

Analysis of consumption behaviour concerning current income and lags consumption: Empirical evidence from Pakistan

Khan, Abdul Qayyum; Azam, Muhammad; Qureshi, Muhammad Ejaz

Source / Izvornik: **Ekonomski vjesnik : Review of Contemporary Entrepreneurship, Business, and Economic Issues**, 2014, XXVII, 59 - 70

Journal article, Published version

Rad u časopisu, Objavljena verzija rada (izdavačev PDF)

Permanent link / Trajna poveznica: <https://um.nsk.hr/um:nbn:hr:145:658327>

Rights / Prava: [Attribution-NonCommercial-NoDerivatives 4.0 International](#)/[Imenovanje-Nekomercijalno-Bez prerada 4.0 međunarodna](#)

Download date / Datum preuzimanja: **2024-04-25**



Repository / Repozitorij:

[EFOS REPOSITORY - Repository of the Faculty of Economics in Osijek](#)



Abdul Qayyum Khan
COMSATS Institute of Information Technology,
Wah Cantt Campus, Pakistan
Department of Management Sciences
qayyum_72@yahoo.com

UDK 330.567.2(549.1)
Preliminary communication

Received: September 25, 2013
Accepted for publishing: March 25, 2014

Muhammad Azam
School of Economics, Finance and Banking
College of Business (COB),
University Utara Malaysia
drazam75@yahoo.com

Muhammad Ejaz Qureshi
MS Scholar,
APCOMS, University of Engineering and Technology Taxila, Pakistan
ejaz51pk@yahoo.com

ANALYSIS OF CONSUMPTION BEHAVIOUR CONCERNING CURRENT INCOME AND LAGS CONSUMPTION: EMPIRICAL EVIDENCE FROM PAKISTAN

ABSTRACT

As in other economies, consumption expenditure is the largest component of the Gross Domestic Product (GDP) of Pakistan economy. The figure has been estimated around 80 percent of the GDP and demonstrates that historically, Pakistan's economic growth is characterized as consumption-led growth. The present paper aims to explore the relationship between income and consumption using annual time series data for the period: 1975 to 2012 in Pakistan. For empirical investigation the linear regression model and the method of Least Squares is used as analytical techniques. Empirical results support the existence of a significant positive relationship between income and consumption. The finding suggests that long term committed planning is indispensable to enhance the productive capacity of the economy, employment opportunities and reduce poverty levels more effectively.

Keywords: income, consumption, linear regression model

1. Introduction

The consumption function has been a topic of considerable debate in the field of economics and econometric modelling as well. It refers to the relationship between income and consumption, where, consumption is the total amount of goods and services that people in the economy desire to buy for immediate consumption. It is one of the major components of an economy's aggregate demand. As in other economies, consumption expenditure is the largest part of the GDP of Pakistan economy. In almost every economy of the world, consumption is disaggregated into public and private sector consumption. Some of the major world economies, particularly Germany and China are led by experts, while others economies, such as the United States, the United Kingdom, India and Pakistan are largely domestic consumption driven. Pakistan's GDP is about 80 percent consumption and heavily dependent on domestic public and private spending to foster its economic growth. The figure is relatively higher than the United States and India's consumption estimated at 70 and 60 percent of their economy respectively (Haq, 2010). Historically, Pakistan's economic growth is characterized as consumption-led growth. Whereas, total consumption expenditure¹ was estimated at 87.66 percent in 2012-13 and it was 88.86 percent of the GDP in 2011-12. However, total consumption dropped by 1.2 percent, private consumption declined by 1.55 percent as it decreased from 78.53 percent to 76.98 percent of the GDP. The decline in consumption expenditure might be a positive thing if consumption is diverted to investment expenditure (Economic Survey of Pakistan, 2012-13). But according to the same Economic Survey of Pakistan (2012-13), total investment has also declined from 18.79 percent in 2006-07 to 14.22 percent in 2012-13. Private investment witnessed a contraction of 8.7 percent in 2012-13 as compared to 12.8 percent in 2007-08. Public investment as a percentage decreased to 3.9 percent in 20012-13 from 4.8 percent in 2007-08.

