Does Governance Matter for Human Development in Nepal? A Trend Analysis from 2002 to 2019

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Declaration:

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Abbreviation

ADF	Augmented Dickeye Fuller
AIC	Akaike Information Criterion
ARDL	Autoregressive Distributed Lag
CUSUM	Cumulative Sum of Recursive Residuals
CUSUMSQ	Cumulative Sum of Squares of Recursive Residuals
ECM	Error Correction Model
HDI	Human Development Index
HQC	Hannan-Quinn Criterion
PP	Phillipse Perron
SBC	Schwartz Bayesian Criteria
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WGI	World Governance Indicator

Abstract

This study aimed to examine the long and short-run effects of governance on human development in Nepal from 2002 to 2019. The autoregressive distributive lag (ARDL) bound testing approach and the error correction model (ECM) were used to detect the long-run and short-run dynamics relationship among the study variables. The bounds test and error correction model both confirmed the presence of co-integration between the variables included in the model. The results revealed that, in long run, voice and accountability, as well as the rule of law, have a significant positive effect on human development, whereas the government effectiveness and regulatory quality have a significant negative effect. In the short run, voice and accountability, government effectiveness, regulatory quality, and the rule of law have an insignificant negative effect on human development in Nepal. This finding infers that greater emphasis should be placed on voice and accountability, as well as the rule of law, because they have a long-term positive effect on human development.

Key words: Governance, human development, Nepal, ARDL

Chapter-I
Introduction

1.1 Background of the Study

Governance has emerged as an important component of human development worldwide over the last two decades. The relationship between governance and human development was first highlighted in 1997 by the United Nations Development Program (UNDP) with the release of the Human Development Report. This report forms a possible relationship between governance and human development by stating, "Better governance is vital not only to ensure the rule of law and protect against international organized crime, but also to maintain and expand social and economic infrastructure" (UNDP, 1997a, p. 90). Similarly, another UNDP policy document endorses the role of governance in advancing human development, stating, "…For it is only with good governance that we can find solutions to poverty, inequity and insecurity… UNDP believes that building the capacity for governance is central to sustainable human development" (UNDP, 1997b, p.2). Furthermore, this policy document asserts that "sustainable human development cannot be realized without good governance, and governance cannot be sound unless it sustains human development" (UNDP, 1997b, p.4). The UNDP strongly links human development and good governance. According to these two papers, it can be said that governance is linked to human development. Governance, however, is a neutral concept which may or may not lead to human development (Cheema & Maguire, 2001). Good governance is required if countries want to ensure a higher level of human development, because good governance leads to advanced human development. Good governance is essential for creating and sustaining an environment that promotes strong and equitable development (World Bank, 1992).

Good governance has become an important issue in development since the late 1980s, and it is now regarded as a key determinant of human development in the nation. The value of good governance for human development is now widely acknowledged. The World Bank published a report titled "Better Governance for Development in the Middle East and North Africa" in 2003, avowing that the issue of good governance is a development issue rather than a political one, because good governance plays an important role in promoting economic development and providing essential social services (World Bank, 2003). Poor governance, according to studies

conducted in different countries and regions, is to blame for persistent poverty and slow development (UNDP, 2002). Poor governance stifles economic growth and human development via corruption, ineffective rule of law and political instability (Hashem, 2019). Developing countries in Asia, Africa, and Latin America have suffered from poor governance for decades, resulting in a significant worsening in their development situations (Skandari, 2019). An effective government ensures a higher level of human development, and It is particularly true in middle-income countries, where higher governance effectiveness rankings result in higher Human Development Index (HDI) each year (Yang, 2010). Therefore, good governance is regarded as a precondition for human development. In Nepal, the government has prioritized raising the HDI. The government of Nepal has set a goal of achieving HDI 0.624 and 0.760 by 2024 and 2044, respectively, in its 15th development plan (National Planning Commission, 2019). To achieve the desired level of HDI on time, good governance should be practiced. Successfully practicing good governance positively contributes to higher human development, which ultimately helps in achieving the vision of a prosperous and happy Nepal.

1.2 Purpose and Research Questions

The purpose of this study was to examine the long and short-run effects of governance on human development in Nepal using time series data from 2002 to 2019. To attain this purpose, the following research questions were formulated:

- What is the state of governance and human development in Nepal from 2002 to 2019?
- What effect does governance have on human development in Nepal from 2002 to 2019?

1.3 Research Hypotheses

In this section, the research hypotheses are presented. The following hypotheses were formulated to check the effects of governance on human development in Nepal:

Hypothesis 1

H0: There is no relationship between voice & accountability and human development in the long and short run.

H1: There is a significant positive relationship between voice & accountability and human development in the long and short run.

Hypothesis 2

H0: There is no relationship between political stability & absence and human development the long and short run.

H1: There is a significant positive relationship between political stability & absence of violence and human development the long and short run.

Hypothesis 3

H0: There is no relationship between government effectiveness and human development the long and short run.

H1: There is a significant positive relationship between government effectiveness and human development the long and short run.

Hypothesis 4

H0: there is no relationship between regulatory quality and human development the long and short run.

H1: There is a significant positive relationship between regulatory quality and human development the long and short run.

Hypothesis 5

H0: There is no relationship between rule of law and human development the long and short run.

H1: There is a significant positive relationship between rule of law and human development the long and short run.

Hypothesis 6

H0: There is no relationship between corruption control and human development the long and short run.

H1: There is a significant positive relationship between corruption control and human development the long and short run.

1.4 Rationale/Significance of the Study

Governance and human development are key issues for the nation's prosperity. Every government wishes to ensure good governance and a high level of human development in the country. Therefore, it is necessary to understand the state of governance and human development, as well as the effect of governance on human development. This study identified several aspects of governance and human development that could be useful for the development practitioners, bureaucrats, policymakers, and politicians to take better initiatives in the days to come. Furthermore, it may be helpful to rethink policy and governance approaches to ensure higher human development in changing sociopolitical and administrative contexts. This study has both academic and practical relevance in the field of governance and development. It also contributes to the policy debates of governance and human development linkage in Nepal. Furthermore, the study helps researchers interested in governance and human development. The findings of this study draw new attention to and deeper reflections on governance and human development, and can be directly useful in governance and human development training sessions.

1.5 Scope of the Study

Governance is defined and measured in various ways by scholars and institutions. This study defined and measured governance using the World Governance Indicator (WGI)—voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and corruption control. The study relied on annual time series data from 2002 to 2019 because WGI data has been published annually since 2002. Similarly, there are several methods for measuring development, however, in this study, the human development approach was used. Although HDI data has been available annually since 1990, this study used data from 2002 as WGI data is only available annually from 2002.

1.6 Organization of the Study

The study is divided into four chapters. The first chapter is about the introduction including background, purpose and research question, research hypothesis, rationale/relevance of the study, the scope of the study, and organization of the study. Similarly, the second chapter includes a review of the literature on governance and human development. The third chapter covers data sources, methods, estimation, and analysis. Finally, chapter four presents conclusion of the study.

Chapter-II

Literature Review

The purpose of this chapter is to review the literature on governance and human development and their linkage. For this purpose, the chapter is divided into three sections. The first section discusses the concept of governance and human development, while the second section consists of finding of past research that is carried out by different scholars in the world that examine the effect of governance in different years. Finally, section three presents the research gap and study framework.

