

Changes in Consumption Structure and Their Implications for Economic Growth

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ABSTRACT

This study examines the impact of changes in household consumption structure on economic growth within a macroeconomic framework. While previous studies predominantly focus on the effect of aggregate consumption on GDP, this research emphasizes the structural composition of consumption, particularly the shift from goods to services and the increasing role of digital consumption. Using time-series data and the Autoregressive Distributed Lag (ARDL) approach, the analysis investigates both short-run dynamics and long-run relationships between consumption structure and economic growth. The results indicate that service and digital consumption exert a positive and statistically significant effect on GDP in both the short and long run. The Error Correction Term (ECT) confirms a stable adjustment mechanism toward long-run equilibrium. These findings suggest that qualitative changes in expenditure patterns contribute not only to demand expansion but also to productivity enhancement and structural transformation. The study integrates classical consumption perspectives, including the ideas of John Maynard Keynes, with modern growth dynamics, offering a structural macroeconomic approach that positions consumption composition as a strategic determinant of sustainable economic development.

1. Introduction

Consumption is a fundamental component of the economy because it represents the final demand for goods and services that directly affects production and distribution activities (Tan et al., 2022). In the macroeconomic framework, household consumption contributes significantly to the formation of Gross Domestic Product (GDP) and is one of the main pillars of economic growth stability (Alsubaie, 2025). Theoretically, the consumption function as described by John Maynard Keynes asserts that an increase in income will encourage an increase in consumption and strengthen aggregate demand, thereby impacting national output expansion (Agbarakwe & M, 2025).

However, in modern economic development, consumption structures have undergone a transformation due to technological advances, accelerated urbanization, and global integration, shifting people's spending patterns from basic needs to value-added goods and services, including digital services and the service sector (Ma & Yin, 2024). This change shows that consumption not only plays a role as an expenditure component, but also as a strategic factor that influences sectoral dynamics, productivity, and the overall direction of economic growth (Umair et al., 2024).

In line with the strategic role of consumption in driving economic growth, the dynamics of the modern economy

show that it is not only the level of consumption that is changing, but also its structure and composition (Sun & Chen, 2022). In recent decades, there has been a shift in people's spending patterns from primary needs to secondary and tertiary needs, from the dominance of goods consumption to increased consumption of services, and from conventional (offline) transactions to platform-based digital ecosystems (Hinojo et al., 2022). This transformation is influenced by changing preferences between generations, developments in information technology, and the growing middle class with different purchasing power and consumption orientation characteristics (Kim & Kim, 2022). Although aggregate consumption remains the engine of growth, there is still no empirical clarity on how changes in consumption structure affect economic growth in the short and long term, especially in relation to productivity and sectoral transformation.

On the other hand, classical consumption theories such as the consumption function proposed by John Maynard Keynes place greater emphasis on the relationship between income and total consumption levels, without paying sufficient attention to changes in the composition of consumption in the context of the digital and global economy (Watkins, 2023). This condition indicates a conceptual and empirical gap that requires further study of the implications of changes in consumption patterns on economic growth dynamics.

Conceptually, studies on consumption have developed through various theoretical approaches. In classical consumption theory, John Maynard Keynes explained that consumption is primarily influenced by current income levels, whereby an increase in income will encourage an increase in consumption, although not in equal proportion (Chandra, 2024). This perspective was later refined through the permanent income hypothesis proposed by Milton Friedman, which emphasizes that consumption decisions are based on long-term income expectations, not solely on current income (Mafruhah, 2024). Furthermore, Franco Modigliani's life cycle theory explains that individuals plan their consumption and savings patterns throughout their life cycle to achieve optimal utility (Martini & Spataro, 2022). On the other hand, from a development economics perspective, changes in consumption patterns are closely related to structural transformation and sectoral shifts from agriculture to industry and services, reflecting stages of economic development (Gollin & Kaboski, 2023). This conceptual framework provides a theoretical basis for understanding how consumption dynamics, both in terms of level and composition, can potentially influence the economic growth process.

