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Occupational Stress And Individual Well Being Of Nepal Police Officials

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ABSTRACT

Stress at workplace is one of the emerging issues in various profession. The perceived level of stress has an adverse effect in job performance and well-being of employees. The policing is considered as very stressful occupation. The present study entitled, 'occupational stress and individual well-being of Nepal police official' was undertaken to examine the effect of perceived stress on individual well-being of Nepal Police Officials. The survey was done through administration of the structured questionnaire to different categories and levels of police working in Kathmandu valley. Descriptive statistics, correlation and hierarchical regression were used to analyze the collected data. The study results significant influence of perceived occupational stress on individual well-being. The findings suggests that organization, management, and employees should emphasis on stress management approaches for increasing effectiveness and efficiency of organization as the individual well-being is foremost requirements.

Keywords: occupational stress, police officials, individual well-being, psychological health, family satisfaction.

Introduction

Stress at working place has been increasing due to changing job demands, job restructuring, globalization, and technological advancements. Stress occurs, as people have to work excellently against time, within the restriction of numerous rules and regulation. Police work has been recognized as one of the most stressful occupations (Agolla, 2008 and Kumar & Mohan, 2009) as it is associated with

the unique work, such as violent arrests, law enforcement, gruesome scenes of murder and accidents along with exposed to critical or traumatic events as a part of their professional duty. They deal with all manner of human conflict and catastrophes that pose serious threats to the psychological well-being and adverse effect to health and work performance (Agolla, 2008).

The police are responsible for maintaining law and order and prevention of crime in any nation. Nepal is passing through an aftermath of conflict where the annual transaction on illegal drugs about US$ 442,857,143 is almost the double of the government allocation to the security agencies about US$ 228,571,429 (Ghimire & Upreti, n.d). It seems that the resources allocated for the law enforcement sector is inadequate as the budget is about 50% low than the illegal transactions. Further the country is accelerating in post-conflict where the security challenges are emerging as well as- memories of numerous bloody crimes, barbaric atrocities, and blistering attacks in the past years which are not erased yet (Ghimire & Upreti, n.d). Furthermore, the researchers also argued that at present Nepalese face almost 39 reported crimes per day. These scenarios of present conditions create the stress to the police as there is high demand of the task and low resources to perform their duty. Police personnel spends most of their life at their work before retirement that create a kind of mental exhaustion as they have very few hours to spend with their family members in a week or even a month (Pandey, 2016). This study focuses on studying effect of occupational stress on individual well-being of Nepal Police.

Few studies have explored the impact of these stressors on both physical and emotional well-being of police officials. Wang, Repetti, and Belinda (2011) have argued that those who experience more occupational stress are more reactive to stressful situations, have more negative moods, and are less satisfied in their lives and relationship and are less equipped with the personal qualities that could help shield the family from the negative impact of the job stress. The well-being of employees is essential at the working place as it is associated with employee's loyalty, higher profitability, higher productivity and lower rates of turnover that indicates organizational efficiency. It can be achieved through the indicators of perceiving the quality of their relationship, positive emotions, his/her mental health, realization of their potential and overall satisfaction of their life.

Most of the previous research focus on the effect of work-related stress on organizational performance such as organizational outcomes, job satisfaction or work-related well-being (for e.g. Kula, 2011; Jhonston, 2015). Policing job is vital to the society as it is responsible for maintaining peace and security in nation and the well-being of the police officers should be a great concern to the society as well. The job of police profession is strenuous, and the nature of their work changes so fast compared to other formal jobs. Policing is one the most stressful occupation that create the problem in well-being of police which ultimately harms to the police organization, community,

and nation. So, it is important to study on the stress of police work as it is fast paced. There seems to be insufficient research conducted on effect upon individual well-being due to the occupational stress. This study aims to fill this gap by examining the effects of organizational and operational stress to participants' individual well-being.

Literature Review

The literature on occupational stress indicates that it has been evolved from simple stressors-strain models to more sophisticated frameworks incorporating mediating or moderating variables (Lu, 1999). This study was done based on Karasek's and Thorell's Demand-Control- Support (DCS) model that proposes stress at work are directly related to the relationship between work demand placed on an employee and the sources available to fulfill those demands (Jhonston, 2015). Agolla (2008) revealed that the police work stressors are getting injured while on duty and the use of force when the job demands to do so, inadequate resources and work overload, low salary; dealing with suicide scene; high responsibility and dealing with horrible sights. The study was conducted with sample size of 229 police officers in Gaborone and its surrounding adopting survey approach using quantitative method. The researcher has concluded that stress is known to have both psychological and physical effects on a Peron'shealth that result in depersonalization and withdrawals where an individual lead solitude lifestyle. Similarly, Kula (2011) has found that organizational stress negatively influenced employee's job satisfaction and positively associated with work-related burnouts. A total of 538 Turkish National Police were surveyed to examine whether, and to what degree, organizational and operational stresses in law enforcement are associated with job satisfaction, work related burnout, and supervisor support. The influence of organizational and operational stresses on the work-related well-being of TNP employees was measured by job satisfaction and work-related burnout.

Another study conducted by Jhonston (2011) has found the consistent result that organizational stress has a negative relationship with both general well-being and job satisfaction. The study also revealed for both moderating and major effect of the role social support in the stressors-strain relationship. However, the reverse buffering effect of supervisor communication was found that the greater frequency of communication about the certain topics with people become harmful instead of helpful. Collins and Gibbs (2003) found in a study focused on stress-related symptoms and mental ill-health, with a sample of 1206 police officers, also revealed the consistent finding of organizational culture and workload as the key issues in officer stress. Mental ill-health was appeared to have worsened rather than to improved due to high level of stress.

The previous researchers have found the consistent results regarding the occupational stress and impact on well-being of police officers. However, Lu (1999) has found the inconsistent result than that of previous researchers. The study was conducted with the objectives to investigate the relationship between occupational stressors and strain including job satisfaction and mental health. Similarly, the study conducted by

Hammad et al (2012) also found the result in contrary to many studies that show stress negatively affects employee's performance but revealed that low to moderate levels of stress is good for the performance. The study was conducted on traffic police wardens and indicate that the presence of stress among the traffic wardens have a positive effect on their performance when coping mechanisms acting as moderator is introduced. It seems that the literature of occupational stress and its impact upon well-being, and performance is contradictory.

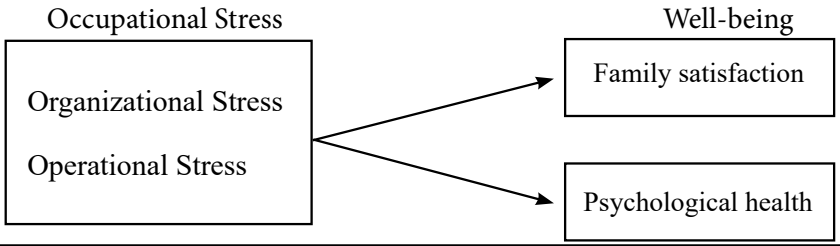
The importance of study on occupational stress is important as it is the contemporary issues in this 21st century and every workforce are feeling stresses due to the rapid change in world economy. The study on occupational stress is necessary to further exploration of its influences in different factors, especially in personal and family well-being along with psychological health. there are very few studies that explore and measure the effect of different stressors on individual well-being of police, especially in Nepali context. this study was undertaken to examine the effect of stress on police personnel's well-being.

There are very few studies conducted on occupational stress and its impact on different aspects in Nepal. Kayastha, Adhikary, and Krishnamurthy, (2012) has reveal that age is significantly different in occupational stress of executive officers working in University and College, Information system, Industries and Bank and financial institutions. The executive officers of different type of organization are experiencing higher level stress but in higher secondary school teachers no executive officers experience different type of stress in terms of job, potential psychological and situational conditions or job factors (Kayastha, Adhikary, & Krishnamurthy, 2012). There is the positive relationship between job stress and psychological strain such as anxiety, turnover intentions, and depression (Shrestha, 2012). There is no study carried on police profession regarding the occupational stress in terms of organizational and operational stress.

Research objectives

The main purpose of this study was to identify the effect of occupational stress to individual well-being of Nepal Police officials. For this purpose, organizational stress and operational stress are used as dimension of occupational stress. Family satisfaction and psychological health are used as dimensions well-being.

Figure 1 Conceptual framework



Research Hypothesis

H1: Organizational stress is negatively correlated with family satisfaction of Nepal Police Officials.

H2: Operational stress is negatively correlated with family satisfaction of Nepal Police Officials.

H3: Organizational stress is positively correlated with psychological health of Nepal Police Officials.

H4: Operational stress is positively correlated with psychological health of Nepal Police Officials.

Research Methodology

This study was conducted using descriptive and correlational research design. The survey technique was used for collecting required data. Occupational stress was assessed through Organizational Police Stress Questionnaire (PSQ-Org), and Operational Police Stress Questionnaire (PSQ-Op), which was developed and validated by McGreary and Thompson (2006) that limit the number of questions to 20 was used in this study which was measured on 5-point likert scale ranging from 1 (Strongly disagreed) to 5 (strongly agreed). Similarly, for measuring well-being previously developed questionnaire and used earlier by Kluczyk (2013) were used in this study. Before administration of the questionnaire, reliability and validity of the questionnaire was checked. A total number of 260 questionnaires were distributed to different police office of Kathmandu valley, out of which 229 were returned with a response rate of 88%. Frequency distributions were calculated to describe the demographic variables of the participants. Mean, Standard deviations, correlations and regression analysis were used to analyze the data.

Results and Discussion

Respondent Characteristics

Table 1

Respondent Characteristics

Variables	Categories	Frequency	Percent
Gender	Female	53	23.1
	Male	176	76.9
Marital Status	Single	68	29.7
	Married	161	70.3
Qualification	Literate	23	10
	SLC	83	36.2
	Intermediate	90	39.3
	Bachelor's degree	24	10.5
	Master's degree or above	9	3.9
Tenure	5 years or less	52	22.7
	6-10	60	26.2
	11-15	66	28.8
	16-20	42	18.3
	21 or above	9	3.9
Unit	Operational units	16	7
	Administrative units	87	38
	Police station	86	37.6
	Anti-Riot	10	4.4
	Traffic	25	10.9
	Others	5	2.2
Rank	Senior officers	27	11.8
	Junior officers	52	22.7
	Constable	63	27.5
	Others	87	38

Note: Developed by the authors using data from questionnaire survey.

The table 1 shows the respondent characteristics. There were more male than female in police profession. Most of the respondents were married. The respondents' profile has shown that most of the polices are having intermediate and SLC level qualification. Many of them were working in constable and others junior levels.

Reliability

The reliability analysis for each variable was conducted through Cronbach alpha which was above 0.7 of all the variables that is shown in table 2. Similarly the table shows that data are normally distributed as skewness and kurtosis value are within the range of ±3 as rule of thumb.

Table 2

Reliability and Normality Test

Dimension	Number of items	Cronbach Alpha	Skewness	Kurtosis
Organizational Stress	10	0.839	-.385	-.321
Operational Stress	10	0.869	-.232	-.510
Family Satisfaction	5	0.703	-.398	-.290
Psychological Health	12	0.832	1.006	1.112

Note: Developed by the author using data from questionnaire

Pearson's correlations were used to assess the relationship between variablesand to test the proposed hypotheses. Results in Table 3 reveal that independent variables of organizational stress and operational stress are significantly related to psychological health that is $p < 0.01$. The results show that both independent variables organizational and operational stress have found an insignificant relationship with Family satisfaction. It indicates that occupational stress has significant effect on psychological health of individual rather than their family life.

Table 3

Correlations of Occupational Stress and Individual Well Being

Dimensions	Organizational Stress	Operational Stress
Family Satisfaction	.024	.70
Psychological health	.360**	.421**
Note: ** Correlation is significant at p<0.01 level (2 – tailed), and *Correlation is significant at p< 0.05 level (2 – tailed).		

For the further investigation of effect of occupational stress on individual well-being regression was applied. Gender and Marital Status were used as control variables based on demographic factors. The regression results (Table 4) indicated that

occupational stress has significant effect on the psychological health (well-being) of employees after controlling the gender and marital status. The coefficient of organizational stress and occupational stress are statistically significant at ($F= 48.56$, $p<0.01$, $\Delta R2 = 0.183$). The R2 explain to what extent the variance of dependent variables is explained by independent variables.

Table 4.

Direct Effect of Predictor Variables

	β (Standardized Coefficients)	
	Step I	Step 2
Gender	.039	.033
Marital status	.078	.073
Organizational Stress		.357**
Occupational stress		.420
ΔR^2	.007	.176**
F	.815	48.56**
Total R2		0.183

Note: * *p<0.01, *p< 0.05.

Discussion

The results of the study revealed that perceived occupational stress has significant relationship with individual well-being of police officials. The studies show that there is significant effect of occupational stress on psychological health however no significant effect on Family satisfaction. The results of the study are inconsistent and contrary to the results of many previous studies that empirically show occupational stress negatively affects family life (Wang, Repetti, & Belinda, 2011; Kula, 2011). the results of the study somewhat can be attributed to the sample of the study, which included maximum number of police working in administrative units especially from research department of police Headquarter. Since they participate less in operation unit such as Anti- terror, Anti-Riot, Intelligence, Public order, crime etc., they have less likelihood to expose with the traumatic events, critical incidents and enforcing laws which are the most stressful factors.

The family life and work life are overlapping in Nepali culture. so, the employees might perceive that having a separate family life which is far apart from work life is not so necessary. one of the possible explanations of the findings regarding having no significant negative relationship of occupational stress and family satisfaction might be the organizational culture of disclosing personal matters with coworkers. The results of the study revealed that organizational stress and operational stress both have the significant negative relationship with psychological health. The results are consistent with the findings of previous studies (Violanti and Aron, 1994; Schaufeli and Enzmann,

1998 as cited in Kula, 2011 and Collins & Gibs, 2003). This result indicates that the more work-related stress perceived by employees the more psychological distress will be observed.

In fact, the organizational factors such as bureaucratic management system, poor communication system, work overload, lack of support from public and family, biasness in opportunity to transfer and promotion, lack of resources and unequal sharing of responsibility are putting the pressure to police that create stress and affecting negatively to their well-being. The operational factors such as shift work, overtime duty, risk of being injured, exposure to traumatic events, and health issues are the critical factors that results the occupational stress consequently negative effect on mental health which is the fundamental of well-being.

Organizations, managers, and business owners should take consideration the negative consequences of occupational stress, as they impact overall organizational performance. this study helps them to recognize the importance of employee's well-being in terms of psychological distress that discourage the creativity and innovation of employees which ultimately provide adverse effect in organizational performance. The well-being in terms of psychological health of employees is the great source of innovation and ideas to every organization as every organization must come up with organizational changes for their survival and success.

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Causal Relationship among Exports, Imports and Economic Growth in Nepal: Evidence from VAR Model

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ABSTRACT

This study's goal is to evaluate the causal relation among Nepal's exports, imports, and real gross domestic product. One of the most significant sources of foreign currency income that reduces the strain on the balance of payments is considered to be exports. The relationship between real GDP, exports and imports is investigated on Nepalese economy over the period 1975-2020, using yearly data. For that purpose, Vector Autoregressive model is used as there is no cointegration among variables as per Johansen's approach. Similarly variance decomposition test is also conducted. Findings confirm the presence of relationship among Real GDP, exports and imports. The results of VAR granger causality test shows that surprisingly export doesn't cause real GDP and import whereas import causes real GDP. Similarly, real GDP causes export, and import also causes export. But there is no bi-directional causality between the variables. Nepal will gain from raising its international trade competitiveness to reduce current account deficits. Prioritizing research and development and producing export goods with high value added by focusing on science and technology are the simplest ways to do this. Similarly, in order to raise worker productivity, which will immediately spur economic growth and raise living standards in Nepal, there is a need to increase technology imports.

Keywords: Exports, imports, RGDP, VAR, Variance Decomposition.

Introduction

Imports of essential resources are crucial to the economy. Nepal mostly imports iron, steel, gold, fuel, clothing, and machinery and equipment. 60% of Nepal's imports from India are $9.58 billion USD. China is the second-largest partner, contributing 15% (2.38 billion US dollars). Third place goes to Argentina with a share of 2.85% (451 million US dollars). Then, United Arab Emirates came in third with a stake of 2.62% (415 million US dollars), while Indonesia came in fourth with a share of 2.31% (366 million US dollars). Nepal exports carpets, beverages, textiles, tea, and plastic in large quantities. India, the United States, Bangladesh, and Germany are among of its top export customers.

Nepal is member of the World Trade Organization (WTO), the South Asian Association for Regional Cooperation, and the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC).

