



Research Article

Factors Moderating the Impact of the COVID-19 Pandemic on Large-Scale Firms in Nepal

Ajay Thapa

Faculty of Humanities and Social Sciences, Pokhara University, Pokhara, Nepal

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*Corresponding author

Ajay Thapa,
Faculty of Humanities and Social Sciences, Pokhara University, Pokhara, Nepal.
Email: azaythapa@gmail.com

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Keywords: Coronavirus Disease; Firm Performance; Impact; Large-Scale Firms; Pandemic.

Abstract

The coronavirus disease (COVID-19) pandemic ruthlessly affected almost all aspects of human life—the industrial sector as well. Despite the severe effects of the pandemic on large-scale firms, the intensity of the impacts on them has not been uniform; different firms have been affected to different degrees. Using data enumerated from 102 large-scale firms in Nepal, this study has assessed the impact of the COVID-19 pandemic on large-scale firms and identified the factors moderating its impact on large-scale firms. The study revealed that the COVID-19 pandemic had negative impacts on the production, sales, and profit of large-scale firms in Nepal. The study disclosed that the age, sex, educational qualification, work experience, managerial skills and managerial foresight of the managers or higher authorities, age of the firm, total capital, type of ownership and sector of firms were the key factors moderating the impact of the COVID-19 pandemic on the large-scale firms. Policymakers are suggested to consider the factors such as age, sex, educational qualification, managerial skills, managerial foresight, age of the firm, total capital, type of ownership and sector of the firm while making policies related to improving the performance of large-scale firms during the pandemic like COVID-19 in the future.

Introduction

People around the globe have been suffering from the coronavirus pandemic (COVID-19) since December 2019. COVID-19 is a new virus related to severe acute respiratory syndrome (SARS) and some types of flu (influenza) or the common cold (World Health Organisation, 2020). Over 241 million people in the world have been identified with COVID-19, and over 6.8 million of them have died (World Health Organisation, 2023). Lockdowns, social distancing,

and vaccinations were the major strategies of governments to prevent and control the spread of COVID-19.

The pandemic has devastating socio-economic effects, resulting in a large number of people being in extreme poverty and undernourished and with existential threats to a large number of enterprises (ILO, FAO, IFAD, and WHO, 2020). The least developed countries due to their limited capability and less preparedness in handling such pandemics are even more vulnerable and have faced

significant hardship due to the COVID-19 outbreak. Many large-scale firms in the least developed countries are dependent on the developed countries for raw materials. A decline in the supply of these materials to the least developed countries could disrupt firms, consequently resulting in a sudden decline in employment in these countries (Tembo and Adhikari, 2020).

Nepal has been affected by the COVID-19 pandemic in various ways. In order to prevent and control the spread of the COVID-19 pandemic, the government of Nepal declared a lockdown in the country on March 24, 2020 (Government of Nepal, 2020) and released an eight-point order to regulate the lockdown period, which prohibited the movement of the general public outside their homes except to seek medication and to purchase essential foodstuff. All public and private vehicles without prior permission from the concerned authority, such as the Chief District Officer (CDO) or the Ministry of Home Affairs, except health workers and personnel of the security forces, were barred from driving on the street for quite a long time during the pandemic period (Pradhan, 2020).

The industrial sector is one of the most affected sectors of the economy in Nepal due to the COVID-19 pandemic. Nepal has over 400,000 cottage and small-scale, 1,849 medium-scale, and 1,165 large-scale firms (Department of Cottage and Small Industries 2020; Department of Industry 2020), and almost all the firms were closed. As the duration of the lockdowns was uncertain, so was the resumption of the firms. The lockdowns affected the production of new goods and services, the clearance of stock, and caused damage to the raw materials of firms, logistics and supply chains, marketing, firm and labour relations, and so on. Many firms faced the problem of repayment of bank loans, and employees also faced numerous problems during the crisis. Despite the universal condition of lockdowns due to the pandemic imposed on all firms at the same time, there might still be differences in the impacts of the pandemic on the firms; that is, some firms might have been relatively more affected than others. Therefore, this paper aims to assess the impacts of the COVID-19 pandemic on large-scale firms in Nepal and to identify the factors moderating the impacts of the COVID-19 pandemic on these firms.