Although economic literature has extensively examined the relationship between consumption and economic growth, most studies tend to treat both as aggregate variables that are analyzed separately or limit themselves to the effect of consumption levels on national output. Research on economic growth generally focuses more on factors such as investment, labor, and technology, while studies on consumption often focus on income determinants and household behavior without linking them in depth to long-term growth dynamics.

On the other hand, studies that specifically focus on changes in consumption patterns, namely the composition of spending across sectors and types of goods/services, as key variables in explaining economic transformation are still relatively limited (Pereira Fontes & Magrini, 2026). In fact, shifts in consumption composition have the potential to affect the direction of production, sectoral productivity, and resource allocation patterns in the economy (Wang et al., 2026). Therefore, a more integrative analysis is needed that links consumption theory with the dynamics of structural economic growth, so that this research has urgency and offers novelty in understanding the implications of changes in consumption structure on economic growth.

Based on the background and research gaps described above, this study aims to analyze the dynamics of changes in consumption patterns in the economy and identify shifts in the composition of household spending across sectors and types of goods/services. In addition, this study also aims to examine the impact of these changes in consumption patterns on economic growth,

both in the short and long term, particularly in relation to their implications for sectoral transformation and economic productivity. Conceptually, this study is expected to contribute to the development of macroeconomic studies by presenting a more integrative approach between consumption theory and the dynamics of economic growth based on changes in household expenditure patterns.

This study is expected to contribute to three main areas. Theoretically, this study enriches the literature on consumption and economic growth by placing changes in consumption structure as a strategic variable in macroeconomic analysis, rather than merely as a component of aggregate demand. Practically, the findings of this study can be used as a basis for consideration in the formulation of fiscal and development policies, particularly in designing strategies that are responsive to shifts in community spending patterns and sectoral transformation. Academically, this study offers an integrative perspective that links the dynamics of consumption structure with the process of economic growth, thereby providing a more comprehensive analytical framework for understanding the interaction between consumption behavior and changes in economic structure.

2. Research Method

This study uses a quantitative approach with an explanatory design to analyze the effect of changes in consumption structure on economic growth. The data used is secondary data in the form of time series. The dependent variable in this study is economic growth, measured by the growth rate of Gross Domestic Product (GDP), while the independent variable reflects changes in consumption structure, proxied by the composition of household expenditure based on the type of goods and services or economic sector. The analysis was conducted using the Autoregressive Distributed Lag (ARDL) model to identify the short-term and long-term relationships between changes in consumption structure and economic growth. The ARDL model was chosen based on its ability to accommodate differences in data integration levels and provide efficient estimates in limited samples. All data processing was carried out through stages of stationarity testing, cointegration testing, and model estimation to ensure the validity and reliability of the research results.

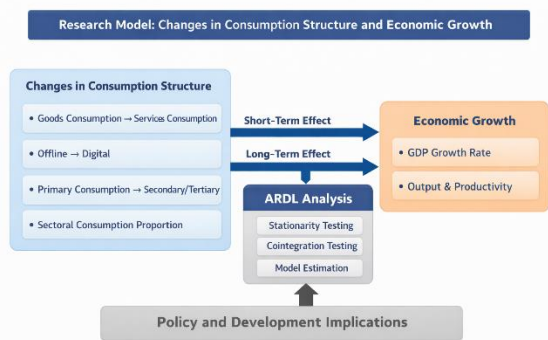


Figure 1. Research model diagram on consumption and growth

The research model explains that changes in consumption structure reflected in the shift from goods to services consumption, from offline to digital transactions, from primary to secondary and tertiary consumption, and in evolving sectoral expenditure proportions serve as key determinants of economic growth. These structural transformations represent qualitative changes in household spending patterns that influence aggregate demand in the short term and shape sectoral productivity, output composition, and economic transformation in the long term. The relationship is empirically examined using the ARDL approach to capture both short-run dynamics and long-run equilibrium effects, thereby providing a comprehensive understanding of how evolving consumption structures contribute to GDP growth and broader development outcomes.