Nepal's foreign currency reserves and balance of payments deficit must be impacted by the widening of its trade imbalance. Historically, import growth has outpaced export growth. According to the data provided by NFM, ratio of export and GDP is the highest in 2000 but afterward it started to decline until 2018. Ratio of export import reached the low level in the 2018 which war 0.065, but afterwards it again increased slowly. So Nepal's foreign trade deficit is very alarming. Since the beginning of time, imports have outpaced exports, creating a deficit in the balance of trade. Nepal has seen considerable and quick trade liberalization during the past three decades. According to data released by the Nepal Finance Ministry (NFM), the Nepal's trade deficit has steadily increased considerably ever since the liberalization policy taken in 1987. Landlocked, lacking substantial resources and an inadequate transportation facility must be reason of high cost of production as a result it is difficult to compete with foreign product for Nepal.

The import and export of a nation can have an impact on its GDP, exchange rate, inflation, and interest rates. The amount of imports and the size of the trade deficit both can hurt a nation's currency. It is proved that increasing exports would increase employment. If more goods and services are exported, ultimately that creates more employment. With this view I try to conduct the relationship among export, import and real GDP. Considering this fact Ahmed et al. (2011) and Uddin et al., (2010) are of view that export is considered to be paramount factor of employment generation in an economy. According to the growth hypothesis, economic growth is influenced positively by energy use and negatively by shocks to the energy supply. The feedback hypothesis postulates that there is a causal relationship between economic growth and energy use that is bidirectional (Dedeoğlu & Kaya, 2013).

The Nepal government implemented and actively pushed tax advantages for businesses that focus on exports in order to achieve economic growth through exports. From a policy standpoint, understanding the relationships between real GDP, imports, and exports is crucial for designing and assessing present and future macro

policies in order to attain a positive trade balance.

The study's major goal is to determine how exports and imports affect economic expansion. The following secondary goals are to determine the relationship between export, import, and economic growth, and to determine the trend in export, import, and economic growth. Similarly, to advise decision-makers in the external sector to establish economic policies from the perspective of developing countries in order to boost economic growth.

Literature Review

No nation in the world is capable of producing all products and services on its own. Every nation must import to satisfy domestic demand. Every country's economy depends heavily on the interaction between export, import, and economic growth. Numerous studies have been done and are still being done in light of this.

Using 1970 to 2010 sample period Achchuthan (2013) conducted the study on relationship between import export and economic growth in Sri Lanka. On the basis of the result they advocated for encouraging small and medium-sized businesses to focus on exports. In the Sri Lankan environment, export and import have a significant positive relationship. In comparison to consumer and investment products, intermediate goods account for a large portion of imports. The raw materials associated to textiles, in particular, make up the majority of intermediate goods. Flexible fiscal and monetary policies are suggested to be used to establish limits on the import of raw materials to the industry. Similarly, Rajni's (2013) study also demonstrates that the co-integration test based on Johansen's approach demonstrates the co-integration between exports and imports, export and gross domestic product, and import and gross domestic product. The findings of her study support the assertion that exports and gross capital formation are strongly correlated.

In the OECD countries, the relationship between energy usage and GDP, energy use and exports and imports is examined in this study by Dedeoğlu & Kaya (2013). The study also fills this gap by giving fresh analysis of the OECD nations. To investigate the existence of long-run relationships and the causality between pairs of variables, they use the panel co-integration technique and the Granger representation theorem. They discover that there is two-way Granger causation between each pair of the pairs of energy usage and GDP, energy use and exports, and energy use and imports. The findings imply that all couples have positive long-run elasticity.

As per their result energy use-exports pair is a pair in which there is a causal relationship in both directions. Positive causality is the sign. These results suggest that encouraging exports increases energy use and that implementing poorly chosen energy -conserving regulations can reduce exports. Recent global crises have put strain on local demand, and nations are working to boost exports as a result. Countries may tend to enact lax energy conservation policies in this setting. The feedback relationship also suggests that exports should be taken into account in future energy prediction efforts.

According to analysis of Yüksel and Zengin (2016), not all emerging nations have the same link between import, export, and growth rate. In six developing nations—Argentina, Brazil, China, Malaysia, Mexico, and Turkey—they examine the connection between imports, exports, and growth rates. Toda Yamamoto causality analysis was used to test annual data for the years 1961 to 2014. The outcome demonstrates that in Brazil and Mexico there is no association between the three variables, however in Argentina an increase in export leads to a greater growth rate. In China and Turkey, there is a similar causal link between import and export. In Malaysia, export also drives up import.

The research conducted by Hye (2012) ensures that there is a long-run relation between economic growth and imports, exports, and imports. Hye's finding is supported by results of Turan and Karamanaj (2012) that exports, imports, and GDP in Albania have an equilibrium connection over the long run.

Esfahani (1991) analysis confirms that there are statistically significant relationships between rising exports and rising output. The association is mostly attributable to exports' role in reducing import "shortages" that limit production growth. The outcome also demonstrates how crucial export promotion is for nations that are unable to secure enough money or international help. Using the Granger causality test and co-integration models, Uddin et al. (2010) investigates the causal between export, import, and Gross Domestic Product (GDP) for Bhutan. The outcome demonstrates that the co-integration analysis predicts an equilibrium relationship between the variables over the long term.

Since early 1980s, trade liberalization and devaluation, on one side, and the expansion and diversification of output and exports of LDCs, on the other, have not been clearly and consistently correlated, according to study of Shafaeddin (1995). Deindustrialization has been a common side effect of trade liberalization in LDCs, and even when exports increased, supply capacity did not always increase at the same time. In contrast, the article links investment levels and import accessibility to the success or failure of GDP and industrial growth. The author claims that the way trade policy reforms were designed also played a significant role in their failure.

Using secondary sources of data, Akhter (2015) investigates the effects of export and import on economic growth in Bangladesh and the relationship between export, import, and economic growth in Bangladesh. The outcome demonstrates that exports have a positive impact on economic growth, while imports have the opposite effect.

Ojide et al. (2014) uses the Autoregressive Distributed Lag (ARDL) model and co-integration analysis to assess the growth impact of non-oil exports and sustainability of non-oil exports in relation to growth in Nigeria. The co-integration analysis and regression results demonstrate the existence of non-oil export growth evidence in Nigeria, demonstrating the validity of the non-oil export-led growth hypothesis in addition to the export-led growth hypothesis.

According to Sulaiman et al. (2019), Egypt has a long-term association between

export, import demand, economic growth, and export and import pricing. Supporting Sulaiman et al. (2019), Fannoun and Hassouneh (2019) demonstrates that exports, imports, and production growth have a long-run equilibrium relationship. Additionally, the data are consistent with a long-run bidirectional causal relationship between output growth, imports, and exports. While Bakari and Mabrouki's (2017) findings indicate that there is no connection between exports, imports, and economic growth in Panama, data on short-run causality support both the export-led import and the import-led export hypotheses.

The empirical findings did support a long-term association between the variables under consideration. According to the findings, export has a long-term, direct, and favorable association with economic growth. Additionally, imports demonstrated a considerable negative link with economic growth and had a long-term detrimental impact on it. Researchers found that a shock to export had a favorable impact on economic growth, but a shock to import had little of an impact, hence a shock to import could not have a beneficial impact on economic growth.

The relationship between imports and exports has been extensively studied, although real GDP inclusion in the model is scarce, according to the review of the literature. The findings of the current studies also do not agree with one another. In light of the foregoing, the current study uses a VAR-based Granger causality test to examine the causal relationship between Nepal's real GDP, imports, and exports.

Data and Methodology

This paper uses annual data covering the period from 1975 to 2020 within a vector autoregressive (VAR) framework to investigate the direction of causality among real GDP, import and export in Nepal. Utilizing the unit root test, the variables are first integrated in a specific order. The series was changed into a log format. The lowering of the Heteroskedasticity problem is a fundamental benefit of transformation into logarithms.

In this study, all the data were obtained from the websites of the country's Finance ministry. The RGDP data shows the measure of economic growth. The natural logarithmic values of the variables were used in the analyses so that result can be interpreted in percentage.

All of the variables in this study are non-stationary at the level of the data but stationary at the first difference. So we can run cointegration test. The outcome demonstrates that cointegration is absent. That indicates that there isn't a long run relationship. Therefore, instead of using the Vector Error Correction Model (VECM), we should use the Vector Autoregressive (VAR).

To evaluate causation in the Granger sense, VAR models are traditionally used. The first difference VAR framework's Granger causality test will be incorrect in the presence of cointegration (Engle and Granger, 1987). The study's entire set of data is in logarithmic form. As the log transformation shrinks the scale in which the variables are

measured, it can lessen the problem of heteroscedasticity (Gujrati, 1995).

Vector Autoregressive (VAR)

Guide line suggests that if there is no cointegration after Johansen test of cointegration among variables, unrestricted VAR model must be run. In this method all the variables are taken as dependent variables. Sims (1980) made VAR models in economics popular. One of the most effective, adaptable, and simple methods for the study of multivariate time series is the vector autoregression (VAR) model. The VAR model has shown to be particularly effective for forecasting and characterizing the dynamic behavior of economic and financial time series. It frequently offers forecasts that are better than those from complex simultaneous equations models and univariate time series models. Typically, forecast error variance decompositions are used to summarize these causal effects. If three different time series variables denoted by Yt1, Yt2 and Yt3 are measured then model will be like as shown in below.

VAR(1) denotes the vector autoregressive model of order 1

$Y1,t = C1 + L1,1\ Y1,\ t\text{-}1 + L1,2\ Y2,t\text{-}1 + L1,3\ Y3,t\text{-}1 + e1,t$

$Y2,t = C2 + L2,1\ Y1,\ t\text{-}1 + L2,2\ Y2,t\text{-}1 + L2,3\ Y3,t\text{-}1 + e2,t$

$Y3,t = C3 + L3,1\ Y1,\ t\text{-}1 + L3,2\ Y2,t\text{-}1 + L3,3\ Y3,t\text{-}1 + e3,t$

Granger causality based on VAR model

Several tests have been created later in the literature that relate to the causality test approach. One of the oldest techniques to measure the causal effect from time series observations is Granger causality. Traditionally, calculating VAR models is used to assess causality in the Granger sense.

Several empirical researches have been carried out in the past to investigate the link between the three variables. However, there doesn't appear to be agreement on the relationship between imports and exports' causative axes. There is a bi-directional causal relationship for some countries, but not for others. However, some countries have a one-way causality from imports to exports, whilst other countries experience the opposite causality from exports to imports.

Stationarity Test

The unit root test was used to test stationarity at a 1% level of significance. The Augmented Dickey-Fuller (ADF) and Phillip and Perron (PP) tests, two asymptotically comparable methods are used to find unit roots in the data (Dickey, 1979; Phillips and Perron, 1988). Integration was differed in the case of non-stationarity of the variables. Therefore, each variable is employed at its level of stationarity. Gujarati (2004) specifies the following for the unit root test:

$$\Delta Yt=\beta_1+\beta_{2t}+\delta Y_{t-1}+\sum_{i=1}^{k} \infty i\ \Delta Y_{t-i}+\varepsilon_t$$

Table: 1

Unit Root Tests

Variables	ADF test statistic, P-value	
	Level	First Difference
RGDP	0.9907	0.00
Ex	0.5177	0.00
Im	0.678	0.002

Model specification:

GDPt = f (export, import)

The function is transformed into a log-linear econometric format:

log (RGDP)t = β0 + β1log (export)t + β2 log (import)t + εt

Where:

β0: The constant term.

β1: coefficient of variable (exports)

β2: coefficient of variables (imports)

t : The time trend.

ε : The random error term.

Lag Selection Criteria

Table 2:

one lag is selected

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-39.33114	NA	0.001507	2.015768	2.139888	2.061263
1	169.0487	377.0683*	1.14e-07*	-7.478510*	6.982033*	-7.296532*
2	174.3712	8.870834	1.36e-07	-7.303391	-6.434556	-6.984929
3	180.8611	9.889340	1.57e-07	-7.183862	-5.942669	-6.728915
4	188.4086	10.42270	1.74e-07	-7.114694	-5.501143	-6.523264

As shown in the above table, asterisk is marked on 1 lag of all criteria. It means that all lag selection criteria suggest to be selected one lag.

Co-integration Test

Johansen Cointegration Test

The co-integration test was used to ascertain whether there is long run relationship among variables in Nepal or not. The Johansen (1988) method was employed to test

for co-integration, which results in two test statistics, the trace test and the maximum eigenvalue test. The test was conducted between real gross domestic product and exports and import. According to Gujarat (2004), co-integration implies the existence of long-run relationship.

Table 3

Trace Test and Max eigenvalue

Test	Unrestricted Cointegration Rank Test				
Trace Test	Hypothesized		Trace	0.05	
	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
	None	0.262041	18.14803	29.79707	0.5551
Max eigenvalue Test	None	0.262041	13.37015	21.13162	0.4187

As shown in the table, P-values of trace test and max eigenvalue are more than 5 percent, so null hypothesis "there is no cointegration" is accepted. It means there is no cointegration between variables.

Model Identification: VAR Model

lnRGDP = C(1,1)*LRGDP(-1) + C(1,2)*LIM(-1) + C(1,3)*LEX(-1) + C(1,4)
lnIM = C(2,1)*LRGDP(-1) + C(2,2)*LIM(-1) + C(2,3)*LEX(-1) + C(2,4)
lnEX = C(3,1)*LRGDP(-1) + C(3,2)*LIM(-1) + C(3,3)*LEX(-1) + C(3,4)

VAR Model: Substituted Coefficients

lnRGDP = 0.85*LRGDP(-1) + 0.05*LIM(-1) - 0.01*LEX(-1) + 1.40
lnIM = - 0.07*LRGDP(-1) + 1.01*LIM(-1) + 0.00*LEX(-1) + 0.97
lnEX = - 0.96*LRGDP(-1) + 0.32*LIM(-1) + 0.91*LEX(-1) + 9.70

Table 5
significance test of individual variables

Total system (balanced) observations 135				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1) LRGDP(-1)	0.857893	0.062120	13.81033	0.0000
C(2) LIM(-1)	0.052371	0.019091	2.743140	0.0070
C(3) LEX(-1)	-0.012525	0.007850	-1.595460	0.1132
C(4)	1.407100	0.599686	2.346393	0.0206
C(5) LRGDP(-1)	-0.076416	0.305990	-0.249734	0.8032
C(6) LIM(-1)	1.012413	0.094041	10.76566	0.0000
C(7) LEX(-1)	0.000562	0.038670	0.014524	0.9884
C(8)	0.979627	2.953942	0.331634	0.7407
C(9) LRGDP(-1)	-0.969467	0.514650	-1.883739	0.0620
C(10) LIM(-1)	0.325855	0.158169	2.060167	0.0415
C(11) LEX(-1)	0.919339	0.065039	14.13510	0.0000
C(12)	9.709675	4.968296	1.954327	0.0529

According to criteria majority variables must be significant which is measured by p-values. As shown in the table p-values of most of the variables are less than 5 percent. So model must be good fitted.

Equation 1: lnRGDP = C(1)*LRGDP(-1) + C(2)*LIM(-1) + C(3)*LEX(-1) + C(4)
Equation 2: lnIM = C(5)*LRGDP(-1) + C(6)*LIM(-1) + C(7)*LEX(-1) + C(8)
Equation 3: lnEX = C(9)*LRGDP(-1) + C(10)*LIM(-1) + C(11)*LEX(-1) + C(12)

Diagnostic Checking:

Serial correlation

Table 6
Breusch-Godfrey Serial Correlation LM Test:

Dependent Variables	P-value of ObsR-ssquare
RGDP	0.0782
Export	0.33
Import	0.43

As p-values of all equations are more than 5 % in all the models, null hypothesis 'there is no serial correlation' is accepted. It means there are no serial correlation in all the models, which is good for model.

Heteroskedasticity Test

Table 7
Breusch -Pagan -Godfrey

Dependent Variables	P-value of ObsR-ssquare
RGDP	0.33
Export	0.20
Import	0.24

As p-values of all equations are more than 5 % in all the models, null hypothesis 'there is no Heteroskedasticity' is accepted. It means there are no Heteroskedasticity in all the models, which is good for model.

Residual Normality Test:
Table 8
Jarque-Bera

Dependent Variables	P-value
RGDP	0.61
Export	0.56
Import	0.13

As p-values of all equations are more than 5 % in all the models, null hypothesis 'residual is normally distributed' is accepted. It means residual is normally distributed

in all the models, which is good for model.