Review of the Literature

The field of study on large-scale firms is very wide-ranging. Scholars have used different theories and approaches such as the resource-based view of the firm, behavioural theory, role theory, social network theory, and so on to study the factors affecting the performance of firms.

Review of Related Theories and Empirical Studies

According to the resource-based view of the firm, resources are vital for the success of a firm. Barney (1991) has identified three types of resources for firms: physical resources, human capital resources, and organizational

capital resources. According to Barney, "the valuable, rare, imperfectly imitable and non-substitutable resource combinations have the potential to serve as a source of sustained competitive advantage for firms" (Barney, 1991, cited in Thapa, 2015:582). According to behavioural theory, the managerial skills of a manager tend to determine the firm performance (Veciana, 2007). Several scholars have revealed significant effects of different types of resources on firm performance (Box et al. 1994; Box et al. 1995; Newton, 2001; Burke et al. 2002; Praag et al. 2005; Segal et al. 2010; Thapa, 2015), managerial skills on firm performance (Newton, 2001; Veciana, 2007; Thapa, 2015). Studies have also discovered that managerial foresight, which refers to the behaviour of a manager according to three dimensions—"degree of analysing present contingencies and degree of moving the analysis of present contingencies across time; degree of analysing a desired future state or states a degree ahead in time with regard to contingencies under control; and degree of analysing courses or action a degree ahead in time to arrive at the desired future state" (Amsteus, 2008, p. 53)—has a significant positive effect on the success of firms (Amsteus, 2011a, Amsteus, 2011b; Thapa, 2015). Studies have also revealed significant effects of firm characteristics such as age (Stinchcombe, 1965; Majumdar, 1997; Thapa, 2015), size (Penrose, 1959 cited in Majumdar, 1977; Lee, 2009), and types/sectors (Liedholm and Mead, 1998; Gebreyesus, 2009; Masakure et al. 2009) on the success of firms.

According to the International Labour Organization (2020), due to COVID-19, "The automotive industry has been hit by a triple whammy: factory closures, supply chain disruption, and a collapse in demand...food retail works have emerged as a new category of frontline services...the viability of the textiles, clothing, leather and footwear industries is unravelling...civil aviation sector grounded...impact of COVID-19 on tourism is unprecedented...". Vickers, Ali, and Ramsay (2020) have argued that due to the measures adopted by the government to control the spread of the COVID-19 pandemic, the tourism sector, which primarily functions through the movement and social interaction of the people, has come to a grinding halt. The United Nations World Tourism Organisation (2020) has also stated that tourism is the worst affected sector of all the major economic sectors due to COVID-19. The literature indicates that different types of firms are likely to experience different levels of impacts from COVID-19. In the context of Nepal, energy-based firms that depend upon hydropower might have been relatively less affected than other firms such as tourism and manufacturing firms, as power is regularly consumed by households, hospitals, government organizations, and other organizations or companies that were operating during the lockdown. The government has a relatively flexible regulation toward firms that produce goods and services

related to necessities, such as hospitals, clinics, pharmacies, drinking water companies, grocery stores, and so on.

Research Hypothesis

From the above review of related theories and findings of empirical studies, the following multivariate hypothesis is proposed for the purpose of this study:

Human capital resource-related factors—being older, being male, having higher educational qualifications, more experience, and greater managerial skills and managerial foresight; and organizational capital resource-related factors: higher age, greater total capital, having individual ownership, partnership and private organization ownership, and being manufacturing, service-based, energy-based, and non-tourism firms—have significant positive moderating effects on the impact of COVID-19 on the production, sales, and profit in large-scale firms.

Model Specification

The following multiple regression models were run to identify the factors moderating the impacts of COVID-19 on large-scale firms in Nepal.

$$GRPRD = \beta_0 + \sum(\beta_i HCAP_i) + \sum(\beta_j OCAP_j) + \varepsilon_t \quad (i)$$

$$GRREV = \beta_0 + \sum(\beta_i HCAP_i) + \sum(\beta_j OCAP_j) + \varepsilon_t \quad (ii)$$

$$GRPRF = \beta_0 + \sum(\beta_i HCAP_i) + \sum(\beta_j OCAP_j) + \varepsilon_t \quad (iii)$$

Where,

GRPRD GRPRD refers to the growth rate of the production of the firms before COVID-19 and during COVID-19.

