

SHORT TERM EFFECTS OF PERMANENT INCOME'S FACTORS OVER CONSUMPTION IN PAKISTAN (1976-2009)

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ABSTRACT

This paper critically examines the short term effects of the permanent income over consumption as introduced by the Milton Friedman. The purpose of the present study is to explore the extent to which wealth indicators relating to permanent income can have an impact on consumption with respect to the income related indicators observed in Pakistan like gross value added, gross national expenditure, total reserves, natural resources and gross savings. The analysis of the consumption and income determinants has been carried out from 1976-2009. An error correction model has been conducted to study this Permanent income phenomenon to observe the impacts of all these variables in short run. The research showed the results that the adjustment process is slow and short-term disequilibrium of previous period never adjusts completely in the current period. Short run adjustment pace of consumption is statistically significant, indicating that short run discrepancies do not adjust completely in the same period. Based on these evidences it is apparent that consumption and wealth variables are important to determine the macroeconomic stability in Pakistan. If the government gives priority to long-term consumption on the basis of exploring the available natural resources, it can gain better results in economic growth, poverty alleviation and unemployment reduction. The policy makers and economists in financial sector need to focus on the greater opportunities for wealth creation in the economy income hymen and the focus of this study is also on the effects of permanent income factors over consumption. A limitation of the research was the inclusion of only a limited number of wealth indicators.

Keywords: Error Correction; Consumption, Gross Value Added, Gross National Expenditure, Natural resources, Gross Savings, Total reserves.

INTRODUCTION

The relationship between income and consumption has its roots from very beginning. Milton Friedman has given his view that the permanent income is found to be influenced by the total household consumption. There is agreement found on the association between income and consumption by both Friedman as well as the life cycle hypothesis. It is found that the total income is found to have marginal propensity as its fraction. There is positivity in relation between consumption of households and the basic permanent income hypothesis variables i.e. income, saving and loan (Akhir 2011).

The aggregate consumption is found to be the aggregate income's diminishing function although it has positivity as stated by the Keynes' General Theory (1936). The income, saving and the theory of Consumer behavior by James Duesenberry's 1949 book challenged the Keynes consumption behavior through introduction of psychological factors and habit formation based on relative income concerns.

The social dimensions of consumption have long history i.e. Clark, 1918; Downey, 1910; knight, 1925a, 1925b; Mitchell, 1910; Patten, 1889; Veblen, 1899, 1909 and Duesenberry in his work promised the link between Keynesian and institutional analysis. Duesenberry's theory of consumption

in 1950's was displaced by Modigliani and Brumberg's (1954) life cycle theory of consumption and Friedman's (1957) permanent income hypothesis.

There has been featuring of consumption function in macro-models as Modigliani and Brumberg (1954) has been followed by Keynes (1936), Friedman (1957), Hall (1978), and the influential consumption model of David, Hendry, Srba and Yeo (1978). The foundation for the later studies in the behavior of consumption has been laid by the empirical evidence and theories of these studies. (Singh December 2004)

On the basis of the empirical work consumption has a very long tradition. Keynes (1939) postulated the consumption function as a form of relationship between consumption and disposable income. Keynes stated the consumption to be a fixed portion of the current income in his consumption model.

The Absolute Income Hypothesis implied that the people adapt instantaneously to the changes in income. Therefore both the empirical and theoretical limitations of the AIH have led to the development of the Life-Cycle Hypothesis (LCH) by Modigliani and Brumberg (1954) and the Permanent Income Hypothesis (PIH) by Friedman (1957). The likelihood of fall in net savings is present owing to the boost in consumption due to the availability of wealth. In Permanent Income Hypothesis instead of the volatile consumption the smooth consumption is preferable.

The consumers often create a pattern of consumption that is fairly constant even when over time there is considerable variation in income. Also at different time periods, the consumers prefer to buy the same quantity of goods. Friedman (1957) tested the PIH theory by stating that the idea of permanent income by people is assumed to be based on what happened over the past several years. Therefore lags have been introduced in the consumption function by PIH.

Hall (1978) applied the hypothesis of Rational Expectations by taking the approach of life cycle permanent income. The Rational Expectations Hypothesis has implication that the behavior of people is mostly inclined towards their having knowledge of the process of generating income.

The inclusion of lagged variables such as income and wealth into an auto regression on consumption can be used for the formal testing of PIH/LCH of consumption as suggested by Hall. As compared to the proposition of PIH/LCH, Flavin (1981) found that the sensitivity of consumption over changes in income is greater hence known as the "excess sensitivity of consumption". There had been little support found by Campbell and Mankiw (1990) for the Permanent Income Hypothesis. Error correction Model presented by Davidson, Hendry, Srba and Yeo is considered as one more influential approach to modeling consumption. (Henceforth DHSY) (1978).

