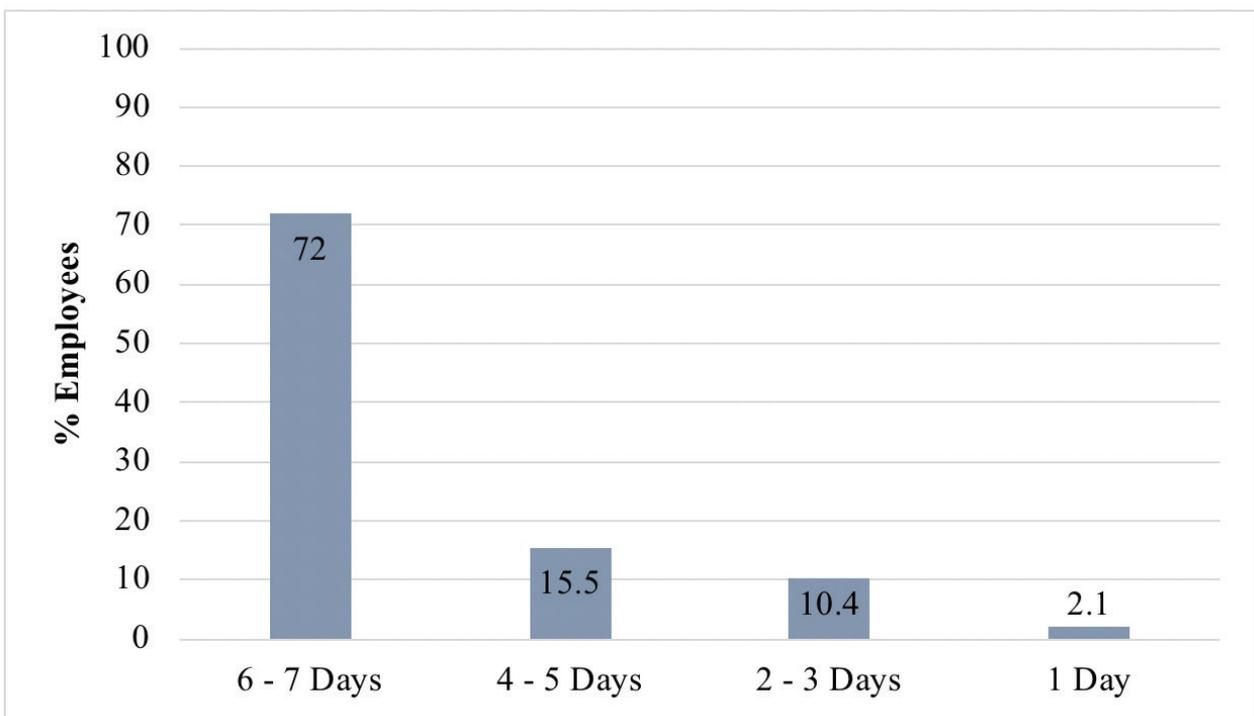
## Young employees' feeling about their future employment

The outbreak of the COVID-19 pandemic created anxiety and uncertainty in the economy. The COVID-19 containment measures that were rolled out affected the normal functioning of businesses and other economic activities, both in the public and the private sectors. The private sector (specifically retail and wholesale sectors) seemed more exposed to the effects of the pandemic due to the nature and conduct of their operations. Still, some employees were optimistic about their future employment while others were pessimistic.

As can be seen in Table 1, those who worked for four to five days and those who worked for six to seven days were more optimistic (Very optimistic + Somewhat optimistic = 47.1 % and 38.9% respectively) and less pessimistic (Somewhat pessimistic + very pessimistic = 26.8% and 38.3% respectively). On the other hand, those who worked for two to three days and those who worked for one day in a week were more pessimistic than they were optimistic. This is not surprising since commitment to their workplace is already minimal, that is, working only a few days a week.

Table 1: Feeling about future employment

| No. of days worked | Very optimistic | Somewhat optimistic | Neither optimistic nor pessimistic | Somewhat pessimistic | Very pessimistic |
|---|---|---|---|---|---|
| 6 - 7 days | 188 (27.1%) | 139 (20.0%) | 181 (26.1%) | 114 (16.4%) | 72 (10.4%) |
| 4 - 5 days | 33 (22.1%) | 25 (16.8%) | 34 (22.8%) | 28 (18.8%) | 29 (19.5%) |
| 2- 3 days | 13 (12.9%) | 8 (7.9%) | 35 (34.7%) | 26 (25.7%) | 19 (18.8%) |
| 1 day | 2 (10.0%) | 1 (5.0%) | 11 (55.0%) | 5 (25.0%) | 1 (5.0%) |
| Total | 236 (24.5%) | 173 (17.9%) | 261 (27.1%) | 173 (17.9%) | 121 (12.6%) |

**Source:** Author Computations from Survey Data

# Results 2: Econometric analysis

To complement the descriptive analysis presented above, an ordered logit model was used to study the impact of the COVID-19 pandemic on the employment of young people in the wholesale and retail service sector in Port Moresby. Three dependent variables – change in number of employees, change in employment workload, and workers' feeling about the future of their employment – were used to capture changes in employment for the young workers. The three models yielded robust results that helped in enhancing our understanding of the impact of the COVID-19 pandemic on employment of young people in PNG's capital city. Each model had a full set of relevant control variables (see Table 2).