2.1 Governance: An Overview

Although the concept of governance is quite old, and has been extensively discussed in political science and public administration research for decades (AlBassam, 2013; Ahmad & Saleem, 2014), there is no single agreed definition, and it has different meanings (Kaufmann & Kraay, 2007; Keefer, 2009; Nag, 2018). Different scholars and institutions have defined governance in different ways. Governance entails different things depending on who uses the concept and in what context it is used (Ysa et al., 2014). The definition of governance varies according to the method, the field of study, discipline, and theoretical context (Bevir, 2009). The World Bank (1992) defines governance as "the manner in which power is exercised in the management of a country's economic and social resources (p.1)." The World Bank has identified three distinct aspects of governance: the type of political regime, the process by which authority is exercised in the management of a country's economic and social resources for development, and governments' capacity to design, formulate, and implement policies and discharge functions (World Bank, 1994, p. xiv). Sharma et al. (2013) hold similar views to the World Bank. They defined governance as a way in which the authority, control or power of government is exercised in mobilizing the social and economic resources of society to add issues of public interest. Abdellatif (2003) avers that with the definition of World Bank, and argues that the idea of governance is concerned directly with the management of the development process, involving the public and the private sectors as well. The viewpoint of De Ferranti et al. (2009) is more similar to the World Bank. According to them “governance describes the overall manner in which public officials and institutions acquire and exercise their authority to shape public policy and provide public goods and services” (p. 8). Huther and Shah

(2005) attempt to define governance as "a multifaceted concept encompassing all aspects of the exercise of authority through formal and informal institutions in the management of the resource endowment of a state" (p. 2). Dwivedi (2001) holds a different viewpoint than World Bank (1992), De Ferranti et al. (2009), Huther and Shah (2005), and Sharma et al. (2013). He defined governance as a system of values, policies, and institutions through which society manages its economic, political, and social interactions within and among the state, civil society, and the private sector.

According to the Organisation for Economic Co-operation and Development (1995), governance refers to the use of political authority and the exercise of control in society with regard to the management of its social and economic development resources, which includes the role of public authorities in defining the environment in which economic operators operate and deciding how benefits are distributed, as well as the nature of the ruler-ruled relationship. The UNDP (1997b) points out that governance is the exercise of economic, political, and administrative authority to administer a country's affairs at all levels, including the structures, processes, and institutions through which people and groups express their interests, exercise their legal rights, fulfil their responsibilities, and mediate their differences. According to the Department for International Development (2001), governance is concerned with how state institutions, rules, and systems – executive, legislative, judicial, and military – operate at the central and local levels, as well as how the state interacts with individual citizens, civil society, and the private sector.

Governance was defined by the majority of authors and organizations as the exercise of authority by the state, delegated bodies, and institutions. However, United States Agency for International Development (USAID) (2005) defined governance as something other than the exercise of power and authority. Governance refers to the ability of government to develop an efficient and accountable public management process that is open to citizen participation and strengthens rather than weakens the democratic system of government (USAID, 2005). The Nepal National Governance Survey (2017/18) has a unique viewpoint, defining governance as a system or process for the exercise of authority by state authorities and other entities about broadly shared values (foundations of governance) and the delivery of state commitments for public goods and services (service delivery) through democratically established institutional mechanisms (infrastructure of governance), which together define and consolidate the relationship between the state and citizens. In the traditional definition of governance, there was a lack of quality, process, and governance results, however, the Nepal National Governance Survey 2017/18 addressed this gap by

emphasizing shared values (democratic values), value-based infrastructure (founded on values), and public service delivery (public commitment to strengthen state-citizen relations) (Nepal Administrative Staff College, 2018). Indeed, governance is a positive, formal and informal quality interaction between the state and its citizens, which is influenced directly and indirectly by political parties and the environment, the bureaucratic system and culture, the international context, and cultural values.

This study defines governance using the six dimensions of governance as described by the WGIs. The WGI, developed by Kaufmann (1999), is the most common, popular, and effective indicator of governance. It measured subjective perceptions of quality of governance for more than 215 countries and territories between 1996 and 2002, every other year; thereafter, annually (Kaufmann et al., 1999). To provide information on governance perceptions of a diverse range of stakeholders, the WGI rely on a wide range of individual data sources, including firm and individual survey data, commercial risk rating agency assessments, non-governmental organizations, and several multilateral aid agencies and other public sector organizations (Kaufmann et al., 2007; Kaufmann et al., 2009). The WGI includes two measures. First, it assigns each country a score ranging from 2.5 to + 2.5, where 2.5 is a very low score and + 2.5 is a very high score. Second, it provides a percentile rank from 0 to 100, with higher scores indicating better national performance on that indicator. The six governance indicators are divided into three broad categories: the political aspect, which is measured through the indictors of “Voice and Accountability” and “Political Stability and Absence of Violence/Terrorism”; the economic aspect, which is evaluated based on the indicators of “Government Effectiveness” and “Regulatory Quality”; and the institutional aspect, which is estimated by the indicators of “Rule of Law” and “Control of Corruption”. Over time, the definition of WGI has changed. The definition of the 'political stability and absence of violence' indicator was redefined in 2006 to measure 'perceptions of the likelihood that the government will be destabilized' rather than the likelihood itself (Kaufmann et al., 2007), and the remaining indicators were redefined in 2008 to measure perceptions rather than the phenomena themselves (Kaufmann et al., 2008).

2.2 Human Development Index

For the first time in 1990, the UNDP released a report titled Human Development Report, which analyzed the record of human development over the previous three decades as well as the

experience of 14 countries in managing economic growth and human development (UNDP, 1990). Human development is defined as the process of expanding people's choices, which is much more than an increase in income and wealth (UNDP, 1990). The measurement of development based on GDP or GNP per capita is limited to income and wealth. Human development entails not only a return to economic and social development (Sen, 1997), but also an improvement in human welfare (Yang, 2010). Sen (1995) defined human development as the process of expanding people's choices, raising their standard of living, and advancing their capabilities. Human development focuses on people and their well-being, creating an environment in which people can live long, healthy, and creative lives. It is concerned with expanding people's choices to live a long and healthy life, being educated and having access to resources for a decent standard of living (UNDP, 1990). Human development, measured by the HDI, was developed by UNDP in 1990 as a policy tool for comparing development achievements among countries and regions of the world. The HDI is a composite index that measures average achievement in three basic dimensions of human development: health, knowledge, and a decent standard of living. The health and standard of living dimensions are measured by life expectancy at birth and GNI per capita, respectively, whereas the education dimension is measured by the mean of years of schooling for adults aged 25 years and expected years of schooling for children of school entering age. The aggregate scores for the three HDI dimensions range from 0 to 1, with 1 denoting the highest and 0 denoting the lowest level of human development. Countries are classified as having very high, high, medium, or low levels of human development based on this score. Until 2010, the HDI was the arithmetic mean of the normalized indices of health, income, and education, as measured by life expectancy, GNP per capita, and literacy and schooling rates, respectively. However, after 2010, the GNI was replaced by GDP, and mean years of schooling and expected years of schooling were adopted as proxies for education, and the arithmetic mean was replaced with the geometric mean (Kovacevic, 2010). Despite minor changes in the education and income dimensions, as well as in the measuring technique (arithmetic mean replaced by geometric mean) after 2010, this study used human development data from 2002 to 2019. Human development was used as an outcome variable to examine the effect of governance on human development in Nepal between 2002 to 2019.