On a theoretical level consumption behaviour is familiarized by John Maynard Keynes in his book titled General Theory of Employment, Interest and Money (1936) in which he argued that consumption is primarily a positive and a linear function of national income. He extends that the relationship between income and consumption is fairly stable, and with a higher level of national income the

level of economy's consumption as well as saving is increased². Also, Keynes did not deny that other variables affect consumption and he believed that income is the most influential factor determining consumption level. Keynes in his General Theory postulated that aggregate consumption is a function of aggregate current disposal income which is undeniably one of the great insights of the theory. By a fundamental psychological law Keynes (1936, p.no. 96) states³:

Upon which we are entitled to depend with great confidence both a priori from our knowledge of human nature and from detailed facts of experience,..... that men are disposed, as a rule and on the average, to increase their consumption, as their income increases, but not by as much as the increase in their income.

The main objective of the present paper is to empirically explore the long term effect of current income and previous consumption on consumption in the context of Pakistan economy. This paper is organized as follows: Section 1 above, which briefly states the introduction of the study. Section 2 deals with the trend in consumption and economic growth of Pakistan. Section 3 discusses a review of relevant literature. Section 4 deals with data description and methodology. Section 5 interprets the empirical results. Finally, Section 6 summarizes and concludes the paper.

2. Trend of consumption and economic growth in Pakistan

In the 1960s, the Government of Pakistan followed a deliberate policy of concentrating national income in the hands of the upper income groups⁴. The basis of economic assumptions that the rich save a larger proportion of their income and resultantly a desirable level of national savings rate may be attained with an unequal distribution of income. However, the assumption that it would raise domestic savings over time failed to become visible, while the policy of dispensing incomes in favour of the economic elite succeeded. In the rural sector, 15 percent of resources generated annually were moved to the urban industrialists and 63 to 85 percent of

these moved resources went into increased urban consumption. Consequently, the actual savings rate remained below 12 percent and never rose to the targeted domestic saving rate of 25 percent⁵. The decade of the 1960s is seen as the 'golden age' in terms of the high growth rates achieved through the provision of subsidies and tariff protection to industry and an elite farmer strategy in agriculture. But, it was also a period where the emergence of an economic structure that was to lock Pakistan's economy into increasing income inequality, a narrow and inefficient industrial base, and increasing loan dependence, for the next four decades (Hussain, 2012).

Most of Pakistan's population was suffering an absolute decline in their living standards, while an affluent and highly monopolistic class was accruing wealth, during the process of rapid economic growth of the 1960s. Whereas, per capita consumption of food grain of the poorest 60 percent of the urban population declined to 96.1 from an index of 100 in 1963-64. In 1969-70 per capita consumption of food grain declined to only 91 from an index of 100 in 1963-64, in the case of the poorest 60 percent of the rural population (Hamid, 1974). Rural sector poverty was so grave in 1971-72, that 82 percent of rural households could not afford to provide even 2,100 calories per day per family member (Naseem, 1977). As mentioned earlier, Pakistan's economic growth is consumption oriented growth. Consumption, investment and exports are symbolically designated as the three horses of the troika that drive the entire economic growth. The demand side remained more intuitive as the growth was motivated by the private consumption expenditure. During 2012-13, the consumption outlays were valued at 87.66 percent, while it was estimated at 88.86 percent of the GDP in 2011-12. Investments undertaken were hardly financed from internally generated funds, thereby requiring heavy borrowing from foreign governments. The ability to finance increased government expenditures from tax revenue was constrained by two factors: (i) slowing down of the GDP growth, and (ii) inability of the government to improve direct taxation coverage, as a result, the deficit increased rapidly. The government reduced subsidies on consumption goods and increased indirect taxation in order to control the rising budget deficit. However, in the face of increasing current expenditures these measures failed to reduce the budget deficit. Though, foreign remittances, play-

ing a vital role in the construction sector and consumption, helped in stimulating economic growth. In 1972-73 remittances were recorded at US\$ 34.74 million and reached to US\$ 11,569.82 million in July-April of 2012-13⁶.