Table 2: Ordered Logit Results

| Variable | Change in No. of employees | Change in employment workload | Feeling about future employment |
|---|---|---|---|
| Change in employment workload | | | |
|   Lower than normal | -0.25 (-1.15) | - | 0.11 (0.62) |
|   Same as normal | -1.80*** (-8.30) | - | -0.17 (-0.91) |
| Change in No. of employees | | | |
|   Remained the same | - | 1.65*** (4.45) | -0.20 (-0.53) |
|   Reduced | - | -0.16 (-0.43) | -0.68 (-0.18) |
| Section of business respondent worked | | | |
|   Construction and facilities Management | 0.24 (0.44) | -0.05 (-0.10) | -0.08 (-0.18) |
|   Finance and accounts | 1.13** (2.09) | 0.66 (1.33) | -0.39 (-0.88) |
|   Human resource | -0.54 (-0.73) | -0.41 (-0.63) | -0.61 (-1.01) |
|   Information and communication | 0.02 (0.05) | -0.35 (-0.80) | -0.00 (-0.01) |
|   Retail | 0.40 (1.56) | -0.18 (0.53) | 0.05 (0.24) |
|   Transport and logistics | 0.28 (0.56) | 0.14 (-0.76) | -0.65* (-1.68) |
|   Wholesale and merchandise | -0.31 (-1.03) | -0.12 (0.30) | -0.47* (-1.92) |
|   Other | 0.56* (1.83) | 0.16 (-0.46) | -0.04 (-1.46) |
| Days worked during lockdowns | | | |
|   2 - 3 days | 1.63*** (2.74) | -0.51 (-0.87) | -0.42 (-0.10) |
|   4 - 5 days | 1.70*** (2.96) | -0.79 (-1.40) | 0.39 (0.96) |
|   6 - 7 days | 1.20** (2.16) | -0.92* (-1.69) | 0.73* (1.91) |
| Vaccination Status | | | |
|   1st dose | 0.33 (1.45) | -0.18 (-0.87) | -0.44** (-2.39) |
|   1st and 2nd dose | -0.10 (-0.52) | -0.03 (-0.16) | -0.32 (-0.21) |
| Working from home | | | |
|   Some of the time | 0.10 (0.60) | -0.53*** (-3.52) | 0.66*** (4.77) |
|   All the time | 0.13 (0.64) | -0.52*** (-2.78) | 0.39** (2.31) |
| Gender | | | |
|   Female | -0.07 (-0.45) | 0.03 (0.19) | -0.22* (-1.71) |
| Age | | | |
|   20 - 35 | -2.06* (-1.78) | 2.80** (2.28) | 1.39** (2.11) |
| Highest level of education | | | |
|   Grade 12 | 0.20 (1.11) | 0.37**(2.26) | 0.04 (0.26) |
|   Certificate/TVET | 0.55** (2.28) | 0.02 (0.10) | 0.08 (0.39) |

| | | | |
|---|---|---|---|
| Diploma/Advanced Diploma | -0.20 (-0.71 | 0.13 (0.51) | 0.34 (1.44) |
| Bachelor's Degree | -1.67 (-0.37) | 0.05 (0.13) | -0.06 (-0.17) |
| Post-Graduate Degree | -1.84** (-2.11) | 0.24 (0.31) | -0.82 (-1.14) |
| Occupational Group | | | |
| Professional/Technical | -0.69 (-1.18) | 0.25 (0.50) | -0.36 (-0.81) |
| Trade Person/Maintenance | -1.14* (-1.88) | -0.07 (-0.14) | -0.31 (-0.65) |
| Clerical/Sales/Cashier/Customer Service | -1.11** (-2.21) | -0.27 (-0.64) | 0.098 (0.25) |
| Production/Warehouse/Store | -1.49*** (-2.61) | -0.48 (-0.98) | 0.34 (0.76) |
| Driver/Transport | -1.43** (-2.07) | -0.66 (-1.09) | 0.57 (0.10) |
| Labourer/Shelf stocker/Bagger | -1.53*** (-2.60) | -0.04 (-0.08) | -0.18 (-0.39) |
| Other | -1.90*** (-3.58) | -0.57 (-1.28) | -0.16 (-0.38) |
| Income | | | |
| K400 - K700 | -0.11 (-0.58) | -0.39** (-2.34) | -0.16 (-1.05) |
| K700 - K1300 | -0.26 (-0.72) | -0.32 (-1.00) | -0.01 (-0.32) |
| K1300 - K2700 | 0.11 (0.21) | -0.63 (-1.33) | 0.85* (1.85) |
| K2700 - K9600 | 0.62 (0.44) | -2.46 (-1.91) | -2.08* (-1.95) |
| More than K9600 | -0.21 (-0.19) | 1.09 (0.90) | -1.00 (-1.14) |
| /cut1 | -6.42*** (-4.67) | 0.23 (0.16) | -0.29 (0.92) |
| /cut2 | -1.86 (-1.36) | 2.30 (1.60) | 0.91 (0.92) |
| Log Likelihood | -639.45 | -840.63 | -1423.3 |
| Prob > chi2 | 0.00 | 0.00 | 0.00 |
| No. of Observations | 947 | 947 | 940 |

**Key:** ***, **, & * denote 1%, 5% and 10% level of significance, respectively. Z values are in parenthesis. "0.00" is due to rounding. Dummy variables are moving from 0 – 1. The omitted base categories are 'Higher than normal', 'Increase in number of employees', 'Cafes, restaurants and food service', Working 1 day a week, 'Not received any Covid-19 vaccine', 'Cannot manage or do work responsibilities at home', 'Male', 'Age 15-19', 'Grade 10 or below', 'Manager/Assistant Manager', and 'Income less than K400 per fortnight'.

