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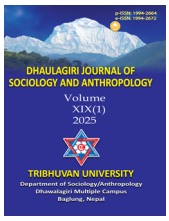

The Effects of Economic Consumption: The Nexus between Macroeconomic Drivers and Financial Development

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Abstract

This study investigates the economic consumption of Nepal, focusing on the roles of remittances, financial development, inflation, and income. The aim is to assess both short-term and long-term relationships and provide policy insights. The research employs the Autoregressive Distributed Lag (ARDL) bounds testing approach to analyze time-series data spanning from 1975 to 2023. Data were sourced from the Ministry of Finance, Nepal Rastra Bank, and World Bank databases. Key variables include remittances, Gross Domestic Product (GDP) per capita, consumer price indices, urban population, and private credit. Diagnostic tests ensured the model's reliability and stability. The findings reveal significant influences of remittances on private consumption, with urban population growth exhibiting a strong positive short-term effect. Remittances initially have a negative impact on consumption but display significant long-term benefits. Inflation shows a short-term stimulatory effect on consumption, while financial development (proxied by private credit) demonstrates a delayed negative impact. Cointegration tests confirm a highly significant error correction term (-1.49), indicating long-term equilibrium and an effective adjustment mechanism, with deviations corrected within approximately 8 months (0.67 years). Private consumption in Nepal is shaped by a dynamic interplay of socio-economic factors. Urbanization and remittance inflows are key drivers, emphasizing the need for policies fostering urban planning and remittance management. Addressing inflationary pressures and enhancing financial inclusion could further optimize economic consumption, contributing to sustained economic growth and stability.

Keywords: ARDL model, economic consumption, economic growth, macroeconomic variables

Introduction

Nepal has emerged as a significant phenomenon, intricately linked to the country's economic transformation and economic consumption. The rapid migration from rural to urban areas, driven by aspirations for improved living standards and economic opportunities, has significantly reshaped the nation's socio-economic landscape. This transition reflects broader structural changes in the economy, particularly the movement from an agrarian base towards a more service-oriented and industrial framework. The adoption of neoliberal economic policies in the early 1990s catalyzed this transformation, fostering a burgeoning service sector that has been pivotal in driving economic growth (Kafley & Joshi, 2023; Bhandari, 2020).

As urban centers expand, they become epicenters of consumption, influencing both local and national economies. The increase in urban populations has led to heightened demand for goods and services, which in turn stimulates production and trade. This phenomenon is particularly evident in the context of Nepal's integration into global markets, where trade openness has been shown

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to significantly enhance economic growth by increasing competition and efficiency (Upadhyaya et al., 2023). Moreover, remittances from the Nepali diaspora, a direct consequence of urban migration, have also played a crucial role in bolstering consumption patterns and economic stability (Shrestha, 2022).

The implications extend beyond mere economic metrics; they encompass social and environmental dimensions as well. The influx of people into urban areas has resulted in increased pressure on infrastructure and resources, necessitating innovative approaches to urban planning and sustainable development. Furthermore, the intersection of urbanization with climate change poses additional challenges, as urban areas are often more vulnerable to environmental impacts, which can exacerbate existing inequalities (Shrestha & Shrestha, 2019; Bhusal et al., 2018).

Nepal is deeply intertwined with the country's financial development and evolving consumption patterns. Understanding these relationships is essential for policymakers aiming to foster sustainable development that accommodates the needs of a rapidly urbanizing population while addressing the challenges posed by climate change and resource management.

Literature Review

Economic growth in Nepal, particularly since the late 20th century, has been driven by various factors, including rural-to-urban migration, economic opportunities, and infrastructure development. Nepal is experiencing significant urban growth, with urban areas expanding rapidly to accommodate the influx of people seeking better livelihoods (Sapkota, 2022). This trend is particularly evident in the Kathmandu Valley, where land use changes have been monitored using remote sensing technologies, revealing a clear trajectory of urban expansion that aligns with the urban primacy model, where the capital city dominates economic activities (Ishtiaque et al., 2017). Urban expansion has often come at the expense of agricultural lands, particularly in the Tarai region, necessitating national development programs to mitigate agricultural loss and promote sustainable urban growth (Rimal et al., 2018).

The growth in Nepal is further complicated by the socio-economic transformations that accompany it. As urban areas expand, they tend to attract a diverse population seeking enhanced living standards, which in turn influences their consumption patterns. The adoption of Western dietary habits among urban populations, particularly among women in the Kathmandu Valley, illustrates how globalization and urbanization intersect to reshape consumption behaviors (Smith, 2013).