The main hypothesis being tested is that consumption is closely linked to the level of current income as well as to the previous level of consumption. The hypothesis is based on the idea that consumption expenditure fluctuates with changes in income and persistence consumption habit. The following hypothesis to be tested:

H0= Consumption does not relate to current income and previous level of consumption

Ha= Consumption does relate to current income and previous level of consumption

3. Literature review and theoretical framework

Many earlier studies verified empirically the income-consumption relationship for different countries during different time periods. For example, Bunting (1989) concluded that Keynes's fundamental law is valid during 1929-1982 on US data. Blanchard and Perotti (2002) and Fatas and Mihov (2001) identified exogenous shocks to government spending by assuming that the latter variable is predetermined relative to the other variables included in their vector autoregressive model. Their most relevant findings for our purposes can be summarized as follows. First, a positive shock to government spending leads to a persistent rise in that variable. Second, the implied fiscal expansion generates a positive response in output, with the implied multiplier being greater than one in Fatas and Mihov (2001), but close to one in Blanchard and Perotti (2002). Third, in both papers the fiscal expansion leads to large (and significant) increases in consumption. Fourth, the response of investment to the spending shock is found to be insignificant in Fatas and Mihov (2001), but negative (and significant) in Blanchard and Perotti (2002). As in Blanchard and Perotti (2002), Mountford and Uhlig (2002) found that government spending shocks crowd out both residential and non-residential investment, but do not reduce consumption.

Abeyasinghe and Choy (2004) suggested a stable, long run equilibrium relationship between consumption, disposable income, and wealth observed elsewhere under the study period in Singapore. Dhakal et al. (2009) found that variables such as exchange rate and domestic relative price (relative to world prices) have become significant determinants of consumption behaviour from 1973 to 2006 in India. Akekere and Yousuo (2012) found a positive and significant relationship between the GDP and private consumption expenditure from 1981 to 2010 in Nigeria. Ofwona (2013) revealed that consumption is determined by income and the Absolute Income Hypotheses (AIH) was found to work well over the period 1992-2011 in Kenya. The study recommended that the government should implement agricultural policies to improve the income base of most households and eradicate poverty and low incomes. A brief summary of the erstwhile empirical studies on the income - consumption relationship are given in Table 1.

Table 1. Previous selected empirical studies on income-consumption relationship

Note: The coefficients in the last column are related to income only.

A review of fundamental theories of consumption is essential to understand the contemporary consumption research. These theories are; Keynes (1936) Absolute Income Hypothesis, Duesenberry's (1949) Relative Income Hypothesis (RIH), Modigliani's (1949) Life Cycle Hypothesis (LCH), Brown's (1952) Habit Persistence Hypothesis (HPH) and Friedman's (1957) Permanent Income Hypothesis (PIH). Brown used lag consumption as one of the independent variables to represent the slowness in the response of consumer demand to the changes in income. The slowness is instigated by the inertia "the standards, customs, habits; and the levels associated with real consumption earlier enjoyed" are likely to produce "the human physiological and psychological system" (for details, see Brown, 1952). Keynes postulated that an economic agent on average tends to increase his consumption as his income rises, but the rise in consumption is not as much as the increase in his income.

**. Income as personal income includes all income received while consumption includes personnel expenditures, gifts, personal taxes and non-taxes.*

*** Significant and see Choudhury (1968), p.47*

OLS denotes ordinary least squares, ECM denotes error correction model

Author (s)	Sample periods	Methodology	Dependent variable(s)	Independent variables	Coefficient (t-ratio)
Choudhury (1968)	1950-51 to 1962-63 India	OLS	Consumption	Income, one period lag of consumption	Rural: 0.959** Urban: 0.432** Overall 0.771**
Bunting (1989)	1929 -1982 USA	OLS	Consumption*	Income*	0.931 (105.34)
Abeyasinghe and Choy (2004)	1978Q1 to 2003Q4 Singapore	OLS ECM	Consumption	Income, wealth	0.64 (13.7) -0.26 (-3.12)
Dhakal et al. (2009)	1973 to 2006 India	ECM	Consumption	Income, interest rate, nominal exchange rate, one period lag of consumption	0.15 (2.75)
Shaikh (2012)	1974-2010 Pakistan	OLS	Consumption	Income	0.791 (114.46)
Akekere and Yousuo (2012)	1981-2010 Nigeria	OLS	Consumption	Income	0.671 (41.22)
Ofwona (2013)	1992-2011 Kenya	OLS	Consumption	Income	0.116 (9.38)

Source: Author

He found that income is the sole determinant of consumption. Based on the Absolute Income Hypothesis, aggregate consumption may be a stable, but not necessarily linear function of disposable income.

Duesenberry argued that an individual's utility index depends on the ratio of his/ her consumption to the others' consumption weighted average. He drew two conclusions: (1) aggregate saving rate is independent of aggregate income, and (2) the propensity of an individual to save is an increasing function of his/ her percentile position in the income distribution.