2.3 Governance and Human Development Linkage

Policymakers, civil society organizations, aid donors, and academics around the world are increasingly agreeing that good governance is important for development (World Bank, 2009). However, the casual relationships between governance and human development are unclear (Garofalo et al., 2018). Several studies have attempted to investigate the impact of human development on governance (Muller, 1995; Richard & Talbott, 2003), while others have examined the two-way links between good governance and human development (Helliwell, 1994; Acuña-Alfaro, 2012). This section covers previous research conducted by various scholars around the world to examine the impact of governance on development, are as follows:

Pradhan and Sanyal (2011) studied the effect of governance on human development and discovered that good governance is a latent factor through which any country can achieve high economic growth and human development. Their research also suggests that with better institutional mechanisms and good governance, a country's development process can be elevated to the top ranks of growth and human development. Nandha and Smyth (2013) studied the relationship between governance quality and human development using 2011 data from 186 countries, and their findings revealed that governance indicators and human development positively influence each other. Sturm (2013) found similar results in Vietnam using world governance indicators and human development index data from 1996 to 2010. His findings showed that governance and human development have a s strong statistical positive relationship. Similarly, Ahmad and Saleem (2014) used cross-sectional data from 168 countries to assess the effect of governance on human development, and their findings revealed that government effectiveness and political stability have a positive impact on human development, while control of corruption has a negative impact. Davis (2016) found similar results in Sub-Saharan Africa using one-year data on governance indicators and human development measures. His findings showed that there is a significant relationship between good governance and human development, suggesting that improving government effectiveness and political stability would have the most significant impact on human development and poverty reduction efforts. Keser and Gökmen (2018), who conducted the study in Europe from 2002 to 2012 using panel data from 33 European Union member and candidate countries, also found that government effectiveness, regulatory quality, and the rule of law have a significant positive impact on human development. Ottervik (2011) investigated the

governance and human development of China and India and discovered that good governance and human development are strongly related, and that government effectiveness has a greater impact on human development than any other indicator. Strong governance institutions and effective public administration, according to the UNDP (2002), are critical elements of success for not only economic growth but also human development. Scholars such as Yang (2010) and Gaygisiz (2013) have also concluded that the quality of government institutions benefits human development. Han et al. (2014) examined whether development performance is dependent on governance using data from all Asian countries from 1998 to 2011, and found that government effectiveness, corruption control, and regulatory quality have a significant and positive relationship with development. Kaufmann et al. (1999) revealed that government effectiveness and human development are strongly linked and they supported the importance of governance with empirical evidence of a strong causal relationship between the quality of national governance and development outcomes such as higher per capita income, higher literacy rates, and lower infant mortality rates.

Good governance has recently been identified as one of the most important factors in achieving long-term growth and thus development (Lahouij, 2016). Many studies are currently being conducted that show a strong correlation between good governance and development. In his study, Sebudubudu (2010) affirms that good governance is critical to a country's advancement, not only being positively associated with human development but also having an inverse association with poverty rates in the case of Botswana. Ojima and Iimi (2005) and Sharma (2007) both conclude that good governance is essential to development, and is a key factor in deciding whether a country can use resources efficiently to foster economic growth and reduce poverty. Good governance fosters the development of effective and efficient institutions and rules that are vital for human development and poverty eradication (United Nations Department of Economic and Social Affairs et al., 2012). Alkire (2010) concluded that there are reciprocal relationships between good governance, economic growth, and human development and that human development supports an economy's productivity by providing healthy and highly trained individuals. To that end, human development necessitates both economic growth and good governance practices on the part of governments.

2.4 Democracy and Human Development

Governance for human development must be democratic (UNDP, 2002). Democracy is closely related to human development, and is a necessary condition for promoting human development (Fukuda-Parr, 2003). Democracy is also depicted as an end of the development process and a component of the puzzle of the more comprehensive image of human development (Sen 1999a, 1999b, 2000). Ensuring effective democratic governance is an effective way to achieve a higher level of human development. If the democratic form of government is maintained over time, the net effect on the welfare of its citizens is positive (Gerring et al., 2012), because the democratic government spends more on education, and has higher gross school enrollment rates than non-democratic governments (Chen, 2008). Democracy would result in increased social spending, which would improve the welfare of the poor because democratic institutions give people the power to control and discipline the government to ensure the implementation of policies that benefit the entire population (Saha & Zhang, 2017). There is increasing consensus that democracy is good for development (Upadhyay, 2006), and enhances human development (see: Lipset 1959; Meltzer & Richard, 1981; Muller, 1988; Boix 2001; Lake & Baum 2001; Brown & Hunter, 2004; Ghobarah et al., 2004; Brown & Mobarak, 2009; Kudamatsu, 2012;). Democratic governance and human development have a positive relationship, and both have an impact on one another (Cheema & Maguire, 2001). Vollmer and Ziegler (2009) showed that democracy is good for human development even when the level of economic development is controlled for. Tsai (2006) examined the effect of democracy on human development indicators, and discovered that democratic countries that encourage political competition, have higher levels of human development than authoritarian ones. Saha and Zhang (2017) found that the effects of democracy on human development are nonlinear and vary depending on the levels of growth and democracy. They also show that democracy improves human development, but economic growth increases human development only in developing countries.

Although democracy positively contributes to human development, there has long been debate about whether democracy has a positive or negative impact on human development. Several studies have recently claimed that there is no positive relationship between regime type and various measures of human development (see: McGuire, 2004; Shandra et al. 2004; Ross 2006; Acemoglu et al., 2008; Khaleghian, 2002). Several scholars, including Gauri and Khaleghian (2002),

McGuire (2004), and Jacobsen (2015), have raised doubts about the presence of a positive effect of democracy on human development. Acemoglu and Robinson (2001) emphasize that in a democracy, an elite may seize control of the political process, with the result that de jure resource redistribution is not followed by de facto redistribution, resulting in a higher concentration of national wealth and jeopardizing human development. Ross (2006) emphasized that, while government spending on health and education is higher in democratic systems than in nondemocratic systems, it doesn't improve the living standards of low-income people. Many democratic developing countries, including India and many Latin American nations, face persistent wealth disparities and high levels of poverty (Saha & Zhang, 2017). Some of the most dramatic advances in human development have occurred under authoritarian rule (for instance: in East Asian newly industrializing countries and communist countries), some of the most dramatic advances in human development have occurred under authoritarian rule (for example, in East Asian newly industrializing countries and communist countries), whereas many democratic societies in the developing world, including India, Sub-Saharan Africa, and many Latin American countries, have been marked by persistent wealth disparities and high levels of poverty (Gerring et al., 2012). Many detractors argue that democracy, particularly in developing countries, is too messy, uncontrollable, and prone to manipulation and abuse to provide the stability and continuity required for long-term social and economic development, and that democracy must be sacrificed to achieve economic growth and social progress (UNDP, 2002). However, there is no evidence of such a trade-off, and statistical studies show that neither authoritarianism nor democracy is a factor in determining the rate or distribution of economic growth (UNDP, 2002). Although various studies have revealed that democracy has both positive and negative effects on human development, the debate is ongoing.