Granger causality Test:

Table 9

Pairwise Granger Causality Test

Null Hypothesis:	Prob.	Decision
Export does not Granger Cause RGDP	0.11	accept
Import does not Granger Cause RGDP	0.006	Reject
RGDP does not Granger Cause Export	0.05	Reject
Import does not Granger Cause Export	0.03	Reject
RGDP does not Granger Cause Import	0.80	Accept
Export does not Granger Cause Import	0.98	Accept

Source: Authors' computation

Guide line of pair wise granger causality test, they must be at 5% level of significance. If P-value is more than 5 % null hypothesis is accepted. As shown in the table ,surprisingly export doesn't cause real GDP whereas import causes real GDP. Similarly, real GDP causes export and import also causes export. But there is no bi-directional causality between variables.

Variance Decomposition Test: Cholesky Ordering

In multivariate analysis, the basic statistical technique of variance decomposition is used to find structures in a large number of variables that can be simplified (Anderson, 2003). Factor analysis, for instance, are tools that are frequently used. For example, economic forecasting has made substantial use of factor analytical techniques (Forni et al. 2000; Stock and Watson, 1988). The terms "variance decomposition" and "forecast error variance decomposition" are more specifically used in macroeconomic analysis to refer to a particular method for evaluating the relationships between variables given by vector autoregressive (VAR) models. Sims (1980) promoted these models as potential replacements for traditional simultaneous equations models, and then many economists and econometricians have adopted them.

Table 10

Variance Decomposition of Real Gross Domestic Product:

Period	S.E.	LRGDP	LEX	LIM
1	0.021248	100.0000	0.000000	0.000000
2	0.029294	96.64343	0.568470	2.788100
3	0.035700	90.49897	1.592674	7.908354
4	0.041551	83.26718	2.776277	13.95654
5	0.047160	76.07513	3.928196	19.99668
6	0.052614	69.48963	4.956079	25.55429
7	0.057929	63.71064	5.830620	30.45874
8	0.063097	58.74563	6.554691	34.69968
9	0.068110	54.51892	7.144435	38.33664
10	0.072961	50.92905	7.619582	41.45136

Source: Authors' computation

Here real GDP is target. In the short run, shock to real GDP account (contribute) for 90.49 percent variation of the fluctuation which is said to be own shock. Shock to import is 7.90 percent fluctuation in real GDP. Similarly shock to export can cause 1.59 fluctuation in real GDP. Thus, total fluctuation will be 100 percent.

In long run, 50.92 percent can contribute to real GDP itself which is known own shock. Similarly shock in other variables import and export can cause 41.49 and 7.61 percent respectively variation of the fluctuation in real GDP in long run. Here 10th period is considered to be long run.

Table 11

Variance Decomposition of Export

Period	S.E.	LRGDP	LEX	LIM
1	0.176037	31.32905	68.67095	0.000000
2	0.237755	30.01406	68.34731	1.638637
3	0.282116	28.26466	66.90085	4.834495
4	0.319036	26.31792	64.77036	8.911725
5	0.352031	24.35192	62.33007	13.31801
6	0.382591	22.47786	59.84687	17.67527
7	0.411397	20.75278	57.48592	21.76130
8	0.438776	19.19730	55.33535	25.46735
9	0.464898	17.81064	53.43227	28.75709
10	0.489866	16.58106	51.78308	31.63586

Source: Authors' computation

Here export is target. In the short run, shock to export account (contribute) for 66.90 percent variation of the fluctuation which is said to be own shock. Shock to import is 4.83 percent fluctuation in export. Similarly shock to real GDP can cause 28.26 fluctuation in export. Thus, total fluctuation will be 100 percent.

In long run, 51.78 percent can contribute to export itself which is known own shock. Similarly shock in other variables import and real GDP can cause 31.63 and 16.58 percent respectively variation of the fluctuation in import in long run. Here 10th period is considered to be long run.

Table 12

Variance Decompose of Import

Period	S.E.	LRGDP	LEX	LIM
1	0.104664	19.88164	0.484555	79.63380
2	0.148445	19.35283	0.482332	80.16484
3	0.182185	18.89769	0.473899	80.62841
4	0.210661	18.50276	0.460565	81.03667
5	0.235713	18.15730	0.443509	81.39919
6	0.258285	17.85268	0.423770	81.72355
7	0.278939	17.58193	0.402243	82.01583
8	0.298043	17.33939	0.379697	82.28091
9	0.315856	17.12046	0.356787	82.52276
10	0.332569	16.92134	0.334068	82.74459

Source: Authors' computation

Here Import is a target variable. In the short run, shock to Import account (contribute) for 80.62 percent variation of the fluctuation which is said to be own shock. Shock to export is 0.47 percent fluctuation in Import. Similarly shock to real GDP can cause 18.89 fluctuation in import. Thus, total fluctuation will be 100 percent.

In long run, 82.74 percent can contribute to Import itself which is known own shock. Similarly shock in other variables export and real GDP can cause 0.33 and 16.92 percent variation of the fluctuation in import in long run. Here 10th period is considered to be long run.

Conclusion:

The relationship among real GDP, exports and imports is investigated for the Nepal economy over the period 1975-2020, using yearly data. To do so, cointegration test using Johansen's approach as well as vector autoregressive (VAR) technique are used.

The experiments demonstrate that the variables are stationary at their first differences but non-stationary at their levels. But the Johansen Cointegration Test reveals that there is no cointegration. VAR model is then run. The Granger causality test reveals that imports lead to exports.

Results demonstrated a causal relationship among real GDP, exports and imports. Furthermore, Granger has discovered that imports contribute to both export and real GDP. Similarly real GDP affects export whereas export doesn't cause both real GDP and import. Policymakers need to understand how important trade is for promoting economic growth. To support the growth of its exports industry, Nepal continues to rely on imports of goods and services. Because of their heavy reliance on the production and export of basic commodities, least developed nations like Nepal

have become increasingly isolated in global trade. To lower current account deficits, Nepal would benefit from increasing its international trade competitiveness. The easiest way to achieve this is to prioritize research and development, generate export goods with high value added relying on science and technology. Similarly, in order to raise worker productivity, which will immediately spur economic growth and raise living standards in Nepal, there is a need to increase technology imports.

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Public Debt and Economic Growth in Nepal

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ABSTRACT

In case of increasing both internal and external debts in Nepal, this paper investigates the impact of internal and external outstanding debt along with gross fixed capital formation, broad money supply, total trade and national consumer price index on real GDP of Nepal for the period 1975 to 2021. The study applied domestic data sets with ordinary least square series. Unit root and cointegration tests are carried out. The cointegration results confirm long run relationship. The empirical results show that both the internal and external outstanding debts are contributing to real GDP in Nepal. The results are supported by econometric diagnostic tests. Based on the results, the paper recommends that taking public debt and investing in public sector is beneficial for real sector output in Nepal.

Internal debt, External debt, real GDP, Unit root test, Cointegration, Ordinary least squares

Introduction

Increasing demand of public goods in case of raising low level of government revenue, budget deficit has become burden of most of the governments. Governments can increase taxes by printing money, borrow from domestic or external sources and can use previous budget surplus. If budget deficit is financed by borrowing rather than announcing extra tax measures, it creates anobligation on the governments that is known as public debt. Debt financing is followed by the governments because it offers a relief to the current taxpayers and transfer the burden of present tax to future generation reducing the political costs of the governments (Singh, 2004).

Public debt is a worldwide growing phenomenon. Almost of the economies have the common characteristics that under the fiscal sector, public

outstanding debt is continuously increasing.Nearlymost of the developing countries are either under minor or high public debt position. Basically, economists do not regard public debt a chief problem rather they stress that mismanagement and un-sustainability of public debt creates the problem. To have debt at sustainable level, debt ratio should turn down or remain natural. Further, for the sustainable level of debt, fiscal deficit is not necessarily to be at zero and deficits should not push the debt ratio to upsurge or move faster than growth rate of GDP. Research results support that foreign aid is also operative if appropriate debt management policies are established (Musgrave & Musgrave, 2004).

Nepalese economy depends on severely on short-term domestic debt and concessional foreign loans, particularly from multi-lateral agencies like The World Bank, Asian Development Bank etc. that have long maturity. Government of Nepal utilizes Treasury Bills, Development Bonds, Citizens Saving Bonds, National Saving Bonds, and Foreign Employment Saving Bonds instruments to raiseinternal debt. External debt was started in 1950 and it is collected bilaterally and multilaterally. External debt matured at lengthy periods and it is more concessional than the internal debt (Sharma, 1998).

Government of Nepal is generating its resources from public debt and it has become one of the main sources. It helps to achieve targeted economic growth and also helps to narrow down the gap between expenditure and revenue or required level of saving and investment for a targeted growth rate. In Nepal, institutional backwardness makes the functioning of economic development a complicated business. In order to remove such obstacles in the economy, public debt can be used as an inevitable tool. Thus, public debt is the most important source of income for the economic development of Nepal (Acharya, 2015).

Nepal is one of the poorest nations in the world and nearly one fifth of citizens living below the poverty line. The per capita income is about 1191 US dollar which is among the lowest in the world. The economic growth rate mostly hovered around 4.2 percent (MOF, 2021). Human Development Index (HDI) ranking is 142th out of 189 with the value of HDI 0.602 (United Nations Development Program, 2019).

Nepalese economy has low level of economic growth because of physical infrastructure deficiency, traditional and subsistence level agriculture system, low foreign direct investment, deficiency in tourism infrastructure and promotion, wide spread unemployment and underemployment, slow industrialization; energy crisis, narrow financial base, corruption, impunity and administrative delay. Further the economy faced shocks from Earthquake of April 2014 and Covid-19 pandemic (MOF, 2021).

Nepal is facing problem of financing to contest the socio-economic problems. The economy is continuously facing financial resource gaps. Government expenditure is increasing rapidly because of adopting socio-economic inclusive policies basically after 1990s. Total expenditures was Rs. 1513.7 million in 1975 and it reached to

Rs. 1079978.8 million in 2021 by folding 713.5 times in 47 years. Government revenue is not satisfying increasing expenditures. Revenue deficit is also increasing. Foreign grants are falling and less stable in filling the resource gaps. Therefore, domestic as well as external debts are becoming key sources of financing in Nepal. That's why both domestic and external outstanding debts are rapidly increasing. The domestic and external outstanding debt were Rs. 476.4 million and Rs. 346.1 million in 1975 and both were reached to Rs. 800320.1 and Rs. 927926.0 million in 2021 by folding 1680.0 and 2681.0 times over the 47 years respectively (MOF, 2022).

There is no consensus among the economists among the role of public debt on the economy. The early economists were in favor of public debt. They believe on the doctrine that state intervention in the economy and considered money as an absolute form of wealth; therefore, naturally, the flow of money into the national economy was encouraged (Salsman, 2017). The early classical school accused government debt because they believed that government expenditure is unproductive, hence public borrowing distorts private capital and negatively affect the accumulation of capital and growth (Tsoulfidis, 2007). However, classical economists like Thomas Malthus and his successor John Stuart Mill come up with a different approach claiming that public debt does not necessarily act detrimental to the accumulation of productive capital, if they are directed either to balance overproduction of goods or in more advantageous uses (Bilan, 2016).

The Keynesians believe in the role of government interventions for stabilizing economy by countercyclical deficit spending. The classical opinioned that the burden of debt is transferred to future generations and both the internal and external debt had similar burdens in the economy. However, the Keynesians believe that future generations is not involved in transfer of the burden of public debt and there is difference between the internal and external debt (Alekhina, 2007 & Buchanan, 1958)

Also monetarist economists linked the public debt with the crowding-out effect. They emphasized that public debt should not have crowding out effect or it should stimulate private investments so that the real sector of the economy is increased (Abdullatif, 2006).

Empirical literature on public debt and economic growth had mixed results. Some of the empirical results showed that internal debt and external debt increased economic growth (Dauda et al., (2013); Bhatta, (2015); Khan, et al., (2016); Sanchez-Juarez & Garcia-Almada, (2016); Ogunjimi (2019); Liu &Lyu, (2020); Abdulkarim & Mohd, (2021); Upadhyaya, (2021). A few other studies showed that there is negative relationship between the public debt and economic growth (Siddique et al., (2016); Hilton, (2021); Kur et al., (2021); Makun, (2021).

Policy makers as well as economists take economic planning as the key tool of economic development. Economic planning exists in different objectives. To satisfy its objectives, it needs resources. Resources are available through tax and non-tax incomes

of the government. Government incomes through tax and non-tax sources are not sufficient to meet the increasing demands of the people in developing country like Nepal. Hence, public debt becomes a reliable and common instrument for resource mobilization. Public debt is more important for poor country like Nepal, which is always suffering from lack of resources to uplift the standard of living of poor people through public spending.

Due to increasing role and responsibility of central, state and local level governments in fulfilling the mounting desires of people, public debt becomes essential part of fiscal policy. To break down vicious circle of poverty, inclusive economic growth, building public construction works and keeping peace and harmony in the society, public debt becomes one of the important sources of financing. Nevertheless, public debt is continuously increasing in the economies. Public debt itself is not the remedy for economic development if it is not properly utilized. If resources' received from public debt are just consumed on daily recurrent expenditures or such resources do not go to the development projects, debts will become evil to the overall economy. Further, poor implementation of development projects and corruption will further waste such scare resources. If debt levels are too high, then, it depletes domestic resources in refunding debt service. Therefore, it is obligatoryto examine empirically either the domestic and external debts amounts would have boosting or hindering effect on the real GDP for the economy.

Although public debt can satisfy growing resource gap in the economy, it has both positive as well as negative impacts upon the economy. On the one hand, it will suffice resource gap for development activities and enhance economic growth that will uplift standard of living of poor people. On the other, if debt received resources are not utilized in development activities or just utilized to fill recurrent expenditures, or debt financed development projects unable to create resources for debt refunding, it would create negative effects on the economy, or the country trapped into the debt burden due to sluggish growth rate. Sluggish growth rate further reduce tax-payable capacity of the people and the economy traps into the burden of debt. Therefore, there is prerequisite to investigate the effect of public debts on real GDP of Nepal. Hence, this paper investigates causal relationship between public outstanding debts (domestic and external) along with other control variables (gross capital formation, broad money supply, total trade and inflation rate) on real GDP of Nepal. It assumesthat both internal and external outstanding debt have boosting effect on economic growth of Nepal.

Research Methodology

To examine the impact of domestic and external outstanding debt and economic growth dependent and independent variables are chosen and defined. The paper takes economic growth is measured by real GDP as dependent variable and it is denoted by RGDP. The key independent variables are domestic outstanding debt (DOD) and external outstanding debt (EOD). Control variables are gross fixed capital formation

(GFCF), broad money supply (M2), total trade (TT) and change in national consumer price index (ΔNCPI)that are included in the equation. Thus, two key independent variables and four control variables are regressed on real GDP of Nepal. The general form of the growth public debt model is:

RGDP = f (DOD, EOD) (1.1)

Where,

RGDP = Real Gross Domestic Product (Rs. million)

DOD = Domestic Outstanding Debt (Rs. million)

EOD = External Outstanding Debt (Rs. million)

An introduction of control variables in the model (1.1), following econometric models is specified to examine the impact of domestic outstanding debt and external outstanding debt along with Gross Fixed Capital Formation (GFCF), Broad Money Supply (M2) and growth in National Consumer Price Index (ΔNCPI) on real GDP in Nepal. The model is:

$$RGDP_t = \alpha_1 + \alpha_2\, DOD_t + \alpha_3 EOD_t + \alpha_4\, GFCF_t + \alpha_5 M2_t + \alpha_6\, TT_t + \alpha_7\, \Delta NCPI_t + \varepsilon_t \quad (1.2)$$

Where,

RGDP = Real Gross Domestic Product (Rs. million)

DOD = Domestic Outstanding Debt (Rs. million)

EOD = External Outstanding Debt (Rs. million)

GFCF = Gross Fixed Capital Formation (Rs. million)

M2 = Broad Money Supply (Rs. million)

TT = Total Trade (Imports plus exports) (Rs. million)

ΔNCPI = Annual change in National Consumer Price Index (In percent)

ε_t = is white noise error terms for above equations and t is time subscript.

The paper applies annual data of different variables from FY 1974/75 to 2020/2021 comprising 47 observations of each.All the secondary data related to domestic debt, external debt, real GDP, gross fixed capital formation, broad money supply will be directly downloaded from macroeconomic dashboard of Ministry of Finance, Government of Nepal and these data will be converted to Rs. million multiplying each by 10. National consumer price index data will be imported from Quarterly Economic Bulletin, mid-July (2021), Nepal Rastra Bank.