GRREV GRREV refers to the growth rate of the sales of the firms before COVID-19 and during COVID-19.

GRPRF GRPRF refers to the growth rate of the profit of the firms before COVID-19 and during COVID-19.

HCAP HCAP refers to the vector of human capital resource-related factors that include the age, sex, work experience, education, managerial skills, and managerial foresight of the managers or higher authorities of the firms.

OCAP OCAP refers to the vector of firm-related factors that include the firm's age, total capital, ownership type, and type of the firms.

β_0 β_0 is a statistical symbol representing the intercept or constant. β in other cases represents the regression beta weight or coefficient for the respective explanatory variable.

ε_t ε_t refers to a random error term that represents the influence of other variables not included in the respective model.

Methodology

Data and Instrument

The large-scale firms registered at the Department of Industry (DoI) in Nepal were the subjects of this study. The data and information were collected from the managers or higher authorities such as Chief Executive Officers (CEOs) and Directors of large-scale firms in Nepal. As of March 2020, there were 1,165 large-scale firms registered at the DoI (Department of Industry 2020).

A link of the online survey designed using Google Forms service was forwarded to all of the firms to collect the data and information required for this study. The managers or higher authorities of the firms were requested to respond to the survey. A letter was written by the researcher to all of the firms assuring the confidentiality and purpose of the data and information provided by them.

Measures of the Impacts of the COVID-19 Pandemic on Large-Scale Firms in Nepal

The impacts of the COVID-19 pandemic on the firms were assessed through the changes in the economic aspects of the firms, such as changes in production, sales, and profit. The respondents were requested to provide data on the percentage changes in production, sales, and profit in large-scale firms during the COVID-19 pandemic compared to before COVID-19. These were found to violate the normality assumption of multiple regression. Therefore, the data on production, sales, and profit were transformed into a log by using $\log_{10}()$. The categorical variables included in the multiple regression models to assess their moderating effects on the impact of the COVID-19 pandemic on production were transformed into dummy variables in order to make them fit the multiple regression model.

Results and Discussion

Characteristics of the Respondents

Table 1 shows that about one-third of the respondents were below 35 years of age (32.4%), followed by 45 to 54 years (32.4%), 35 to 44 years (27.4%), and 55 years and above (7.8%). The youngest respondent was 26 years old and the oldest respondent was 65 years. The average age of the respondents was 65 years. A great majority of the respondents were male (93.1%) while the number of female respondents was significantly low (6.9%). Over three-fifths of the respondents had a postgraduate degree (62.7), while only a few (3.9%) had undergraduate qualifications (Table 1).

Of the total respondents, over one-third (33.3%) had 5-9 years of similar work experience, followed by below five years (25.5%), 10 to 14 years (20.6%), and 15 years and above (20.6%). The average year of experience of the respondents was around 9 years. The respondents had a minimum of one year to a maximum of 25 years of work experience. Among the total respondents of the study, over

three-fifths were managers (63.7%), followed by firm owners (17.6%), a director (11.8%), chief executive officer (5.9%), and country head (1%) (Table 1). The director,

country head, chief executive officer, and firm owner were considered the higher authorities of the firm compared to the manager.

Table 1: Demographic profile of the respondents

Variables	Categories	N	Percent
Age group	Below 35 years	33	32.4
	35 to 44 years	28	27.4
	45 to 54 years	33	32.4
	55 years and above	8	7.8
	Total	102	100.0
Descriptive statistics: Min=26, Max=65, Mean=40.275, SD=8.506			
Sex	Female	7	6.9
	Male	95	93.1
	Total	102	100.0
Education	Undergraduate	38	37.3
	Postgraduate	64	62.7
	Total	102	100.0
Work experience	Below 5 years	26	25.5
	5 to 9 years	34	33.3
	10 to 14 years	21	20.6
	15 years and above	21	20.6
	Total	102	100.0
Descriptive statistics: Min=1, Max=25, Mean=9.059, SD=6.078			
Designation	Chief executive officer (CEO)	6	5.9
	Country head	1	1.0
	Director	12	11.8
	Firm owner	18	17.6
	Manager	65	63.7
	Total	102	100.0

Source: Survey 2020/2021

Managerial skills of managers or higher authorities of the large-scale firm:

