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Time-Varying Dynamics of Private Consumption in Pakistan

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Abstract

Consumption is a crucial determinant of a healthy economy, and its direct linkage with income and employment theories necessitates its study, particularly in the context of private consumption as a global issue. A range of macroeconomic and microeconomic indicators impact private consumption, making it vital to identify the factors that affect consumption in Pakistan. This study aims to achieve this by examining the influence of government spending, income, wealth, and real deposit rate, as well as inflation and population as control variables, on private consumption from 1972 to 2021. The Johansen cointegration technique and the Error correction model (ECM) are utilized to test the long-run and short-run impact, respectively. The findings demonstrate that private consumption has a significant and long-run association with government spending, income, and population. In the short run, real interest rate, inflation, and population have a significant impact on private consumption. No significant relationship between wealth and private consumption is observed in both the short and long run. These results offer useful guidance to policymakers in Pakistan, indicating the need to increase spending on various development projects, such as human capital development, industrial development, increased employment opportunities, and poverty reduction plans. Such initiatives would stimulate the economy and promote private consumption. Additionally, the implications of interest rates and wealth supply provide guidelines for monetary policy implications, rendering the study a unique overview of private consumption in Pakistan.

Keywords: Private consumption, Government Policies, Monetary Policy

In Pakistan, private sector consumption plays a crucial role in the economy, contributing significantly to the country's GDP and driving monetary development (Olaoye et al., 2020). As an emerging market, a large portion of the population relies on consumer spending for their livelihoods. This spending is vital for stimulating labour and product demand, which in turn fosters job creation. Moreover, private consumption fuels the growth of various sectors such as retail, tourism, and real estate, exerting a substantial impact on the overall economy (Gomes et al., 2022). It accounts for nearly a quarter of the country's gross domestic product. However, according to Keynes' model, the actual outcomes of consumption expenditure may deviate from planned estimates. In such cases, the government intervenes to bridge this gap by implementing fiscal and monetary policies to stabilize the economy and achieve its economic objectives.

Bailey (1971) made one of the initial attempts in the Keynesian macroeconomics framework to analyze how government spending influences household expenditures, presenting government spending as an alternative to private consumption in each period. Berben and Brosens (2007) found in their study that an increase in government spending leads to a decrease in private consumption. A nonlinear relationship between government debt and private consumption has been observed in a group of OECD countries. Nieh and Ho (2006) demonstrated that private consumption and government spending are complementary. Further research involving 19 industrialized and 21 non-industrial economies revealed that such spending has effects on both advanced and developing economies (Schclarek, 2007). However, previous studies have yielded uncertain and mixed results. Given the emergence and acceptance of behavioral economics, there is a need for reinvestigation, especially in the post-pandemic era, to provide new insights (Khan et al., 2022; Rasheed et al., 2021).

Another crucial factor influencing private consumption is household income, although there are conflicting perspectives regarding its effects. Keynes considers absolute income, such as post-tax income, as a primary determinant of consumption. However, others, such as Parkin (1998)

and Modigliani and Parkin (1975), critique Keynes' absolute income hypothesis by introducing the super durable and life cycle income theories. They argue that individuals' consumption depends not on their current income but rather on their average income over their lifetime. In another study, the relationship between income and consumption was explored using a sample covering a long period from 18 European countries, and it was found that there is a significant relationship between income and consumption (Tapsin & Hepsag, 2014).

Additionally, the government can influence private consumption by controlling the money supply in the economy. The government can adjust the money supply by utilizing its reserves, issuing securities, or manipulating interest rates, affecting the availability of funds for private use (Jalles & Karras, 2022). An increase in interest rates has a negative impact on household consumption patterns. During economic downturns, the State Bank of Pakistan (SBP) reduces interest rates to stimulate economic activities and ensure easy access to credit for the general population. The availability of easy credit enhances purchasing power. Friedman (1957) explains in his theory of permanent income how interest rates affect consumption. If interest rates increase, individuals tend to save more. Therefore, the influence of interest rates on household consumption is considered significantly negative (Kapoor & Ravi, 2009).