As per life cycle hypothesis the average propensity to consume is larger among young people and in older households. This is because young people run their lives on borrowing and old people more on their life saving. However, middle aged people reach to their position earning a higher income, with higher saving and lower consumption.

Friedman assumed that income "Y" has two components: a permanent component (Y^p) and transitory component (Y^T). In consequence, consumption expenditures also involve two components, i.e. (1) permanent consumption (C^p) and (2) transitory consumption (C^T). Consumers plan to maximize their lifetime utility by using a permanent component of consumption. So, total consumption would be equal to C^p , and total consumption C^T relates to all other factors.

Overall, the evidence discussed above in the literature review tends to favour the predictions of the Keynesian model over those of the neoclassical model. In order to assess the robustness of the Keynesian model and the behaviour of alternative variables of interest, an attempt has been made in this paper to provide some complementary evidence using longer term strategies for Pakistan.

4. Data description and methodology

This study is based on annual time series data covering the time period 1975 to 2012. Data have been gleaned from the Economic Survey of Pakistan (various issues) and International Financial Statistics respectively. The data are used in real terms. In order to convert current price data into constant price time series, the financial year 1980 has been

used as the base year.

To determine the stationarity of data, an Augmented Dickey-Fuller (ADF) test is used. The Akaike Information Criterion (AIC) is used to select the optimum ADF lag. Stationarity of the variables is checked once when an intercept is included, and then when both an intercept and a linear deterministic trend are included. The linear regression model is used to analyze the impact of income on consumption. The Ordinary Least Squared (OLS) method is used to estimate parameters of the model.

4.1. Model specification

Though, in reality, there are several factors that may affect consumption, however, this study is concerned only about the relationship between income and consumption. The simple linear regression model used in this study can be written as:

$$\text{consumption} = f(\text{income}) \quad (1)$$

Equation (1) which is based on the Keynesian model consists of income and also one period lagged of consumption has been incorporated in the following equation (2). This model is also used by Choudhury (1968) for India and symbolically in linear form it can be written as below⁷:

$$C_t = \alpha + \beta Y_t + \gamma C_{t-1} + \varepsilon_t \quad (2)$$

Where C_t denotes total private consumption in million PKR at time t , Y_t denotes disposable income in million PKR at time t , α denotes autonomous consumption, β denotes Marginal Propensity to Consume (MPC), C_{t-1} denotes one period lagged of consumption and ε denotes error term. The inclusion of a constant parameter in the model is supposed to be appropriate from both statistical and theoretical perspectives. From a statistical perspective, it will improve the estimation procedure and theoretically, at least in the short-run, individuals will have a positive consumption even when their income level is zero. Therefore, the constant parameter is expected to be positive (i.e. $\alpha > 0$). Regarding the marginal propensity to consume, it is expected that the increase in consumption will be less than the increase in income (i.e., $0 < \beta < 1$).

Table 2. ADF test for stationarity

Variables	Include intercept only		Include intercept and trend		Result
	Test statistics1	Critical Value	Test statistics1	Critical Value	
C	0.4985[1] (-6.5707)2[0]	-3.5814 -3.5889	-2.7179[0] (-5.9008) [2]	-4.1781 -4.1896	I(1)* I(1)**
Y	0.2681[1] -6.8389[2]	-3.5814 -3.5850	-2.1363[2] -6.8160[2]	-4.1728 -4.1896	I(1)* I(1)**

¹Figures in square brackets beside each statistic represent optimum lags selected using the minimum AIC value.

²Figures in parentheses are first difference of variables. * Show result when the intercept is only included,

** Show results when intercept and trend is included.

Source: Author

Or it is expected that Y carries a positive coefficient as consumption is positively associated with the disposable income. A higher disposable income makes the economy consume higher quantities. Likewise, the coefficient of C_{t-1} may carry a positive sign because it is expected that the economy goes through the consumption patterns that rigorously depend upon the last time period's consumption. High consumption last year excites the economic agents to consume higher this year as well.

5. Empirical results

5.1. Non-stationarity of the time series

Table 2 presents the results of the unit root test. Both the variables are non-stationary when only intercept is included, and after inclusion of trend the variables remain non-stationary and were made stationary after taking first difference.

5.2. Co-integration of the variables – Augmented Engle-Granger (AEG) test

To avoid the problem of spurious correlation and ambiguous inference, the co-integrating relationship among variables is studied following the procedure introduced by Dickey et al. (1991).