All variables of each model are converted into natural logarithms to facilitate the calculation of elasticity and to make it possible the transformation of the non-linear models into log linear one. Summary statistics of the individual variablesconcerning to central location (mean) and spread (standard deviation) is calculated. A correla-

tion matrix of estimating variables is estimated to know how the dependent variable is proportional to all explanatory variables for each model. Unit root is observed with ADF test. To detect the problem and order of serial correlation in the error terms, the paper applied Durbin-Watson (DW test) and Breusch-Godfrey Serial Correlation test. Cochrane-Orcutt method is used to correct the autocorrelation. If serial correlation problem is not handled at first step of Cochrane-Orcutt procedure, then its iterative procedures are conducted. Breusch-Pagan test of error term is conducted to detect the problem of heteroscedasticity and weighted least squares technique is used to minimize it. Variance Inflation Factor (VIF) test is conducted and from the highly collinear pair, one of the variable is delated. Normality of error terms is tested by Jarque-Bera (J-B) test. R-squared and adjusted R-squared tests are applied to measure overall explanatory power of the all explanatory variables. Either individual coefficients of the explanatory variable are significant or not, it is determined by t-test.

Data Analysis and Presentation

Under data analysis and presentation, descriptive statistics of the individual variables, partial correlation, unit root test, cointegration test, regression results, and econometric diagnostics tests are carried out andthe results are interpreted.

Descriptive Statistics of the Variables

The descriptive statistics comprises of the mean, standard deviation, and coefficient of variation and observations at level form of data. The descriptive statistics of each variable is presented in Table 1.1 below.

Table 1.1
Descriptive Statistics of the Variables

Variables	RGDP	DOD	EOD	GFCF	M2	TT	NCPI
Average	692667.3	109329.0	190206.9	231508.4	697752.8	308883.1	43.3
Standard Deviation	735401.6	166391.7	208074.3	361301.9	1212445.4	441769.8	39.8
Coefficient of Variation	106.2	152.2	109.4	156.1	173.8	143.0	92.0

Source: Macroeconomic Dashboard, 2022, Ministry of Finance, Government of Nepal

The results based on large values of standard deviation and coefficient of variation indicated that variables are unstable over the study period.

Correlation Matrix between Dependent and Independent Variables

The partial correlation between dependent and independent variables correlation between the variables is presented in Table 1.2 below.

Table 1.2

Partial Correlation Coefficients between the Variables

Correlation	RGDP	DOD	EOD	GFCF	M2	TT	NCPI
RGDP	1.000	-	-	-	-	-	-
DOD	0.895	1.000	-	-	-	-	-
EOD	0.833	0.870	1.000	-	-	-	-
GFCF	0.860	0.830	0.713	1.000	-	-	-
M2	0.828	0.781	0.745	0.873	1.000	-	-
TT	0.882	0.755	0.644	0.791	0.781	1.000	-
NCPI	-0.765	0.709	0.750	-0.648	0.922	0.863	1.000

Source: Own Calculations

The correlation matrix indicated that there is high degree of correlation (more than 0.80) between dependent and explanatory variables whereas the correlation between all the explanatory variables is moderate (less than 0.80). Hence, there might be prospect that cause and effect relation exist between the independent and dependent variables.

Unit Root Results

The Augmented Dickey Fuller (ADF) test is used for this purpose both at level and first difference (intercept and intercept and trend). Log level forms of data are applied to test the unit root. The log level form unit root results are presented in Table 1.3 below.

Table 1.3

ADF Unit Root Results at Log Level Form

Variables	Intercept		Intercept and Trend	
	τ- statistics	p-value	τ- statistics	p-value
LNRGDP	-0.106944	0.9424	-2.695790	0.2432
LNIOD	-0.138182	0.9388	-2.226631	0.4641
LNEOD	-0.599525	0.8606	-2.241584	0.4557
LNGFCF	-0.954270	0.7616	-1.244592	0.8889
LNTT	0.314412	0.9766	-1.920087	0.6280
LNM2	-1.926025	0.3178	-1.130512	0.9122
LNNCPI	-1.802656	0.3747	-2.861653	0.1840

Source: Own Calculations

The Augmented Dickey Fuller unit root test results confirms that the variables under the study had unit root at level both at intercept and intercept and trend form. The test statistics clearly indicated that log level form series are spurious from unit root.

Thus, first difference data were employed to unit root testing. The unit root results were reported in Table 1.4 below.

Table 1.4

ADF Unit Root Results at First Difference

Variables	Intercept	Intercept and Trend	Order of Integration		
	τ- statistics	p-value	τ- statistics	p-value	
DLNRGDP	-5.738325	(0.0000)*	-5.749530	(0.0001)*	I(1)
DLNIOD	-7.648249	(0.0000)*	-7.558854	(0.0000)*	I(1)
DLNEOD	-6.941295	(0.0000)*	-6.040508	(0.0000)*	I(1)
DLNGFCF	-6.294611	(0.0000)*	-6.298608	(0.0000)*	I(1)
DLNTT	-6.691706	(0.0000)*	-6.739428	(0.0000)*	I(1)
DLNM2	-4.894379	(0.0002)*	-5.244790	(0.0005)*	I(1)
DLNNCPI	-6.159357	(0.0000)*	-6.270306	(0.0000)*	I(1)

Note: An asterisk denotes significant within 5 percent level.

The results show that the log level forms of data at first difference both at intercept and intercept and trend form are completely unit root free and all series are integrated of orders 1. Thus, log level forms of data at first difference are employed to empirical analysis, particularly empirical models.

Cointegration Test Results

The paperapplies Johannsencointegration test with log level form of data to find the cointegration among the variables. The test results are presented in the Table 1.5.

Table 1.5

Cointegration Test Results

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized	Max-Eigen	0.05		Prob.
No. of CE(s)	Eigenvalue	Statistic	Critical Value	
None *	0.672672	143.1474	125.6154	0.0027
At most 1	0.548412	92.89165	95.75366	0.0774
At most 2	0.390406	57.11732	69.81889	0.3344
At most 3	0.285061	34.84401	47.85613	0.4563

Max-eigenvalue test indicates 1 cointegrating equations at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

Based on the results from cointegration equation, the max Eigen value and their respected corresponding p-value andhaving at least one cointegration equation, there

is long run relationship between the dependent and independent variables.

Regression Results

The empirical results on nexus between public debt and real GDP along with other control variables are presented in Table 1.6 below.

Table 1.6: Regression Results DLNRGDP as Dependent Variable

Variable	Coefficients	Standard Error	t-Statistics	Prob.
DLNIOD	0.134956	0.011572	11.663	(0.000)*
DLNEOD	0.193963	0.043826	4.432	(0.000)*
DLNGFCF	0.253962	0.020631	12.316	(0.000)*
DLNTT	0.118372	0.039384	3.018	(0.004)**
DLNM2	0.317058	0.020186	15.715	(0.000)*
DLNNCPI	-0.109483	0.035728	-3.062	(0.007)**
C	-3.593284	0.692754	-5.196	(0.000)*
R^(2) = 0.79		DW = 1.97 N = 46 after adjustments		
Adjusted R^2 = 0.78		F= 3895.6		
		Probability of F statistics = (0.000)*		

*Note: The asterisk * and ** denote significant at 1 percent and 5 percent levels respectively.*

The explanatory variables DLNIOD, DLNEOD, DLNGFCF, DLNM2 along with constant term are statistically significant at 1 percent level whereas DLNTT and DLNNCPI are statistically significant below at 5 percent level. The coefficient of determination and adjusted coefficient of determination are 0.79 and 0.76 respectively. It indicates that model is best fit and explanatory variables explain the dependent variable by 76.0 percent. The F-statistics is statistically significantat 1 percent level. It indicates that the model is best fit.

The value of DW statistics is 1.97 and the value isapproximately to 2. The value near to 2 points out that the error terms from the estimated equation may be free from first order autocorrelation. To test autocorrelation of the error terms of first and other orders, the paper conducted Breusch Pagan-Godfrey serial autocorrelation LM Test. The results based on observed R-squared statistics both at lag 1 and lag 2 are 7.93 and 12.3 having the probability of 51.3 percent and 71.4 percent respectively. The result indorses that error terms of the estimated equation are autocorrelation free. Similarly,the heteroscedasticity of error terms of estimated equation is tested with-Breusch-Pagan-Godfrey test. The result of the test based on observed R squared statics is 6.62 with the probability of 41.4 percent. Thus, the results validates hat residuals are homoscedastic having constant variance. The normality of the error terms is tested with Jarque-Bera (J-B) test and the J-B statistics is 5.832 having probability value of 43.9 percent which confirms that error terms are normally distributed. The multicolin-

earity of explanatory variables is tested with centered Variance Inflation Factor (VIF) values and the centered values are than 5. Hence, there is no severe correlation among explanatory variables.

Discussions on Results

The empirical results infer that both the internal outstanding and external outstanding debts have positive and significant impact on real GDP. The coefficient of DLNIOD is 0.13 and it depicts that one percent increase in the growth rate of internal outstanding debt increases real GDP by 0.13 percent. The coefficient of DLNIOD is positive and significant, meaning that increase in the growth rate of the internal outstanding debt enhances real GDP in Nepal.

The coefficient of DLNEOD is 0.19 and it depicts that one percent increase in the growth rate of external outstanding debt increases real GDP by 0.19 percent. The coefficient of DLNEOD is positiveand significant, meaning that increase in the growth rate of the external outstanding debt boosts real GDP in Nepal. The results confirm that public debt is contributing to real sector output and both internal and external debt does not differ to enhance growth in case of Nepalese economy. Further, it supports the theory that public debt is not always harmful for the economy.

Similarly, the coefficient of DLNGFCF, DLNTT, DLNM2 are positive and significant and it indicated that growth in gross fixed capital formation, total trade and broad money supply are stimulating the real GDP in Nepal. However, the negative and significant coefficient of national consumer price index indicated that inflation hampered the real GDP in Nepal.

The external debt burden of Nepal has increased significantly with a high pace of growth in such a burden after 1990s. The significant growth in debt burden is basically because of the increased investment need of the government for infrastructure building, macroeconomic adjustment and structural reform. However, the empirical results inferred that internal as well as external debt were not deterring economic growth in Nepal. Rather, of the debts were contributing to the economic growth measured in term of real GDP.

Conclusions

Public debt is a good option to finance public investment and accelerate economic growth, provided it is utilized in the appropriate channels. To examine the impact of internal and external outstanding debt on real GDP in Nepal is the key objective of this paper. The short and long-run estimated results show that both the internal and external outstanding debt have boosting effect on economic growth in Nepal. The impact of broad money supply, total trade and inflation measured by national consumer price index appear as insignificant. Therefore, to maintain positive growth, the estimated result of the interactive analysis suggests that both the internal and external debt along with gross investments should be increased in the Nepalese economy. The

debt are not reached to that ceiling after which their effects on real GDP would be negative. Therefore, at present public debt is contributing to growth and taking internal and external debts and investing these amounts in public utility sectors is beneficial for the Nepalese economy.

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Evaluating Nepalese Commercial Banks' Performance from the Eyes of EAGLES Rating

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ABSTRACT

The paper aimed to evaluate the performance of the Nepalese commercial banks using the EAGLE rating model developed by Vong (1994) based on the bank's earning ability ratio, assets quality ratio, growth rate, liquidity, and equity to which an acronym as EAGLE. Vong and Song (2015) added the 'S' element afterward under EAGLE, renaming EAGLES. The strategy response quotient (S) shows management's capacity to set deposit and loan rates and to control a bank's interest burden, calculated as non-interest income minus any overhead costs. The paper considered the financial information of all the commercial banks operating in Nepal from 2018-19 to 2020-21. The paper found that the banks with a short history in the Nepalese banking industry with aggressive market expansion were at the top of the position under the EAGLES rating. The paper also found that ranking for return on equity (E) and ranking for non-performing loan ratio (A) and ranking for return on equity (E), and ranking for capital adequacy ratio (E) have a significant relationship while determining the ranking of the commercial banks. Similarly, the paper found that the bank with a better position for all the components of EAGLES was at the top for the government-owned commercial banks, while for joint venture banks, the bank with better loan growth, liquidity position, and capital structure was at the top.

Keywords: EAGLES, commercial bank, ranking, Nepal.

Evaluating Nepalese Commercial Banks' Performance from the Eyes of EAGLES Rating

I. Background

The EAGLES benchmark monitors bank performance from the perspectives of earning ability, asset quality, growth, liquidity, equity, and strategy. The focus is not entirely dissimilar to the CAMELS based on capital adequacy, assets quality, management, earnings, liquidity, and sensitivity factors of the bank. However, three distinct differences enable a clearer assessment of the condition of the bank. Firstly, EAGLES are conducting a financial analysis of the bank. Vong (1994) developed a new approach to measuring banking performance using the earning ability, assets quality, growth rate, liquidity, equity, and strategy response quotient, to which he gave an acronym, EAGLES. This approach is considered more objective than the CAMELS because the EAGLES apply the ratios as a rating method, not a scoring method of between 1 (one) to 5 (five) as in CAMELS. Financial ratios rather than arbitrary grades ranging from 1 to 5 make up the EAGLES evaluation. It goes without saying that if a trend analysis is conducted on these financial ratios across successive periods, it will be simple to predict when banks or the banking system will fail or become weak.

Second, control of non-interest operational costs, collection of fee income, and pricing of deposit and loan rates all contribute to the quality of bank management. The ability of bank management to accept deposits, make loans, acquire fee-based income, and manage overheads is dependent factors on these four operations (Vong, 1994). Thirdly, the strategic response quotient (SRQ) considers four key financial information of the bank, that is, interest income, interest cost, non-interest income, and non-interest cost. It is measured by taking the interest margin and dividing that by the net operating cost (i.e. fee income less non-interest expense). Vong and Song's (2015) SRQ shows how management can control the interest burden of banks or the difference between non-interest income and any administrative costs as well as set deposit and loan rates. The SRQ time factor measures the offset times the interest burden is offset by net interest income. The authors noted that a coverage level higher than 2 (two) is generally; considered healthy. Higher SRQ is not necessarily beneficial since it relies on the bank's strategic direction. The 1996 Asian Financial Crisis and the 2007 Global Financial Crisis made more concerned about financial stability. The financial stability of the banks was seen as possible only enhancing the profitability and assets quality of the banks. Hence, the concern and interest in EAGLES Model emerged for evaluating the financial performance of the banks. Thus, the paper also tried to evaluate the performance of the Nepalese commercial banks using the EAGLES Model developed by Dang and Vong (2020).

II. Literature Review

Balachandher et al. (2015) found that an evaluation of the Malaysian banks' performance parameters under the EAGLES model will give a proper insight into the

banks' financial status in the due process of the initial stage of the merger process. The study found that the rating of the banks using the EAGLES model would give proper information at an initial stage for selecting a suitable partner for the banks which are eager to go for a merger or acquisition process.

Kumari and Prasad (2017) used decade-long data from ten public and private banks to compare their financial performance on the EAGLES model. Their results showed that Yes Bank positioned at the top considering return on assets, gross non-performing assets, and provision coverage ratio. The paper found private banks outperformed public banks.

Ali (2019) used the EAGLES model on the Islamic banks and revealed that rapid growth was in all segments except in the part of liquidity. The steeper learning curve was seen for younger banks than for conventional banks. The paper concluded that conventional banks performed better than Islamic banks in all areas except on the growth side.

Dang and Vong (2020) used the EAGLES framework; based on CAMELS ranking, for ranking the banks. Between 2012 and 2018, 48 banks from the Asia Pacific region were the subject of the investigation, focusing mainly on the EAGLES framework's strategic response quotient (SRQ). The computation of the interplay of four financial data components; interest income, fee-based revenue, the interest cost, and operational expenses; leads to the development of the SRQ. The study discovered that the selected data elements were capable to anticipate and portray bank stability and profitability from a distinctive angle.

Suresh and Krishnan P (2020) found that the CAMELS model of evaluating the performance of the banks was seen as outdated as per the changing banking industry environment, whereas, the EAGLES model was seen as better in reflecting the soundness of the banks with proper consistency.

Sathavara and Sathavara (2021) evaluated the financial performance of selected private sector banks of India by using the EAGLES model. The paper found that the selected private sector banks have maintained the capital adequacy ratio as per RBI norms.

Ristanti and Ismiyanti (2021) applied an EAGLES framework to determine the profitability of the top banks of Indonesia. The paper stated that the four factors of a bank's indicator, namely; Loan Deposit Ratio (LDR), Net Interest Margin (NIM), Net Interest Income Margin/Net Operating Cost (NIM/NOC), and Loan Growth (LG) should be considered while determining the performance of the banks.

Basha V and Tejesh (2021) found from the CAMELS and EAGLES rating those north Indian banks are far better than south Indian banks. Significant differences except for return on assets, provision coverage ratio, and deposit ratios were influencing the rating of the banks.

Yazdi et al. (2022) ranked the Iranian commercial banks' performance during an uncertain period of the COVID-19 pandemic. The paper followed Evaluation by an Area-based Method of Ranking (EAMR) and Step-wise Weight Assessment Ratio Analysis (SWARA) to rank all nationalized Iranian commercial banks. Nevertheless, the paper came out with a new hybrid ranking tool, Multiple Attribute Decision Making (MADM), a better option to rank the bank's performance during a pandemic.