The managerial skills in this study refer to the skills of the manager or higher authorities of large-scale firms required to manage the firm efficiently. Managerial skills are a conceptual variable adapted from the work of Veciana (2007). In this study, the managerial skills were assessed using six measures—the ability of the manager or higher authorities of large-scale firms to search and gather business-related information, identify business opportunities, deal with firm-related risks, establish relationships or networks, and make decisions under uncertainty and to learn from experience. The data were collected using seven-point Likert scale measures. The reliability of the scale was measured using the Cronbach alpha value, which was .961 and confirmed the reliability or internal consistency of the scales and the items used to measure the managerial skills. A regression factor was derived to represent managerial skills in the regression model.

Managerial foresight of managers or higher authorities of large-scale firms:

Managerial foresight in this study refers to the ability or behaviour of the manager or higher authorities of large-scale firms to analyse present contingencies, analyse the desired future, and analyse courses of action. Managerial foresight is a conceptual variable adapted from the work of Amsteus (2011 a, b). In this study, managerial foresight was assessed through seven measures: What percentage of the data do you as a manager refer back to that is more than two years old?; What percentage of the plans that you create as a manager stretch on for at least two years into the future?; How many of the future conditions that you consider as a manager are more than two years into the future?; How many of the targets that you set as a manager are very detailed?; To what extent do you agree that you as a manager do not analyse in detail potential future conditions?; To what extent do you agree that you as a manager do not set detailed targets?; and, To what extent do you agree that you as a manager do not use information that is older than two years? The data were collected using different ordinal and scale measures. The reliability of the measures or internal consistency of the measures was measured through the Categorical Principal Component Analysis (CATPCA) method with the Statistical Package

for the Social Sciences (SPSS). The Cronbach alpha value of .906 confirmed the internal consistency of the scales or the items used to measure managerial foresight. A regression factor was derived to represent managerial foresight in the regression model.

Characteristics of Large-Scale Firms

Sector of firm:

Of the total large-scale firms included in this study, over two-fifths (43.1%) were tourism-based firms, followed by manufacturing firms (26.5%), energy-based firms (18.6%), service-based firms (7.8%) and agro- and forest-based firms (3.9%) (Table 2).

Age of firm:

The ages of the large-scale firms included in this study ranged from 1 year to 100 years. The average age of large-scale firms in Nepal was about 17 years. The age of the firm appeared to have an inverse relationship with the number of firms. The highest percentage of the firms were below 10 years (44.1%), followed by 10 to 19 years (32.4%) and 20 years and above (22.5%) (Table 2).

Ownership of firm:

Among the total large-scale firms included in this study, around half of the firms (48%) were run in a partnership, whereas the firms having individual ownership were less than one-fifth of the total firms (17.7%). Similarly, approximately one-fifth of the firms (19.6%) were private, whereas the firms having public ownership were relatively fewer than their private counterparts (14.7%) (Table 2).

Table 2: Characteristics of large-scale firms

Variables	Categories	N	Percent
Sector of firm	Agro- and forest-based firm/business	4	3.9
	Manufacturing firm/business	27	26.5
	Service-based firm/business	8	7.8
	Tourism-based firm/business	44	43.1
	Energy-based firm/business	19	18.6
	Total	102	100.0
Age of firm	Less than 10 years	45	44.1
	10 - 19 years	33	32.4
	20 years and above	24	22.5
	Total	102	100.0
Descriptive statistics: Min =1, Max=100, Mean=16.976, SD=22.854			
Ownership of firm	Individual	18	17.7
	Partnership	49	48.0
	Private	20	19.6
	Public	15	14.7
	Total	102	100.0

Source: Survey 2020/2021

Impact of COVID-19 on Large-Scale Firms

Change in average monthly production, sales, and profit, after COVID-19: The impacts of COVID-19 on large-scale firms were assessed through the percentage change in

average monthly production, sales, and profit in the large-scale firms. The study discovered a significant decrease in the percentage of change in the average in these areas. The highest decrease in percentage change was in average monthly profit (-81.07%), followed by sales (-58.22%) and production (-56.56%) (Table 3).