**Source:** Authors' calculations

The final ordered logit model for each equation was obtained after several diagnostic tests. The null hypothesis that all the regression coefficients across the models were simultaneously equal to zero was rejected at the 1 percent level of significance. The null hypothesis that the relationship between each pair of outcome groups was the same was accepted at 1 percent level of significance, implying that the proportional odds assumption was not violated.

It is evident from Table 2 that the ordered logit for normal employment workload, increasing the number of employees during the COVID-19 pandemic is 1.8 less than 'higher than normal workload' (which is base category). On the same veil, the ordered logit for the finance and accounts section, increasing the number of employees during the COVID-19 pandemic is 1.13 more than café and food services section (which is the base category variable). The ordered logit for any other section (other than construction and facilities management, finance and accounts, human resource, information and communication, retail, transport and logistics and wholesale and merchandise) increasing the number of employees during the COVID-19 pandemic is 0.56 more than café and food services section.

Considering the number of days worked during the lockdowns, the ordered logit for working for two to three days, increasing the number of employees during the lockdowns is 1.63 more than working for one day during the lockdowns. The ordered logit for working for four to five days, increasing the number of employees during the lockdowns is 1.7 more than working for one day during the lockdowns while the ordered logit for working for six to seven days, increasing the number of employees during the lockdowns is 1.2 more than working for

one day during the lockdowns. Considering the age variable, the ordered logit for workers aged 20 to 35 years resulting to an increase in the number of employees during the COVID-19 pandemic is 2.06 less than for workers aged 15 to 19 years.

Turning to the effect of the highest level of education, increasing the number of employees during the COVID-19 pandemic for those who attained up to certificate/TVET qualifications is 0.55 more than for young workers with grade 10 education and below. In contrast, the change in number of employees is 1.84 times less for those with post-graduate degree qualifications compared to young workers with grade 10 education and below. For the occupational group variable, the ordered logit for workers in the clerical/sales/cashier/customer service occupation, production/warehouse/store group, driver/transport section, labourer/shelf stocker/bagger and any other occupational group increasing the number of employees during the COVID-19 pandemic were 1.11, 1.49, 1.43, 1.53 and 1.9 respectively less than manager/assistant manager occupational group (which is the base category). All the other variables in this model were not significant.

We next consider the change in employment workload model. From results in Table 2, the ordered logit for 'the same number of employees' increasing the employment workload during the COVID-19 pandemic is 1.65 more than increased number of employees (which is the base category). Considering the number of days worked during lockdowns, the ordered logit for 'working for six to seven days' increasing the employment workload during the lockdowns is 0.92 less than working for one day during the lockdowns. For the 'working from home' variable, the ordered logit for 'some of the time' and 'all the time' increasing the employment workload during the COVID-19 pandemic are 0.53 and 0.52 respectively less than 'not at all'. Considering the age variable, the ordered logit for workers aged 20 to 35 old years resulting to an increase in the employment workload during the COVID-19 pandemic is 2.8 more than for workers aged 15 to 19 years old. For the effect of the highest level of education, the ordered logit for grade 12 increasing the employment workload during the COVID-19 pandemic is 0.37 more than for young workers with grade 10 education and below. Finally, for the income variable, the ordered logit for K400 to K700 income group increasing the employment workload during the COVID-19 pandemic is 0.39 less than 'K400 and below' income group. All the other variables in the model are not significant.

For the model on future employment expectations, the ordered logit for those who worked in 'transport and logistics' and 'wholesale and merchandise' sections, optimism about future employment during the COVID-19 pandemic was 0.65 and 0.47 respectively less than for those who worked in café and food services section (which is the base category variable). Those who worked for six to seven days were 0.73 more optimistic than for those who worked for one day (which is the base category variable) while those who had received the first dose of the COVID-19 vaccine were 0.44 less optimistic than those who had not been vaccinated. This demonstrates the fact that those who had received the first dose of the COVID-19 vaccine had aggravated reservations about the consequences of the COVID-19 pandemic than those who had not been vaccinated. Those working from home some of the time and those working from home all the time were 0.66 and 0.39 respectively more optimistic than those not working from home at all. The young female employees were 0.22 less optimistic than the young male employees while those aged 20 to 35 years were 1.39 more optimistic than those who were 15 to 19 years of age.

Tables 3 and 4 present marginal effects for each response category. This will help to summarise how change in a response is related to change in a covariate. As presented in Table 3, change in employment workload has significant coefficients. Those who reported same as normal workload were 4 percent more likely to report an increase in number of employees in their section as a result of the COVID-19 pandemic; 32.5 percent more likely to report no change in number of employees and 36.9 percent less likely to report a decrease in number of employees in their section as a result of the COVID-19 pandemic. This is not surprising since from the descriptive analysis, only 34.7 percent of the young employees reported a lower-than-normal employment workload which is blamed on the COVID-19 pandemic. The workload was majorly reported to be same as normal and thus there was no expectation of a decrease in workforce in such a scenario. Those who worked in the finance and accounts section were 2.6 percent less likely to report an increase in the number of employees in their section of because of the COVID-19 pandemic and 22.2 percent more likely to report a decrease in the number of employees in their section. This finding is not surprising since automation could replace labour in

such service sections of businesses, especially in an uncertain economic environment.

A similar finding is observed for those in the retail section of the business where 1.7 percent of young employees were less likely to report an increase in the number of employees in their section because of the COVID-19 pandemic while 11.2 percent were more likely to report a decrease in the number of employees in their section. Since those who work in the retail section of the business are the frontline workers in the entity, it would be a realistic expectation that as the pandemic gained strength, there was restructuring of business operations in a bid to reduce staff-client physical contact thus reducing staff numbers. These results are in line with the findings of ILO-OECD (2020) and those of Chacha, Kirui and Wiedemann (2021) which established that different sectors were affected differently by the COVID-19 pandemic in companies located in the G20 countries.