Moreover, the economic implications of growth are profound. Growth is often viewed as a catalyst for economic development, as it facilitates job creation, enhances productivity, and fosters innovation. Managing rapid urbanization is essential for improving the competitiveness of Nepal's urban economy, which is crucial for reducing poverty and enhancing overall economic growth (Muzzini & Aparicio, 2013). The relationship between urbanization and economic prosperity is further supported by evidence that highlights the role of improved connectivity and infrastructure in facilitating economic activities and enhancing trade (Hayashi et al., 2023). As urban centers develop, they become hubs of economic activity, attracting investments and fostering entrepreneurship, which are vital for sustained economic growth.

However, the rapid pace of growth also presents significant challenges, particularly in terms of urban planning and resource management. The increasing urban population has led to pressing issues such as inadequate infrastructure, housing shortages, and environmental degradation. Dahal points out that urbanization is a key indicator of economic development, yet it also brings about substantial changes in land use and consumption patterns, necessitating effective urban management strategies (Dahal, 2020). The challenges of urbanization are further exacerbated by political transitions and governance issues, which can hinder the implementation of effective urban policies (Devkota, 2018).

In addition to economic and infrastructural challenges, growth in Nepal has significant implications for public health. The epidemiological transition associated with urbanization has led to an increase in non-communicable diseases (NCDs) such as obesity and hypertension, particularly among urban populations (Pedišić et al., 2019). This shift underscores the need for public health interventions that address the unique health challenges posed by urban living, including promoting physical activity and healthy dietary practices (Pedišić et al., 2019). Furthermore, the disparities in health outcomes between urban and rural populations highlight the importance of targeted health policies that consider the specific needs of urban residents (Subedi et al., 2021).

As growth continues to reshape Nepal's socio-economic landscape, it is essential to consider the implications for environmental sustainability. The conversion of agricultural land into urban areas has raised concerns about food security and environmental degradation (Shrestha et al., 2021). The need for sustainable urban planning practices that prioritize green spaces, local food production, and efficient waste management is critical for ensuring that urban growth does not compromise environmental integrity (Shrestha, 2021). The concept of "food green cities" has emerged as a potential pathway for sustainable urban development in Nepal, emphasizing the importance of integrating agricultural practices within urban settings (Shrestha, 2021).

The economic transformation of Nepal, particularly in the context of urbanization and economic consumption, is a multifaceted process influenced by various socio-

economic factors. Urbanization in Nepal has been accelerating, driven by a shift from a predominantly agrarian economy to one that increasingly embraces urban-centric economic activities. One of the critical aspects of this transformation is the growth of the service sector, which has been demonstrated to have a positive impact on Nepal's economic performance. Structural transformations, particularly in the service sector, contribute significantly to economic growth, indicating a shift in economic consumption as urban populations demand more services and goods (Kafley & Joshi, 2023). This trend is further supported by Muzzini and Aparicio, who emphasize the importance of managing rapid urbanization to enhance urban competitiveness and job creation, which are essential for poverty reduction and economic development (Muzzini & Aparicio, 2013).

Moreover, the role of remittances in shaping Nepal's economy cannot be overlooked. Shrestha discusses how remittances have become a vital source of income for many households, influencing consumption patterns and contributing to economic growth (Shrestha, 2022). This influx of financial resources has enabled families to invest in education, health, and other sectors, thereby fostering a more dynamic urban economy. The interplay between remittances and urbanization is evident, as increased financial resources often lead to greater urban migration and consumption of urban goods and services.

The implications of urbanization extend beyond economic growth; they also encompass environmental and social dimensions. The rapid urbanization process has led to challenges such as increased pressure on infrastructure and services, which necessitates effective urban planning and management strategies. Upadhyaya's research on trade openness illustrates how economic policies can shape urban growth and economic consumption by enhancing competition and efficiency within the market (Upadhyaya et al., 2023).

Additionally, the transformation of agricultural practices in Nepal, the decline in agriculture's contribution to GDP, coupled with the rise of secondary and tertiary sectors, underscoring the need for a balanced approach to economic development that considers both urban and rural dynamics (Dumre et al., 2020).

Economic consumption is influenced by country-specific factors, including urbanization, exchange rate fluctuations, and social norms. Urbanization boosts household spending by fostering economic activities and creating opportunities, as highlighted in studies on Georgia (Dilanchiev & Taktakishvili, 2021) and Nepal (Lamsal, 2023). However, exchange rate volatility presents challenges for households reliant on remittances, as noted by Uche et al. (2023) in scenarios of significant economic shifts. In Nepal, these effects are further compounded by inflationary pressures from India and domestic policy measures (Joshi, 2022).