Table 3: Percentage change in average monthly production, sales, profit, and employment during the COVID-19 pandemic

Variables	N	Min (%)	Max (%)	Mean (%)	SD
Production	102	-100.0	200.0	-56.56	46.744
Sales	102	-100.00	.00	-58.22	39.734
Profit	102	-266.67	25.00	-81.07	69.932

Source: Survey 2020/2021

Status of large-scale firms during the COVID-19 pandemic:

The COVID-19 pandemic had severe effects on large-scale firms in Nepal. The majority of firms were closed during the COVID-19 pandemic. The study revealed that more than one-fourth of the large-scale firms surveyed were temporarily closed due to the challenges related to the COVID-19 outbreak. About one-fifth of them (18.6%) were temporarily closed due to government mandates. However, some of the large-scale firms in Nepal (5.9%) were temporarily closed due to factors unrelated to the COVID-19 outbreak. However, nearly half of the large-scale firms (46.1%) remained open during the COVID-19 pandemic as well (Table 4). The firms remaining open could be due to the adoption of new business models or new technologies working from home or working in the firm maintaining social distance and necessary safety measures of COVID-19 protocols.

Table 4: Status of large-scale firms during the COVID-19 pandemic

Status of firm	N	Percent
Temporarily closed due to government mandates	19	18.6
Temporarily closed due to challenges related to the COVID-19 outbreak	30	29.4
Temporarily or permanently closed due to factors unrelated to the COVID-19 outbreak	6	5.9
Firms remaining open	47	46.1
Total	102	100.0

Source: Survey 2020/2021

Change in business model:

A large number of large-scale firms changed their business model, and adopted new models to keep the firms open even during the COVID-19 pandemic. This study discovered that around two-thirds of the large-scale firms (65.7%) changed their business model to reduce being in direct physical proximity with customers. Among the firms surveyed for this study, around half (45.1%) used a phone for marketing, placing orders, and so on. Nearly around two-fifths of them used the Internet, online social media, specialized applications or digital platforms to do their marketing and

sales of products. A few of them (2%) also used personal protection equipment and other social distancing methods for the same reason. However, over one-third of them (34.3%) did not change their business model (Table 5).

Table 5: Change in business model to cope with the challenges created by the COVID-19 pandemic

Types	N	Percent
Use of phone for marketing, placing orders, etc.	46	45.1
Use of Internet, online social media, specialized apps or digital platforms	19	18.6
Use of PPE and other social distancing methods	2	2.0
No change in business model	35	34.3
Total	102	100.0

Source: Survey 2020/2021

Factors Moderating the Impact of the COVID-19 Pandemic on Large-Scale Firms

Three multiple regression models were run to identify the factors moderating the impact of the COVID-19 pandemic on the production, sales and profit of large-scale firms. The study revealed that the age, sex, educational qualification, work experience, managerial skills, managerial foresight, age of the firm, total capital, the firms having individual ownership, partnership ownership, private ownership, and the firms being manufacturing, service-based, tourism-based and energy-based were the key factors moderating the impact of COVID-19 pandemic on large-scale firms in Nepal. The explanations concerning the factors moderating the impact of the pandemic are discussed below.

Age as a factor moderating the impact of the COVID-19 pandemic in large-scale firms:

The age of the managers or higher authorities of large-scale firms was hypothesized to positively moderate the impact of the pandemic in large-scale firms. However, this study revealed a contrasting relationship between age and the impact of the pandemic on large-scale firms and rejected the hypothesis. The study observed that the firms being managed by older managers tended to generate less profit than others during the pandemic (Table 6). This could be due to the reason that older people and educated people do not tend to take many risks. The young managers might have taken the risks of switching to a different business model and investing in new technologies to cope with the challenges created by the COVID-19 pandemic.

Sex as a factor moderating the impact of the COVID-19 pandemic large-scale firms:

The large-scale firms being managed by male managers or higher authorities, compared to female ones, were hypothesized to face a low negative impact of COVID-19. This study disclosed, though marginally significant, a positive effect of sex on the impact of the pandemic, and confirmed the hypothesis. This study observed that the large-scale firms managed by male managers, compared to

female managers, appeared to make greater sales (Table 6). This result seemed to support the conventional thinking about the firms managed by male managers performing better than female-managed ones.