The Augmented Engle-Granger (AEG) test is used to find out the co-integration in the regressions used for analysis involving two variables⁸. The result of the AEG test will be obtained when we perform the unit root test on the residual obtained from their linear regression. The result is depicted in Table 3. The AEG test results show that the assumption of no co-integration has been rejected as our calculated t-statistic (-4.55) is much greater in absolute terms than the critical τ -statistic (-2.60), indicating that the residual obtained from the regression is I (0) i.e. stationary. The stationarity of residual of any regression indicates that the regression is co-integrating regression, so in this case, both variables have a long term relationship.

Table 3. AEG test result

\hat{u}_t = Residual, \hat{u}_{t-1} = Lag value of Residual and S.E

$$\begin{aligned}\hat{u}_t &= -.514\hat{u}_{t-1} \\ \text{S.E} &= .113 \\ t &= (-4.55) \quad R^2 = .245 \quad d = 1.849\end{aligned}$$

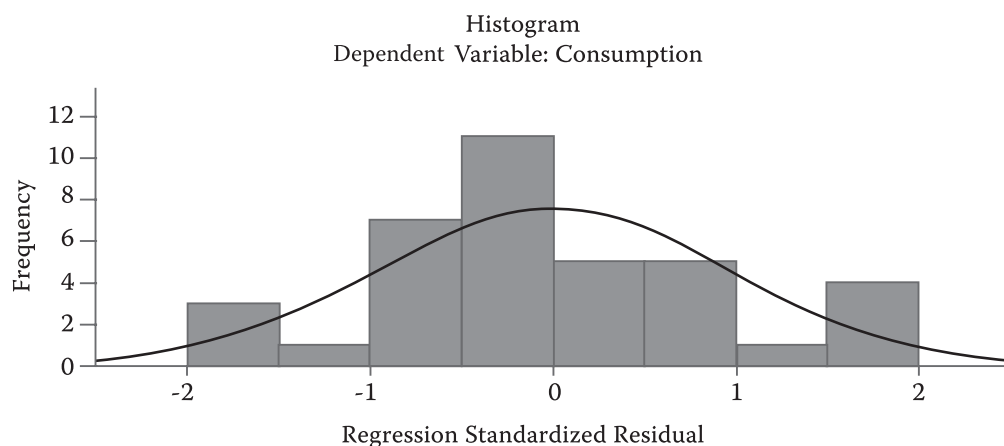
= Standard Error

Source: Author

5.3. Normality of the data

It is an important and a necessary process to check the data for its normality before going to put the data in the linear model for its coefficient determination. A histogram of the residual obtained from main regression mentioned in equation 2 is used here to check the normality. It is a very simple and easy approach to visually check normality of the data. The results are given in the graph of the histogram below.

Graph 1. Histogram of residual



Source: Author

A visual study of the histogram above reveals that most of the residuals lie within the normal curve, no residual lies outside, either on the left or right side, showing no skewness, but some residual lies outside on top peak, causing a little Kurtosis.

5.5. Result of the linear regression model

The result of the linear regression model is reported in Table 5. In general the results are logical because the explanatory power, R^2 is fairly high and there is no serious autocorrelation problem as shown by H statistics⁹.

5.4. Park test

The Park test was used for detection of heteroscedasticity. First we ran the log linear model and saved the residual, then took the square of the saved residual and regressed the income on the square of the residual. The results of the Park test are given in Table 4 below:

Coefficient of LnY is statistically insignificant as the calculated t-statistic in absolute term is smaller than the tabulated value, showing no heteroscedasticity in the model.

Table 5. OLS estimates

$C_t = -0.680 + 0.604 Y_t + 0.696 C_{t-1}$		
s.e	0.1710	0.1443
t.stat	(-3.98)*	(4.18)*
R-sq = 99.7		R-sq (adj) = 99.7
S.E of regression = 0.03943		H- statistic = -1.063

Note: * indicate level at 1 percent level of significance

Source: Author

Table 4. Park test coefficients / dependent variable: lne2

Model B	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	Std. Error	Beta				
1 (Constant)	.029	.013			2.219	.033
LnY	-.004	.002	-.316		-1.798	.053