Income is widely recognized as a key determinant of economic consumption, as outlined in Kurihara (2013) the absolute income hypothesis and further developed through life-cycle hypothesis and Friedman's (1957) permanent income hypothesis. Empirical evidence consistently supports a positive relationship between income and consumption in developing economies. For instance, Keho (2019) highlighted the significant impact of income on household spending in Côte d'Ivoire, while Bonsu and Muzindutsi (2017) observed similar patterns in Ghana. Research on G7 countries by Uche et al. (2022) reveals that income changes have varied effects, with consumption responding differently to income increases versus decreases. These theoretical and empirical perspectives provide a valuable framework for understanding the influence of income on consumption patterns in Nepal.

Inflation, known for diminishing purchasing power, has consistently been found to affect household consumption negatively. Studies by Obinna (2020) and Ezeji and Ajudua (2015) in Nigeria revealed how inflation limits spending on essential goods. Similarly, Abbas and Islam (2024) demonstrated that inflationary pressures undermine the advantages of remittances in developing nations. In the context of Nepal, Joshi (2022) emphasized the substantial impact of inflation on households reliant on remittances, adding complexity to their spending behaviors. These insights highlight the importance of considering inflationary dynamics when analyzing the determinants of private consumption.

Data and Methods

Research Design and Testing Approach

This study employs a quantitative research design using time-series econometric analysis to explore the determinants of private consumption in Nepal. Specifically, the Autoregressive Distributed Lag (ARDL) bounds testing approach has been employed to analyze the relationship between economic consumption and its determinants. This approach is particularly suitable as it accommodates variables integrated at different levels, whether stationary at levels I(0) or at first differences (1) (Pesaran et. al, 2001). Additionally, ARDL is effective for small sample sizes, making it ideal for this study. The methodology allows for the estimation of both short-run dynamics and long-run equilibrium relationships in a unified framework.

The testing process involves several stages. First, unit root tests such as the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests has been conducted to ensure that none of the variables are integrated at the second difference I (2), as ARDL is not applicable in such cases (Dickey & Fuller, 1979; Phillips & Perron, 1988). Next, an ARDL model has been specified for each hypothesis, incorporating the appropriate lag structure determined by the Akaike Information Criterion (AIC) or Schwarz Bayesian Criterion (SBC) (Akaike, 1974; Schwarz, 1978). The presence of a long-run relationship has been tested

using the bounds testing procedure, which evaluates the null hypothesis of no cointegration against the alternative (Pesaran et al., 2001). Upon confirming cointegration, the model has estimated the long-run coefficients and derived short-run dynamics through the error correction mechanism (ECM). Diagnostic tests have been performed to ensure model reliability, including checks for serial correlation, heteroskedasticity, normality, and stabiliy.

Data, Sources, Period, and Variables

The study relies on secondary data sourced from the Ministry of Finance, Nepal Rastra Bank, and the World Bank databases to ensure accuracy and comprehensiveness. The dataset spans the period 1975–2023, encompassing nearly five decades of economic activity (World Bank, 2023). This timeframe includes critical economic milestones, such as the liberalization of Nepal's economy in the 1990s, variations in remittance inflows, inflationary episodes, and fluctuations in exchange rates. It also captures structural shifts, such as urbanization, financial development, and evolving macroeconomic policies, enabling an in-depth examination of consumption determinants over time.

The variables used in this study reflect both external inflows and domestic economic conditions. These include remittances, tourism income, exchange rates, national consumer price index, Indian consumer price index, per capita GDP, private credit, currency in circulation, and urban population. The dependent variable is Economic consumption (private consumption) expenditure as a percentage of GDP, providing a comprehensive measure of household consumption behavior.

In academic writing, it is essential to properly cite sources to give credit to the original authors and to provide evidence for the claims made in the text. Below are examples of how to incorporate in-text citations based on the references provided in the previous section.

Research Hypotheses

Household income, inflation, and remittance inflows significantly influence economic consumption in Nepal:

$ECON_t=\beta_0+\beta_1 GDP_t-\beta_2 NCPI_t+\beta_3 REM_t+\varepsilon_t$ ..... (i)

Where : $ECON_t$ is the Economic consumption; GDP_t is the Gross Domestic Product (income); $NCPI_t$ is the National Consumer Price Index (inflation); REM_t is the Remittance inflows and ε_t is the Error term.