Educational qualification as a factor moderating the impact of the COVID-19 pandemic large-scale firms:

The educational qualification of the managers or higher authorities in this study was hypothesized to positively moderate the impact of the COVID-19 pandemic on large-scale firms. However, very surprisingly, this study revealed a negative effect of higher-level education on the impact of the pandemic and rejected the hypothesis. The study observed a negative effect of higher-level education on the profit of large-scale firms (Table 6). This means that firms having managers or higher authorities with higher educational qualifications tended to exhibit lower performance during the COVID-19 pandemic. This could be due to the less risk-taking tendency of more educated persons. They might have become more critical regarding the challenges created by the COVID-19 pandemic and therefore did not take the risk of investing in new technologies in order to cope with the effects of the COVID-19 pandemic.

Work experience as a factor moderating the impact of the COVID-19 pandemic on large-scale firms:

The work experience of the managers or higher authorities was hypothesized to positively moderate the impact of the COVID-19 pandemic on large-scale firms. This study discovered a mixed type of relationship between work experience and the impact of the COVID-19 pandemic on large-scale firms. The study observed a positive effect of the longer work experience of managers or higher authorities on the profit of the firms (Table 6). Yet, the study also noted, though marginally significant, a negative effect on the production of large-scale firms (Table 6). This means that firms having managers or higher authorities with more work experience tended to exhibit lower production during the COVID-19 pandemic. The reasons behind such contrasting results could be that the experienced managers might have become more serious regarding the challenges created by the pandemic and therefore did not take the risk of changing their business model in order to cope with the effects of the COVID-19 pandemic thereby resulting with lower production of goods and services.

Managerial skills as a factor moderating the impact of the COVID-19 pandemic on large-scale firms:

The managerial skills were hypothesized to positively moderate the impact of the COVID-19 pandemic on large-scale firms. This study disclosed a positive effect of managerial skills on the impact of the COVID-19 pandemic on large-scale firms and confirmed the hypothesis. The study observed greater production and sales of the firms led by managers or higher authorities with greater managerial skills (Table 6). The results of this study supported the

explanation of the behavioural theory and Krizner's theory (Veciana, 2007), and the findings of the previous studies (Newton, 2001; Thapa, 2015).

Managerial foresight as a factor moderating the impact of the COVID-19 pandemic on large-scale firms:

The managerial foresight in this study was hypothesized to positively moderate the impact of the COVID-19 pandemic on large-scale firms. This study discovered a positive effect of managerial skills on the impact of the COVID-19 pandemic on large-scale firms and confirmed the hypothesis. This study observed that the managerial foresight of the managers or higher authorities of the large-scale firms appeared to positively moderate particularly the production and profit of these firms during the pandemic (Table 6). The result of this study also supported the findings of the previous studies (Amsteus, 2011b; Thapa, 2015).

Age of the firm as a factor moderating the impact of the COVID-19 pandemic on large-scale firms:

The age of the firm was hypothesized to positively moderate the impact of the COVID-19 pandemic on large-scale firms. This study revealed a mixed type of association between the age of the firm and the impact of the COVID-19 pandemic on large-scale firms. The study observed that the older firm tended to produce fewer goods and services (Table 6). This means that the production of goods and services by the older firms, the service-based firms, and the tourism-based firms was relatively more affected by the impact of the COVID-19 pandemic. In other words, the younger firm performed better than its older counterparts during the COVID-19 pandemic. This could be due to the nature of the younger firms, which could be more technology-friendly than the older ones. They thus adopted different business models, such as marketing and sales through Internet-based platforms, online social media, specialized applications, work from home, home delivery of goods and services, and so on in order to continue their business, and therefore they were less affected than the less technology friendly firm counterparts. However, the study has also noted that the older firms seemed to generate relatively more profit during the pandemic (Table 6). This could be due to the benefits of learning that the older firms could enjoy thereby resulting in superior performance during such crisis. This result of the study also confirmed the hypothesis and the findings of the previous studies (Stinchcombe, 1965; Majumdar, 1997; Thapa, 2015). They have argued that due to the long experiences, the older firms tend to become more efficient, and thus generate greater profit than younger counterparts.