Table 3: Marginal effects: Change in number of employees

| Variable | Increased | No change | Decreased |
|---|---|---|---|
| **Change in employment workload** | | | |
| Lower than normal | 0.00 (1.17) | 0.0 (1.15) | -0.06 (-1.15) |
| Same as normal | 0.04*** (5.48) | 0.33*** (7.62) | -0.37*** (-8.25) |
| **Section of the business respondent works** | | | |
| Construction and Facilities Management | -0.01 (-0.47) | -0.04 (-0.43) | 0.04 (0.43) |
| Finance and Accounts | -0.03** (-2.27) | -0.20** -2.02) | 0.22** (2.09) |
| Human Resource | 0.03 (0.61) | 0.06 (0.86) | -0.09 (-0.78) |
| Information and Communication | -0.00 (-0.05) | -0.00 (-0.05) | 0.00 (0.05) |
| Retail | -0.02 (-1.66) | -0.10 (-1.87) | 0.11* (1.86) |
| Transport and Logistics | -0.01 (-1.37) | -0.06* (-1.64) | 0.08 (1.61) |
| Wholesale and Merchandise | -0.01 (-0.59) | -0.04 (-0.55) | 0.05 (0.56) |
| Others | 0.01 (1.04) | 0.04 (1.01) | -0.05 (-1.03) |
| **No. of days worked during lockdowns** | | | |
| 2 - 3 days | -0.08* (-1.7) | -0.19*** (-4.06) | 0.27*** (3.37) |
| 4 - 5 days | -0.08* (-1.74) | -0.20*** (-4.92) | 0.28** (3.74) |
| 6 - 7 days | -0.07 (-1.46) | -0.12*** (-4.62) | 0.19*** (2.76) |
| **Vaccination Status** | | | |
| 1st dose | -0.01 (-1.56) | -0.05 (-1.4) | 0.06 (1.43) |
| 1st and 2nd dose | 0.00 (0.51) | 0.02 (0.53) | -0.02 (-0.53) |
| **Working from home** | | | |
| Some of the time | -0.00 (-0.6) | -0.02 (-0.6) | 0.02 (0.6) |
| All the time | -0.00 (-0.66) | -0.02 (-0.64) | 0.03 (0.64) |
| **Gender** | | | |
| Female | 0.00 (0.44) | 0.01 (0.45) | -0.01 (-0.45) |
| **Age** | | | |
| 20 - 35 | 0.03*** (4.03) | 0.36** (2.04) | -0.39** (-2.14) |
| **Highest level of education** | | | |
| Grade 12 | -0.01 (-1.09) | -0.03 (-1.120 | 0.04 (1.12) |
| Certificate/TVET | -0.01** (-2.26) | -0.09** (-2.23) | 0.11** (2.27) |
| Diploma/Advanced Diploma | 0.01 (0.68) | 0.03 (0.73) | -0.04 (-0.72) |
| Bachelor's Degree | 0.01 (0.35) | 0.02 (0.38) | -0.03 (-0.38) |
| Post-Graduate Degree | 0.13 (1.26) | 0.12** (2.86) | -0.25*** (-3.34) |

| Occupational Group | | | |
|---|---|---|---|
| Professional/Technical | 0.01 (1.15) | 0.13 (1.20) | -0.14 (-1.20) |
| Trade Person/Maintenance | 0.02* (1.67) | 0.21* (1.93) | -0.23* (-1.93) |
| Clerical/Sales/Cashier/Customer Service | 0.02*** (2.98) | 0.20** (2.19) | -0.22** (-2.27) |
| Production/Warehouse/Store | 0.03** (2.42) | 0.26*** (2.63) | -0.29*** (-2.69) |
| Driver/Transport | 0.03 (1.55) | 0.25** (2.20) | -0.28** (-2.17) |
| Labourer/Shelf stocker/Bagger | 0.03** (2.37) | 0.26*** (2.62) | -0.30*** (-2.68) |
| Other | 0.05*** (3.27) | 0.31*** (3.40) | -0.36*** (-3.64) |
| **Income** | | | |
| K400 - K700 | 0.00# (0.57) | 0.02 (0.59) | -0.02 (-0.58) |
| K700 - K1300 | 0.01 (0.66) | 0.04 (0.76) | -0.05 (-0.74) |
| K1300 - K2700 | -0.00 (-0.22) | -0.02 (0.2) | 0.02 (0.21) |
| K2700 - K9600 | -0.01 (0.58) | -0.11 (-0.42) | 0.12 (0.43) |
| More than K9600 | 0.01 (0.18) | 0.03 (0.20) | -0.04 (-0.20) |

**Key:** ***, **, & * denote 1%, 5% and 10% level of significance, respectively. Z values are in parenthesis. Dummy variables are moving from 0 – 1

#The 0.00 coefficient is due to rounding. The omitted base categories are 'Higher than normal', 'Increase in number of employees', 'Cafes, restaurants and food service', Working 1 day a week', 'Not received any Covid-19 vaccine', 'Cannot manage or do work responsibilities at home', 'Male', 'Age 15-19', 'Grade 10 or below', 'Manager/Assistant Manager', and 'Income less than K400 per fortnight'.