III. Data and Methodology

The paper is based on secondary data. All the licensed 'A' class Nepalese commercial banks are taken as a sample for the paper. Therefore, 27 (twenty-seven) commercial banks operating within Nepal are taken as a sample for the study.

The paper has considered the financial data for the three fiscal years, from 2018-19 to 2020-21. The data during these periods are considered as the last merger of the banks in Nepal took place between Janata Bank Ltd. and Global IME Bank Ltd. in December 2019. The paper has used the parameters of the EAGLES Model to measure the performance of the sampled banks. Hence, return on equity (E), non-performing loan ratio (A), loan growth (G), credit-deposit ratio (L), capital adequacy ratio (E), and strategic response quotients (S) of the sampled banks are considered for the paper. Similarly, a Spearman's rank correlation has been used to determine the strength of a monotonic relationship between the paired data.

IV. Results

Results of EAGLES Ranking of the Commercial Banks

The table below shows the result of the ranking of the banks based on the EAGLES model:

Table 1
Overall Ranking of Nepalese Commercial Banks under EAGLES Model

BANKS	E	RANK	A	RANK	G	RANK	L	RANK	E	RANK	S	RANK	OVER-ALL AVER-AGE	OVER-ALL RANK
ADBL	11.04	15	2.37	22	15.25	21	89.56	11	18.61	1	5.09	19	14.83	17
BOKL	9.14	23	1.62	17	14.10	23	91.25	4	14.21	9	7.11	7	13.83	14
CCBL	7.20	26	1.82	19	14.74	22	87.01	16	14.61	6	8.43	4	15.50	22
CZBL	10.70	19	1.46	16	29.76	5	88.61	13	14.40	8	5.22	16	12.83	11
CBL	5.79	27	1.77	18	28.19	6	91.89	3	14.79	5	8.39	5	10.67	4
EBL	15.58	5	0.17	1	12.93	24	85.28	18	13.20	19	5.59	13	13.33	13
GBIME	14.95	7	1.24	14	39.57	1	74.84	23	12.66	24	9.74	2	11.83	7
HBL	16.21	3	0.87	7	17.39	20	86.52	17	13.81	13	8.36	6	11.00	5
KBL	10.47	21	1.12	11	32.42	3	91.10	5	13.60	17	6.71	9	11.00	6
LBL	10.66	20	0.97	9	20.72	15	93.83	2	12.33	26	4.54	21	15.50	23

MBL	12.84	11	0.50	6	22.24	13	87.36	14	12.62	25	4.53	22	15.17	19
MEGA	11.00	16	1.12	12	35.86	2	85.03	19	13.82	12	8.79	3	10.67	3
NABIL	15.52	6	0.85	7	23.53	11	83.84	20	12.78	23	5.99	11	13.00	12
NBB	12.12	12	2.00	21	18.41	17	69.99	27	13.69	15	2.59	27	19.83	25
NBL	8.52	25	2.39	23	22.46	12	77.72	22	16.87	3	7.00	8	15.50	21
NCCB	8.67	24	7.01	27	23.61	10	89.88	8	13.96	10	5.22	16	15.83	24
NIB	10.98	17	2.72	24	10.33	27	73.34	24	13.84	11	5.15	18	20.17	26
NICA	19.69	1	0.25	5	30.49	4	87.32	15	13.10	21	4.01	26	12.00	8
NMB	11.45	13	1.92	20	27.93	7	94.54	1	15.20	4	5.64	12	9.50	2
NSBI	10.97	18	0.22	2	10.56	26	90.53	7	14.51	7	4.42	25	14.17	15
PCBL	13.74	10	1.16	13	27.45	8	89.12	12	13.81	14	5.04	20	12.83	10
PRUV	10.09	22	2.86	25	17.53	19	83.38	21	11.81	27	5.35	15	21.50	27
RBB	16.09	4	3.97	23	17.81	18	72.64	25	13.16	20	13.83	1	15.17	18
SANI-MA	19.28	2	0.22	3	21.42	14	89.87	9	13.25	18	6.08	10	9.33	1
SBL	14.13	9	1.04	10	24.28	9	89.76	10	13.08	22	5.56	14	12.33	9
SCB	14.40	8	0.24	4	11.63	25	70.72	26	16.89	2	4.52	23	14.67	16
SRBL	11.28	14	1.43	15	19.45	16	90.54	6	13.67	16	4.52	24	15.17	20

Table 1 clearly shows the ranking of the Nepalese commercial banks. As per EAGLES rating, Sanima Bank Limited is seen at the top position, followed by NMB Bank Limited. Prabhu Bank Ltd. was seen at the last position among the banks. The EAGLES model of evaluating the bank mainly concerns the financial soundness concerning the earning position and strategic management responses, i.e., the bank's management ability in deposit-taking, lending, obtaining fee-based income, and controlling overheads are seen as major concerns.

As the rating of the banks has been done based on the performance during the period of the COVID-19 pandemic, the ranking also shows the ability of the respective banks in handling crises.

Looking at individual parameters of the EAGLES ranking, the performance of the banks is not seen as consistent. The top position on each parameter was occupied by different banks for respective parameters.

Table 2

Spearman's Rank Correlation Coefficient for EAGLES Variables

Spearman's Rho	E	A	G	L	E	S
E	1.000					
	0.550**					
A	(0.003)	1.000				
	0.025	-0.002				
G	(0.901)	(0.992)	1.000			

	-0.339	0.126	0.216			
L	(0.083)	(0.532)	(0.280)	1.000		
	-0.411*	-0.268	-0.217	0.127		
E	(0.033)	(0.176)	(0.276)	(0.528)	1.000	
	-0.106	-0.204	0.238	-0.067	0.040	
S	(0.599)	(0.307)	(0.232)	(0.740)	(0.842)	1.000

***Correlation is significant at the 0.01 level (2-tailed).*

**Correlation is significant at the 0.05 level (2-tailed).*

Table 2 shows that the ranking for return on equity (E) and ranking for non-performing loan ratio (A) has a significant relationship. Similarly, ranking for return on equity (E) and ranking for capital adequacy ratio (E) of the commercial banks has a significant relationship to determine the performance ranking of the Nepalese commercial banks.

Among the sampled 27 (twenty-seven) commercial banks, 3 (three) are fully government-owned or partially share-owned by the government. Among these three banks, ADBL is in a better position. Table 3 shows the three factors of the EAGLES framework, non-performing loan ratio (A), credit-deposit ratio (L), and capital adequacy ratio (E), are at the top level for ADBL among the three banks.

Table 3

Ranking of Nepalese Government-owned Commercial Banks under EAGLES Model

BANKS E	RANK A	RANK G	RANK L	RANK E	RANK S	RANK	OVER-ALL AV-ERAGE	OVER-ALL RANK
NBL	8.52 3	2.39 2	22.46 1	77.72 2	16.87 2	7.00 2	15.50	3
RBB	16.09 1	3.97 3	17.81 2	72.64 3	13.16 2	13.83 1	15.17	2
ADBL	11.04 2	2.37 1	15.25 3	89.56 1	18.61 1	5.09 3	14.83	1

Source: Table 1

Table 4 shows the ranking of 6 (six) joint venture commercial banks operating in Nepal. Among the six joint venture banks, NMB is ranked at the top as per the EAGLES rating followed by HBL.

Table 4

Ranking of Nepalese Joint Venture Commercial Banks under EAGLES Model

BANKS E	RANK A	RANK G	RANK L	RANK E	RANK S	RANK	OVERALL AVERAGE	OVERALL RANK
EBL	15.58 2	0.17 1	12.93 5	85.28 3	13.20 5	5.59 4	13.33	4
HBL	16.21 1	0.87 4	17.39 4	86.52 2	13.81 3	8.36 1	11.00	2
NABIL	15.52 3	0.85 3	23.53 2	83.84 4	12.78 6	5.99 2	13.00	3
NBB	12.12 5	2.00 6	18.41 3	69.99 6	13.69 4	2.59 6	19.83	6
NMB	11.45 6	1.92 5	27.93 1	94.54 1	15.20 2	5.64 3	9.50	1
SCB	14.40 4	0.24 2	11.63 6	70.72 5	16.89 1	4.52 5	14.67	5

V. Conclusion and Implications

CAMELS rating, an acronym for capital adequacy, assets quality, management, earnings, liquidity, and sensitivity was developed in 1979 under Uniform Financial Institutions Rating System in the United States. The rating system was not giving a proper indication of the failure of the banks during the Asian Financial Crisis (AFC) of 1996 and the Global Financial Crisis (GFC) of 2007. This made concern for developing a new measuring indicator for the performance of the banks. Therefore, Vong (1994) developed a new rating system considering the earnings and growth of the banks as well as strategic responses, naming EAGLES. Nevertheless, Vong (1994) connected the rating of the banks on the profitability position, namely earning with the strategic response of the respective ranked banks; the Nepalese commercial banks do not seen able to connect their strategic responses with their earning position. Due to the COVID -19 pandemic also, Nepalese commercial banks were more focused on implementing functional strategies rather than going for business level strategy.

The EAGLES rating for the banks was seen as fruitful during the financial crisis at the Global or Asian level. Therefore, the paper has also conducted the Nepalese commercial bank's rating for their performance during the COVID-19 pandemic period.

The paper found that the banks with a short history in the Nepalese banking industry with aggressive market expansion was seen at the top of the position as per the EAGLES rating. The bank with a better earning position and strategic management responses was seen at the top position. Nevertheless, as per their ownership, the bank with a better position for all the components of EAGLES was at the top for the government-owned commercial banks, while for joint venture banks, the bank with better loan growth, liquidity position, and capital structure was at the top.

The paper also found that ranking for return on equity (E) and ranking for non-performing loan ratio (A) and ranking for return on equity (E) and ranking for capital adequacy ratio (E) have a significant relationship while determining the ranking of the commercial banks.

Stakeholders of the banks are concerned about the performance of the banks; especially investors are more concerned about the earnings and growth of the bank.

Therefore, to evaluate the bank's performance even in an economic crisis due to a pandemic affect, EAGLES rating is seen as a better option in evaluating the bank's performance for the investors.

The development of the EAGLES rating emerged at the time of the economic crisis in Southeast Asia. The failure of the earlier popular rating concept of CAMELS during the 1996 Asian Financial Crisis made concern among financial analysts go for a new rating tool. Hence, the concept of the EAGLES Rating emerged and came into practice, especially in Southeast Asia. Against this backdrop, the rating of banks is done using the EAGLES rating during the crisis time rather than adopting another technique. It can be viewed that the banks with a better capital base, strong liquidity position, and low-level non-performing assets could sustain even in the crisis time, as well as manage to run the banks in a better position. With experience operating in the crisis period of COVID-19, when the Nepalese economy faced a harsh lockdown, the central bank should go for a strong capital base and liquidity management directives for banks and financial institutions. At the same time, the central banks should implement the policy by connecting the profitability of the banks and financial institutions with capital structure.

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Bank-Specific as Basis of Banking Sector Development: An ARDL Approach

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ABSTRACT

This study aims to examine the bank-specific factors and banking sector development in Nepal by using the ARDL approach technique with economic time series data ranging from 1995 to 2020. The study employed the Autoregressive Distributed Lag (ARDL) model to avoid the spurious regression problem in the construction of contemporary time series econometrics. The study depends on the co-integration analysis to find out the long-run equilibrium relationship among the variables of the model. Banking sector development is measured by the arithmetic average of the normalized values of banking depth, banking efficiency, and banking stability. This study reveals that banking trade has positive and significant influenced the banking sector development in line with theoretical predictions. Electronic banking and liquidity have a positive and statistically significant role to explain banking sector development in Nepal. In addition, it demonstrates that non-performing loans has a negatively and significantly influenced banking sector development whilst branch network has a marginally negative but insignificant impact on banking sector development. This study reveals implications for policymakers as it sheds light on the importance of raising deposits and lending policies and focused on electronic banking. The authorities of a financial institution should be implied to build systems and skills in liquidity management, assets and liability management, and branch networking management to enhance the banking sector's development.

Keywords: Banking sector development; bank-specific factors; ARDL approach

I. INTRODUCTION

The concept of banking sector development is multi-dimensional, and it is difficult to establish a single description for it because it is an interconnected process that encompasses increases in the number and quality of banking services. Macroeconomic policy, savings mobilization, institutional quality, loan issuance, and risk management are some of these dimensions. Thus, a country's capacity to deliver these activities efficiently is a good indicator of its financial system's progress. To comprehend the role of institutional policy and banking sector development, policymakers must understand the long run and causal relationship between the banking system, economic growth, and financial development (Perotti and Volpin, 2007). The significance of this study stems from the banking sector's vital role in the economic development process, as well as its role in providing the necessary finance for investments, necessitating research into the drivers that influence the banking sector's development in Nepal.

The development of institutions and financial markets is critical to economic growth, according to a growing body of theoretical and empirical evidence (Levine et al. 2005). Economists have long questioned the relationship between financial development and economic growth. The importance of paying more attention to institutional development has been highlighted in both theoretical and empirical studies, as institutions play a crucial role in the growth of the banking sector. According to Kaur et al. (2013), the expansion of the banking sector development accelerates the rate at which a host nation benefits from foreign direct investment and remittance inflows by providing services such as loans and efficient capital allocation. It is clear from the literature that the positive role that the development of the banking sector plays in the promotion of economic growth is no longer an unsettled issue. What is yet unknown is what factors influence the banking sector development in Nepal? Hence, the current study was undertaken to fill in that void.

These studies have dealt with several aspects of the relations between bank-specific factors and banking sector development at both theoretical and empirical levels. These factors might be a precondition for achieving sustainable banking sector development. Financial intermediaries channel the savings into productive investments. However, Nepal is lagging behind adequate capital accumulation on one hand and productive investment on the other. In such a scenario, the role of financial intermediaries and financial markets cannot be overlooked. An efficient financial system accelerates capital accumulation and in turn, determines the long-term banking sector development of a country. Therefore, this study is expected to contribute by examining the bank-specific factors in the context of Nepal on banking sector development. Finally, the study is expected to be fruitful for all concerned parties such as policymakers, government, depositors, investors, and other concerned stakeholders.

This study analyzes the impact of bank-specific factors on banking sector development in Nepal. The study explains the relationship between banking sector

development and financial structure, non-performing loans, bank networks, banking trade, electronic banking, and liquidity were employed as proxy bank-specific indicators in the study. This study hypothesizes that bank-specific characteristics and banking sector development have a co-integrating relationship. The long-term link of co-integration between bank-specific factors and banking sector development is explored by using the Autoregressive Distributed Lag (ARDL) bounds testing model. The last five portions of the paper have been separated. From an empirical literature review viewpoint, Section 2 addresses the bank-specific factors of banking sector development. Section 3 carries out a methodology that shows data and variables description, correlation, descriptive statistics, and model specification are described in this section. Section 4 explains the ARDL approach results in discussion and interpretation. Lastly, the study concluded the research.

II. REVIEW OF LITERATURE

Commercial bank characteristics that influence the banking sector development are known as bank-specific or internal factors. Internal decisions made by top management and the board of directors largely affect these elements. The following are the internal factors that were identified and examined in this study. The term "financial structure" refers to a bank's capital or net value. It is used to protect customers' deposits, increase the soundness of banks, offer a stable resource to absorb losses, and promote the stability and efficiency of global financial systems by minimizing the danger of banks going bankrupt. Rajan and Zingales (1998) found that financial structure was highly significant and positively related to banking sector development. A high level of financial structure promotes banking sector development whilst a low level of financial structure limits banking sector development (Law & Habibullah, 2009). According to Pranowo et al. (2010), the financial structure has a favorable and considerable impact on the banking sector's development. Financial structure and banking sector development in developing countries has a positive and significant association (Lee and Hsieh, 2013).

Non-performing loans are one of the most important internal variables affecting a bank's performance. It was calculated by dividing the overall value of the loan portfolio by the value of non-performing loans (including nonperforming loans before the deduction of specific loan-loss provisions). Levine (2002) found a negative and significant role to explain banking sector development. Aluko and Michael (2018), Huang (2010), and Hartwell (2013) also found that non-performing loans have a negative and significant influence on banking sector development. Ozili (2017) concluded that Bank efficiency, loan loss coverage, banking competition, and banking system stability are inversely related to NPLs.

The branch network is measured by the total number of branches of commercial banks that were associated with banking sector development (Adelowotan & Oshadare, 2017; Mark & Mitchener, 2005; and Spieker, 2008). The Branch network has been boosting financial access in rural areas through initiatives that result in a greater number of

branches. While the increased number of bank branches is promising, the majority of banking services are still limited to urban regions. Adelowotan and Oshadare (2017) found that there is a systematic relationship between branch network activities and banking depth and efficiency. According to Iqbal and Sami (2017), the number of bank branches and the credit deposit ratio has a favorable and considerable influence on the financial development in Nepal.