Total capital as a factor moderating the impact of the COVID-19 pandemic on large-scale firms:

The total capital of the firm in this study was hypothesized to positively moderate the impact of the COVID-19 pandemic on large-scale firms. However, very surprisingly, the study has revealed a negative association between total

capital and the impact of the COVID-19 pandemic on large-scale firms and rejected the hypothesis. The study observed that the sales and profits of the firms having more total capital were relatively more affected by the impact of the COVID-19 pandemic in Nepal (Table 6). This finding indicated that even among the large-scale firms, the bigger-size firms (in terms of capital) tended to be less affected by the impacts of the pandemic. In a way, this result confirmed the claim of Whittington (1980) and Penrose (1959), where they have argued that the bigger firms have an advantage on the economics of scale, and diverse capabilities, thereby generating a greater profit relative to small firms (cited in Thapa, 2015).

Individual ownership as a factor moderating the impact of the COVID-19 pandemic on large-scale firms:

Individual ownership of the firm, compared to public ownership, in this study was hypothesized to positively moderate the impact of the COVID-19 pandemic on large-scale firms. This study discovered, though marginally significant, relatively better performance of individually owned firms during the pandemic, and confirmed the hypothesis. The study observed that these firms had generated more profit than their public counterparts (Table 6).

Partnership ownership as a factor moderating the impact of the COVID-19 pandemic on large-scale firms:

Partnership ownership of the firm, compared to public ownership, was hypothesized to positively moderate the impact of the COVID-19 pandemic on large-scale firms. Very surprisingly, this study disclosed, though marginally significant, a relatively lower performance of the firms having partnership ownership than the public firms during the pandemic. The study observed that these firms had generated less profit than their public counterparts (Table 6).

Private ownership as a factor moderating the impact of the COVID-19 pandemic on large-scale firms:

Private ownership of the firm, compared to public ownership, was hypothesized to positively moderate the impact of the COVID-19 pandemic on large-scale firms. This study revealed a significantly lower performance of the firms having private ownership than the public firms during the pandemic. The study observed that these firms made lower sales than their public counterparts (Table 6).

Manufacturing firms as a factor moderating the impact of the COVID-19 pandemic on large-scale firms:

Manufacturing firms, compared to agro- and forest-based firms, were hypothesized to be less affected by the impact of the COVID-19 pandemic. This study revealed the significantly better performance of the manufacturing firms than the agro- and forest-based firms during the pandemic and confirmed the hypothesis. The study observed that manufacturing firms tended to generate more profit than

agro- and forest-based firms during the pandemic (Table 6). This could be due to that the manufacturing firms that were manufacturing pharmaceutical goods such as personal protective equipment (PPE), gloves, masks and the basic medicines for symptomatic treatment of COVID-19 might have produced and sold even more than the regular volume thereby generating greater profit than agro- and forest-based firms during the pandemic.

Service-based firms as a factor moderating the impact of the COVID-19 pandemic on large-scale firms:

Service-based firms, compared to the agro- and forest-based firms, were hypothesized to be less affected by the impact of the COVID-19 pandemic. Very surprisingly, this study discovered a significantly lower performance of the service-based firms than the agro- and forest-based firms during the pandemic and rejected the hypothesis. The study observed that service-based firms tended to produce and sell fewer goods and services during the COVID-19 pandemic than before the pandemic (Table 6). This could be due to service-based firms such as private education institutions being temporarily shut down during the pandemic.

Tourism-based firms as a factor moderating the impact of the COVID-19 pandemic on large-scale firms:

Tourism-based firms, compared to the agro- and forest-based firms, were hypothesized to be more affected by the impact of the COVID-19 pandemic. This study disclosed a significantly lower performance of the tourism-based firms

than the agro- and forest-based firms during the pandemic and confirmed the hypothesis. The study observed that tourism-based firms tended to produce and sell fewer goods and services than agro- and forest-based firms during the pandemic (Table 6). The reason behind this is that tourism-based firms such as hotels, guest houses restaurants, are the main firms severely affected around the globe by the effects of the COVID-19 pandemic. The hotels, restaurants and other tourism services were temporarily shut down during the pandemic.

Energy-based firms as a factor moderating the impact of the COVID-19 pandemic on large-scale firms:

Energy-based firms, compared to the agro- and forest-based firms, were hypothesized to be less affected by the impact of the COVID-19 pandemic. This study revealed significantly better performance of the energy-based firms than the agro- and forest-based firms during the pandemic and confirmed the hypothesis. The study observed that energy-based firms tended to generate significantly more profit than agro- and forest-based firms during the pandemic (Table 6). This could be due to the nature of the energy-based firms. Most of the energy-based firms in Nepal were hydropower companies. Power is such a necessity product that was regularly consumed even during the pandemic, thereby resulting in relatively more profit than agro- and forest-based firms.