Several other factors affect private consumption, including the inflation rate and population. Inflation refers to a continuous increase in the prices of goods and services (Kurt, 2023; Sideris & Pavlou, 2021). Pakistan's economy is grappling with inflation issues due to instability. As markets expand, individual purchasing power decreases. The same basket of goods becomes more expensive for consumers. Consequently, consumers tend to save more for the future to cope with expected consumption patterns. Population growth also plays a role. As the population grows, per capita income decreases (Rüth & Simon, 2022). This leads to increased consumption of necessities such as food, clothing, and medicine, while consumption of durable and luxury goods declines.

Existing research on the impact of increased government spending on individual consumption predominantly focuses on advanced nations. Studies in agricultural countries are scarce, and to the best of my knowledge, no such research has been conducted in Pakistan. Therefore, the objective of this study is to examine the significance of government expenditure, income changes, personal wealth, and interest rate fluctuations in explaining private consumption while accounting for inflation and population effects. In developing countries like Pakistan, a small portion of the GDP is allocated to environmentally friendly initiatives such as healthcare, education, and business opportunities, which contribute to economic development and boost private-sector incomes. The rise in income encourages families to increase their spending. Thus, this study aims to investigate the impact of government spending on private consumption, real interest rates, inflation, and population. Its findings will assist policymakers in directing spending towards various development projects, including human resource development, infrastructure improvements, increased job opportunities, poverty eradication in line with the UN Sustainable Development Goals, and more, ultimately promoting economic growth and boosting private consumption. The implications of interest rates and wealth availability will also provide recommendations for the implementation of financial policies. To simplify the research problem, the following research question and objective have been proposed;

Research Question 1: What are the theoretically significant factors that impact private consumption expenditure in the short run and long run in Pakistan?

Research Objective 1: To identify and examine the impact of theoretically significant factors on private consumption expenditure in the short run and long run in Pakistan.

Literature Review and Hypothesis Development

Private consumption is a huge determinant of the gross domestic product in a country. In Pakistan, private consumption accounts for 75% of the total GDP. The conversation about household's consumption and variables influencing consumption began in the mid-19th century. Given its importance for monetary development and improvement, numerous analysts contemplated and investigated the determinants of private consumption. There are four fundamental consumption-related speculations in the current study, which incorporate the Keynes's (1936) AIH (Absolute Income Hypothesis), the Duesenberry's (1949) RIH (Relative Income Hypothesis), Modigliani's LCH (Life Cycle Hypothesis), (Modigliani, 2005) and Friedman's (1957) PIH (Permanent Income Hypothesis). This multitude of hypotheses explores the connection among income and consumption both in short-run and long-run. By construing the main variables from the important theories and existing literature, this study is dissecting the effect of select variables in a developing and stale economy like Pakistan.

Linking Government spending with Private Consumption in Pakistan

In their review, Amano and Wirjanto (1998) explore connection between private and government spending. Their conclusion was that in the United States, the private and public use of information are irrelevant. Coenen and Straub (2005) investigated this relationship for the Euro and discovered evidence indicating that government spending shocks swarm in consumption. Essentially, Guntram et al. (2006) investigated this relationship for Germany, and a somewhat beneficial outcome of a government expenditure increment on results and particularly on private expenditure was found evident.

The investigation of Fatás and Mihov (2001) found proof that private expenditure responds emphatically to an expansion in government expenditure. Biau and Girard (2005) additionally tracked down certain responses to private consumption and private interest in France. Alessandro, (2010) discovered that government expenditure has a substantial influence on private expenditure by using a board cointegration approach on the board information of 20 Italian districts. The investigation of Al-Rabbaie et al. (2022) utilizes the board information of G-7 nations from 2000–2018, and they find a positive connection between government and private expenditure.

In actuality, Fernández and Hernández (2006), showed that incline in spending just cause higher expansion and inferior yield in Spain. Additionally, Ganelli and Tervala, (2009) likewise analyzed the connection between public and private spending. Monetary shocks influence private consumption in USA when a regime upsurges spending, resulting in a decrease in purchaser abundance due to high duties. Because of the financial shock, the family reduces its usage. Chiu et al. (2015) utilize the standard Keynesian model with and without extra money supply and infer that various sorts of government spending show various outcomes. A large replacement impact is found in another focus on standard in cross-nation examination, implying that private consumption will be straightforwardly packed out by government spending (Auteri & Costantini, 2010; Jalles & Karras, 2022).