2.5 Governance and Economic Development

Poor governance practices are harmful to the nation's overall economy and can stifle growth (Skandari, 2019). Economic growth can be attained by improving governance (Udin & Joya, 2007). If governments are assumed to be unbiased and dedicated to serving their people, then deviations from the optimum economic performance can generally be corrected through policy reforms (Brautigam, 1991). Many studies are currently being conducted that show a strong correlation between good governance and economic performance with long-term benefits (Pahlevi,

2017). Scholars such as De Schweinitz (1959) and Huntington (1968) argued that democracy could stifle national economic growth by enacting pro-poor policies that increase consumption at the expense of decreasing investment, with investment seen as a better driver of economic growth. Helliwell (1994) examines the two-way linkages between democracy and economic growth using cross-sectional and pooled data for up to 125 countries from 1960 to 1985, and found that the effects of income on democracy are robust and positive. The effects of several democratic measures on growth are assessed in a comparative growth framework, and it is noticed that per capita GDP growth is negatively related to initial income levels and positively related to rates of investment in physical and human capital. When income and democracy are determined concurrently, the estimated direct effect of democracy on subsequent economic growth is negative but insignificant. Allowing for the potential positive indirect effect of democracy on income, which flows through the positive effect of democracy on education and investment, tends to offset the potential negative direct effect of democracy on economic growth. The author concluded that there would still be no systematic net effects of democracy on subsequent economic growth. Przeworski et al. (2000) investigated the relationships between regime type and development outcomes (mostly economic) and concluded that there is no hard link between democratic governance and economic growth, nor between growth and greater democratization. The study did note, however, that birth rates tend to fall in countries governed by long-term democratic regimes, which tends to raise the value of GDP per capita in democracies, if not aggregate GDP itself. Kaufmann and Kraay (2002) used a set of global governance indicators covering 175 countries from 2000 to 2001 and found a strong positive causal effect running from better governance to higher per capita incomes and a weak and negative causal effect running in the opposite direction from per capita incomes to governance. The first results show the importance of good governance for economic development, while the second result indicates the absence of "virtuous circles" in which higher incomes lead to further improvements in governance.

Baum and Lake (2003) investigated the direct and indirect effects of democracy on growth using a 30-year panel of 128 countries, and noticed that democracy has no statistically significant direct effect on growth. This study discovered that the effect of democracy is largely indirect, with increased life expectancy in poor countries and increased secondary education in non-poor countries. Resnick and Bimer (2006) looked at several quantitative cross-country studies and found that governance indicators such as political stability and rule of law are associated with growth,

but have mixed results when it comes to poverty reduction. Governance indicators that refer to transparent political systems, such as civil liberties and political freedom, on the other hand, tend to be conducive to poverty reduction, but the evidence is mixed, and the relationship between these variables and growth remains unclear. Kurtz and Schrank (2007) examined the growth-governance causal link and found that government effectiveness has a positive relationship with subsequent growth, but the estimated effect is not statistically significant. Cooray (2009) examined the role of government on economic growth in 71 countries, taking into account the size and quality of government, and revealed that government spending and good governance have a significant impact on economic growth improvement. Furthermore, his findings revealed that countries with high levels of governance grow faster than countries with low levels of governance. Haq and Zia (2009) examined the relationship between pro-poor economic growth and governance in Pakistan from 1996 to 2005, and found that good governance can lead to a decrease in poverty and income inequality. Amavilah (2009) examined the impact of governance (WGI) on economic performance (GDP per capita) in 35 Sub-Saharan African countries between 2000 and 2007, concluding that governance has a strong positive influence on economic performance in the sampled countries. Huynh and Jacho-Chávez (2009) re-examined the conventional wisdom that there is a positive relationship between governance and growth, and discovered that regulatory control, reduced corruption, and government effectiveness are insignificant for growth, whereas voice and accountability, as well as political stability, are highly nonlinear with growth. Mijiyawa (2013) examined the factors that contributed to Africa's economic growth from 1995 to 2005, and found that government effectiveness is positively and significantly related to economic growth. According to the findings, a one standard deviation increase (0.61) in government effectiveness is associated with a 1.75 percentage point increase in the economic growth rate in Africa. Omoteso and Mobolaji (2014) used a panel of forty-seven Sub-Saharan African countries from 2002 to 2009, and found that corruption, political stability, and regulatory quality have a positive and significant effect on economic growth, whereas government effectiveness has an inverse relationship with regional economic growth. Han et al., (2014) examined the impact of governance on development performance using data from 1998 to 2011. They found that government effectiveness, political stability, corruption control, and regulatory quality have a more significant positive impact on country growth performance than voice and accountability and rule of law. They also found that developing Asian countries with a surplus in government effectiveness,

regulatory quality and corruption control are observed to grow faster than those with a deficit in these indicators—up to two percentage points annually, while the Middle East and North African countries with a surplus in political stability, government effectiveness, and corruption control are observed to grow faster than those with a deficit in these indicators by as much as 2.5 percentage points annually.

2.6 Research Gap

In the past two decades, there have been many studies carried out throughout the world regarding governance and human development linkage. Some of them include studies on the governance and economic performance (Kaufmann & Kraay, 2002; Alam et al., 2017; Cooray, 2009; Amavilah; 2009; Omoteso & Mobolaji, 2014; Fayissa & Nsiah 2013), democracy and economic growth (Helliwell, 1994; Przeworski et al., 2000; Baum & Lake, 2003); effect of governance on human development (Pradhan & Sanyal, 2011; Sturm, 2013; Ahmad & Saleem, 2014; Davis, 2016; Keser & Gökmen, 2018), effect of human development on governance (Muller, 1995; Richard & Talbott, 2003), governance quality/effectiveness and human development (Kaufmann et al., 1999; Nandha & Smyth, 2013; Yang, 2010; Gaygisiz, 2013), good governance and human development (Ottervik, 2011; Sebudubudu, 2010; Alkire, 2010), and democracy and human development (Lipset 1959; Meltzer & Richard, 1981; Muller, 1988; Boix 2001; Cheema & Maguire, 2001; Acemoglu & d Robinson, 2001; Lake & Baum 2001; Khaleghian, 2002; Shandra et al. 2004; McGuire, 2004; Brown & Hunter, 2004; Ghobarah et al., 2004; Tsai (2006); Ross 2006; Acemoglu et al., 2008; Brown & Mobarak, 2009; Vollmer & Ziegler, 2009; Kudamatsu, 2012; Acuña-Alfaro, 2012; Jacobsen, 2015; Saha & Zhang, 2017). Although governance and human development have been extensively researched throughout the world, the impact of governance on human development in Nepal has received less attention. Chaudhary (2020) researched the prospects of good governance and human development in Nepal. His study, however, is exploratory and analytical in nature, and he did not employ statistical tools to detect the effect of governance on human development. The effect of governance on human development in Nepal has yet to be empirically examined. In this backdrop, this study examined the long and short-run effects of governance on human development in Nepal using time series data from 2002 to 2019. The outcomes of this study will produce empirical data, fill knowledge gaps, and spark scholarly debate on the effect of governance on human development in Nepal.

2.7 Study Framework and Variables

The framework of this study is based on WGI and HDI, as shown in Figure 1.