**Source:** Authors' calculations

The result on the number of days worked and how it was likely to affect a change in number of employees was interesting. For all the categories of days worked (except working for six to seven days a week), young employees were less likely to report an increase in the number of employees in their section as a result of the COVID-19 pandemic and more likely to report a decrease in the number of employees in their section for all the categories of days worked. It is therefore clear that for young workers, regardless of the number of days worked in a week during lockdowns, they were more likely to report a reduction in the number of employees in their section rather than an increase. This finding is similar to the findings of Danquah, Schotte and Sen (2020) and those of Lakuma and Sunday (2020).

Age was also found to be a significant variable. Young employees aged 20 to 35 years were 2.8 percent more likely to report an increase in the number of employees in their section as a result of the COVID-19 pandemic and 38.8 percent less likely to report a decrease in the number of employees in their section. This finding is similar to that of OECD (2021) that established that the COVID-19 pandemic exacerbated the unemployment situation of young people between 15 and 29 years of age in OECD countries. The highest level of education attained was also a variable with significant coefficients. Those who had certificate or a TVET qualification were 21.4 percentage points less likely to report an increase in number of employees in their section as a result of the COVID-19 pandemic while they were also 10.7 percent more likely to report a decrease in number of employees in their section as a result of the COVID-19 pandemic. Those with a post-graduate degree were 11.7 percent more likely to report no change in number of employees in their section and 24.9 percent less likely to report a decrease in number of employees in their section. It can therefore, be concluded that for those who had the highest level of tertiary education, their numbers were more likely to remain unchanged during the COVID-19 pandemic while those with the least level of tertiary education were more likely to experience a decrease in the number employed.

For all the occupational groups (except professional/technical staff and the driver/transport category) young employees were more likely to report an increase in the number of employees in their section as a result of the COVID-19 pandemic while they were less likely to report a decrease in number of employees in their section as a result of the COVID-19 pandemic (including the driver/transport category). A closer scrutiny of the occupational groups reveals that the groups that had significant coefficients were offering essential services and therefore a

decrease in number of employees in these occupational groups would be detrimental to the functioning of the entire business. These occupational groups include trades person/maintenance, driver/transport, clerical/sales/cashier/customer service, production/warehouse/store and labourer/shelf stocker/bagger. This finding is in line with the work of ILO (2020b) which observed that the COVID-19 pandemic affected different occupational groups differently.

The findings of this model indicate that those who reported no change in number of staff were 19.7 percent less likely to report an increase in employment workload as a result of the COVID-19 pandemic; however, they were 36.9 percent more likely to report a decrease in employment workload in their section as a result of the COVID-19 pandemic. This is not surprising; if the number of employees remained the same during the COVID-19 pandemic, the workload would at best remain unchanged or at worse reduce due to the pandemic. Those who worked for four to five days a week and those who worked for six to seven days a week were 7.1 percent and 8.6 percent more likely to report increased employment workload. This is consistent with the fact that those who were in employment for more days a week had more work than those who worked for less days a week.

Working from home also had significant coefficients. Young employees who reported that they worked from home all the time and those who reported that they worked from home some of the time were 5.8 percent and 5.9 percent respectively more likely to report an increase in employment workload while they were also 10.6 percent and 10.8 percent less likely to report a decrease in workload in their section as a result of the COVID-19 pandemic. This is not surprising as those who continued to work outside their workstations created more opportunities for work since their productivity did not diminish with the emergence of the pandemic. Concerning age, young employees aged 20 to 35 years were 49.3 percent less likely to report an increase in employment workload as a result of the COVID-19 pandemic and 41.7 percent more likely to report a decrease in employment workload as a result of COVID-19. This result is consistent with the work of Braziene and Petkovic (2021) who established that the COVID-19 pandemic resulted in work reduction and job losses for young people in the European Union.

Table 4: Marginal effects: Employment workload

| | Increased | No change | Decreased |
|---|---|---|---|
| **Change in No. of employees** | | | |
| Remained the same | -0.20*** (-2.95) | -0.17*** (-9.49) | 0.37*** (5.18) |
| Reduced | 0.03 (0.44) | -0.001 (-0.38) | -0.03 (-0.42) |
| **Section** | | | |
| Construction and Facilities Management | 0.01 (0.10) | 0.00 (0.10) | -0.01 (-0.10) |
| Finance and Accounts | -0.06 (-1.48) | -0.07 (-1.27) | 0.13 (1.37) |
| Human Resource | 0.05 (0.59) | 0.03 (0.73) | -0.08 (-0.64) |
| Information and Communication | 0.04 (0.76) | 0.03 (0.85) | -0.07 (-0.80) |
| Retail | -0.02 (-0.53) | -0.01 (-053) | 0.03 (0.53) |
| Transport and Logistics | 0.02 (0.78) | 0.02 (0.73) | -0.04 (-0.76) |
| Wholesale and Merchandise | -0.02 (-0.32) | -0.01 (-0.31) | 0.03 (0.31) |
| Others | 0.01 (0.47) | 0.01 (0.46) | -0.03 (-0.46) |
| **No. of days worked during lockdowns** | | | |
| 2 - 3 days | 0.04 (0.98) | 0.06 (0.85) | -0.10 (-0.9) |
| 4 - 5 days | 0.07* (1.70) | 0.08 (1.30) | -0.15 (-1.47) |
| 6 - 7 days | 0.09** (2.25) | 0.09 (1.51) | -0.18 (-1.8) |
| **Vaccination Status** | | | |
| 1st dose | 0.02 (0.85) | 0.02 (0.91) | -0.04 (-0.87) |
| 1st and 2nd dose | 0.00 (0.16) | 0.00 (0.16) | -0.01 (-0.16) |