One more part of writing on the subject, like the investigations of Schclarek (2007), Tagkalakis, (2008), and Kandil, (2001) investigated this relationship further and dissected the consequence of government expenditure on private consumption from the focal points of industrialization, the financial cycle, and expenses and found differing results showing an exceptionally contextualized connection among government spending and private consumption (Albertini et al., 2021; Gomes et al., 2022; Kopiec, 2022). These uncertainly mixed and exceptionally contextualized outcomes have made focusing on the effect of government expenditure on private outlays in a developing economy like Pakistan a mark of fundamental importance and can add one-of-a-kind bits of knowledge to the current writing a mark of fundamental importance.

H_1: *Government spending is significantly associated with Private Consumption in Pakistan*

Linking Household Income with Private Consumption in Pakistan

Income is a significant determinant of a confidential individual`s consumption. According to Keynes (1936), individual consumption choice is dependent on the overall income of the time. Diacon and Maha (2015) explored the drawn-out connection between consumption, income, and gross domestic product per capita. Their findings show that there are areas of strength for an exit between income and private consumption in high- and low-pay countries when compared to middle-pay countries. Essentially, Tapsin and Hepsag, (2014) track down a huge connection between individual income and their consumption. Apere (2014) investigates the utilization and consumption capability in Nigeria using the key Absolute income hypothesis. They also discover a significant positive relationship between consumption and public income. Ofwona, (2013) discovered that income in Kenya was not entirely settled according to the Absolute income hypothesis. Amin (2011) researched the connection between expenditure and financial development and reasoned that income emphatically affects private consumption in Bangladesh.

Kuznets (1952) examines this viewpoint by dissecting the association between family revenue and household's expenditures and concluded that the normal inclination to consume remains unchanged in the long run. Another focus in India orders used people in broad daylight and confidential area occupations and investigates their consumption patterns. Although there is a significant income disparity between high-salary private sector representatives and low-income public sector employees, there is no significant difference in the consumption of tough goods between the two groups (Saha et al., 2014) and similarly this linkage is also explored in the recent literature of Al Gahtani et al. (2020), Ha (2022), Rüth and Simon (2022), and Song (2022) because of the immediate relationship between the income received and the capacity to consume and the blended proof in the current study. The effect of family income is additionally consolidated in this review.

H_2: *Household Income is significantly associated with Private Consumption in Pakistan.*

Linking Personal Wealth with Private Consumption in Pakistan

The life cycle hypothesis proposed by Modigliani (1963) influences the effect of prosperity in wealth on household consumption. As per the life cycle hypothesis the individuals stabilize their overall expenditures over their lifespan. Their consumption isn't just subject to income, as the income fluctuates efficiently over their lifetime. So, the reserve funds and different resources help to smooth consumption. In the beginning phases of work life, people's income is not as much as their consumption, so they get to address their issues or they use the resources they get from their folks (Chen et al., 2020). These resources can be in the form of real property or monetary resources. So, the adjustment of the worth of these resources fundamentally affects individuals' ways of behaving in terms of consumption. Like when the individual gets data about the adjustment of resource value, he will currently think about the adjustment of wealth in arranging consumption (Kurt, 2023). One more way the adjustment of the worth of resources can influence the people's consumption is that the individual can acquire a sum against that resource for smooth consumption.

Further, Mishkin, (2004) makes sense of the mechanism of money related transmission that helps Modigliani's theory of consumption. Financial wealth is a significant source of lifetime assets that can be used to streamline consumption in a long period of time. An expansion in stock prices causes an increment in financial wealth, when financial wealth expands the lifetime assets of people, which prompts an increment in consumption. The following is the financial transmission mechanism characterized by Mishkin:

$$M\uparrow \Rightarrow P\ e\uparrow \Rightarrow Wealth\uparrow \Rightarrow Consumption\uparrow$$