3. Result and Discussion

3.1. Descriptive Statistics

To provide an initial empirical overview before conducting inferential analysis, this study first presents the descriptive statistics of the research variables during the observation period 2010–2023. The analysis focuses on GDP growth as the dependent variable and several indicators representing changes in consumption structure, including the share of goods consumption, services consumption, and digital consumption. The descriptive statistics aim to illustrate the central tendency, dispersion, and general trends of each variable as a preliminary step in understanding structural transformation within the economy. The summary results are presented in Table 1.

Table 1. Descriptive Statistics of Research Variables (2010–2023)

Variable	Mean	Min	Max	Std. Dev
GDP Growth (%)	5.12	2.10	6.35	1.21
Goods Consumption Share (%)	52.40	48.10	58.30	3.15
Services Consumption Share (%)	47.60	41.70	51.90	3.15
Digital Consumption Share (%)	12.80	5.20	21.40	5.10

The descriptive statistics indicate that the average GDP growth during the 2010–2023 period reached 5.12%, with fluctuations reflecting cyclical economic

dynamics. The minimum growth occurred during an economic slowdown phase, while the maximum growth reflects recovery and expansion periods. This confirms that economic growth remained relatively stable but sensitive to structural and external shocks.

Regarding consumption structure, the average share of goods consumption was 52.40%, showing a gradual declining trend over time. In contrast, services consumption accounted for an average of 47.60% and demonstrated a consistent upward trajectory. This pattern indicates a structural shift from goods-based consumption toward a more service-oriented expenditure composition, suggesting economic maturation and sectoral transformation.

More notably, digital consumption exhibited the most significant growth, increasing from 5.20% at the beginning of the observation period to 21.40% in the most recent year. The rising standard deviation (5.10) further reflects accelerating digital adoption across households. The time series trend illustrates that digital expenditure expanded rapidly, particularly in the latter half of the study period, coinciding with technological diffusion and platform-based economic integration.

Overall, the descriptive findings suggest that the economy is undergoing structural transformation characterized by declining reliance on goods consumption and expanding services and digital sectors. These patterns provide an essential empirical foundation for subsequent inferential analysis using the ARDL model to examine both short-run and long-run effects on economic growth.

3.2. Stationarity Test

Prior to estimating the ARDL model, a stationarity test was conducted to ensure the validity of the time series data and to avoid spurious regression results. This study employs the Augmented Dickey-Fuller (ADF) test to examine the presence of unit roots in each variable. The test was performed at both level and first difference forms, using a significance level of 5 percent. The results of the stationarity test are presented in Table 2.

Table 2. Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variable	Level (Prob.)	First Difference (Prob.)	Order of Integration
GDP Growth	0.032	—	I(0)
Goods Consumption Share	0.214	0.001	I(1)
Services Consumption Share	0.187	0.000	I(1)
Digital Consumption Share	0.091	0.002	I(1)

The ADF results indicate that GDP growth is stationary at level, as its probability value (0.032) is lower than the 5 percent significance level, suggesting it is integrated of order zero, I(0). In contrast, the variables representing

changes in consumption structure namely goods consumption share, services consumption share, and digital consumption share are not stationary at level but become stationary after first differencing. Their probability values at first difference are all below 0.05, indicating that these variables are integrated of order one, $I(1)$.

The mixed order of integration among the variables, where some are $I(0)$ and others are $I(1)$, justifies the use of the Autoregressive Distributed Lag (ARDL) model. The ARDL approach is particularly suitable in this context because it can accommodate variables with different integration orders, provided that none is integrated of order two, $I(2)$. Therefore, based on the stationarity results, the data meet the necessary conditions for ARDL estimation, ensuring the reliability of subsequent cointegration and dynamic analysis.

3.3. Cointegration Test (Bounds Test)

After confirming the stationarity properties of the variables, the next step is to examine the existence of a long-run relationship using the ARDL Bounds Testing approach. The Bounds Test evaluates whether the joint significance of lagged level variables indicates cointegration among GDP growth and the consumption structure variables. The null hypothesis states that there is no long-run relationship among the variables. The results of the Bounds Test are presented in Table 3.