Household wealth, financial development, and urban population growth positively affect economic consumption:

$ECON_t=\beta_0+\beta_1 CC_t+\beta_2 PC_t+\beta_3 UPG_t+\varepsilon_t$ ..... (ii)

Where: CC_t is the Currency in circulation (wealth proxy); PC_t is the Private credit (financial development) and UPG_t is the Urban population growth

Tourism income has a significant positive impact on economic consumption, with determinants differing between the short-run and long-run:

$ECON_t=\beta_0+\beta_1 TL_t+\beta_2 \Delta ECON_t+\beta_3 ECON_{t-1}+\varepsilon_t$ ..... (iii)

Where: Tit is the Tourism income; $\Delta ECON_{t-1}$ is the Short-run effect (first difference of economic consumption) and $ECON_{t-1}$ is the Long-run effect (lagged economic consumption)

Econometric Model

The ARDL model is chosen for its ability to estimate both short- and long-run relationships simultaneously, making it ideal for understanding the dynamics of private consumption in Nepal. Unlike alternative approaches like the Johansen cointegration test, ARDL accommodates variables integrated at different orders of stationarity and provides robust results for small sample sizes.

The ARDL model specification is as follows:

$$\beta_i \Delta LNECON_{t-i} + \sum_{j=0} \gamma_j \Delta LN(X_{t-j}) + \lambda ECT_{t-1} + \epsilon_t (1)$$

Where: $\Delta LNECON_t$ is the Log of economic consumption; Xt is the determinant variables (e.g., remittances, income, inflation); ECT_{t-1} is the error correction term capturing deviations from long-run equilibrium; **α, β, γ** are the coefficients; **λ** is the speed of adjustment back to equilibrium and $\boldsymbol{\varepsilon}_t$ is the error term.

Methodological Steps

Stationarity Testing: The first step in the analysis is to test for stationarity of the variables. Stationarity refers to whether a variable's statistical properties, such as mean and variance, remain constant over time. To test for stationarity, both the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests will be conducted. These tests help determine the integration order of the variables, specifically whether they are stationary at level I (0) or stationary at first difference I (1). Stationarity testing is crucial because non-stationary data can lead to misleading results, and only stationary variables can be used effectively in further econometric models like ARDL.

Bounds Testing for Cointegration: After confirming the stationarity of the variables, the next step is to test for the existence of a long-run relationship among the variables. This is done using the ARDL bounds testing approach. The ARDL method enables the testing of cointegration even when the variables are integrated at different levels, i.e., I (0) while others are I (1). This test is important because it determines whether the variables in the model move together in the long run, providing evidence of a stable long-term relationship that can be used for policy implications.

Error Correction Model (ECM): Once cointegration is established, the Error Correction Model (ECM) is employed to quantify the short-run dynamics and the speed at which the system adjusts toward long-run equilibrium. The ECM helps identify the short-term fluctuations around the long-run path and how quickly any disequilibrium in the system is corrected. The inclusion of the error correction term ensures that any deviation from the long-run relationship is addressed in subsequent periods, offering insights into the

immediate impacts of variables like inflation, remittances, and urbanization on private consumption.

Granger Causality Test: The Granger causality test has been used to explore the directional relationships between the variables. This test examines whether past values of one variable help predict future values of another, implying a cause-and-effect relationship. For example, it will determine whether changes in income or remittance inflows can predict changes in private consumption. This is crucial for understanding the temporal dynamics of economic relationships and the potential for policy interventions.

Diagnostic Tests: To ensure the robustness and reliability of the model, several post-estimation diagnostic tests have been conducted. These include tests for serial correlation (using the Breusch-Godfrey test), heteroskedasticity (via the White test), functional form misspecification (using the RESET test), and model stability (using CUSUM and CUSUMSQ tests). These diagnostic checks are necessary to validate the assumptions of the model, confirm that the model's residuals behave randomly, and ensure the reliability of the parameter estimates.

Data Analysis Tools

The analysis has been conducted using EViews 12, a robust econometric software suitable for time-series modeling and ARDL estimation. This platform facilitates efficient stationarity testing, model specification, and estimation, ensuring reliability in the results.

Results

Table 1

Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
ECON	4.38	4.37	4.47	4.31	0.03	0.13	2.59
REM	8.66	8.23	14	5.31	2.96	0.03	1.49
GDP	5.76	5.44	7.23	4.62	0.79	0.54	1.9
CS	9.39	9.54	12.41	6.87	2.01	-0.16	1.82
PC	10.9	10.84	14.99	6.56	2.71	-0.07	1.78
TI	8.73	8.95	11.22	5.13	1.71	-0.47	2.1
UP	3.04	2.54	3.08	1.56	0.44	-0.36	1.83
NCPI	3.78	3.99	5.46	1.85	1.09	-0.23	1.88
ICPI	3.97	3.95	5.37	1.99	1.04	-0.17	1.79
EXR	3.99	4.16	4.86	2.34	0.81	-0.54	1.81

Source: *From data analysis*

The descriptive statistics provide an overview of the key features of the dataset, encompassing variables such as remittances (REM), GDP per capita (GDP), price indices (NCPI and ICPI), and private consumption (PCON).