Source: Author

The estimates of linear regression signify that consumption is positively related to income (Y) and previous consumption (C_{t-1}). The results indicate that about 1 percent increase in income leads to increased consumption by 0.604 percent. The coefficient is statistically significant at the 1 percent level of significance, indicating no multicollinearity in the variables. The h -statistic value -1.063, which lies in the range of no-autocorrelation, shows that there is no autocorrelation in the model. R^2 value indicates that about 99 percent variation in consumption is explained by income and previous consumption. The intercept is negative which is unexpected and it is difficult to explain it in terms of the simple Keynesian consumption-income relationship because Keynes was concerned with the possibility that the average propensity to consume would fall with increasing income. However, the negative intercept may indicate that when income increases the average propensity to consume also increases¹⁰. The result further shows that previous consumption has important effects on current consumption as the coefficient of previous consumption is 0.69, which is higher than the effect of income on consumption. This indicates that in Pakistan curtailing consumption is difficult and individuals will maintain the previous level of consumption either using previous savings or borrowing, if income falls short of consumption. The empirical results of this study verify that the findings of the authors including Shaikh (2012) worked for Pakistan. The empirical results also support the findings of Choudhury (1968), Dhakal et al. (2009), Emerson (2011).

5.6. Error correction mechanism (ECM)

Once it is found that the regression variables have a long term relationship (cointegration) then the Error Correction Mechanism (ECM) (Engle and Granger, 1987) is used to ascertain the short term behaviour of the variables. In the Error Correction Mechanism (ECM) the first difference of dependent variables is regressed on the first difference of all independent variables and the lag value of residual (u_t) obtained from the regression of variables at level. The parameter of equilibrium error term is expected to be negative. The positive/negative value of u_{t-1} acting with their respective parameter brings equilibrium in the short term. If other independent variables have a positive short-term aggregate impact

on dependent variables, then u_{t-1} must be positive, so that the negative parameter makes it negative and restores the equilibrium. In a similar fashion if independent variables have a negative short-term aggregate impact on dependent variables, then u_{t-1} must be negative, so that the negative parameter makes it positive and restores the equilibrium. The absolute value of parameter indicates how quickly the equilibrium will be restored. The result of the Error Correction Mechanism (ECM) is given in Table 6 below.

Table 6. Regression results of error correction model (ECM)

$$\Delta C_t = 0.010 + 0.785\Delta Y_t - 0.498u_{t-1}$$

$$t = (1.013) \quad (5.399)^* \quad (-3.141)^{**}$$

$$R^2 = .478 \quad d = 1.99$$

Breusch-Godfrey Serial Correlation LM Test

(p-value) = 0.0525

Jarque-Bera (p-value) = 0.00

ARCH Test (p-value) = 0.09

Δ is the difference operator

u_{t-1} is the equilibrium error term, *Significance at 1% level and ** Significance at 5% level

Source: Author

The regression result in Table 6 shows that short-run changes in income have a statistically significant positive impact of short-run changes in consumption. The coefficient of the equilibrium error term is -0.49 and statistically significant, indicating that about 49% of the disequilibrium in the previous year is corrected this year. R^2 indicates that about 47.8% short term variation in consumption is due to short term variation in per capita income. The calculated d value (1.99) falls within the no-autocorrelation zone, suggesting that there exists no autocorrelation problem. The p-value (0.0525) of the Breusch-Godfrey Serial Correlation LM test is more than 5 percent ($p > 0.05$); we cannot reject the null hypothesis and the residuals (u) are not serially correlated. The p-value (0.000) of Jarque-Bera is less than 5 percent

($p < .05$); we reject the null hypothesis and accept the alternative hypothesis indicating that the residual (u) is normally distributed. The p -value (0.09) of the ARCH test is more than 5 percent ($p > 0.05$); we accept the null hypothesis of no heteroscedasticity indicating that the residual (u) has constant variance.

6. Summary of findings and conclusion

The purpose of this study is to test empirically the consumption function of the Pakistan economy. The results found are statistically significant and reject the null hypothesis that consumption does not relate to income, while accepting the alternative hypothesis that consumption does relate to income. The results indicate that income is a noteworthy factor of consumption. The study reveals that the elasticity of income and previous consumption to consumption relationship is almost the same in magnitude in the long term, but comparatively previous consumption has a stronger effect than income on consumption.