Internet banking is a type of e-banking that allows bank customers to conduct financial transactions electronically over the internet using their personal computer, laptop, or mobile phone at any time that is convenient for them, rather than being limited to the hours that the bank is open (Salehi and Alipour, 2010). According to Salamah (2017), electronic banking has a good and significant impact on Nepal's banking sector development. These studies also indicated that customers' security is however a big concern for the use of e-banking services. Satisfaction has covertly influenced a customer's inclination towards electronic banking which has positively influenced the banking sector development in Nepal (Banstola, 2008).

The banking trade consists of money placed into banking institutions for safekeeping and lending to risk-return projects. Cherif & Dreger (2016) found that there is a significant positive relationship between bank credits and banking sector development. The studies have suggested that implicit borrowing may provide one such source and use of funds. Saedi (2019) found that industries with higher dependence on trade size financing (measured by the ratio of deposits plus loans to GDP) exhibited higher rates of development in the banking industry. Elisha and Luca (2007) revealed that there is a significant association relationship between deposit and loan indicators and the banking sector development in Turkey.

The ability of a bank to satisfy maturity liabilities and consumer demand for cash is referred to as liquidity. As a result, a bank with a high level of liquidity is likely to be less lucrative than one with a lower level of liquidity. Nabeel and Hussain (2017) found that liquidity has a positive relation with banking depth and efficiency in developing countries. Milic and Solesa (2017) revealed that there is a significant association between liquidity and banking performance. Mishra and Pradhan (2009) observed that there is a positive significant association between the banking system and liquidity in the selected commercial banks in India.

In the Nepalese context, the causality issue has received considerable attention in recent years between institutional policy and banking sector development. Nepal has gone through banking sector reform and structural adjustment programs since the early 2000s. Despite the efforts made to strengthen the banking sector in Nepal, the real sector growth at the level expected is yet to realize. This particularly suggests the need for empirical studies on the Nepalese banking sector. Few research has been conducted to analyze macroeconomic factors that affect financial development in Nepal to date. Therefore, it needs rapid and continuous assessment for the speed of functioning for

bank-specific determinants that affect banking sector development.

III. RESEARCH METHODOLOGY

3.1 Data description and variables

The study was based on secondary data, which was extracted from Nepal Rastra Bank from 1995 to 2020 with data from all Nepalese commercial banks and bank-specific characteristic time series by Quarterly Economic Bulletin, 2021. Using world development indicators, this study used three aspects of banking sector development that were taken for the index construction banking depth (credit to private sector), banking efficiency (net interest margin), and banking stability (capital adequacy ratio) as a dependent variable. The overall banking sector development (BSD) was obtained by the arithmetic average of the normalized values of banking depth, efficiency, and stability. The literature identified several determinants from both a theoretical and empirical perspective, which affect banking sector development. The study used financial structure, non-performing loans, branch networks, electronic banking, banking trade, and liquidity as explanatory variables.

Table 1

Symbols, variables, and their proxies

Symbols	Variables	Proxies
BSD	Banking depth	Credit to private sector/GDP
	Banking stability	Total capital funds/Risk-weighted assets
	Banking efficiency	Net interest margin
Explanatory variables		
FS	Financial Structure	Equity/Total assets
NPL	NPLs ratio	Non-performing loans/Total loans
BN	Branch Network	No. of branches of Commercial banks
BT	Banking Trade	[Deposit + Equity]/GDP
EB	Electronic Banking	Average of the internet banking, card services, and mobile banking
LIQ	Liquidity ratio	Liquid assets/Total deposits

Note: From World Bank indicator and literature review

3.2 Pre-estimation diagnostics

Descriptive statistics were utilized to define the features of the banking sector's development and bank-specific factors during the study period. The mean, median, minimum, maximum, standard deviation, skewness, and kurtosis values connected with the variables under examination were employed as descriptive statistics in the study. Table 2 shows the descriptive statistics for bank-specific variables considered in this analysis from 1995 to 2020, as well as the economic time series data.

Table 2

Descriptive statistics with BSD and bank-specific variables, 1995-2020

	BSD	FS	NPL	BN	BT	EB	LIQ
Mean	27.791	6.738	13.143	1168.4	90.141	1358742	35.833
Median	26.080	6.495	10.485	553.5	82.690	150068	40.150
Maximum	40.660	12.040	25.780	4436	153.080	6059884	45.000
Minimum	17.040	2.880	2.040	375	49.260	6338	9.600
Std. Dev.	7.166	3.411	8.409	1093.2	28.592	1820193	10.925
Skewness	0.421	0.252	0.219	1.620	0.759	1.330	-1.716
Kurtosis	2.029	1.529	1.485	4.838	2.713	3.751	4.314

Note: From EViews 10 output result outcomes, (NRB Quarterly Economic Bulletin, 2021)

Table 2 shows the descriptive statistics of bank-specific variables from 1995 to 2020. The table shows the difference between the minimum and maximum values is large across the variables under study, a sign of the presence of extreme values. The data for all the variables are positively skewed except liquidity. The kurtosis values for all the variables are not around three and are not normally distributed. This is proof that data for the variables used is not normally distributed. In order to ensure that the quality and reliability of the final results are not compromised, the issue of data not normally distributed, and abnormal and extreme values was addressed by transforming all the data sets into natural logarithms and making stationarity before using them for the main data analysis.

Table 3

Correlation analysis with dependent and independent variables, 1995-2020

	lnBSD	lnFS	lnNPL	lnBN	lnBT	lnEB	lnLIQ
lnBDS	1						
lnFS	0.3145	1					
lnNPL	-0.4038	-0.1283	1				
lnBN	-0.0514	0.5316	-0.2542	1			
lnBT	0.5729	0.4007	-0.3104	0.3809	1		
lnEB	0.4752	0.6094	-0.0988	0.4861	0.3825	1	
lnLIQ	0.3371	-0.3421	0.1467	-0.2169	-0.2384	-0.4705	1
VIF	2.374	4.281	1.982	3.816	2.075	2.521	3.749

Note: From EViews 10 output result outcomes, (NRB Quarterly Economic Bulletin, 2021)

Table 3 presents the correlation matrix for bank-specific variables with banking sector development. Correlation analysis has been adopted to identify the direction

and magnitude of the relationship between different pairs of variables. It depicts the relationship between two variables as well as the degree of correlation between them. The association between the two variables is explained by using the bivariate Pearson correlation coefficient. The results of the association between the explanatory variables are shown in the table.

Similarly, Table 3 utilises the variance inflation factor (VIF) to display the association between the macroeconomic variables. The VIF results show that multicollinearity among the explanatory variables is not a problem. According to Stead (1996), the VIF values are less than six, which shows that the independent variables in this study are not multicollinearity.

3.3 ARDL model specification

The study examines the co-integrating link between bank-specific determinants and banking sector development, by using the Autoregressive Distributed Lag (ARDL) bounds testing method due to the small number of observations from 1995 to 2020. The study employed the Autoregressive Distributed Lag (ARDL) model to avoid the spurious regression problem in the construction of contemporary in small observations time series econometrics. In the ARDL technique, the stationarity of the variables is tested using the Phillips-Perron (PP) and Augmented Dickey-Fuller (ADF) tests. The lags of the ARDL approach are automatically selected using Eviews software based on SBC and AIC. Similarly, the ARDL bound test is used to examine the co-integrating relationship between bank-specific factors and banking sector development. Moreover, the long-run and short-run models have been calculated when variables are found to be co-integrated in the next stage. Finally, for diagnostic tests, normality, serial correlation, and heteroscedasticity are assessed, and model stability is guaranteed using CUSUM statistics. Banking sector development is the dependent variable in this study, with bank-specific factors such as financial structure (FS), non-performing loans (NPL), branch network (BN), banking trade (BT), electronic banking (EB), and liquidity (LIQ) serving as explanatory variables.

The ARDL model has revealed a co-integrating relationship between bank-specific variables and banking sector development. To begin, Error Correction Model (ECM) in Equation 1 derives from the ARDL bounds test.

$$\Delta lnBSD_t = \alpha_0 + \sum_{i=0}^{q} b_i \Delta lnBSD_{t-i} + \sum_{i=0}^{q} c_i \Delta lnFS_{t-i} + \sum_{i=0}^{q} d_i \Delta lnNPL_{t-i} + \sum_{i=0}^{q} e_i \Delta lnBN_{t-i} + \sum_{i=0}^{q} f_i \Delta lnBT_{t-i} + \sum_{i=0}^{q} g_i \Delta lnEB_{t-i} + \sum_{i=0}^{q} h_i \Delta lnLIQ_{t-i} + \mu_1 lnBSD_{t-1} + \mu_2 lnFS_{t-1} + \mu_3 lnNPL_{t-1} + \mu_4 lnBN_{t-1} + \mu_5 lnBT_{t-1} + \mu_6 lnEB_{t-1} + + \mu_7 lnLIQ_{t-1} + \varepsilon_t \dots\dots\dots (1)$$

Here, all variables are as defined previously: μ_1, μ_2, μ_3, μ_4, μ_5, μ_6, and μ_7 are long-run coefficients, whereas bj, cj, dj, ej, fj, gj, and hj are short-run dynamics, and ε represent a random disturbance term. The order of the lags in the ARDL approach is determined by either the Schwarz Bayesian Criterion (SBC) or Akaike Information Criterion (AIC). In the majority of the studies, however, the SBC criterion is used in

lag selection since ARDL-SBC estimators perform somewhat better than ARDL-AIC estimators (Pesaran and Shin, 1999).

The long-run association between bank-specific variables and banking sector development has been estimated after detecting the co-integrating relationship between bank-specific variables and banking sector development using the ARDL bounds test. Finally, the Error Correction Model of Equation 2 was used to evaluate the short-run link between bank-specific variables and banking sector development and speed of adjustment.

$$\Delta lnBSD_t = \alpha_0 + \sum_{i=0}^{q} \delta_1 \Delta lnBSD_{t-i} + \sum_{i=0}^{q} \delta_2 \Delta lnFS_{t-i} + \sum_{i=0}^{q} \delta_3 \Delta lnNPL_{t-i} + \sum_{i=0}^{q} \delta_4 \Delta lnBT_{t-i} + \sum_{i=0}^{q} \delta_5 \Delta lnBN_{t-i} + \sum_{i=0}^{q} \delta_6 \Delta lnEB_{t-i} + \sum_{i=0}^{q} \delta_7 \Delta lnLIQ_{t-i} + \delta_8 ECM_{vt} \ldots\ldots\ldots (2)$$

The estimation of dynamic error correction will be done with the help of equations (2). The short-run dynamics of the model are represented by the coefficients δ1, δ2, δ3, δ4, δ5, δ6, and δ7, while the divergence or convergence towards the long-run equilibrium is represented by the coefficient 8. Divergence is shown by a positive coefficient, while convergence is indicated by a negative coefficient.

IV. DATA ANALYSIS AND DISCUSSION

4.1. The stationarity tests

Before executing any test in time series analysis, variables must be checked for stationarity. Furthermore, the Autoregressive Distributed Lag (ARDL) approach further requires that variables have no unit root issue and that only one of the variables' integration orders is I(0) or I(1). Using unit root tests, this study was able to establish the order of integration of all variables. The research study has used the PP and ADF tests for this purpose. The results of the Phillips and Perron test at the level and first difference are shown in Table 4.

Table 4

Unit root test for stationarity at time-series data in level and first difference

Variables	Level		First difference		Order of integration
	Augmented Dickey-Fuller	Philips-Person	Augmented Dickey-Fuller	Philips-Person	
ln_BSD	-2.2388	-2.2172	-6.0241 *	-6.1319*	I(1)
ln_FS	-2.8070	-2.2169	-4.0612*	-4.0528*	I(1)
ln_NPL	-2.9712	-2.9712	-5.4580 *	-5.4580*	I(1)
ln_BN	-1.8496	-2.0369	-5.9187*	-5.9819*	I(1)
ln_BT	-2.3405	-2.5405	-7.7025*	-7.7806*	I(1)
ln_EB	-2.3768	-2.4768	-4.8164*	-4.8237*	I(1)
ln_LIQ	-2.7086	-2.7494	-5.8411*	-5.8555*	I(1)

Note: Based on the EViews 10 output result, (NRB Quarterly Economic Bulletin, 2021).

The outcomes of the ADF and PP tests are displayed in Table 4. The macroeconomic indicators and the development of the banking industry are not consistent in their level statistics. However, all variables are the stationery in the first difference at a 1% level of significance. Therefore, all variables are stationary at I (1). Table 4 shows that no variable has a unit root problem and is stationary at the first level difference.

4.2 Lags selection and determinations

The analysis follows the work of Pesaran et. al., (2001), who advocated the lowest Schwarz information criterion SC/HQ/AIC value as the major issue in selecting the suitable lag order selection criteria. The reasoning for selecting the best lag will go a long way toward eliminating the multicollinearity, Heteroskedasticity, serial correlation, and normality problem. As a result, all of these variables were addressed in this study, and the optimal lag length was determined.

Table 5

Optimal lag length test

Lag length	Akaike Information Criteria (AIC)	Schwarz Bayesian Criterion (SBC)	Hannan-Quinn information criterion (HQ)
0	-2.752661	-2.406405	-2.704917
1	-11.94462*	-9.174572*	-11.56267*
2	-10.380801	-9.036791	-10.457817

Note: Based on the EViews 10 output result, (NRB Quarterly Economic Bulletin, 2021).

The AIC, HQ, and SBC results of these experiments are shown in Table 5. The lag length with the minimum critical value for all criteria must be chosen when using the AIC, HQ, and SBC to determine the ideal lag length. The table shows that

for bank-specific variables, lag 1 has the least AIC, HQ, and BIC criteria. With the lag duration now known, the bound test technique may be used to determine if the variables are co-integrated.

4.3 Johansen's cointegration test

The cointegration test will assess whether or not the variables in the model have long-run relationships. On that basis, when analyzing the level of cointegrating vectors, this test follows Johansen's technique. For the cointegration rank, the Johanson cointegration test uses two likelihood estimators: a maximum Eigenvalue test and a trace test. Table 6 shows the results of the Johansen approach's cointegration test.

Table 6

Results of Johansen's cointegration test

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized				
No. of CE(s)	Eigenvalue	Trace		
Statistic	0.05			
Critical Value	Prob.**			
None *	0.658580	49.39641	29.79707	0.0001
At most 1 *	0.584359	24.67965	15.49471	0.0016
At most 2	0.177243	4.748165	7.964106	0.1791

Trace test indicates Two cointegrating eqn(s) at the 0.05 level.

* denotes rejection of the hypothesis at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.908241	54.93763	27.58434	0.0000
At most 1 *	0.658580	24.71676	19.13162	0.0150
At most 2	0.177243	4.748165	7.964106	0.1791
Max-eigenvalue test indicates two cointegrating eqn(s) at the 0.05 level. * denotes rejection of the hypothesis at the 0.05 level				

Note: Based on the EViews 10 output result, (NRB Quarterly Economic Bulletin, 2021).

Table 6 displays the results of the Johanson cointegration test, which uses both the Trace statistic and Eigenvalue to determine the number of cointegrating equations with a critical value of 5% (0.05). However, the result shows that there are two cointegrating equations under the Trace statistic and two cointegrating equations under Eigenvalue at a 5% level of significance. Because the null hypothesis is rejected

at a 5% level of significance, the cointegrating equations exist at most, revealing the presence of long-run correlations among the variables in the system.

4.4 Bound Testing for Co-integration Analysis Using the ARDL Model

After determining the cointegration relationship between variables, a Granger causality test is utilized to establish pertinent macroeconomic factors for the growth of the banking sector. The autoregressive distributed lag (ARDL) model is better suited for investigating the causality between the series if the variables are integrated at I(1) and there are data (Narayan, 2004). The results of the co-integration test show that the variables exhibit a persistent association. The obtained F-statistics is 7.214 which was more than the table Narayan (2004) upper bound critical values, which are 4.154, 5.018, and 7.063 at 10%, 5%, and 1%, respectively. As a consequence, the study argues that there is a close relationship between the development of the banking sector and macroeconomic issues.

The long-term causality test using the ARDL Model

After verifying that the variables are co-integrated, the ARDL model's long-run coefficients should be determined to evaluate the long-term influence of bank-specific factors on banking sector development. Thus, the long-run coefficients of the variables in the ARDL approach were computed in this study. Table 8 presents the outcome of the long-run link between bank-specific variables and banking sector development in Nepal.