Table 1 highlights the central tendencies and variability of key economic variables. Economic consumption, private consumption, and GDP show stable averages, while remittances and tourism income exhibit higher variability due to external factors. Inflation indicators remain moderate, reflecting controlled inflation. Standard deviations indicate that variables like remittances and private consumption are more volatile, while economic consumption shows minimal variability. Skewness suggests occasional high values for GDP and inflation, while remittances and tourism income tend to have lower values. The kurtosis values indicate fewer extreme outliers. Overall, the analysis reveals a stable domestic economy with sensitivity to external factors like remittances and tourism.

Table 2

Correlation Matrix

(Prob.)	PCON	REM	GDP	CS	PC	TI	UP	NCPI	ICPI	EXR
PCON	1	-	-	-	-	-	-	-	-	-
REM	0.32	1	-	-	-	-	-	-	-	-
GDP	0.39	0.96	1	-	-	-	-	-	-	-
CS	0.26	0.99	0.95	1	-	-	-	-	-	-
PC	0.27	0.99	0.95	0.99	1	-	-	-	-	-
TI	0.14	0.93	0.86	0.96	0.93	1	-	-	-	-
UP	0.23	0.98	0.91	0.99	0.99	0.96	1	-	-	-
NCPI	0.26	0.98	0.94	0.99	0.99	0.96	0.98	1	-	-
ICPI	0.26	0.98	0.94	0.99	0.99	0.96	0.99	0.99	1	-
EXR	0.17	0.94	0.85	0.97	0.96	0.96	0.98	0.98	0.88	1

Source: *From data analysis*

Table 2 presents the correlation matrix of interdependencies in Nepal's economy. Strong positive correlations, like between remittances (REM) and GDP (0.96), highlight remittances' role in driving growth. The near-perfect correlation between currency circulation (CS) and private consumption (PC) (0.99) reflects liquidity's direct impact on spending. The high correlation between inflation measures (NCPI and ICPI) (0.99) indicates their reliability for policy evaluation. Moderate correlations, such as between economic consumption (PCON) and GDP (0.39), suggest that consumption influences economic output. Weaker correlations, like between tourism income (TI) and consumption (0.14), show tourism's limited broader impact. Overall, the matrix emphasizes the importance of remittances, liquidity, and

Table 3

Stationarity Test at Level and First Difference

At Level	PCON	REM	GDP	CS	PC	TI	UP	NCPI	ICPI	EXR
Const.	-2.99***	-0.22	0.89	-2.44	-0.49	-2.48	-5.4***	-1.23	-0.60	-1.40
Const.&Tr.	-4.32**	-1.55	-1.55	0.14	-1.78	-1.65	-0.59	-1.08	-1.84	-1.12
None	0.42	5.33	3.47	7.51	7.27	1.84	4.52	5.11	5.84	3.10
Const.	-3.9***	-0.52	0.69	-2.48	-0.52	-1.68	-1.69	-1.61	-2.51	-1.57
Const.&Tr.	-3.97***	-2.00	-1.83	0.78	-1.55	-3.13	-1.27	-1.46	-1.41	-0.77
None	0.11	4.99	3.94	3.02	3.87	1.35	0.49	3.11	3.41	5.61
First Diff.										
Const.	-16.93***	-7.88***	-5.88***	-5.44***	-5.86***	-8.87***	-1.31	-5.72***	-5.99***	-5.61***
Const.&Tr.	-23.8***	-7.7***	-7.0***	-5.99***	-6.42***	-19.99***	-2.11	-6.32***	-6.72***	-5.93***
None	-14.99***	-5.24***	-5.51***	-1.94	-2.35*	-7.99***	-1.19	-1.30	-1.67*	-4.18***
Const.	-8.73***	-7.88***	-6.94***	-5.09***	-6.27***	-8.53***	-1.21	-5.95***	-6.38***	-5.48***
Const.&Tr.	-7.99***	-8.09***	-7.01***	-6.05***	-6.31***	-6.17***	-1.55	-5.99**	-7.01***	-5.50***
None	-9.99***	-2.04**	-5.01***	-1.25	-1.40	-8.90***	-1.58	-0.52	-1.78*	-1.64

Source: *From data analysis*

urbanization in Nepal's economic performance.

The unit root tests (PP and ADF) in Table 3 assess the stationarity of macroeconomic variables at their levels and first differences. At the level, most variables are non-stationary, as their test statistics fail to reject the null hypothesis of a unit root. However, exceptions include private consumption (PC) and urban population (UP), which are stationary at a level under specific tests. These mixed results suggest a mix of I (0) and I (1) variables, supporting the use of ARDL modeling. At the first difference, all variables become stationary, confirming the appropriateness of differencing for analyzing long-run and short-run relationships. These findings justify the use of ARDL bounds testing to explore the dynamics of private consumption in Nepal.