Funke (2004) examined the consequence of securities exchange return on private expenditure in developing nations. A study of 16 nations led the review. Data was gathered from the database of developing market and the World Development Indicators for the years 1985 to 2000. The connection among stock exchange wealth and private consumption has been discovered. Chen (2006) questions the association between household wealth and private expenditure. They investigate the long-established connection between disposable income, monetary wealth, housing wealth, and private expenditure. Furthermore, they examine whether long-term increases in house prices influence not only the expenditure on disposable goods but also the consumption of capital products. Cho (2011) analyses the influence of variations in housing costs on people's expenditure. The review's regression findings revealed an insignificant effect of housing wealth on personal consumption at the aggregate level. The recurrence aftereffects of various income groups, however, remained distinct. Household wealth has a positive influence on groups with higher income and vice versa. This demonstrates that the overall increasing effect of high-income property holders is balanced by low-income leaseholders. For 11 OECD countries, Bonis and Silvestrini (2012) assessed the consequence of monetary wealth on private expenditures. They consider income and familial responsibilities, as well as real and monetary wealth, to assess the changeability in consumption. To begin with, the outcomes support the positive relationship between private consumption, real wealth, and monetary resource wealth. Yet, individual relapse results show that financial wealth has a more prominent inclination to consume than real wealth. Searing, browning et al. (2013) examine the adjustment of household consumption designs with the adjustment of house costs. They collect data on income, wealth, home ownership, and segmentation from the Danish population from 1987 to 1996. They discovered an insignificant relationship between a house value change and a private consumption development because old-age house proprietors do not respond to house wealth changes. Be that as it may, there is a positive and critical relationship found among young property holders. Along these lines and the studies of Chen et al. (2020), Kurt (2023), Saez and Zucman (2020), Sideris and Pavlou (2021) it is proposed that

H_3: *Household Wealth is significantly associated with Private Consumption in Pakistan.*

Linking Interest rates with Private Consumption in Pakistan

Mishkin, (2004) makes sense of the way of financial flow, where M↑ displays the expansionary money related strategy which will lead to decrease in interest rate (i_r↓) which prompts a decrease in the cost of capital. It animates individuals to investment spending (I↑), and it prompts an expansion in aggregate demand and afterward an ascent in output (Y↑). Customarily Keynes' attention was on the investment spending choice of business however later monetary transmission mechanism recognizes that families' choices about their housing and durable products (vehicles, TV, fridges, and so forth) additionally are investment spending choices.

Elmendorf (1997) inspects the influence of interest rate movement on the expenditure and saving of individuals. In the short run flexibility of interest rate has an adverse consequence is found. This concentrate likewise thinks about a few models of conduct, when the different behaviour models are applied, the reaction of household consumption changes in various models. They presume that the interest rate can emphatically influence private consumption in an economy. Essentially, the investigation of Singh (2004) recognizes the variables that decide the expenditures of the private citizens in Fiji. The discoveries demonstrate that income and wealth are key determinants of private consumption over the long run and the assessment result shows that families in Fiji are receptive to changes in current income. However, the interest rate is tracked down the fundamental determinant of private consumption in the short-run, and the effect of financing cost is seen as exceptionally huge and negative, notwithstanding the literature on interest rate effect on private consumption.

Kapoor and Ravi (2009) gauge the causal impact of interest rate on household expenditure by utilizing the regression approach in India. They find that an expansion in deposit rate prompts a reduction in the expenditures of families. Since when there is an expansion in the interest rate the savings become successful and subsequently it is recommended that,

H4: *The interest rate is significantly associated with Private Consumption in Pakistan*

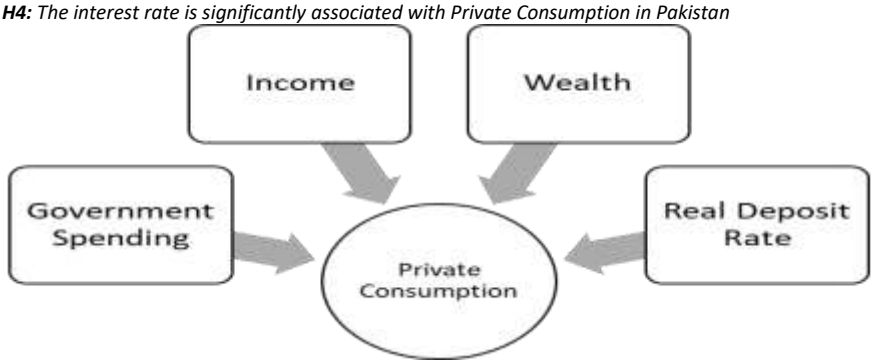

Figure 1 Conceptual Framework

Research Methodology

This study analyzed yearly data to examine the influence of government spending on private consumption in Pakistan, spanning from 1972 to 2021 providing sufficient data points for a statistically valid analysis. The data is sourced from the Global Financial Asset and World Development Indicators global economic insights. The yearly data on interest rates is obtained from the yearly reports of the State Bank of Pakistan. To obtain the real interest rate, the inflation rate is subtracted from the weighted average deposit rate. To test the proposed relationships, various models have been employed by different scholars. This study employs Hoshmand et al. (2013)'s research as the basis for examining the impact of government expenditure, income, wealth, and real deposit rate as control variables on private spending.