Table 7

Estimated Long- run coefficients by using the ARDL Approach

Variable	Coefficient	Std. Error	t-Statistic	Prob.
dln_FS(-1)	0.183546	0.099902	1.837262	0.1400
dln_NPL(-1)	-0.160812	0.054323	-2.960316	0.0415
dln_BN(-1)	-0.167805	0.101815	-1.648143	0.1747
dln_BT(-1)	0.894903	0.179335	4.990132	0.0075
dln_EB(-1)	0.195390	0.247542	4.425064	0.0115
dln_LIQ(-1)	0.110960	0.038525	2.880222	0.0450
Constant	-2.499948	0.848077	-2.947783	0.0421
R2 = 0.80924, Adj. R2 = 0.76826, F-statistic = 13.8313 [0.000], D/W statistic = 1.9405,				

Note: From EViews 10 output result outcomes, (NRB Quarterly Economic Bulletin, 2021)

Table 7 demonstrates the estimated long-run coefficient of bank-specific variables. The findings suggest that the 1-period lag has a long-term significant influence. The long-run analysis reveals that there is a positive and significant relationship between banking trade and banking sector development. Similarly, electronic banking and liquidity have a positive and significant on banking sector development. However, non-performing loans has a negative and significant of the banking sector development. This positive and significant impact is coherent with the findings by Mishra and Pradhan

(2009), Cherif & Dreger (2016), Salamah (2017), and Aluko & Michael (2018). This, therefore, means there is a long-run relationship between bank-specific variables and banking sector development. However, the branch network had a negative but insignificant result in banking sector development. . In addition, the D/W value of 1.9405 indicates that there is no issue with autocorrelation. Finally, the adjusted R2 0.7682 and F-statistics of 87.8313 (p=0.000) are shown in Table 4 indicating that the explanatory variables explain 76.82 percent of the banking sector development in the short run, and the F-statistics value of 87.8313 at the 1% level of significance. Therefore, the overall model of this study is the best-fitted model.

Finally, the banking trade and liquidity are found to be positive beta coefficients. It indicates that banking trade and liquidity have a positive impact on the banking sector development. It means that the banking sector is likely to develop more when there is an increase in banking trade and liquidity management. The beta coefficients for electronic banking and financial structure are noticed to be positive which shows that electronic banking and financial structure have a positive impact on banking secto development. It implies that with the increase in electronic banking and financial structure, the banking sector is likely to develop more. However, credit risk management (non-performing loans) was revealed to be a negative beta coefficient. It indicates that non-performing loan has a negative and significant impact on banking sector development. It implies that with the decrease in non-performing loans, the banking sector is likely to develop more.

The Short-run causality test using the ARDL model

After establishing the long-run correlation between bank-specific variables and banking sector development, an error correction model (ECM) was used to identify the short-run association and check the reliability of the long-run coefficient. Table 8 shows the outcome of the ECM.

Table 8

Estimated short-run coefficients by using the ARDL Approach

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Δ lnFS(-1)	0.046070	0.033180	1.388487	0.2373
Δ lnNPL(-1)	-0.005565	0.014591	-0.381398	0.7223
Δ lnBN(-1)	-0.167805	0.022497	-7.458952	0.0017
Δ lnBT(-1)	0.623498	0.049026	12.71763	0.0002
Δ lnEB(-1)	0.040342	0.007318	5.512745	0.0053
Δ lnLIQ(-1)	0.055103	0.014728	3.741499	0.0201
ECM(-1)	-0.280731	0.18515	-10.2744	0.000
R2 = 0.76924, Adj. R2 = 0.72826, F-statistic = 13.8313 [0.000], D/W statistic = 1.9405,				

Note: From EViews 10 output result outcomes, (NRB Quarterly Economic Bulletin, 2021)

Table 7 shows that The error correction term i.e. ECM(-1) is -0.2807 which is significant at 1 percent and implies that in the long run, the short-run disequilibrium is rectified at a rate of 28.07 percent each year. The negative and significant value of ECM(-1) indicates that the disequilibrium in the short run is corrected at the speed of adjustment of 28.07 percent per year in the long run. This suggests that divergence from the long-run stability of banking sector development within one year has been rectified by the bank-specific factors under consideration by 28.07 percent the following year. The fragility of Nepal's financial system is explained by the difference in outcomes in the short-run and long-run stability. The system is unable to swiftly react to shocks in the short term, owing to the banking sector's dominance, which is excessively liquid, and the system's information efficiency. Furthermore, the coefficient of banking trade, electronic banking, and liquidity has a significant positive influence on BSD, which is analogous to the outcome of a long-term romance on banking sector development. However, the coefficient of non-performing loans and branch network has a negative but insignificant result in the banking sector development

4.5. Diagnostic tests for the ARDL approach

Serial correlation, heteroscedasticity, normality, and model stability are among the diagnostic tests used in this work to assess the reliability of the estimated ARDL model. The Breusch-Godfrey (BG) serial correlation LM test, BPG of heteroscedasticity test, normality test, and recursive CUSUM test were used to examine serial correlation, heteroscedasticity, normalcy, and stability of the derived Autoregressive Distributed Lag (ARDL) approach. Table 9 shows the results of heteroscedasticity and serial correlation, while Figures 1 and 2 show the results of normality and model stability, respectively.

Table 9

Diagnostic tests on ARDL Approach

	F-version		LM-version	
	Statistics	P-Value	Statistics	P-Value.
A: Serial Correlation	F (1,18) = 1.167	0.289	χ^2 (1) = 1.354	0.429
B: Functional Form	F (1,20) = 0.572	0.455	χ^2 (1) = 0.677	0.411
C: Normality	N/A		χ^2 (2) = 4.424	0.109
D: Heteroscedasticity	F (2,18) = 0.874	0.787	χ^2 (2) = 0.197	0.218

Note: From EViews 10 output result outcomes, (NRB Quarterly Economic Bulletin, 2021)

Table 9 shows that the p-value of F-statistics and Chi-Square for the LM test concluded that both are greater than 0.05, indicating that the estimated Autoregressive Distributed Lag (ARDL) approach is free of serial correlation and heteroskedasticity. Similarly, the Jarque-Bera statistics are used to determine the normality of the residual terms in the approach.

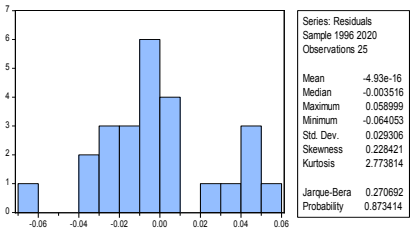

Figure 1: Normality test

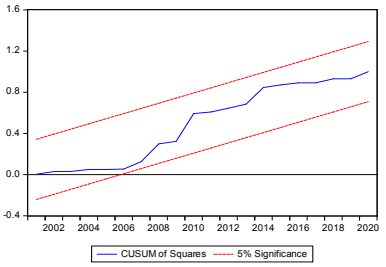

Figure 2: CUSUM square stability test

The JB test statistic of 0.2706 (p=0.8734>0.05) is shown in Figure 1. The study concluded that the residual series from the model is normally distributed. Therefore, the normality of the calculated ARDL model has been validated. Finally, the CUSUM square stability test is employed to ensure the model's long-term stability. At a 5% level of significance, Figure 2 demonstrates the CUSUM of the square test together with the line of critical boundaries. At a 5% level of significance, the plots of the CUSUM of the square test are inside the critical boundaries, as shown in Figure 2. As a result, the calculated model has been confirmed to be stable across the study period. This indicates that the model is stable, allowing it to be applied for causality, bound tests, and long-run associations.

V. CONCLUSIONS

This study explored the impact of bank-specific factors on banking sector development in Nepal using the ARDL estimation technique with economic time series data ranging from 1995 to 2020. The study's major conclusion is that there is a long-term equilibrium relationship between bank-specific variables and banking sector development. This study reveals that banking trade, electronic banking, and liquidity have a positive and significant impact on banking sector development in Nepal. It implies that the higher the banking trade, the higher would be banking sector development. Therefore, financial institution managers should endeavor to raise deposits and lending if they wish to enhance banking sector development. Moreover, the study observed that electronic banking has a positive and significant impact on banking sector development. It implies that the higher users of electronic banking, the higher would be of banking sector development. Hence, to achieve higher banking sector development, attention should be focused on electronic banking.

Similarly, the study discovered that liquidity has a significant and positive impact on the development of the banking sector. It indicates that the authorities of financial institutions should be required to develop systems and abilities in liquidity management, asset and liability management, and foreign exchange management. Non-performing loans, on the other hand, have a significant negative impact on the banking sector's development. Therefore, the study recommends that internal policymakers work to cut operational costs because this reduces their profit margin, resulting in poor financial performance. This can be accomplished through establishing suitable accountability structures and mechanisms, as well as utilizing technology. Further

research on the determinants of banking sector development, particularly those relating to macroeconomic, political, and legislative issues, as well as those relevant to banking sector characteristics, is recommended by the study.

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Conflict of interest

The author declares having no conflict of interest in the research work.

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Factors Affecting Employee Job Satisfaction In Bhaktapur Municipality Office

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ABSTRACT

Job satisfaction is the crucial requirement for ensuring the efficient operation of the organization. Several scholars across various fields have used the construct of job satisfaction as a focus of their research. This study is aims to identify the factors affecting the job satisfaction of employees.. Among the 585 employees working in Bhaktapur Municipality, 100 employees were selected based on disproportionate stratified sampling to collect information using structured questionnaire. Descriptive and analytical research design was used. Correlation and regression analyses were used to check the hypothesis. The findings indicates different factors like the working environment, the task itself, job security, wages, pay, and grades have a significant effect on job satisfaction, whereas recognition and supervision have a positive but insignificant effect on it. Among different factors, wages, pay, and grades have a higher effect on job satisfaction. This study provides a roadmap for higher authorities to apply different techniques to satisfy their employees.

Keywords: Job Satisfaction, Recognition, Working Environment, Supervision, Performance

I. Introduction

Employees are the true assets of an organization and play a crucial role in the functioning of an organization. They contribute and strive hard to deliver their best action and achieve the assigned target within the stipulated time frame. Organizational culture, organizational performance, and organizational effectiveness are directly linked to the attitude, behavior, and interest of employees. So employees must be prioritized and valued by every organization.

Both researcher and managers have continuous interest on job satisfaction (Bajpai & Srivastava, 2004). Job satisfaction has been a general topic in most organizations since an individual's job performance generally depends upon his or her job satisfaction level. Rajput, Singhal and Tiwari (2016) explains that Job satisfaction influences the employees' attitude, loyalty, support, and dedication towards the organization. Many studies were made about job satisfaction by different researchers in various sectors such as education, banking, construction, hotels, etc, but no research yet in civil service. In order to fill this gap, this study focuses on the civil service sector. Civil servants are involved in rendering services to the citizens of the country, and they play an important role in the country's all-around development. If employees in civil service are unhappy with their work, it will directly affect the output of their work. So, it is essential to measure the job satisfaction level of employees working in government organizations and identify factors that are associated with their job satisfaction.

These present days, many organizations are facing issues of employee turnover, absenteeism, and other employee-related problems. Skilled but dissatisfied employees always strive for newer and greater opportunities. Employees under civil service have begun to turn their focus to other career opportunities. Therefore it is necessary to investigate these movement in order to understand employee behaviour and job satisfaction. So, management should give priority to factors affecting employees' job satisfaction for organizational growth and productivity.

This study seeks to advance our knowledge about the behaviour of public sector workers. The issues raised would help the government official in formulation of human resource management strategies and taking appropriate actions to reduce factors which leads to job dissatisfaction.

II. Literature Review

Various literature and studies have been investigated to identify the factors affecting employee job satisfaction. This section throws light on the personal and organizational determinants that influence the satisfaction of employees in their workplace.

Job Satisfaction

Most of the literature regarding organizational behaviour consists of job satisfaction issues. They show that job satisfaction reduces absenteeism rate and turnover. Each and every employee has his/her own attitude and perception towards a particular job. Robbins (1989) states that job satisfaction is an employee's general attitude towards his or her job. Similarly Arnold and Feldman (1986) opined that job satisfaction comprises the overall positive and negative feelings of an individual, which plays a significant role in maintaining healthy relationships between management and employees. He also added that the comparison and discrepancies between what an individual expects from the job and what the job actually gives, in reality, determine the job satisfaction or dissatisfaction in an employee. Therefore, job satisfaction is the

outcome of employees' perception of how the job fulfills their expectations. Employees are the most precious asset to an organization because management gets the work done by working with and through people to achieve its mission and goal (Fulmer & Ployhart, 2013). Motivation is an instrument that exerts job satisfaction in employees, which ensures the management gets effective work performance from employees. Motivated and satisfied employees perform in their best possible way, which is a crucial factor that is required for organizational productivity enhancement.

George and Jones (2008) defined job satisfaction as the feeling and beliefs that an employee has regarding their current job. Their study stated that the degree of job satisfaction could be ranged from extreme dissatisfaction to extreme satisfaction since every employee has their own attitude and perception towards the job. Armstrong (2006) found that the employee is satisfied if they show a positive and favorable attitude towards the job. In contrast, the employees having an unfavorable attitude towards the job are dissatisfied with their job. He also added that job satisfaction has multi-dimensional facets consisting of attitudes towards recognition, work environment, the task itself, supervision, pay and grades, etc. He also states that the level of job satisfaction of employees plays a crucial role in organizational effectiveness and productivity. Currently, job satisfaction has become an important issue in the organization.

According to Lee and Ho (1989), there are many different factors that affect the satisfaction level of the employees.

Factors affecting job satisfaction

Arnold and Feldman (1986) explained that various factors positively and negatively affect attitudes toward their job. These factors can be divided into two major categories, namely personal determinants and organizational factors (Nel, Vandyk, Haasbroek, Schultz, Sono & Werner, 2007).

Personal Determinants

Personal determinants such as age, gender, educational level, working experience, and level of job have an impact on job satisfaction.

Age: The study made by Greenberg and Baron (2008) shows that older employees generally seem happier with their jobs than younger employees. Similarly, experienced employees are more satisfied than those who are less experienced.

Gender: Murray and Atkinson (1981) explained that gender differences affect job satisfaction. Their study shows that females focus on social factors while male complements greater value on pay, advancement, and other extrinsic aspects.

Educational Level: According to KhMetle (2003), employees who have completed a higher degree of education are not well satisfied in comparison to the employees with the qualification of an intermediate level. He also stated that the satisfaction of the job in an employee with having a high degree of education declines as the employer is unable to meet their expectations.

Years and experience: There is a direct connection between the tenure and job satisfaction of employees, according to Bedeian, Ferris, and Kacmar (1992), as mentioned in (1989). Furthermore, They argue that the employees have a high rate of expectation from a job at the time of appointment, and as they feel that their expectations are not met, the result is seen in decreased job satisfaction. They also added that as the employees working experience increases, they expect a higher level of job satisfaction so as to meet their expectations in reality.

Organizational Determinants

According to the content theory of motivation, specifically the Maslow hierarchy of needs and the Herzberg two-factor theories, job satisfaction is influenced by various organizational elements. Some of them are recognition, work environment, task itself and job security, supervision, wages, and pay.

Recognition: Tessema, Ready and Embaye (2013) explained that both monetary and non-monetary rewards are crucial for increasing employee morale. They instill confidence in employees and drive them to struggle more. Non-monetary benefits and rewards motivate the employees more than a monetary ones. Appreciation, appraisal of achievement, and showing gratitude are other major aspects that build up confidence levels in an employee in their workplace (Caligiuri, Lepak & Bonache, 2010).

Gostick and Elton (2007) showed that recognition plays a vital role in making employees satisfied with their job. The employer or the leader has to acknowledge the efforts of their employee and approve their work on a regular basis (Kouzes & Posner, 2003). So recognition is a broader concept that leads employees to achieve a higher level of satisfaction in their job.

Work Environment: Robbins (2001) believed that job satisfaction is also influenced by physical working conditions. There exists a positive correlation between working conditions and job satisfaction, according to Barnowe, Mangione and Quinn (1973). Locke (1976) stated that in order to accomplish the work efficiently, employees look for a pleasant working environment. Also, the employees can achieve their work goals if the necessary tools and equipment are available adequately.

Task itself and job security: Control over work style and speed, application of talents and abilities, and diversity are all aspects of the activity that contribute to job satisfaction. People get satisfaction from successfully coping with their surroundings. Using valued talents and abilities gives employees a sense of self-worth, competence, and self-assurance. Job pleasure results from specialization and repetition. According to Hebb (1949), a moderate degree of stimulation provides significant happiness to workers as stated in Fieldman (1983).

Supervision: Robbins (1989) expressed that the supervision capacity of the supervisor at the time of providing technical assistance and advice related to the job to his/her followers influences their level of job satisfaction. As said by Sherman and Bohlander

(1992), employee complaints and grievances related to the job are raised because of the supervisor's attitude and behavior towards them.