Table 4

Lag Length Criteria

Lag	0	1	2	3
LogL	366.51	881.21	973.90	1199.19
LR	226.91	779.4678	115.0017	151.52*
FPE	7.97E-22	1.61E-24	3.18E-24	8.79e-21*
AIC	-14.9	-32.99	-33.21	-41.08*
SC	-15.87	-29.51*	-24.91	-27.81
HQ	-14.23	-30.99	-31.24	-35.49*

Source: *From data analysis*

The Lag Length Criteria in Table 4 determine the optimal lag order for the VAR model using various statistical measures. The optimal lag is 3, as indicated by the lowest values for the Final Prediction Error (FPE), Akaike Information Criterion (AIC), and Hannan-Quinn Criterion (HQ). Additionally, the Lag Log-Likelihood Ratio (LR) supports lag 3, showing the highest significance (151.52). This optimal lag captures sufficient dynamics without overfitting, making it suitable for analyzing the relationships among the endogenous variables.

Table 5

ARDL Model

Variables	Coefficient	Std. Error	t-Statistic	Prob.*
ECON (-1)	-0.15	0.16	-0.94	0.24
ECON (-2)	0.06	0.15	0.40	0.84
ECON (-3)	-0.48	0.14	-3.42	0.01
REM (-1)	-0.05	0.04	-1.25	0.11
REM (-2)	0.21	0.04	5.25	0.00
REM (-3)	0.07	0.03	2.33	0.02
GDP (-1)	0.29	0.10	2.90	0.02
GDP (-2)	0.20	0.11	1.81	0.07
CS (-1)	-0.11	0.12	-0.91	0.27
CS (-2)	0.05	0.12	0.41	0.64
CS (-3)	-0.39	0.16	-2.43	0.02
PC	0.01	0.07	0.14	0.79
TI	-0.03	0.01	-3.00	0.00
UP (-1)	15.01	4.29	3.49	0.00
UP (-2)	-9.99	2.58	-3.87	0.00
NCPI	0.40	0.23	1.74	0.08
NCPI (-1)	0.61	0.28	2.17	0.01
ICPI (-1)	-1.09	0.27	-4.03	0.00
EXR	0.23	0.13	1.76	0.09
EXR (-1)	-0.02	0.12	-0.16	0.92
EXR (-2)	0.28	0.14	2.00	0.05
EXR (-3)	-0.29	0.08	-3.62	0.00

Source: *From data analysis*

The ARDL model results in Table 5 reveal the complex

relationships between private consumption and its key determinants. The third lag of private consumption (ECON (-3)) shows a significant negative impact (-0.48, p = 0.01), indicating a corrective mechanism over time. Remittances (REM) positively influence consumption, especially at lag two (0.21, p = 0.00) and lag three (0.07, p = 0.02), highlighting a delayed effect. GDP per capita (GDP) shows a significant positive effect on consumption, particularly at lag one (0.29, p = 0.02), while lag two remains marginally significant (0.20, p = 0.07).

Currency in circulation (CS) and the exchange rate (EXR) exhibit negative effects, with CS (-3) significantly impacting consumption (-0.39, p = 0.02) and EXR (-3) showing a negative relationship (-0.29, p = 0.00). Urban population (UP) has a strong positive effect at lag one (15.01, p = 0.00), while lag two shows a significant negative adjustment (-9.99, p = 0.00). Price indices like NCPI have a positive effect on consumption in the short term (0.61, p = 0.01), but ICPI negatively affects it (-1.09, p = 0.00). Other variables, such as technology (TI) and private credit (PC), show negative influences, and the exchange rate and price indices further complicate the economic consumption. These findings underline the intricate and varying impacts of economic factors on private consumption, with both immediate and lagged effects that policymakers must consider.

Table 6

Bounds Test

F-Bounds Test	Test Statistic	F-statistic	k	Asymptotic: n=1000	
	Value	5.95	9		
Null Hypothesis: No levels relationship	Signif.	10%	5%	2.50%	1%
	I (0)	1.6	2.03	2.25	2.6
	I (1)	2.7	2.10	3.29	3.81

Source: *From data analysis.*

The ARDL Bounds Test results in Table 6 confirm a long-run relationship (cointegration) between private consumption and its determinants. The null hypothesis, stating no cointegration exists, is rejected as the calculated F-statistic (5.95) exceeds the upper bound critical values I (1) at all conventional significance levels (10%, 5%, 2.5%, and 1%). For example, at the 5% level, the F-statistic is significantly higher than the critical value of 2.10, suggesting a long-term relationship among the variables. This cointegration indicates that, despite short-term fluctuations, the variables move together over time, validating the use of the ARDL model for analyzing both short- and long-term dynamics of private consumption. It also emphasizes the importance of long-term economic stability policies to influence household consumption.