Research Model

In time series analysis, non-stationarity of information series is a major issue. When the factors are not stationary at the level of the normal least square (OLS) can create fake outcomes (Engle & Granger, 1987). When the factors used for investigation are not fixed, it frequently results in erroneous regression results. Standardized value of data is used to solve the problem of stationarity. Subsequently, the issue of stationarity is now addressed. Additional unit root test is used to test the stationarity of the factors attesting to this precondition for further analysis. Assuming the factors are fixed at the same level, OLS cointegration is utilized to examine the relationship between variables. At the point when the factors are stationary at the first level, the Johansen cointegration approach delivered by Johansen (1988) is fitting. This approach is chosen for the examination of the long-run relationship of factors. To begin, the Johansen cointegration is used to examine the long-term relationship. The long-run relationship of factors is also demonstrated by the cointegration test whereas the Vector Error Correction Model (VECM) is utilized to track down the long-run and short-run causal relationships. The following regression model is utilized to access the impact on private consumption in Pakistan.

$$〖Log(PC)〗_t=\alpha+ \beta_1 〖Log(GC)〗_t+ \beta_2 〖Log(GDP)〗_t+\beta_3 〖Log(W)〗_t+\beta_4 〖RDR〗_t+\gamma_1 〖INF〗_t+\gamma_2 〖Log(POP)〗_t+ \varepsilon_t \quad \ldots\ldots(1)$$

Table 1.
Operationalization of Variables

Variables (Abbreviation)	Measurement
Dependent Variable(s)	
Private Consumption (PC)	The household consumption to GDP ratio is utilized. The data for which is taken from the world development indicator (WDI) (Reza & Haghighat, 2014).
Independent Variable(s)	
Government Spending (GOV)	The government spending (% of GDP) is used as a proxy (Chaudhry et al., 2010)
Gross Domestic Product (GDP)	To access the impact of income the study used the GDP as a proxy of income (Tapsin & Hepsag, 2014).
Wealth (W)	The current study utilized M2 as a proxy of wealth. The study adopted the measure from Funke (2004) and Saha et al. (2014).
Real Deposit Interest Rate (RDR)	The study utilized the Real Deposit interest rate available at the world development indicator (WDI) (Kapoor & Ravi, 2009). According to the world development indicator (WDI), the deposit interest rate is the rate paid by commercial or similar banks for demand, time, or saving deposits.
Control Variable(s)	
Inflation (INF)	Consumer price index (CPI) (Osei-Fosu et al., 2014).
Population (POP)	The world development indicator (WDI) database (Reza & Haghighat, 2014).

Data Analysis and Results

The study conducts and reports a thorough analysis of the collected data properties. This includes the presentation of clear statistical measurements and correlation tables to describe the key features of the data. Table 2 presents the relevant metrics of the data, where the dependent variable is PC, and the independent variables are GDP, W, and RDR, along with control variables such as inflation and population. The mean value provides an idea about the typical value of each variable in Pakistan, while the minimum and maximum values provide context. The median indicates the middle point of the data, which shows that the data is normally distributed with no outliers. This is further supported by the probability value of the Jarque-Bera test.

Table 2.
Descriptive Statistics

	PC	GC	GDP	W	RDR	INF	POP
Mean	77.57	11.18	26066.61	42.52	-4.14	9.53	119.62
Median	78.09	10.85	11021.14	42.12	-3.47	8.55	118.82
Maximum	84.67	16.78	124116.9	51.30	5.29	26.66	182.14
Minimum	68.21	7.78	881.27	33.67	-23.17	2.91	62.53
Std. Dev.	4.26	1.98	32948.63	3.88	5.92	5.31	37.33
Skewness	-0.24	0.70	1.63	0.13	-1.39	1.43	0.06
Kurtosis	2.01	3.57	4.66	2.51	5.07	5.05	1.71
Jarque-Bera	2.12	4.03	23.46	0.55	21.20	21.70	2.94
Probability	0.35	0.13	0.00	0.76	0.00	0.00	0.22
Observations	50	50	50	50	50	50	50

Correlation analysis is an estimation procedure of the relationship between at least two factors. At the point when two factors are correlated, it implies they are moving together. In the accompanying table 3, the correlation framework of PC, GC, Gross domestic product, W, RDR, INF, and POP is demonstrated.