Pay, Wages and Grade: Individuals view their Pay as a value given to them by the organization. They always compare their efforts and pay with that of other employees ((Nel, Vandyk, Haasbroek, Schultz, Sono and Werner, 2007). According to Arnold and Feldman (1996), compensation has a significant impact on work satisfaction as people have many wants, and they have the thinking that only money allows them to fulfill their requirements.

According to Kappagoda (2012), one of the elements influencing an employee's task performance improvement is work happiness. According to Indermun and Bayat (2013), there is an irrefutable link between work happiness and employee performance. They contend that psychological and physical incentives have a substantial influence on job satisfaction. They felt that employees should be rewarded and motivated in order to attain job happiness.

Pantha (2020) has conducted a study to analyze factors affecting employee job satisfaction in the banking sector in Nepal. Factors such as employee work life, work environment, promotion and reward, recognition, training and development, and job security are studied as the major factors in her study. The results obtained from her study shows that most of the employees are satisfied with their job. She recommended evaluating the level of job satisfaction through the work environment, compensation and benefit, and job security.

Sittisom (2020) carried out a research in order to study about the influence of the work environment on satisfaction as well as to evaluate if there is a significant influence of recognition from employers on the satisfaction of employees working in the organization or not. His study revealed that the work environment is the most influential factor regarding the job satisfaction of the employee. Also, the regression results of this study reflect a clear influence of recognition on the satisfaction of employees as well.

Hong, Hamid and Salleh (2013) chose 35 respondents of non-administrative employees working in a company in order to carry out the research with the objective of determining the factors that affect non-employees job satisfaction. Their research results also demonstrated that salary and pay, promotion and work environment have a major impact towards employees' level of job satisfaction.

Anin, Ofori, and Okyere (2015) examined the factors affecting employees' job satisfaction and found out that factors other than wages such as recognition, task itself, supervision, work environment, and security play a major role as a source in motivating and satisfying employees. They also recommend that appreciation and recognition should be granted to workers in order to encourage job satisfaction.

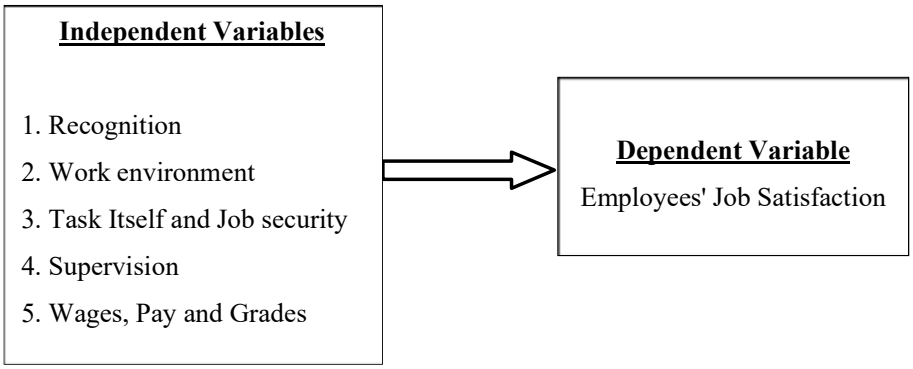
III. Research Objectives

The objective of the study are as follows:

i. To determine the major factors affecting employee job satisfaction in the job place.
ii. To examine the effect of identified factors on job satisfaction.

IV. Theoritical Framework

The following theoretical framework has been developed under this study:



H1: There is a significant influence of recognition on employee job satisfaction.

H2: There is a significant influence of work environment on employee job satisfaction.

H3: There is a significant influence of task itself and job security on employee job satisfaction.

H4: There is a significant influence of supervision on employee job satisfaction.

H5: There is a significant influence of wages, pay, and grades on employee job satisfaction.

V. Research Methodology

Causal research design was applied to attain pre-determined objectives. According to the data provided by the administration department of Bhaktapur Municipality, altogether, there were 585 employees working currently. Among them, 100 numbers of employees were taken as samples for study using disproportionate stratified sampling method. Samples were chosen from different departments and sub-departments of Bhaktapur Municipality Office, including employees of ward offices. Structured questionnaires were distributed among them. Collected data was analyzed using SPSS Version 20.

VI. Results and Findings

The analysis of collected data shows the following results.

Table 1

Demographic Profile of Respondents

	Frequency	Percent
Gender		
Male	67	67.0
Female	33	33.0
Age in Years		
Below 30 years	19	19.0
30-40 years	22	22.0
40-50 years	35	35.0
50-60 years	24	24.0
Working Experience		
Below 10 years	32	32.0
10-20 years	25	25.0
20-30 years	43	43.0
Salary		
Below 30000	55	55.0
30000-40000	40	40.0
40000-50000	5	5.0
Level of Job		
First level	6	6.0
Second level	2	2.0
Third level	13	13.0
Fourth level	19	19.0
Fifth level	33	33.0
Sixth level	13	13.0
Seventh level	3	3.0
No division	11	11.0
Education level		
Up to SLC/ SEE	38	38.0
Intermediate level	23	23.0
Bachelor Degree	23	23.0
Master's Degree and Above	14	14.0
Below SLC/SEE	2	2.0

The demographic profile of respondents describe the status of respondents based on gender, age, salary, level of job, and education level. The above reports, out of 100 respondents, 67 percent of respondents were male, and the remaining 33 percent were female. The majority of employees lies between the age of 40-50 years, and a minority have been identified to be in the age of below 30 years. Most of the respondents (i.e., 43 percent) have 20-30 years of experience. Likewise, the income level of respondents showed that 55 percent of the respondent belongs to the salary group below 30000. In the same way, the respondents getting salaries between 30,000-40,000 and 40,000-50,000 are found to be 40 percent and 5 percent respectively. Similarly, the level of the job showed that the majority of respondents are of the fifth level and the minority from the second level. Moreover, the education profile shows that most of the respondents (i.e., 38 percent) have completed SLC/SEE level followed by intermediate level and bachelor degree (23%), 14 percent of the respondent have completed a master's degree and above, and 2 percent were respondent with educational qualification below SLC/SEE.

Reliability Analysis

Reliability analysis checks the properties of measurement scales and the items that compose the scales. The calculation of alpha value is calculated for the reliability test of the Likert scale question. The alpha value nearest to one, the greater will be the internal consistency of the items in the questionnaire. According to Field (2009), a Cronbach alpha equal to or greater than 0.7 indicates a good measure of reliability.

Table 2

Reliability Statistics

	Variables	No. of Items	Cronbach's Alpha
Independent Variables	Recognition	5	0.804
	Work environment	4	0.721
	Task itself and Job security	5	0.731
	Supervision	4	0.702
	Wages, Pay and Grades	4	0.914
Dependent Variable	Job satisfaction	6	0.766

Table 2 illustrates that Cronbach's alpha for every variable is greater than 0.7, which shows an acceptable degree of reliability. It confirms that the research findings would be the same if the research were to be repeated later or with the different samples of the subject.

Relationship between Gender and Job Satisfaction

Table 3

Group Statistics of Gender with Job Satisfaction

	Gender	N	Mean	Std. Deviation	Std. Error Mean
JS	Male	67	22.73	3.832	0.468
	Female	33	22.06	3.824	0.666

Table 3 shows that there is no significant mean difference between gender and job satisfaction at the 5% level of significance (p=0.412). Therefore, the test result showed that there is no relationship between gender and job satisfaction.

Table 4

Independent Sample Test of Gender with Job Satisfaction

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
JS	Equal variances assumed	.037	.849	.824	98	.412	.671	.814	-.945	2.287
	Equal variances not assumed			.824	63.907	.413	.671	.814	-.955	2.296

Table 4 shows that there is no significant mean difference between gender and job satisfaction at a 5% level of significance (p-value=0.412).

Relationship between Age and Job Satisfaction

Table 5

ANOVA Test of Age and Job Satisfaction

		Sum of Squares	df	Mean Square	F	Sig.
JS	Between Groups	137.650	3	45.883	3.364	0.022
	Within Groups	1309.340	96	13.639		
	Total	1446.990	99			

Table 5 shows that there is a statistically significant mean difference between age and job satisfaction at a 5% level of significance (p-value=0.022).

Relationship between Work Experience and Job Satisfaction

Table 6

ANOVA Test of Work Experience and Job Satisfaction

		Sum of Squares	df	Mean Square	F	Sig.
JS	Between Groups	131.734	2	65.867	4.858	0.10
	Within Groups	1315.256	97	13.559		
	Total	1446.990	99			

Table 6 shows that there is no statistically significant mean difference between work experience and job satisfaction at a 5% level of significance (p-value=0.10).

Relationship between Salary and Job Satisfaction

Table 7

ANOVA Test of Salary and Job Satisfaction

		Sum of Squares	df	Mean Square	F	Sig.
JS	Between Groups	7.687	2	38.435	2.721	0.71
	Within Groups	1370.120	97	14.125		
	Total	1446.990	99			

Table 7 shows that there is no statistically significant mean difference between salary and job satisfaction at a 5% level of significance (p-value=0.71).

Relationship between Level of Job and Job Satisfaction

Table 8
ANOVA Test of Level of Job and Job Satisfaction

		Sum of Squares	df	Mean Square	F	Sig.
JS	Between Groups	124.227	7	17.747	1.234	0.292
	Within Groups	1322.763	92	14.378		
	Total	1446.990	99			

Table 8 shows that there is no statistically significant mean difference between the level of job and job satisfaction at a 5% level of significance (p-value=0.292).

Relationship between Education Level and Job Satisfaction

Table 9
ANOVA Test of Education Level and Job Satisfaction

		Sum of Squares	df	Mean Square	F	Sig.
JS	Between Groups	83.698	4	20.924	1.458	0.221
	Within Groups	1363.292	95	14.350		
	Total	1446.990	99			

Table 9 shows that there is no statistically significant mean difference between education level and job satisfaction at a 5% level of significance (p-value=0.221).

Correlation Analysis

Correlation analysis is a statistical method used to measure the relationship between two numerically measured variables. It explains how one variable changes when other variable changes and helps to find out if there are positive, negative, or zero relationships between the variables.

In this study, the dependent variable is employees' job satisfaction, and the independent variables include recognition, work environment, the task itself & job security, supervision and wages, pay, and grades. The purpose of correlation analysis is to examine the extent to which variation in one variable occurs because of a change in one or more variables based on the correlation coefficient.

Relationship Between Dependent and Independent Variables

The table for the relationship between dependent and independent variables is shown as follows:

Table 10

Relationship Between Dependent and Independent Variables

	R	WE	TIJS	S	P	JS
R	1					
WE	.412**	1				
TIJS	.587**	.408**	1			
S	.328**	.417**	.537**	1		
P	.551**	.397**	.442**	.319**	1	
JS	.639**	.559**	.681**	.494**	.815**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Table 10 shows the relationship between the independent variables and dependent variables. The correlation coefficient between recognition and job satisfaction of employees is 0.639, which implies that there is a moderate degree of the positive relationship between recognition and job satisfaction among employees. Similarly, It shows a moderate degree (0.559) of the positive relationship between the work environment and the job satisfaction of employees. Similarly, the correlation coefficient of 0.681 implies a moderate degree of a positive relationship between the task itself & job security and job satisfaction of employees.

Moreover, it illustrates a moderate degree (0.494) of a positive relationship between supervision and job satisfaction of employees as well wages, Pay & grades have a strong degree (0.815) of a positive relationship between wages, Pay & grade and job satisfaction of employees. Again we can see positive moderate relationship among the independent factors.

Regression Analysis

Regression analysis is a statistical tool used to determine the probable change that occurs in one variable with the given amount of change in another variable. It was applied to predict the relationship among various factors of job satisfaction under this study.

Table 11

Regression Model Summary of Employee Job Satisfaction

Model	R	R Square	Adjusted R Square	Standard error of Estimate
1	0.908	0.824	0.815	1.645

Predictors: (constant), recognition, work environment, the task itself, job security, supervision, wages, pay, and grades.

Through regression, it was found that all factors taken in this study were identifiedas predictors of employee job satisfaction with the value of R Square 0.824,

which is highly statistically significant. The R Square value indicates that the identified factors (i.e., recognition, work environment, the task itself, job security, supervision, wages, pay, and grades) explained up to 82.4 percent of the variances in employee job satisfaction.

Table 12
Results of ANOVA for Employee Job Satisfaction

	Sum of Square	df	Mean Square	F	Sig.
Regression	1192.762	5	238.552	88.204	0.000
Residual	254.228	94	2.705		
Total	1446.990	99			

i. Dependent variable: Employee Job Satisfaction
ii. Predictors: (constant), recognition, work environment, the task itself, job security, supervision, wages, pay, and grades

In the above table 12, the sum of the square of regression and residual is 1192.762 and 254.228, respectively, and the mean square of regression and residual is 238.552 and 2.705, respectively. The F value of the model is 88.204 with a P-value 0.000 (<0.05), indicating that the model is fitted at a 5 percentage level of significance. This shows that the model fits at a 5 percentage level of significance.

Table 13
Regression Coefficient for Employee Job Satisfaction

Model	Un-Standardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE	Beta		
(constant)	1.244	1.171	-	1.063	0.290
R	0.077	0.064	0.071	1.196	0.235
WE	0.246	0.079	0.160	3.126	0.002
TI&JS	0.342	0.072	0.288	4.765	0.000
S	0.101	0.076	0.070	1.320	0.190
WP&G	0.609	0.058	0.563	10.487	0.000

Dependent Variable: Employee Job Satisfaction

The multiple regression model of the study as per regression result is shown as:

(EJS) = 1.244+0.077 R + 0.246 WE + 0.342 TI &JS + 0.101S+ 0.609 WP&G.

The constant positive value of 1.244 describes that even if the variables of recognition, working environment, the task itself, job security, supervision, wages, pay, and grades are zero, still the job satisfaction is still positive. Since the sig of recognition and supervision is greater than 0.05, it explains they don't affect job satisfaction. while the other three variables such as work environment, task itself and job security, wages, Pay, and grades have a significant impact on job satisfaction (P<0.05).

Hypothesis Testing

All the results of the proposed hypothesis set under this study are summarized in the table below:

Table 14
Summary of Hypothesis Testing Results

Hypothesis	Proposed Hypothesis	Beta Value	t- value	p-value	Hypothesis Testing Result
H1	There is a significant influence of recognition on employee job satisfaction.	0.077	1.196	0.235	Rejected
H2	There is a significant influence of work environment on employee job satisfaction.	0.246	3.126	0.002	Accepted
H3	There is a significant influence of the task itself and job security on employee job satisfaction.	0.342	4.765	0.000	Accepted
H4	There is a significant influence of supervision on employee job satisfaction.	0.101	1.320	0.190	Rejected
H5	There is a significant influence of wages, Pay, and grades on employee job satisfaction.	0.609	10.487	0.000	Accepted

VII. Discussion

The result shows that recognition has an insignificant impact on job satisfaction. It is consistent with the Danish and Usman (2010), which consider recognition and a sense of achievement has an insignificant relationship with job satisfaction. This study also demonstrates work environment plays a vital role in the job satisfaction of employees. A similar type of results was drawn by Locke (1976). These studies show that a pleasant and comfortable working environment helps to increase work efficiency. Barnowe, Mangione and Quinn (1973) explain that the physical design affects job satisfaction. A healthy environment motivates to work effectively. In the same way, the job itself and Job security also add effort to employees' job satisfaction. According to Hebb (1949), valued skills and abilities increase self-pride, confidence, and competence, which leads to job satisfaction. The study shows that the relationship between supervision and job satisfaction is insignificant. It has broken up the traditional link between supervision and job satisfaction. It is similar to the conclusion drawn by Shah, Ali, Dahri, Brohi, Maher and Hameed (2018) and Brohi, Abdullah, Arif, Dahri, Ali and Markhand (2018). They also conclude that supervisor support has an insignificant impact on Nurses, especially in the south Asian countries. In the same way, Pay has the highest significant impact on job satisfaction. It is considered the most influencing factor affecting Job satisfaction (Arnold and Fieldman, 1986).

VIII. Conclusion

This study focuses on various factors of job satisfaction. It shows working environment, the task itself, Job security, wages paid, and grade has a significant impact on job satisfaction, whereas recognition and supervision have an insignificant role. Regression analysis shows that among various factors, wages, Pay, and grade has a strong impact on the job satisfaction of employees. Similarly, it also shows there is no mean difference between job satisfaction with gender, work experience, salary and level of job but there is a significant mean difference between age and jod satisfaction.

IX. Implication

The service sector plays important role in economic development. Therefore it is essential to keep employees satisfied at a healthy level. This study supports higher authorities to develop strategies to satisfy their employees. It helps to understand what is important to the employees and how an organization develop healthy relationship with its employees.

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