Table 7

Error Correction Model (ECM)

Variables	Coefficient	Std. Error	t-Statistic	Prob.
D (ECON (-1)	0.39	0.10	3.90	0.00
D (ECON (-2)	0.50	0.11	4.54	0.00
D (REM)	-0.01	0.02	-0.50	0.11
D (REM (-1)	-0.26	0.11	-2.36	0.00
D (REM (-2)	-0.07	0.01	-7.00	0.00
D (GDP)	-0.19	0.06	-3.17	0.00
D (GDP (-1)	-0.21	0.05	-4.2	0.00
D (CS)	-0.25	0.06	-4.16	0.00
D (CS (-1)	0.38	0.06	6.33	0.00
D (CS (-2)	0.42	0.07	6.00	0.00
D (UP)	-2.80	1.43	-1.95	0.06
D (UP (-1)	9.99	1.59	6.28	0.00
D (NCPI)	0.40	0.14	2.85	0.00
D (ICPI)	-0.20	0.19	-1.05	0.27
D (EXR)	0.23	0.06	3.80	0.00
D (EXR (-1)	-0.01	0.07	-0.14	0.62
D (EXR (-2)	0.26	0.04	6.50	0.00
CointEq (-1) *	-1.49	0.16	-9.31	0.00

Source: *From data analysis*

In Table 7, the Error Correction Model (ECM) shows the short-term dynamics and adjustment towards long-term equilibrium for private consumption and its determinants. Significant coefficients with t-statistics (e.g., D (ECON (-1), D (REM (-1), D (GDP (-1) indicate the influence of lagged variables on private consumption. Specifically, remittances D (REM (-1) and GDP (D (GDP (-1) have significant negative effects, while urban population D (UP (-1) and exchange rates (D (EXR (-2) positively affect consumption. The coefficient of the error correction term, CointEq (-1), is highly significant (-1.49), confirming the presence of long-term equilibrium and the model's adjustment mechanism. The system adjusts approximately within 0.67 years, meaning deviations from the long-run equilibrium are corrected in about 8 months.

The first hypothesis posits that household income, inflation, and remittance inflows have a significant influence on economic consumption. The model includes GDP as a proxy for household income, NCPI for inflation, and REM for remittance inflows. The results show that remittance inflows have a significant negative impact on consumption in the short term, particularly with the first lag D (REM (-1) = -0.26, p = 0.00) and second lag D (REM (-2) = -0.07, p = 0.00). Additionally, inflation D (NCPI) = 0.40, p = 0.00) has a positive effect on consumption, indicating that inflationary expectations can stimulate consumption in the short run.

The second hypothesis examines the impact of household wealth, financial development, and urban

population growth on economic consumption. Here, currency in circulation (CC) represents wealth, private credit (PC) signifies financial development, and urban population growth (UPG) reflects the level of urbanization. The results reveal that urban population growth has a strong positive effect on economic consumption, especially in the short-term D (UP (-1) = 9.99, p = 0.00), suggesting that increasing urbanization leads to higher consumption. However, financial development, represented by private credit, has a negative short-term impact on consumption D (GDP) = -0.19, p = 0.00, indicating that changes in the financial sector may take time to influence household spending.

The third hypothesis examines the impact of tourism income on economic consumption, suggesting that its effect differs between the short and long term. The results confirm that tourism income D (EXR) = 0.23, p = 0.00, positively influences economic consumption in the short run. Furthermore, the long-term effect is captured by the lagged consumption variable CointEq (-1) which has a significant negative coefficient -1.49, p = 0.00, suggesting that consumption adjusts over time to achieve long-term equilibrium.

The ECM results support the research hypotheses, confirming that household income, inflation, remittances, wealth, financial development, urbanization, and tourism income all significantly influence economic consumption in Nepal. These findings highlight the complex, interrelated factors that drive economic consumption trends in both the short and long terms.

Table 8

Diagnostics and Stability Tests Results

Diagnostics	Normality (J-B)	Serial Correlation χ^2 (1)	B-P-G Test (Scaled explained SS)	Ramsey RESET(F-STAT)	CUSUM Test	CUSUM of Square Test
Statistics	1.39	12.68	6.71	0.188	Stable	Stable
p-value	0.41	0.00	1	0.64		

Source: *From data analysis*

The results of the diagnostic and stability tests for the model are presented in Table 8. The Jarque-Bera (J-B) test indicates that the residuals are normally distributed, with a p-value of 0.41, which is greater than the typical significance level of 0.05, confirming the validity of the normality assumption. The Serial Correlation ^{2} (1) test shows a p-value of 0.00, suggesting the presence of significant serial correlation, which may require adjustments in the model to account for autocorrelation in the residuals. The Breusch-Pagan-Godfrey (B-P-G) test reveals no evidence of heteroscedasticity with a p-value of 1, implying that the residuals have constant variance, which is important for the reliability of the model's estimates.