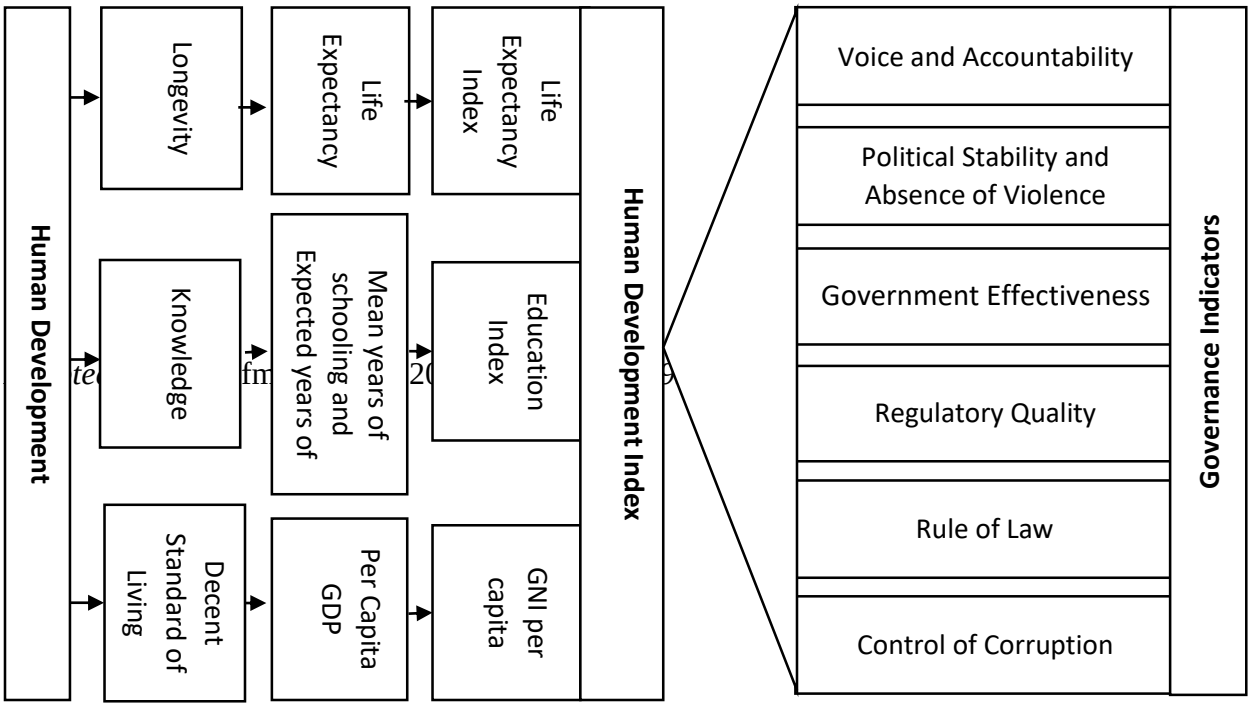

Figure 1: Study Framework

Chapter-3
Study Method

3.1 Data Sources

To examine the effect of governance on human development in Nepal, this study used two sets of time series data, namely WGIs and the HDI, which were obtained from the official websites of the World Bank and the UNDP, respectively. The period of analysis was set to 2002–2019 because WGIs data has been available annually since 2002. The WGIs values range from -2.5 to +2.5, and HDI values range from 0 to 1. Since WGIs and HDI have different units of measure, the HDI value was transferred in same unit as WGIs to obtain valid estimation.

3.2 Model Specification

To examine the effect of governance on human development in Nepal, six predictor variables were included in the model: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and corruption control. These six variables were chosen based on previous literatures and data availability. In this study, the basic form of estimation model for determining the effect of WGIs on HDI is identified as

$$HDI = f(VA, PS, GE, RQ, RL, CC) \quad (1)$$

The description of the study variables is presented in Table 1.

Table 1: Description of the Study Variables

Variables	Descriptions
Human Development Index	Composite index that measures average achievement in three basic dimensions of human development: health, knowledge, and a decent standard of living.
Voice and Accountability	Measuring (capturing) perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and media freedom.
Political Stability and Absence of Violence	Measuring (capturing) perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including political violence and terrorism.
Government Effectiveness	Measuring (capturing) perception of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
Regulatory Quality	Measuring (capturing) perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
Rule of Law	Measuring (capturing) perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular, the quality of contract enforcement, the police and the courts, as well as the likelihood of crime and violence.
Control of Corruption	Measuring (capturing) perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests.

Sources: Kaufmann et al., 2008 p. 7; Kaufmann et al., 2009 p. 6; UNDP, 1990

Though there are many time series data analysis tools available for assessing long and short run estimates, this study used the autoregressive distributed lag (ARDL) model. This model confirms

cointegration when the study variables have a mixed order of integration at I (0) and I (1). Unit root tests, namely Augmented Dickeye Fuller (ADF) and Phillipse Perron (PP), were performed, allowing the ARDL model to be used because study variables are inconsistent and have a mixed order of integration at I (0) and I (1). The ARDL bound testing approach proposed by Pesaran et al. (2001) for estimating the long relationship between governance and human development takes the following form:

$$\Delta lnHDI = \alpha + \sum_{i=1}^{p} \delta_{1j}\, \Delta lnHDI\, t_{-_i} + \sum_{j=0}^{q} \delta_{2k} \Delta lnVA_{t_{-_j}} + \sum_{k=1}^{r} \delta_{3l} \Delta lnPSAV_{t_{-_k}} + + \sum_{l=1}^{s} \delta_{4n} \Delta lnGE_{t_{-_l}} + \sum_{m=1}^{t} \delta_{5o} \Delta lnRQ_{t_{-_m}} + \sum_{n=1}^{u} \delta_{6p} \Delta lnRL_{t_{-_n}} + \sum_{o=1}^{v} \delta_{7q} \Delta lnCC_{t_{-_o}} + \emptyset_1 lnHDI_{t_{-_i}} + \emptyset_2 lnVA_{t_{-_1}} + \emptyset_3 lnPSAV_{t_{-_1}} + \emptyset_4 lnGE_{t_{-_1}} + \emptyset_5 lnRQ_{t_{-_1}} + \emptyset_6 lnRL_{t_{-_1}} + \emptyset_7 lnCC_{t_{-_1}} + \in \quad \text{Equation (2)}$$

Where, HDI=human development index; VA=voice and accountability; PSAV=political stability and absence of violence; GE= government effectiveness; RQ= regulatory quality; RL=rule of law, and CC=corruption control; Δ is the difference operator; The coefficients ($\delta 1 - \delta 7$) represent the short-term dynamics of the model, whereas $\emptyset 1 - \emptyset_7$ are the long-run coefficients. The values (p, q, r,s,t,u,v) are the selected number of lags for the cointegrating equations; α is the intercept and ∈ is the error term.

The F-statistic was used to confirm the long-run relationship between governance and human development. If the F-statistic exceeds the upper bound level, the null hypothesis is rejected, indicating the presence of cointegration; however, if the F-statistic falls below the bound level, the null hypothesis cannot be rejected, suggesting the absence of cointegration. If it falls between the upper and lower bounds, the outcome is inconclusive (Pesaran et al., 2001).