In the short term the elasticity of income is higher in magnitude, and about half of the disequilibrium that appears in the previous period is adjusted in the current year. Based on this evidence, it is obvious that long term planning is important to determine the level of consumption in Pakistan. If the government gives priority to long term policies for income enhancement, it can enhance the consumption level, the productive capacity of the economy, employment opportunities and lessen the poverty level. But at the same time effective running of monetary and fiscal policies are needed to stabilize and stimulate the economy to achieve expected economic growth. It is also vital to accommodate the enhanced consumption from indigenous production rather than concentrating on foreign resources, including imports, thereby promoting the domestic economy while saving precious foreign exchanges.

REFERENCES

1. Abeyasinghe, T. and Choy, K. M. (2004). The Aggregate Consumption Puzzle in Singapore. *Journal of Asian Economics*, 15 (3), pp. 563-578.
2. Akekere, J. and Yousuo, P.O. J. (2012). Empirical Analysis of Change in Income on Private Consumption Expenditure in Nigeria from 1981 to 2010. *International Journal of Academic Research in Business and Social Sciences*, 2(12), pp. 188-197.
3. Blanchard, O. and Perotti, R. (2002). An Empirical Characterization of the Dynamic Effects of changes in Govt. Spending and Taxes on Output. *The Quarterly Journal of Economics*, 117(4), pp. 1329-1368.
4. Brown, T. M. (1952). Habit Persistence and Lags in Consumer Behaviour. *Econometrica*, 20(3), pp. 355- 371.
5. Bunting, D. (1989). The Consumption Function 'Paradox'. *Journal of Post Keynesian Economics*, 11(3), pp. 347-359.
6. Choudhury, U. D. R. (1968). Income, Consumption and Saving in Urban and Rural India. *Review of Income and Wealth*, 14(1), pp. 37-56.
7. Dhakal, D., Kulkarni, K.G. and Upadhyaya, K.P. (2009). Consumption Pattern: Open Economy Setting: A Case of India. *SCM Journal of Indian Management*, 6, pp. 01-11.
8. Dickey, D. A., Jansen, D.W., and Thornton, D. L. (1991). A Premier on Co-Integration with an Application to Money and Income. *Federal Reserve Bank of St. Louis Review*, 73 (2), pp. 58-78.
9. Duesenberry, J.S. (1948). Income - Consumption Relations and their Implications, in Lloyd Metzler et al., *Income, Employment and Public Policy*, New York: W. W. Norton & Company, Inc.
10. Durbin, J. (1970). Testing for Serial Correlation in Least Squares Regression when some of the Regressors are Lagged Dependent Variables. *Econometrica*, 38 (3), pp. 410-421.
11. Emerson, J. (2011). Consumption-Saving Investigation: United States. *Journal for Economic Educators*, 11(1), pp. 39-46.
12. Engle, R.F. and Granger, C.W.J (1987). Co-Integration and Error Correction: Representation, Estimation, and Testing. *Econometrica*, 55(2), pp. 251-276.
13. Fatas, A. and Mihov, I. (2001). The Effects of Fiscal Policy on Consumption and Employment: Theory and Evidence. Mimeo: INSEAD.
14. Friedman, M. (1957). The Permanent Income Hypothesis: Comment, *American Economic Review*, 48, pp. 990-91.
15. Government of Pakistan, *Economic Survey of Pakistan* (various issues), Islamabad: Economic Advisors Wing, Ministry of Finance.
16. Griffin, K. B.(1965). Financing Development Plans in Pakistan. In Griffin, K. B., and A.R. Khan (eds.). *Growth and Inequality in Pakistan*. London: Macmillan, pp. 204-205.
17. Hamid, N. (1974). The Burden of Capitalist Growth-A Study of real Wages and Consumption in Pakistan. *Pakistan Economic and Social Review*, 12 (1), pp. 47-70.
18. Haq, T. A. (2003). Fiscal strategy for growth and Employment in Pakistan: An Alternative Consideration. *Employment Strategy Department (EARU Employment Paper 2003/56)*
19. Haq, R. (2010). Pakistan GDP Driven By Consumption, Not Exports and Investments. *PakAlumni Worldwide: The Global Social Network*. Available from <http://www.pakalumni.com/profiles/blogs/pakistan-gdp-driven-by>