Table 6: Factors moderating the impact of the COVID-19 pandemic on large-scale firms

Moderating factors	Production			Sales			Profit		
	(β)	t	Sig	(β)	t	Sig	(β)	t	Sig
Age	.075	.695	.489	.082	.747	.457	-.416	-3.886	.000
Sex [♦]	.063	.784	.435	.093	1.752	.083	.017	-.052	.958
Educational qualifications [♦]	-.068	-.845	.401	-.071	-.957	.341	-.183	-2.608	.011
Work experience (in years)	-.198	-1.882	.063	-.413	-4.389	.000	.260	2.153	.034
Managerial skills [#]	.424	5.331	.000	.093	1.730	.087	.120	1.376	.172
Managerial foresight [#]	.189	2.260	.026	.022	.394	.695	.433	5.893	.000
Age of the firm (years) ^ψ	-.181	-2.108	.038	.124	1.410	.162	.266	4.025	.000
Total capital ^ψ	.083	1.009	.316	.211	-1.884	.063	-.406	-2.034	.045
Individual [♦]	-.036	-.306	.760	.000	-.589	.558	.121	1.717	.090
Partnership [♦]	.102	.746	.458	-.158	-1.765	.081	-.101	-.405	.686
Private [♦]	-.109	-.920	.360	-.391	-3.828	.000	-.138	-1.573	.119
Manufacturing firm [♦]	.050	.277	.782	-.173	-.852	.397	.442	2.334	.022
Service-based firm [♦]	-.282	-2.263	.026	-.297	-2.602	.011	.184	1.198	.234
Tourism-based firm [♦]	-.689	-3.327	.001	-1.079	-5.672	.000	.022	-.796	.428
Energy-based firm [♦]	.057	.340	.735	-.180	-.393	.695	.667	3476	.001
R ²	.598			.736			.690		
Adjusted R ²	.528			.690			.636		
F	8.545			15.969			12.789		
Sig	.000			.000			.000		
Durbin-Watson	1.823			2.078			1.489		

N=102; Dependent variable: Production^ψ; R²=60.4%; F=7.538, p<.001; ***p<.001, **p<.01, *p<.05, +p<.10; #Regression factor;

^ψLog10(x) variable; [♦]Dummy variable

Conclusions and Implications

The study revealed that the COVID-19 pandemic had negative impacts on the production, sales, and profit of large-scale firms in Nepal. The findings of this study have confirmed various hypotheses of related theories such as resource-based theory, behavioural theory and Krizner's theory. The study discovered that the age, sex, educational qualification, work experience, managerial skills and managerial foresight of the managers or higher authorities, age of the firm, total capital, type of ownership and sector of firms were the key factors moderating the impact of the COVID-19 pandemic on the large-scale firms. Among these factors, managerial skills and managerial foresight appeared to positively moderate the production of the firm during the pandemic. The work experience, age of the firm, and being a service- and tourism-based firm tended to negatively moderate the production of the firm during the pandemic. The sex of the managers or higher authorities (being male) and managerial skills seemed to positively moderate the sales of large-scale firms during the pandemic. The work experience of the managers or higher authorities, total capital, firms having partnership ownership, being private, being service- and tourism-based firms tended to negatively moderate the sales of large-scale firms during the pandemic. The work experience, managerial foresight of the managers and higher authorities, age of the firm, the firm having individual ownership, being manufacturing and energy-based firms appeared to positively moderate the profit of large-scale firms during the pandemic. The age and sex (being male), educational qualification of the managers or higher authorities and total capital of the firm tended to negatively moderate the profit of the large-scale firms during the COVID-19 pandemic in Nepal.

Policymakers are suggested to consider the factors such as age, sex, educational qualification, managerial skills, managerial foresight, age of the firm, total capital, type of ownership and sector of the firm while making policies related to improving the performance of large-scale firms during the pandemic like COVID-19 in the future.

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Conflict of Interest

Author declares that no conflict of interest with the present publication.

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