Following confirmation of the co-integration of governance and human development, the study estimated the associated error correction model (henceforth ECM). Pesaran et al. (2001) argue that ECM directly estimate the speed at which a dependent variable recovers to equilibrium following a change in other variables. The ECM reconciles the short-run dynamics and the error adjustment process in the long-run equilibrium (Barik & Sahu, 2022). To reach equilibrium, the ECM coefficient should be statistically significant and negative. The larger the negative coefficient of the error correction term, the faster the adjustment from short run to long run, and the significant

coefficient indicates the presence of a long-run stable relationship and co-integration between the independent and dependent variables (Pokhrel & Khadka, 2019). The error-correction term used in the ARDL to represent short-run dynamics is as follows:

$$\Delta lnHDI = \alpha + \sum_{i=1}^{p} \delta_{1j}\, \Delta lnHDI\; t_{-_i} + \sum_{j=0}^{q} \delta_{2k} \Delta lnVA_{t_{-_j}} + \sum_{k=1}^{r} \delta_{3l} \Delta lnPSAV_{t_{-_k}} + + \sum_{l=1}^{s} \delta_{4n} \Delta lnGE_{t_{-_l}} + \sum_{m=1}^{t} \delta_{5o} \Delta lnRQ_{t_{-_m}} + \sum_{n=1}^{u} \delta_{6p} \Delta lnRL_{t_{-_n}} + \sum_{o=1}^{v} \delta_{7q} \Delta lnCC_{t_{-_o}} + \emptyset_1 ECMt_{-_i} + \in t \quad \text{Equation (3)}$$

Where, ECM_{t-1} is the one-period lagged error-correction term derived as a residual from the estimation of the long-run co-integrating equation (2); δ_{1j}, δ_{2k}, δ_{3l}, δ_{4n}, δ_{5o}, δ_{6p} and δ_{7q} are the short-run dynamic coefficients of the model's convergence to equilibrium and $\emptyset$ represents the speed of adjustment from short run to long run i.e. towards equilibrium.

The Granger Causality Test was also performed under the vector error correction model framework to measure the direction of causality among the variables in the estimated model. To estimate the goodness of fit and robustness of the model, diagnostic tests such as serial correlation, normality, functional form, and heteroscedasticity were used. Finally, the Cumulative Sum of Recursive Residuals (CUSUM) and Cumulative Sum of Squares of Recursive Residuals (CUSUMSQ) tests were performed to detect and verify whether a parameter to be estimated is stable or not.

Chapter-4

Results and Discussion

4.1 Descriptive Statistics

The level and trend of governance and human development from 2002 to 2019, as shown in Tables 2 and 3, respectively.

Table 2: Level and Trend of Governance Indicators of Nepal

Years	VA		PSAV		GE		RQ		RL		CC		Average of WGIs	
	E	%(C)	E	%(C)	E	%(C)	E	%(C)	E	%(C)	E	%(C)	E	%(C)
2002	-0.80	NA	-1.72	NA	-0.46	NA	-0.52	NA	-0.47	NA	-0.36	NA	-0.72	NA
2003	-0.92	15.27	-1.89	9.88	-0.52	12.93	-0.38	-28.02	-0.56	18.21	-0.46	28.19	-0.40	-44.09
2004	-1.13	23.35	-2.15	13.62	-0.75	45.40	-0.54	42.54	-0.74	33.55	-0.87	90.04	-0.42	3.70
2005	-1.15	1.06	-2.10	-2.29	-0.85	13.62	-0.53	-2.18	-0.82	9.86	-0.74	-14.65	-0.54	30.06
2006	-0.91	-20.75	-1.89	-9.78	-0.91	6.23	-0.52	-1.22	-0.62	-23.63	-0.69	-6.69	-0.55	0.89
2007	-0.59	-35.57	-1.88	-0.59	-0.71	-21.50	-0.57	9.31	-0.59	-4.78	-0.79	13.64	-0.51	-6.23
2008	-0.50	-15.27	-1.83	-2.59	-0.80	12.64	-0.62	9.86	-0.67	13.53	-0.81	2.58	-0.46	-10.69
2009	-0.44	-11.10	-1.62	-11.69	-0.95	18.70	-0.71	13.32	-0.86	27.70	-0.70	-13.12	-0.45	-2.85
2010	-0.45	1.46	-1.58	-2.22	-0.87	-8.08	-0.74	5.30	-0.95	10.68	-0.69	-1.41	-0.47	6.33
2011	-0.45	-0.53	-1.42	-10.58	-0.90	3.32	-0.72	-2.89	-0.89	-6.84	-0.78	12.45	-0.48	2.02
2012	-0.64	44.31	-1.38	-2.49	-0.98	8.89	-0.80	10.70	-0.74	-17.03	-0.81	4.37	-0.45	-7.82
2013	-0.53	-17.71	-1.13	-18.25	-0.93	-5.71	-0.85	6.13	-0.72	-2.38	-0.69	-15.52	-0.47	6.24
2014	-0.43	-18.56	-0.72	-35.83	-0.85	-8.05	-0.83	-2.00	-0.65	-9.54	-0.59	-14.35	-0.44	-7.68
2015	-0.42	-3.49	-1.00	37.78	-1.05	23.68	-0.80	-3.89	-0.68	4.19	-0.58	-1.72	-0.36	-18.21
2016	-0.25	-39.48	-0.85	-15.18	-0.83	-21.57	-0.76	-4.38	-0.80	17.55	-0.80	38.35	-0.45	24.77
2017	-0.20	-19.01	-0.61	-27.88	-0.88	6.91	-0.71	-6.54	-0.68	-14.89	-0.75	-5.94	-0.41	-9.34
2018	-0.14	-33.34	-0.56	-8.02	-0.90	1.65	-0.74	3.28	-0.48	-29.48	-0.67	-10.83	-0.38	-7.07
2019	-0.15	11.33	-0.45	-19.21	-1.05	16.40	-0.70	-4.98	-0.54	12.11	-0.67	0.47	-0.31	-17.79
AV	-0.56	-	-1.38	-	-0.84	-	-0.67	-	-0.69	-	-0.69	-	-0.46	-
AC	0.65	-	1.27	-	-0.59	-	-0.18	-	-0.07	-	-0.32	-	0.41	-
APC	-	-6.94		-6.20		6.20		2.61		2.28		6.23		-3.40

Note: E=Estimate, %(C) = % change; AV=average value, AC=absolute change, APC=average percentage change; VA=voice and accountability, PSAV=political stability and absence of violence, GE=government effectiveness, RQ=regulatory quality, RL=rule of law and CC=control of corruption, WGIs =world governance indicators.

Table 2 shows the WGI score of Nepal from 2002 to 2019. The average value of WGI from 2002 to 2019 is -0.46, with a -3.40 average percentage change. In 2002, the average WGI value was -0.72, which fell to -0.31 in 2019, denoting a better governance situation in 2019 than in 2002. From 2002 to 2019, the average value of voice and accountability is -0.056, with a -6.94 percent change. The value of voice and accountability was -0.80 in 2002, increasing to -1.13 in 2004 and -1.15 in 2005, but then gradually and continuously declined up to 2018 and marginally rising by 0.01 point in 2019. There is a 0.65 point decline in voice and accountability values between 2002 and 2019, indicating an improvement in voice and accountability. Between 2002 to 2019, the average value of political stability and absence of violence is -1.38, with a -6.20 percent change. The value of political stability and absence of violence was -1.72 in 2002, and has dropped to -0.45 in 2019, a -74% decrease, signifying a favorable scenario of political stability and absence of