| | | | |
|---|---|---|---|
| **Working from home** | | | |
| Some of the time | 0.06*** (3.52) | 0.05*** (3.34) | -0.11*** (-3.52) |
| All the time | 0.06*** (2.64) | 0.05*** (2.84) | -0.11*** (-2.78) |
| **Gender** | | | |
| Female | -0.00 (-0.19) | -0.00 (-0.19) | 0.01 (0.19) |
| **Age** | | | |
| 20 - 35 | -0.49** (-2.11) | 0.08 (0.51) | 0.42*** (4.96) |
| **Highest level of education** | | | |
| Grade 12 | -0.04** (-2.22) | -0.03** (-2.29) | 0.08** (2.28) |
| Certificate/TVET | -0.00 (-0.10) | -0.00 (-0.10) | 0.01 (0.10) |
| Diploma/Advanced Diploma | -0.02 (-0.52) | -0.01 (-0.50) | 0.03 (0.51) |
| Bachelor's Degree | -0.01 (-0.14) | -0.00 (-0.13) | 0.01 (0.13) |
| Post-Graduate Degree | -0.03 (-0.32) | -0.02 (-0.28) | 0.05 (0.31) |
| **Occupational Group** | | | |
| Professional/Technical | -0.02 (-0.49) | -0.03 (-0.50) | 0.05 (0.50) |
| Trade Person/Maintenance | 0.01 (0.14) | 0.01 (0.14) | -0.01 (-0.14) |
| Clerical/Sales/Cashier/Customer Service | 0.03 (0.68) | 0.03 (0.6) | -0.05 (-0.64) |
| Production/Warehouse/Store | 0.05 (1.03) | 0.04 (0.94) | -0.10 (-0.99) |
| Driver/Transport | 0.08 (1.06) | 0.05 (1.12) | -0.13 (-1.1) |
| Labourer/Shelf Stocker/Bagger | 0.00 (0.08) | 0.00 (0.08) | -0.01 (-0.08) |
| Other | 0.07 (1.38) | 0.05 (1.16) | -0.12 (-1.30) |
| **Income** | | | |
| K400 - K700 | 0.05** (2.26) | 0.03** (2.43) | -0.08** (-2.35) |
| K700 - K1300 | 0.04 (0.94) | 0.03 (1.09) | -0.07 (-1.00) |
| K1300 - K2700 | 0.08 (1.17) | 0.05 (1.76) | -0.13 (-1.35) |
| K2700 - K9600 | 0.42 (1.61) | -0.01 (-0.07) | -0.41*** (-3.30) |
| More than K9600 | -0.08 (-1.34) | -0.12 (-0.87) | 0.20 (1.02) |

**Key:** ***, **, & * denote 1%, 5% and 10% level of significance, respectively. Z values are in parenthesis. Dummy variables are moving from 0 – 1

#The 0.00 coefficient is due to rounding off.

**Source:** Authors' calculations

Table 5: Marginal effects: Feeling about future employment

| | Very Optimistic | Somewhat Optimistic | Neither Optimistic Nor Pessimistic | Somewhat Pessimistic | Very Pessimistic |
|---|---|---|---|---|---|
| **Change in employment workload** | | | | | |
| Lower than normal | -0.01 (-0.61) | -0.01 (-0.62) | -0.01 (-0.64) | 0.01 (0.60) | 0.02 (0.62) |
| Same as normal | 0.02 (0.94) | 0.02 (0.91) | 0.01 (0.78) | -0.01 (-0.94) | -0.03 (-0.89) |
| **Change in No. of employees** | | | | | |
| Remained the same | 0.01 (0.18) | 0.01 (0.18) | 0.00 (0.17) | -0.00 (-0.18) | -0.01 (-0.18) |
| Reduced | 0.02 (0.57) | 0.02 (0.53) | 0.01 (0.43) | -0.01 (-0.59) | -0.04 (-0.51) |
| **Section** | | | | | |
| Construction and Facilities Management | 0.01 (0.17) | 0.01 (0.18) | 0.00 (0.19) | -0.00 (-0.17) | -0.01 (-0.18) |
| Finance and Accounts | 0.04 (0.82) | 0.04 (0.89) | 0.01 (1.1) | -0.02 (-0.81) | -0.07 (-0.93) |
| Human Resource | 0.07 (0.86) | 0.06 (1.06) | 0.01 (0.86) | -0.04 (-0.89) | -0.10 (-1.14) |
| Information and Communication | 0.00 (0.01) | 0.00 (0.01) | 0.00 (0.01) | -0.00 (-0.01) | -0.00 (-0.01) |
| Retail | 0.04 (1.47) | 0.04 (1.47) | 0.01 (1.47) | -0.02 (-1.48) | -0.07 (-1.44) |
| Transport and Logistics | -0.00 (-0.24) | -0.01 (-0.24) | -0.00 (-0.25) | 0.00 (0.23) | 0.01 (0.24) |
| Wholesale and Merchandise | 0.07 (1.5) | 0.06* (1.75) | 0.01 (0.92) | -0.04 (-1.55) | -0.10* (-1.80) |
| Others | 0.05* (1.96) | 0.04* (1.92) | 0.01 (1.23) | -0.03* (-1.99) | -0.08* (-1.86) |
| **No. of days worked during lockdowns** | | | | | |
| 2 - 3 days | 0.01 (0.10) | 0.00 (0.10) | -0.00 (-0.11) | -0.00 (-0.10) | -0.01 (-0.10) |
| 4 - 5 days | -0.05 (-0.88) | -0.04 (-1.03) | 0.00 (0.28) | 0.03 (0.93) | 0.06 (1.04) |
| 6 - 7 days | -0.09 (-1.55) | -0.07** (-2.12) | -0.01 (0.63) | 0.05* (1.65) | 0.11** (2.33) |
| **Vaccination Status** | | | | | |
| 1st dose | 0.05** (2.15) | 0.04** (2.45) | 0.01 (2.31) | -0.03** (-2.16) | -0.07*** (-2.58) |
| 1st and 2nd dose | 0.00 (0.2) | 0.00 (0.21) | 0.00 (0.21) | -0.00 (-0.2) | -0.01 (-0.21) |
| **Working from home** | | | | | |
| Some of the time | -0.07*** (-4.55) | -0.06*** (-4.59) | -0.02*** (-3.41) | 0.04*** (4.24) | 0.11*** (4.80) |
| All the time | -0.04** (-2.38) | -0.04** (-2.29) | -0.01 (-1.43) | 0.02** (2.38) | 0.06** (2.23) |
| **Gender** | | | | | |
| Female | 0.02* (1.69) | 0.02* (1.71) | 0.01* (1.68) | -0.01* (-1.67) | -0.04* (-1.72) |
| **Age** | | | | | |
| 20 - 35 | -0.21 (-1.59) | -0.09*** (-6.11) | 0.05 (0.82) | 0.09** (2.19) | 0.17*** (3.5) |
| **Highest level of education** | | | | | |
| Grade 12 | -0.00 (-0.26) | -0.00 (-0.26) | -0.00 (-0.26) | 0.00 (0.26) | 0.01 (0.26) |
| Certificate/TVET | -0.01 (-0.39) | -0.01 (-0.39) | -0.00 (-0.37) | 0.00 (0.39) | 0.01 (0.38) |