Table 3.
Correlation Matrix

	PC	GC	GDP	W	RDR	INF	POP
PC	1.000						
GC	-0.392	1.000					

GDP	0.159	-0.351	1.000				
W	-0.386	-0.073	-0.026	1.000			
RDR	-0.278	0.209	-0.131	0.125	1.000		
INF	0.264	0.004	0.050	-0.252	-0.951	1.000	
POP	-0.255	-0.330	0.848	0.199	0.047	-0.161	1.000

Before proceeding with the final analysis, the data was scrutinized for its suitability for the proposed final analysis. Durbin Watson statistics and HACC Consistent Covariance was utilized for testing for serial and auto correlation, and the presence of heteroskedasticity. Also, the Augmented Dickey-Fuller (ADF) unit root test was initially employed to test for stationarity in the variables, including the log of private consumption (LPC), log of government consumption (LGC), log of GDP (LGDP), log of wealth (LW), RDR, inflation (INF), and log of population (LPOP). The results indicated that all the variables were non-stationary at the level. To further confirm these findings, the Phillips-Perron (PP) unit root test developed by Phillips and Perron (1988) was conducted. The results from both the ADF and PP tests revealed that the t-statistic values were lower than the critical values, indicating that we cannot reject the null hypothesis at the level. However, upon taking the first difference of the variables, the t-statistic values obtained from both the ADF and PP tests exceeded the critical values. This suggests that after differencing the variables once, they became stationary at the first level. The stationary nature of the variables at the first level provides a rationale for utilizing the Johansen cointegration test proposed by Johansen (1988) and Johansen & Juselius (1990).

Furthermore, as a pretest for the suitability of the Johansen cointegration the Trace statistic and the maximum Eigen values is utilized. The results indicate that the null hypothesis of no cointegration is rejected in favor of the alternative hypothesis of one cointegrated series. Similarly, the null hypotheses of at most 1, at most 2, at most 3, and at most 4 cointegrated series are also rejected in favor of the alternative hypotheses. However, at a 5% significance level, the null hypothesis of at most 5 cointegrated series is accepted, suggesting the presence of five cointegrated series in the model. Similarly, the maximum Eigen value test also supports the existence of a long-term relationship among the series in the model. The null hypotheses of at most 1, at most 2, at most 3, at most 4, and at most 5 cointegrated series are all rejected in favor of the alternative hypotheses. Based on the Eigen value statistics, it is concluded that there are six cointegrated equations in the model at a 5% significance level.

In summary, the results from the unit root test and Johansen cointegration test provide robust arguments against the null hypothesis of no cointegration, indicating the presence of co-integrated series in the model. The significance levels and P-values support the existence of long-run relationships and suggest the inclusion of a long-run cointegration model for further analysis. As a post analysis validation test Ramsey Reset Test is also performed for the model and the nonsignificant values of the T and F Statistics alongside Likelihood ration indicating a specification bias free model.

Findings for Long-Term Relationship

The table presented in section examines the long-run coefficients of variables, namely LGC (government spending), LGDP (gross domestic product), LW (wealth), RDR (real interest rate), INF (inflation rate), and LPOP (population). T-statistics are employed to test the significance of these coefficients.

Table 4.

Results for Long Term Impact on Private Consumption

Variables	Coefficients	t-Statistic	Prob.
Constant	6.940	26.088	0.000
LGC	-0.100	-2.628	0.013
LGDP	0.212	7.8179	0.000
LW	0.042	0.702	0.487
RDR	0.005	1.391	0.173
INF	0.005	1.227	0.228
LPOP	-0.956	-8.326	0.000

The coefficient of LGC indicates a negative and statistically significant relationship with the dependent variable, LPC (private consumption). This implies that a one-percentage-point increase in government spending as a proportion of GDP leads to a 10% decrease in private consumption in the long run. This finding aligns with the research conducted by Berben and Brosens (2007), who also discovered a similar negative relationship. It suggests that the allocation of a small portion of the budget towards development projects, such as infrastructure, human

capital advancements, healthcare facilities, and education initiatives, negatively impacts overall economic growth in Pakistan. Consequently, individuals in rural areas experience a lack of basic necessities and often live below the poverty line.