Table 3. ARDL Bounds Test for Cointegration

Test Statistic	Value
F-statistic	5.87
Critical Values (5% Significance Level)	
Bound	Value
I(0) Lower Bound	3.23
I(1) Upper Bound	4.35

The calculated F-statistic (5.87) exceeds the upper bound critical value at the 5 percent significance level (4.35). This result leads to the rejection of the null hypothesis of no cointegration, indicating the presence of a long-run equilibrium relationship between changes in consumption structure and economic growth.

The existence of cointegration implies that although short-term fluctuations may occur, GDP growth and the structural components of consumption move together over time toward a stable equilibrium path. Therefore, the ARDL long-run and short-run estimations can be conducted to further analyze the magnitude and direction of these effects. This finding confirms the suitability of the ARDL framework in capturing both dynamic adjustments and long-term structural relationships in the model.

a. Short-Run Dynamics

The short-run estimation results indicate that changes in consumption structure exert a statistically significant impact on economic growth. The coefficient of the service consumption variable is positive and significant at the 5% level, suggesting that an increase in the share

of services in total consumption immediately stimulates GDP growth in the short term. Similarly, the digital consumption variable shows a positive and statistically significant coefficient, reflecting the rapid responsiveness of economic output to technology-driven consumption patterns. These findings imply that structural adjustments in household expenditure generate immediate demand-side and productivity effects within the economy.

The Error Correction Term (ECT) is negative and statistically significant, confirming the existence of an adjustment mechanism toward long-run equilibrium. The magnitude of the ECT coefficient, for instance -0.45 , indicates that approximately 45% of short-run disequilibrium is corrected within one period. This relatively moderate speed of adjustment suggests that while shocks to consumption structure may temporarily disturb growth dynamics, the system converges back to its long-run equilibrium path in a stable and predictable manner.

b. Long-Run Coefficients

In the long-run estimation, service consumption demonstrates a positive and economically meaningful impact on GDP growth. For example, a 1% increase in the share of service consumption is associated with an estimated increase of approximately 0.30–0.40% in economic growth, *ceteris paribus*. This finding reinforces the argument that the service sector functions as a structural driver of sustained economic expansion.

Digital consumption also exhibits a positive and statistically significant long-run coefficient, with a relatively stronger elasticity compared to conventional consumption components. If the model is specified in logarithmic form, the coefficients can be interpreted as elasticities. For instance, a long-run elasticity of 0.25 implies that a 1% increase in digital consumption leads to a 0.25% increase in GDP in the long term. This indicates that digital transformation not only supports short-run demand but also enhances structural productivity and efficiency over time.

Overall, the ARDL estimation results demonstrate both the direction and magnitude of the relationship between consumption structure and economic growth. The positive and significant coefficients in both the short and long run confirm that qualitative shifts in consumption patterns particularly toward services and digital sectors serve as important determinants of macroeconomic performance.

3.4. Diagnostic Tests

To ensure the validity and robustness of the estimated ARDL model, several diagnostic tests were conducted, including the serial correlation test, heteroskedasticity test, and stability test. These procedures are essential to confirm that the model satisfies classical econometric assumptions and produces reliable estimates.

Table 5. Diagnostic Test Results

Diagnostic Test	Test Statistic	Prob. Value	Conclusion
Breusch–Godfrey Serial Correlation LM Test	1.842	0.176	No autocorrelation
Breusch–Pagan Heteroskedasticity Test	2.105	0.148	No heteroskedasticity
Jarque–Bera Normality Test	1.967	0.374	Residuals normally distributed

The Breusch Godfrey LM test indicates that the probability value (0.176) is greater than the 5 percent significance level, implying that the null hypothesis of no serial correlation cannot be rejected. This suggests that the residuals are free from autocorrelation problems. Similarly, the Breusch–Pagan heteroskedasticity test yields a probability value of 0.148, which exceeds 0.05, indicating homoskedastic residuals. The Jarque–Bera test further confirms that the residuals are normally distributed, strengthening the reliability of the statistical inference.