| | | | | | |
|---|---|---|---|---|---|
| Diploma/Advanced Diploma | -0.03 (-1.51) | -0.03 (-1.47) | -0.01 (-1.22) | 0.02 (1.66) | 0.06 (1.4) |
| Bachelor's Degree | 0.01 (0.17) | 0.01 (0.17) | 0.00 (0.19) | -0.00 (-0.17) | -0.01 (-0.17) |
| Post-Graduate Degree | 0.11 (0.93) | 0.07 (1.47) | -0.01 (-0.31) | -0.06 (-1.06) | -0.11 (-1.45) |
| **Occupational Group** | | | | | |
| Professional/Technical | 0.04 (0.82) | 0.03 (0.81) | 0.00 (0.35) | -0.02 (-0.83) | -0.06 (-0.79) |
| Trade Person/ Maintenance | 0.04 (0.66) | 0.03 (0.65) | 0.00 (0.39) | -0.02 (-0.67) | -0.05 (-0.64) |
| Clerical/Sales/Cashier/ Customer Service | -0.01 (-0.25) | -0.01 (-0.25) | -0.00 (-0.29) | 0.01 (0.24) | 0.02 (0.26) |
| Production/Warehouse/ Store | -0.03 (-0.72) | -0.03 (-0.76) | -0.02 (-083) | 0.02 (0.69) | 0.06 (0.78) |
| Driver/Transport | -0.01 (-0.10) | -0.01 (-0.10) | -0.00 (-0.10) | 0.00 (0.10) | 0.01 (0.10) |
| Labourer/Shelf stocker/ Bagger | 0.02 (0.40) | 0.02 (0.39) | 0.00 (0.32) | -0.01 (-0.4) | -0.03 (-0.39) |
| Other | 0.02 (0.39) | 0.01 (0.38) | 0.00 (0.31) | -0.01 (-0.39) | -0.03 (-0.37) |
| **Income** | | | | | |
| K400 - K700 | 0.02 (1.03) | 0.01 (1.04) | 0.01 (1.11) | -0.01 (-1.01) | -0.03 (-1.06) |
| K700 - K1300 | 0.01 (0.31) | 0.01 (0.32) | 0.00 (0.36) | -0.01 (-0.31) | -0.02 (-0.32) |
| K1300 - K2700 | -0.06** (-2.44) | -0.07** (-2.11) | -0.06 (-1.44) | 0.02*** (3.19) | 0.17* (1.70) |
| K2700 - K9600 | 0.36 (1.49) | 0.09* (1.70) | -0.11 (-1.06) | - 0 . 1 3 * * * (-2.67) | - 0 . 2 1 * * * (-4.48) |
| More than K9600 | 0.14 (0.88) | 0.08* (1.64) | -0.01 (-0.27) | -0.07 (-1.06) | -0.14 (-1.57) |

**Key:** ***, **, & * denote 1%, 5% and 10% level of significance, respectively. Z values are in parenthesis. Dummy variables are moving from 0 – 1; #The 0.00 coefficient is due to rounding off.

**Source:** Authors' calculations

Those who had grade 12 level of education were 4.3 percentage points less likely to report an increase in employment workload as a result of the COVID-19 pandemic while they were also 7.5 percent more likely to report a decrease in employment workload as a result of the COVID-19 pandemic. Finally, for the income level variable, those who earned K400 to K700 were 4.6 percentage points more likely to report an increase in employment workload as a result of the COVID-19 pandemic; and at the same time 7.8 percent less likely to report a decrease in employment workload as a result of the COVID-19 pandemic. Moreover, those who earned more than K2700 to K9600 were 40.7 percentage points less likely to report a decrease in employment workload as a result of the COVID-19 pandemic. This is an important finding since it brings forth the fact that young employees with lower incomes and those with higher incomes were likely to experience similar employment effects even with the emergence of the COVID-19 pandemic. This finding is inconsistent with the findings by Congressional Research Service (2000) which found that the loss of employment due to COVID-19 was disproportionate; those with low income were more severely affected than those with higher incomes. For the expectations about the future, (see results in Table 5), the variables for the section where the young employee worked, vaccination status, working from home, gender, age and income levels had significant coefficients.