20. Hussain, A. (2012). A Perspective on Pakistan's Economic History: Growth, Economic Structure and Governance. Published in: Ayesha Jalal (Ed), The Oxford Companion to Pakistani History, Karachi: Oxford University Press.
21. International Monetary Fund (IMF) (2003). Washington, D.C: International Financial Statistics.
22. International Monetary Fund (IMF) (2005). Washington, D.C: International Financial Statistics.
23. Johansen, S. and Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Cointegration with Applications to the Demand for Money. *Oxford Bulletin of Economics and Statistics*, 52(2), pp. 169-210.
24. Keynes, J. M. (1936). *General Theory of Employment, Interest and Money*, London: Macmillan Publishers, Cambridge University Press.
25. Malik, S. (1982). Analysis of Consumption Patterns in Pakistan. *Pakistan Economic and Social Review*, 20(2), pp. 108-122.
26. Martino, A. (1998). Monetary and Fiscal Rules. Retrieved on February 12, 2007, from <http://www.cis.org.au/Policy/autumn98/aut9801.htm>.
27. Modigliani, F. (1986). Life Cycle, Individual Thrift, and the Wealth of Nations. Nobel Lecture delivered in Stockholm, Sweden, December 9, 1985, *The American Economic Review*, 76(3), pp. 297-313.
28. Mountford, A. and Uhlig, H. (2002). What are the Effects of Fiscal Policy Shocks?. Discussion Paper 31. Tilburg: Tilburg University Center for Economic Research.
29. Naseem, S.M. (1977). Rural Poverty and Landlessness in Asia. Geneva: ILO Report.
30. Ofwona A. C. (2013). An Estimation of the Consumption Function for Kenya Using Keynes' Absolute Income Hypothesis for the Period 1992-2011. *Journal of Emerging Trends in Economics and Management Sciences*, 4(1), pp. 103-105.
31. Perotti, R. (1999). Fiscal Policy in Good Times and Bad. *Quarterly Journal of Economics*, 114(4), pp. 1399-1436.
32. Premchand, A. (1984). *Government Budgeting and Expenditure Controls: Theory and practice*. Washington: International Monetary Fund. Retrieved on November 16, 2006.
33. Shaikh, S. (2012). Consumption and Savings Behavior in Pakistan. MPRA Paper No. 42496, posted 7. November 2012. Online at <http://mpra.ub.uni-muenchen.de/42496/>

(ENDNOTES)

- 1 Private consumption expenditure reached to 76.98 percent of the GDP, whereas public consumption expenditures are 10.68 percent of GDP.
- 2 Dhakal et al. (2009)
- 3 See Bunting (1989)
- 4 Malik (1982) also reported that during the 1960s Pakistan experienced a continuous rise in national income.
- 5 Griffin (1965)
- 6 Economic Survey of Pakistan (2012-13)
- 7 See Brown (1952)
- 8 Unit root test is applied on single time series, while co-integration determination through the AEG test deal with finding the relationship between two time series where both have a unit root problem.
- 9 When lagged value of dependent variable is used as an independent variable in regression equation then estimated Durbin Watson statistic has no significance about the presence of autocorrelation. Thus, H test is used to check the existence of autocorrelation. If H statistic is significant, then we reject the hypothesis that there is no serial auto correlation otherwise accept it. For further detail see Durbin (1970)
- 10 See for negative intercept Choudhury (1968) and Emerson (2011)

Abdul Qayyum Khan
Muhammad Azam
Muhammad Ejaz Qureshi

ANALIZA PONAŠANJA U POTROŠNJI U ODNOSU NA TRENUTNI DOHODAK: ISKUSTVO PAKISTANA

SAŽETAK

Kao i u drugim gospodarstvima, potrošnja je najveća komponenta bruto domaćega proizvoda (BDP) u pakistanskoj ekonomiji. Ta brojka se procjenjuje na oko 80 posto BDP-a i pokazuje da se povijesno gospodarski rast Pakistana temelji na potrošnji. Cilj ovoga rada je istražiti odnos između dohotka i potrošnje korištenjem podataka o vremenskoj seriji za razdoblje od 1975. do 2012. u Pakistanu. Linearni regresijski model i metoda najmanjih kvadrata analitičke su tehnike korištene za empirijsko istraživanje. Empirijski rezultati pokazuju da postoji značajno pozitivan odnos između dohotka i potrošnje. Ovaj zaključak ukazuje na to da je dugoročno strateško planiranje neophodno kako bi se učinkovitije povećali proizvodni kapaciteti gospodarstva i mogućnosti zapošljavanja, te smanjila razina siromaštva.

Ključne riječi: dohodak, potrošnja, linearni regresijski model