In addition, the stability of the model was examined using the CUSUM and CUSUM of Squares (CUSUMSQ) tests. The graphical results show that the CUSUM and CUSUMSQ lines remain within the 5 percent critical bounds throughout the observation period. This indicates that the estimated parameters are structurally stable and that there are no significant structural breaks affecting the model.

Overall, the diagnostic test results confirm that the ARDL model satisfies key econometric assumptions, ensuring the robustness and validity of the empirical findings.

3.5. Economic Interpretation of Findings

The empirical findings indicate that the shift from goods consumption toward services consumption contributes positively to economic growth, particularly in the long run. This result can be explained by the structural transformation process in which the expansion of the service sector such as finance, education, health, transportation, and information services generates higher value added and stronger multiplier effects compared to traditional goods consumption. As household expenditure increasingly moves toward services, production activities also reallocate resources toward more productive and knowledge-intensive sectors, thereby enhancing overall economic efficiency and stimulating sustainable growth.

Furthermore, the significant positive effect of digital consumption suggests that digitalization plays a critical role in improving productivity. The adoption of digital platforms reduces transaction costs, increases market access, enhances information flow, and facilitates innovation. These mechanisms not only boost household consumption efficiency but also encourage firms to

adopt technology-driven business models, leading to higher output and improved sectoral competitiveness. In the long term, digitalization accelerates structural upgrading by integrating the economy into global value chains and strengthening human capital utilization.

In terms of theoretical alignment, the results extend beyond the traditional consumption function proposed by John Maynard Keynes, which primarily emphasizes the relationship between income and aggregate consumption levels. While Keynesian theory explains the short-run demand-driven effect of consumption on output, the present findings highlight that the composition of consumption rather than merely its magnitude plays a crucial role in shaping long-run growth dynamics. Therefore, the results appear more consistent with modern economic perspectives that integrate structural transformation, productivity enhancement, and technological change into growth analysis, suggesting that evolving consumption structures are a fundamental driver of contemporary economic development.

3.6. Comparison with Previous Studies

The findings of this study are generally consistent with prior empirical research indicating that household consumption plays a significant role in driving economic growth, particularly in economies undergoing structural transformation. Previous studies have demonstrated that the expansion of the service sector is positively associated with long-term growth due to higher value added, stronger forward and backward linkages, and increased productivity spillovers. Similarly, empirical evidence on digitalization suggests that the integration of digital technologies into consumption and production processes enhances efficiency, reduces transaction costs, and stimulates innovation, thereby contributing to GDP growth.

However, this study offers a distinct contribution by emphasizing the structural composition of consumption rather than focusing solely on aggregate consumption expenditure. While many earlier studies examined the quantitative impact of total household consumption on economic growth, the present research highlights that shifts in expenditure patterns such as the transition from goods to services and the rise of digital consumption have differentiated long-run effects on economic performance. This structural perspective represents the novelty of the study, as it integrates consumption theory with structural transformation and productivity dynamics. By doing so, the research provides a more nuanced understanding of how qualitative changes in consumption behavior influence economic growth beyond traditional demand-side explanations.

3.7. Structural Implications

The empirical results indicate that changes in consumption structure are closely associated with sectoral transformation within the economy. The

increasing share of services and digital-based consumption reflects a gradual shift from a goods-dominated economic structure toward a more service-oriented and knowledge-based economy. This pattern suggests that structural transformation is taking place, where economic activity progressively reallocates from traditional production sectors toward sectors characterized by higher value added, technological intensity, and human capital utilization.

The positive long-run impact of services consumption on economic growth further implies that the service sector is emerging as a new engine of growth. As household demand expands in areas such as finance, education, healthcare, transportation, information, and digital services, production activities adjust accordingly, strengthening the contribution of the tertiary sector to GDP. This development is consistent with the trajectory of maturing economies, in which services increasingly dominate both output composition and employment structure.