On the other hand, the coefficient of LGDP shows a positive and significant relationship. Over the long term, a 1% increase in GDP per capita leads to a 21.2% average increase in private consumption. This result is consistent with the findings of Diacon and Maha (2015) in their research. Additionally, wealth exhibits a positive long-run relationship with private consumption, although it is not statistically significant. Real interest rates and inflation have a negligible positive relationship with private consumption in the long run, as observed in the study by Osei-Fosu et al. (2014).

Interestingly, population has a negative effect on private expenditure. The coefficient indicates that a 1% increase in population leads to a 95% decrease in private consumption in the long run. This suggests that population growth coincides with a decrease in consumption. Similar adverse effects of population growth on private consumption have been observed in various other studies conducted across different economies.

In conclusion, the analysis of long-run determinants of private consumption reveals significant relationships between the variables. Government spending exhibits a negative impact, while gross domestic product and wealth have positive effects. Real interest rates and inflation show negligible positive relationships. Furthermore, population growth is associated with a decrease in private consumption. These findings contribute to a better understanding of the factors influencing private consumption expenditure in Pakistan's economy.

Findings for Short-Term Relationship

The vector correction model is utilized for the analysis. When cointegration between factors is demonstrated, the vector correction model tells the rate at which factors change from a disequilibrium state to an equilibrium point over time.

The dependent variable is LPC, and the explanatory variables are LGC, LGDP, LW, and RDR, while controlling the effect of population and inflation. From the system equation model, we get a cointegration condition having LPC as independent variable.

Table 5.
Results for Short-Term Impact on Private Consumption

Variables	Coefficients	Std. Error	t-Statistics
CointEq1	-0.544	(0.139)	-3.909
D (LPC (-1))	-0.301	(0.159)	-1.889
D (LPC (-2))	-0.108	(0.149)	-0.720
D (LGC (-1))	-0.014	(0.046)	-0.291
D (LGC (-2))	0.024	(0.045)	0.533
D (LGDP (-1))	-0.038	(0.122)	-0.314
D (LGDP (-2))	0.105	(0.126)	0.832
D (LW (-1))	-0.339	(0.101)	-3.365
D (LW (-2))	-0.105	(0.111)	-0.943
D (RDR (-1))	-0.007	(0.004)	-1.923
D (RDR (-2))	-0.006	(0.005)	-1.484
D (INF (-1))	-0.008	(0.005)	-1.904
D (INF (-2))	-0.007	(0.005)	-1.505
D (LPOP (-1))	-0.256	(10.289)	-2.081
D (LPOP (-2))	0.421	(10.454)	1.853
C	0.032	(0.0431)	0.906
R-Squared	0.687842		
Adj. R-Squared	0.484261		
F-Statistic	3.378712		

The empirical findings from Table 5 shed light on the dynamics of private consumption in Pakistan, offering valuable insights into its determinants. The presence of a negative and statistically significant coefficient of the error correction term indicates the existence of a long-run equilibrium relationship between private consumption and the explanatory variables. Moreover, the estimated speed of adjustment of 54.4% suggests that any short-term deviations from the equilibrium level of private consumption will be swiftly corrected, indicating a strong tendency towards equilibrium.

Examining the short-run effects, the results reveal that government expenditure and gross domestic product exert a negative influence on private expenditure, although these coefficients do not reach statistical significance. This implies that while there may be a crowding-out effect of government expenditure on private spending in the short run, it is not statistically significant, highlighting the need for further investigation and caution in drawing definitive conclusions.

Interestingly, wealth exhibits a negative and significant association with private spending in the short run. This finding may be attributed to the fact that an increase in wealth leads to higher inflation, which, in turn, negatively affects economic growth. In the short term, this decrease in growth can result in a reduction in private consumption as individuals become more cautious with their spending.

Consistent with theoretical predictions by Modigliani (1975), the negative effect of the real deposit rate on private spending in the short run is observed. As interest rates rise, individuals tend to save more and consume less, aligning with the notion of increased savings during periods of higher interest rates.