# Summary and policy recommendation

This paper focused on the effect of COVID-19 pandemic on the employment of young people in the wholesale and retail service sector in Port Moresby, PNG. Data was obtained from a survey that captured youth employment outcomes across wholesale and merchandise, retail trade, cafes and food service, transport and logistics, finance and accounts, information and communication, construction and facilities management and human resources. The perceived impact of COVID-19 (and its associated containment measures such as lockdowns/shutdowns) on the weekly number of days the young people work; their employment workload; and their feelings about the future of their employment were estimated.

Generally, there was a freeze in hiring and in some instances, there were layoffs and furloughs affecting the young workers aged 15 to 35. But furloughs (at 93.5%) were much more common than layoffs, implying that most of the young people had a hope of returning to their working positions in future. The study found that lockdowns did not cause major interruptions in the number of working days – indeed, the econometrics results confirmed that regardless of the number of days worked in a week during lockdowns, the reported decrease in employment workload was not significant. Those who worked for six to seven days a week were more optimistic about the future of their employment. Those who worked for two to three days or less a week were more pessimistic about the future of their employment. The study's results also indicate that employment outcomes were probably better for those who were able to work from home. They were more likely to report an increase in employment workload than those who did not. This implies that working from home did not necessarily dampen the productivity of young workers.

The study also found that service sections (such as finance and accounting section) where automation could replace labour especially in an uncertain economic environment reported decreased number of employees during the COVID-19 pandemic. A more interesting finding was that a large percentage of young employees in the retail section were less likely to report an increase in the number of employees in their section as a result of the COVID-19 pandemic. Regardless of the number of days worked in a week, young employees were less likely to report an increase in the number of employees in their section during the COVID-19 pandemic. In addition, the study found that those who worked for four to five days a week and those who worked for six to seven days a week were more likely to report increased employment workload. Another important finding is that young employees who reported that they worked from home were more likely to report an increase in employment workload in their section in the COVID-19 pandemic period. Finally, all occupational groups that engaged in essential services were less likely to report a decrease in number of employees in their section as a result of the COVID-19 pandemic.

Working from home during a pandemic should be encouraged – for those whose nature of work can allow – as it does not seem dampen the amount of workload handled by young employees (although the nature of work for majority of employees in wholesale and retail sector are routine jobs requiring them to be physically on site interacting with customers). Furloughs (rather than layoffs) should also be encouraged in the retail and wholesale sectors in Port Moresby as the workers appear to have hope of returning to their working positions in future. Lockdowns were also found to be non-disruptive for the employment workload of young people in Port Moresby. However, this measure should be used moderately as young employees who worked for less days in a week may become pessimistic about their future employment prospects. There were no marked differences in the effects of gender on employment outcomes of young people due to COVID-19 in Port Moresby. Targeted policies to cater for employment effects of young employees in Port Moresby should therefore not be gender specific. Finally, employers in the private sector need not disrupt employment in essential services as these sectors were not adversely affected by the COVID-19 pandemic.

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# Appendix

## Table A 1: Variable Names, Survey Questions, Responses and Measurement

| Variable Name | Survey Question | Response Options and Measurement |
|---|---|---|
| Change in employment workload | Since start of coronavirus (COVID 19) pandemic, which of the following reflects your employment workload? | Lower than normal<br>Same as normal<br>Higher than normal |
| Change in number of employees | How did the number of employees/workers in the department/section where you work change as a result of the coronavirus (COVID 19) pandemic? | Reduced<br>Remain the same / No change<br>Increased |
| Employment status | Which of the following best describe your current employment status? | Full time employee/worker (at least 40 hours a week)<br>Part time employees/workers less than 40 hours a week)<br>Temporary/casual/leased employee/worker (... hours a week) |
| No. of days worked during lockdowns | If you recall, how many days a week did you work during the times that the government imposed lockdown to contain the spread of coronavirus (COVID-19)? | 2 - 3 days, 4 - 5 days, 6 - 7 days |
| Feeling about future of employment | How do you feel about your future employment? | Very optimistic<br>Somewhat optimistic<br>Neither optimistic nor pessimistic<br>Somewhat pessimistic<br>Very pessimistic |
| Section | Which section of the company/business do you normally work in? | Construction and Facilities Management, Finance and Accounts, Human Resource, Information and Communication, Retail, Transport and Logistics, Wholesale and Merchandise, Other. |
| Vaccination status | Have you received the first dose or both first and second doses of COVID-19 vaccine? | No, 1st dose, 1st and 2nd dose |
| Working from home | Can you manage or do your employment / work responsibilities remotely, i.e. work from home? | No, not at all<br>Yes, some of the time,<br>Yes, all the time |
| Gender | What is your gender? | Female, Male |
| Age | What is your age (in years)? | 15 – 19, 20 – 35, 36+ |
| Highest level of education | What was the highest level of education you completed? | Grade 12, Certificate/TVET Diploma/Advanced Diploma, Bachelor's Degree, Post-Graduate Degree |
| Occupational Group | What is your occupational group? | Professional/Technical, Trade Person/Maintenance, Clerical/Sales/Cashier/Customer Service, Production/Warehouse /Store, Driver/Transport, Labourer/Shelf stocker/Bagger, Other |
| Income | What is your gross employment income/ earnings per fortnight? | K400 - K700, K700 - K1300, K1300 - K2700, K2700 - K9600, More than K9600 |

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