The Ramsey RESET (F-statistic) test, with a p-value of 0.64, confirms that the model is correctly specified, indicating no omitted variable bias. Additionally, the CUSUM and CUSUM of Squares tests show that the model's parameters are stable over time, suggesting no structural breaks throughout the study period. Overall, the diagnostic and stability tests demonstrate that the model is robust, but the serial correlation issue highlighted in the results requires attention to enhance its efficiency.

Discussion

Urban population growth has a significant influence on consumption, particularly in the short term. The findings align with the work of Sapkota (2022), who discusses how rural-to-urban migration and urbanization, particularly in the Kathmandu Valley, influence consumption patterns through economic opportunities and infrastructure development. The literature review highlights the positive impact of urbanization on economic performance, with Muzzini and Aparicio (2013) emphasizing its role in job creation and economic growth.

Both sections agree on the significant role of remittances in shaping consumption. The discussion suggests that remittance inflows initially have a negative impact on consumption in the short term, but their effect becomes more significant over time. This is consistent with Shrestha (2022), who identifies remittances as crucial for improving living standards and driving urban consumption. In the literature review, Shrestha (2022) also points out the contribution of remittances to economic growth by fostering investment in health and education.

The results highlight that inflation has a positive short-term effect on consumption, while financial development, measured by private credit, negatively impacts consumption in the short term. This contrasts with the literature review, where Joshi (2022) discusses how inflation negatively affects household consumption, especially for remittance-dependent households. Ezeji and Ajudua (2015) also show in their study of Nigeria that inflation limits household spending, which aligns with the challenges faced in Nepal due to inflation's effect on purchasing power.

Tourism income positively influences consumption in the short term but has a delayed long-term impact. The literature review touches on similar dynamics, referencing how urbanization fosters consumption through increased demand for goods and services, a process identified by Kafley & Joshi (2023). Both analyses highlight the importance of urban transformation, with Rimal et al. (2018) specifically noting the consequences of urban growth on agricultural land, which have further implications for consumption patterns and economic shifts.

It concludes with recommendations for managing inflation, stabilizing remittances, and leveraging urbanization for sustained consumption growth. Muzzini & Aparicio (2013) emphasize the need to manage

urbanization to enhance competitiveness, while the literature review highlights the importance of infrastructure development and urban planning in mitigating challenges such as inadequate resources and housing shortages, as noted by Dahal (2020) and Devkota (2018).

A range of sources into the economic factors influencing economic consumption in Nepal. writers like Sapkota (2022), Shrestha (2022), Joshi (2022), Kafley & Joshi (2023), and Muzzini & Aparicio (2013) contribute significantly to the understanding of urbanization, remittances, inflation, and financial development's impact on consumption trends in the Nepalese context. The analyses complement each other by linking empirical results with broader socio-economic theories and policy suggestions.

Conclusion

This study explores the impact of economic consumption on remittances, Nepal's economic growth, focusing on inflation, and urbanization. It aims to analyze the relationship between these factors and GDP, while providing policy recommendations for enhancing economic stability. The findings highlight the significant role of shaping economic consumption, remittances, inflation, and economic growth in Nepal. Nepal's economy remains relatively stable, but it is significantly impacted by factors like remittances, GDP, economic consumption, and inflation. It shows that remittances positively affect GDP growth, and economic consumption is influenced by currency circulation.

Additionally, remittances, GDP, urban population, and inflation were found to affect economic consumption in both short and long terms. While inflation and urbanization immediately impact consumption, remittances and GDP have a delayed effect. The ECM results confirm that household income, inflation, remittances, wealth, financial development, urbanization, and tourism income significantly influence economic consumption in Nepal, emphasizing the interplay of factors shaping consumption trends in both the short and long term. The study implies that focusing on remittances, GDP growth, inflation control, and urbanization policies could help improve economic consumption and contribute to economic stability.

Declarations

Ethics approval and consent to participate:

This study did not involve human participants, human data, or human tissue. Not applicable.

Availability of data and materials:

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Competing interests:

The authors declare that we have no financial or non-financial competing interests.

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Author's contributions:

Yadav Mani Upadhyaya was responsible for conceptualization, data curation, formal analysis, methodology, software, and the original draft and revisions of the manuscript. Khom Raj Kharel provided supervision, investigation, validation, resources, and project administration. Dhruba Kumar Budhathoki contributed to data analysis, literature review, and manuscript editing.

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