Furthermore, the coefficient of the inflation variable indicates that inflation has a negative impact on private consumption in the short run. This can be attributed to Pakistan's status as a developing economy with unstable political institutions, leading to an environment of uncertainty and reduced efficacy of monetary policy. Inflation erodes the purchasing power of local consumers and hampers economic growth, thereby reducing private consumption.

Lastly, the population coefficient demonstrates a substantial negative influence on private consumption in the short run. This can be attributed to Pakistan's high population growth rate, which results in an increase in dependents such as children and the elderly. Consequently, per capita income decreases, indirectly affecting the level of private consumption.

In conclusion, the empirical findings provide valuable insights into the determinants of private consumption in Pakistan. The results suggest that government expenditure, gross domestic product, wealth, real deposit rate, inflation, and population growth rate all contribute significantly to shaping private spending in the short run. These findings carry important implications for policymakers, indicating that strategies aimed at promoting economic growth, reducing inflation, and stabilizing population growth may effectively stimulate private consumption in Pakistan's economy.

Discussion and Implications

This study sought to examine the short-term and long-term effects of various macroeconomic and microeconomic indicators on private consumption in Pakistan. By employing the Johansen cointegration technique and the Error Correction Model (ECM), the study shed light on the intricate dynamics at play. The findings revealed significant and enduring relationships between private consumption and government spending, income, and population. Additionally, the short-term impact of real interest rates, inflation, and population on private consumption was found to be statistically significant. Surprisingly, no substantial connection between wealth and private consumption emerged, regardless of the time frame examined.

The implications of these findings are valuable for policymakers in Pakistan, as they highlight the importance of directing spending towards critical development projects. Initiatives focused on enhancing human capital, industrial growth, employment opportunities, and poverty alleviation can stimulate economic activity and foster private consumption. Furthermore, the study provides noteworthy insights into the role of interest rates and wealth distribution, offering guidance for monetary policy decisions. As such, this study stands as a comprehensive overview of private consumption in Pakistan, addressing the unique characteristics of the country's economy as an income-driven society.

In the short run, income was found to have a negative and insignificant relationship with private consumption, which aligns with the well-known Modigliani hypothesis. This hypothesis posits that consumers do not immediately adjust their consumption patterns in response to income fluctuations. Instead, households only modify their consumption habits when they perceive income changes to be more permanent.

The relationship between wealth and private consumption was deemed insignificant in the long run and negative in the short run. Previous studies, such as Khan (2015), have explored the determinants of private consumption in Pakistan and identified income, wealth, real interest rates, and employment as significant factors. The negative relationship between wealth and consumption can be attributed to the inflationary pressures that arise when the money supply expands in the economy. As prices rise, individuals become more reluctant to consume and opt to save for future

needs, ultimately dampening private consumption. Given the volatile nature of Pakistan's money supply in relation to its GDP, it exerts a noticeable impact on private consumption.

Similarly, the study unveiled a significant and negative relationship between real interest rates and private consumption in the short run. However, no such association was found in the long run. This negative relationship aligns with the findings of past research by Friedman (1957), Mishkin (2004), and Kapoor and Ravi (2009), which suggest that an increase in interest rates leads to reduced spending as individuals opt to save more and consume less.

Inflation also demonstrated an adverse relationship with private consumption in the short run. Pakistan's status as a developing economy with unstable political institutions creates an environment of uncertainty, diminishing the efficacy of monetary policy. Inflation erodes the purchasing power of local consumers, negatively impacting economic growth and ultimately leading to a decrease in private consumption.

Finally, the study highlighted the substantial negative impact of population growth on private consumption, both in the short run and long run. Pakistan's high population growth rate poses a significant obstacle to achieving sustainable economic growth. Consequently, per capita income decreases, indirectly affecting the level of private consumption.

In conclusion, this study provides policymakers with crucial insights into the determinants of private consumption in Pakistan. The findings underscore the importance of strategic spending on human capital development, which can foster macroeconomic stability. The government should also expand targeted assistance programs, such as the Benazir Income Support Program and healthcare initiatives, to alleviate poverty. Moreover, addressing the high lending rates in Pakistan would encourage borrowing and empower consumers to manage their expenditure more effectively. By implementing these recommendations, policymakers can enhance economic growth and facilitate a smoother consumption pattern for the benefit of the nation.

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