violence. Although the value of political stability and the absence of violence appeared to be high from 2002 to 2013, it began to decline after 2015. The average value of government effectiveness between 2002 to 2019, is -0.84, with 6.20 percent of change. The value of government effectiveness was -0.46 in 2002 and has risen to -1.05 in 2019, suggesting a worse status of government effectiveness in 2019 than it was in 2002. This regulatory quality status is distinct from government effectiveness. The value of regulatory quality was -0.52 in 2002, increasing to -0.85 in 2013 and decreasing to -0.70 in 2019, inferring that the situation of regulatory quality in 2019 is good compared to 2013, but poor compared to 2002. Between 2002 and 2019, the average value of rule of law is -0.69, with a 2.28 percent change. In 2002, the value of rule of law was -0.47, which rose to -0.95 in 2010 and falls to -0.54 in 2019. The value of the rule of law increased by 0.48 points from 2002 to 2010, and decreased by 0.41 points from 2010 to 2019, implying that the state of the rule of law is good in 2019 compared to 2010, but poor in comparison to 2002. The average value of corruption control from 2002 to 2019, is -0.69, a 6.23 percent change. In 2002, the value of corruption control was -0.36, which increased to -0.81 in 2012 and then decreased to -0.67 in 2019. The value of control of corruption increased by 0.45 points from 2002 to 2012 and decreased by 0.14 points from 2012 to 2019, showing that the status of control of corruption is good in 2019 compared to 2012 but poor compared to 2002. To sum up, it can be said that the performance of Nepal in governance indicators is unsatisfactory, however, it is improving.

Table 3: Level and Trend of Human Development

Year	HDI	HDI Rank	Number of country
2002	0.464	138	175
2003	0.47	141	177
2004	0.476	143	179
2005	0.482	149	186
2006	0.493	146	186
2007	0.498	145	186
2008	0.509	144	186
2009	0.522	143	186
2010	0.537	144	188
2011	0.545	144	188
2012	0.559	143	188
2013	0.568	143	188
2014	0.576	142	188
2015	0.583	142	188
2016	0.586	143	188
2017	0.588	143	189
2018	0.596	143	189
2019	0.602	142	189

Sources: UNDP, 2002-2019

Table 3 shows the value of Nepal's HDI from 2002 to 2019. Nepal has made consistent progress on the HDI from 2002 to 2019. The HDI was 0.464 in 2002 and had risen to 0.602 by 2019. The HDI scores increased by 0.138 points between 2002 and 2019, indicating positive changes in human development.

4.2 Econometrics Estimation Results

The result of ARDL cointegration is reasonable when study variables are integrated at I (0) and I (1). To confirm this, unit root tests such as ADF and PP were performed. Table 4 shows the results of the unit root test at the level and the first difference. The results of the ADF tests showed that none of the variables has an order of integration at I (2). Some variables are stationary at a level I (0), whilst others are at the first differences I (1). Voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, and control of corruption are stationary at levels I (0). While, the human development index and rule of law are nonstationary at level I (0), they become stationary after taking the first difference. The PP test also revealed that human development index, voice and accountability, regulatory quality, and rule of law are non-stationary at a level I (0), but become stationary at the first difference I (1). Both tests show that variables are inconsistent and have a mixed order of integration I (0) and I (1), allowing the ARDL approach to be used to examine the long and short-run relationship between governance and human development in Nepal.

Table 4: Unit Root Test Results

Variable	ADF-test			PP-test		
	Level	1st Difference	Results (OI)	Level	1st Difference	Results (OI)
HDI	-0.7564	-2.8564*	I (0)	-0.7155	-2.8564*	I (0)
VA	-4.1612**	-2.7116*	I (1)	-0.5485	-2.5535**	I (1)
PSAV	-3.9045**	-4.7592***	I (0)	-8.8493***	-5.0837***	I (0)
GE	-2.8926*	-3.7179**	I (0)	-3.4965**	-5.2616***	I (0)
RQ	-2.7133*	-5.9350***	I (1)	-1.2484	-5.5590***	I (1)
RL	-1.5647	-4.8923**	I (0)	-2.3352	-3.0733**	I (0)
CC	-6.9021***	-7.3345**	I (0)	-6.5370***	-4.7402***	I (1)

*Notes: *Significant at the 10%; **Significant at the 5%; and ***Significant at the 1%.; OI= order of integration*

This study also confirmed the vector autoregression order, that is, the number of lags to be used before performing the co-integration test (Shakil et al., 2018). The Akaike Information Criterion (AIC), the Schwartz Bayesian Criteria (SBC), and the Hannan-Quinn Criterion (HQC) were used

to determine the best lag length. Table 5 shows the results of these tests, which show that the optimal number of lags is 1.

Table 5: The Optimal Lag Length

Lag	AIC	SC	HQ
0	-12.42727	-12.08418	-12.39317
1	-20.21471*	-17.47001*	-19.94188*

*Note: * indicates lag order selected by the criterion; AIC: Akaike information criterion; SC: Schwarz information criterion; HQ: Hannan-Quinn information criterion.*

After determining the optimal number of lags, the ARDL co-integration bound test was used to establish a long-run relationship between governance and human development. The results of the bound test are expressed in Table 6. The F-statistic is 44.91623, which is greater than the critical value of the upper bound. Therefore, it can be said that there is co-integration between the variables in the tested model, and conclude that there is a long-run relationship between governance and human development in Nepal.

Table 6: Co-integration Test Result

F=statistics: 44.91623	Critical values		Conclusion
	Lower bound	Upper Bound	
10%	1.99	2.94	Co-integration
5%	2.27	3.28	
2.5%	2.55	3.61	
1%	2.88	3.99	

This study estimated long-run coefficients of variables after confirming cointegration, as shown in Table 7. The results suggest that voice and accountability has a significant positive effect on human development in Nepal in long run. The coefficient of voice and accountability is 0.127012, which means that a one percentage point increase in voice and accountability leads to a 0.127012 percentage point increase in human development. The government's effectiveness and regulatory quality have a significant negative impact on human development in long run. The coefficients of government effectiveness and regulatory quality are -0.423234 and -0.173474, respectively, implying that one percentage increase in government effectiveness and regulatory quality reduces human development by 0.423234 and 0.173474 percentage points, respectively, in the long run. The rule of law has a positive effect with a 10 percent significance. The rule of law coefficient is 0.135755, indicating that a one percentage point increase in rule of law results in a 0.135755 percentage point increase in human development. Surprising results have been noticed for political stability and corruption control. The effect of political stability and absence of violence, as well as

corruption control is positive but not significant, indicating that political stability and absence of violence as well as corruption control have no long-term effect on human development in Nepal.

Table 7: Estimated Long Run Coefficient Using the ARDL Approach

ARDL(1, 1, 0, 1, 0, 0, 0) selected based on the AIC

Variable	Coefficient	Std. Error	t-Statistic	Prob.
VA	0.127012	0.044733	2.839365	0.0251
PSAV	0.026812	0.045477	0.589572	0.5740
GE	-0.423234	0.119598	-3.538805	0.0095
RQ	-0.173474	0.077287	-2.244551	0.0597
RL	0.135755	0.064250	2.112915	0.0725
CC	0.111681	0.072867	1.532666	0.1692
C	1.226362	0.059894	20.47545	0.0000

Note: C=constant

The short-run dynamic and its coefficient, as well as the error adjustment process in the long-run equilibrium, were investigated using an error-correction model. The results shown in Table 8 indicate that the error-correction parameter is negative and statistically significant at the 5.7 percent level, implying the presence of cointegration among the variables. The estimated error-correction coefficients are -0.330976, indicating that the error was corrected or adjusted relatively quickly and immediately towards the long-run equilibrium. The speed of adjustment is around 33 percent per year.