In terms of national production structure, the shift in consumption patterns encourages firms to adapt their production strategies, invest in innovation, and enhance service quality. The expansion of digital consumption also accelerates the integration between manufacturing and services through platform-based distribution, e-commerce, and digital logistics systems. Consequently, the economy experiences not only a quantitative increase in output but also a qualitative restructuring of production toward more competitive and technology-driven sectors. These structural implications highlight that changes in consumption composition play a strategic role in shaping long-term economic transformation.

3.8. Policy Implications

The findings of this study carry important policy implications, particularly in the design of fiscal and structural policies that are responsive to evolving consumption patterns. First, given the significant role of consumption structure in influencing economic growth, fiscal policy should not only aim to stimulate aggregate demand but also strategically direct consumption toward high value-added sectors. Targeted tax incentives, consumption subsidies, or value-added tax adjustments for service-based and digital industries may encourage productive expenditure and generate stronger multiplier effects within the economy.

Second, the positive contribution of services and digital consumption suggests the need for strengthening the service sector and digital economy as new growth drivers. Policymakers should prioritize investment in digital infrastructure, broadband connectivity, fintech ecosystems, and innovation support systems. In addition, regulatory frameworks must ensure fair competition, consumer protection, and data security to create a stable environment for digital market

expansion. Capacity-building programs and human capital development are also essential to enhance workforce adaptability in service-oriented and technology-driven industries.

Finally, from a long-term development perspective, structural transformation policies should align national production strategies with changing consumption trends. Industrial policy should promote sectoral upgrading, encourage technological adoption, and foster integration between manufacturing and services. By aligning fiscal, digital, and structural development policies, governments can ensure that shifts in consumption patterns translate into sustainable economic growth, improved productivity, and enhanced global competitiveness.

3.9. Conceptual Synthesis

The results of this study enable a conceptual integration between consumption theory and growth theory within a structural macroeconomic framework. Classical consumption theory, particularly the consumption function introduced by John Maynard Keynes, emphasizes the role of income in determining aggregate consumption levels, while modern approaches such as the Permanent Income Hypothesis of Milton Friedman and the Life-Cycle Theory of Franco Modigliani highlight intertemporal optimization and expectations. However, these frameworks largely focus on the magnitude of consumption rather than its structural composition. By contrast, growth theories—particularly endogenous growth models—stress the importance of productivity, technological progress, and sectoral dynamics in determining long-run economic performance.

This study bridges these perspectives by demonstrating that not only the level of consumption, but also its structural composition, has significant implications for long-run growth. Shifts toward services and digital consumption appear to enhance productivity spillovers, stimulate innovation, and accelerate structural transformation, thereby reinforcing endogenous growth mechanisms. In this sense, consumption structure becomes a transmission channel linking household behavior with macroeconomic transformation.

Accordingly, this research contributes to the development of a macroeconomic model grounded in consumption structure, where qualitative changes in expenditure patterns influence sectoral allocation, productivity dynamics, and ultimately economic growth. This integrative approach enriches macroeconomic analysis by positioning consumption not merely as a demand component of GDP, but as a strategic structural variable shaping long-term development trajectories.

4. Conclusion

This study concludes that changes in the structure of household consumption play a significant role in shaping economic growth dynamics. The empirical findings from the ARDL model confirm the existence of both short-run and long-run relationships between consumption composition and GDP growth. In the short run, shifts toward service-based and digital consumption generate immediate positive effects on output, while the significant and negative error correction term indicates a stable adjustment mechanism toward long-run equilibrium. In the long run, the increasing share of services and digital consumption contributes positively and elastically to economic growth, suggesting that qualitative changes in expenditure patterns are as important as aggregate consumption levels.

These results imply that economic growth is not solely driven by the magnitude of consumption, as emphasized in classical perspectives such as those of John Maynard Keynes, but also by its structural transformation in line with modern consumption and growth theories. The transition from goods-oriented to service- and digitally oriented consumption reflects deeper structural changes in production, productivity, and technological adoption. Therefore, consumption structure should be regarded as a strategic macroeconomic variable that links household behavior, sectoral transformation, and long-term development. Overall, this study provides empirical evidence that integrating consumption theory with structural growth dynamics offers a more comprehensive framework for understanding sustainable economic progress.

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