Table 8: ARDL Short-run and ECM Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
VA	-0.010818	0.014067	-0.769054	0.4616
PSAV	0.015737	0.012302	1.279230	0.2328
GE	-0.000511	0.014351	-0.035641	0.9723
RQ	-0.028786	0.030029	-0.958631	0.3628
RL	-0.014293	0.012609	-1.133561	0.2863
CC	1.360378*	0.627662	2.167373	0.0584
ECT(-1)	-0.330976*	0.152335	-2.172694	0.0579
C	0.008550	0.004813	1.776350	0.1094

*R-squared: 0.822013; Adjusted R-squared: 0.683579; S.E. of regression=0.005436; Sum squared resid=0.000266; Log likelihood: 69.93462; F-statistic: 5.937944; Prob(F-statistic)=0.008292; *Significant at the 10%; ECT= error correction term, and C=constant.*

Similarly, Table 8 also displays the short-run coefficients of the variables obtained from the ARDL error correction model. The estimated short-run coefficient of political stability and absence of violence is positive and insignificant, whereas the coefficients of voice and accountability, government effectiveness, regulatory quality, and rule of law are negative and insignificant. It points out that political stability and absence of violence, government effectiveness, regulatory

quality, and the rule of law have no effect on human development in the short run. The estimated short-run coefficient of corruption control is positive (1.360378) and statistically significant at 5.8 percent. This positive coefficient of corruption control means that a one-percentage-point increase in corruption control leads to a 1.360378 percentage-point increase in human development. The adjusted R-square value in the ECM model is 0.683, which explains 68.3 percent goodness of fit, indicating that governance explains 68.3 percent of the total variation in human development, while the remaining 25% is owing to other factors.

The summary results of the Granger causality test based on Granger (1969) are presented in Table 9, which reveals remarkable outcomes. The results in Table 9 show that there is one-way/unidirectional relation from human development to political stability, from government effectiveness to voice and accountability and political stability, from regulatory quality to political stability, from regulatory quality to political stability, from rule of law to political stability, and from the control of corruption to political stability. Two-way causal relationships between variables are not observed, and the majority of the variables are independent of one another.

Table 9: Granger Causality Test Result

	HDI	**VA**	**PS**	**GE**	**RQ**	**RL**	**CC**	**Direction of causality**
HDI	-	3.40808***	19.5515*	2.17027	0.47243	1.51012	0.39591	Causality from HDI to VA and PS
VA	1.94336	-	0.70335	1.49202	0.29591	0.19512	0.20175	No causality
PS	0.74247	0.33127	-	1.34992	0.21541	2.39057	0.99988	No causality
GE	2.00851	10.7796*	8.31077**	-	2.74181	0.33862	0.00389	Causality from GE to VA and PS
RQ	2.56776	1.96869	7.70910**	0.99878	-	0.39560	2.30930	Causality from RL to PS
RL	0.93371	0.07801	3.48768***	0.16486	1.08894	-	0.31714	Causality from RL to PS
CC	1.56060	2.07601	8.57464**	1.87596	2.54777	0.27372	-	Causality from CC to PS

*Note: *** significance at 10%, ** significant at 5%, and * significant at 1% level of significance; HDI=human development index, VA=voice and accountability, PS=political stability, GE=government effectiveness, RQ=regulatory quality, RL=rule of law, and CC=control of corruption.*

Diagnostic tests such as serial correlation, normality, functional form, and heteroscedasticity were used to estimate the goodness of fit and robustness of the model. The results in Table 10 show that the p-value for all tests exceeds the 5% level of significance, indicating that the model is free of serial correlation and heteroscedasticity, as well as having no issues with the functional form, and the model tends to normality.

Table 10: Diagnostic Test of ARDL Model

	F-statistic	P-value	Conclusion
Serial correlation	2.792246	0.1092	No serial correlation in residuals/residuals are not serially correlated
Heteroskedasticity	1.587202	0.2397	No heteroscedasticity in residuals. There is homoscedasticity
Functional Form	0.455298	0.5151	No any misspecification/ free from specification error
Normality	Jarque-Bera statistic 0.822284	0.662893	Residuals are normally distributed

The CUSUM and CUSUMSQ plots are shown in Figures 2 and 3 confirm the stability of the parameter, because both plots fall within the critical bounds at the 5 percent significance level. Therefore, the parameters estimated in this model are considered to be stable throughout the study period.

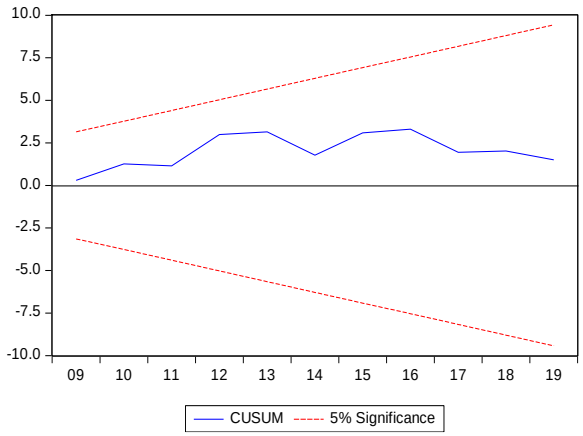

Figure 2: CUSUM Plots

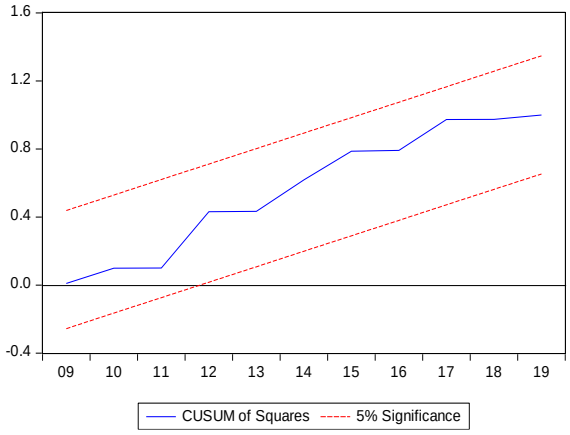

Figure 3: CUSUMSQ Plots

Chapter-V
Conclusion

5.1 Conclusion

This study examined the long and short run effect of governance on human development in Nepal from 2002–to 2019 using the ARDL model. The result of the ARDL test showed that governance indicators have a mixed effect on human development in the short and long term. Some indicators have a positive effect on human development, while others have a negative effect, with or without statistical significance in the short and long run. The ARDL bounds test indicates that governance and human development are cointegrated, implying that governance and human development have a long-run relationship. The result suggests that voice and accountability, as well as rule of law, have a significant positive effect on human development, whereas government effectiveness and regulatory quality have a significant negative effect in long run. Political stability and corruption control have positive, but the insignificant long-run effect on human development. The error-correction term infers that the speed of adjustment to the long-run equilibrium is fairly quick and instant. When it comes to the short-run effect of governance on human development, the situation is totally different. In the short run, the effects of voice and accountability, government effectiveness, regulatory quality, and the rule of law on human development are negative and statistically insignificant, indicating that these factors do not affect human development. Political stability has a positive but statistically insignificant effect on human development, whereas corruption control has a significantly positive effect in the short run, denoting that political stability has no effect, and corruption control has a positive effect on human development in the short run.

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