The specification of the relationship between consumption and wealth has been considered appropriate by means of the Error Correction Mechanism approach as applied by Davis (1984). Molana (1991) showing that the favorable early empirical evidence on the DHSY. Chambers (1991) found good forecasts for the economy of UK by applying the same ECM approach. (Singh December 2004)

The relation between income and saving has been shown by a certain amount of objectivity as declared by Campbell and Clarida. It has been shown by the Britain and Canadian research with respect to the permanent income hypothesis that the disposable labor income to household saving behavior has a certain relative incorporation of variations. (Campbell and Clarida April 1987).

The chronological order of the various works about permanent income hypothesis is given in the above literature. The follow up research study is based on the relative association between consumption and various permanent income determinants. These include gross value added, gross national expenditure, total revenue and gross saving.

The Error Correction Model (ECM) approach is employed. The primary purpose of this study is to generate a better understanding of the factors determining consumption in Pakistan. It has been said in the LCH that over the life cycle phases of a consumer, the income varies systematically and smooth consumption can be achieved by means of savings. The equality of savings with non-saving has been notified because the savings will be eliminated due to the interest on borrowing. Wealth other than income may also heavily influence the LCH.

There is direct proportionality between consumption and permanent income as stated by the permanent income hypothesis. There has been indication of strong positive relationship between independent variables i.e. household income, loan, saving, education level, type of employees and family size and dependent variable i.e. household consumption. (Akhir 2011).

It is concluded that the correction of the deviation of consumption, income and wealth can be only corrected through the consumption by means of consumption ECMs as single equation. (Fernandez-Corugedo, Price et al. 2003)

There had been evidence regarding the presence of association between consumption and income indicators but this study is highly significant in determining the short term association between consumption and the wealth indicators i.e. gross value added, gross national expenditure, total revenue, natural resources and gross saving through the Error correction mechanism. This ECM approach is our main concern in finding the relatedness of Permanent life cycle income hypothesis in Pakistan's perspective.

OBJECTIVE OF STUDY

Our study is mainly concerned with the objective of finding short term effects of wealth indicators affecting consumption in Pakistan.

MATERIAL AND METHODS

Annual time series data from 1976 to 2009 is used for the empirical analysis. The data is obtained from the state Bank of Pakistan, IMF International Financial Statistics, and the economic survey of Pakistan. Where relevant, all data series were deflated and expressed in real terms. Actual data was available for all variables and the variables are Final Consumption, Gross Value added, Gross national expenditure, Gross Savings, Natural Resources, Total Reserves.

Unit Root Test

A necessary condition for in the long run co-integration among variables is their level of stationary in the Johnson based cointegration test. All variables are tested for stationary using the standard Augmented Dickey-Fuller (ADF) (Said and Dickey 1984).

Johansen Cointegration Test

Engle and Granger (EG) in 1987 described cointegration technique. The attraction of cointegration analysis in economics stems from the fact that several key economic relationships, such as the link between income and expenditure or prices and wages, are hypothesized to have long-term, stable relationships. The test for a cointegrating relationship provides a means for assessing the nature of this kind of relationship and for assessing the validity of economic theories hypothesizing equilibrium relationships. In this study we will use the Johansen cointegration test (1991, 1995).

Error Correction Model

The error correction mechanism (ECM) was used by Sargan and later adopted by Engle and Granger corrects for disequilibrium. An important theorem, known as the Granger representation theorem, describes that if variables are cointegrated, then the relationship between them can be expressed as ECM.

$$\Delta Fc = \alpha + \beta_1 \Delta gva + \beta_2 \Delta gne + \beta_3 \Delta gsv + \beta_4 \Delta nr + \beta_5 \Delta tr + \mu_{t-1}$$

RESULTS AND DISCUSSION

The results of ADF tests are presented in Table 1. ADF test result including the intercept only for unit root indicates that all variables are stationary at 1st difference at the 1% levels of significance which is the necessary condition applying the Johansen co-integration test (1990-1991). However after inclusion of the trend the variable of gross value added and gross national expenditure becomes stationary after the second difference. The results of Johansen cointegration as per table 2 indicate that there are two cointegration equations in the model which emphasize the fact that our model has long run relation. Table 2 shows

that the null hypothesis of no cointegration is rejected at the 5 percent as well 1 percent critical level for four equations.

The result of Error Correction Mechanism (ECM) is presented in table3.

$$\Delta Fc = \alpha + \beta_1 \Delta gva + \beta_2 \Delta gne + \beta_3 \Delta gsv + \beta_4 \Delta nr + \beta_5 \Delta tr + \mu t - 1$$

The regression results of Error Correction Mechanism (ECM) of consumption equation shows that short-run changes in gross national expenditures and natural resources have positive and significant impact on short-term changes in consumption. The gross savings, gross value added and total reserves have statistically insignificant but positive impact on short run changes in consumption. The coefficient of error term is statistically significant at more than 5 %, level of significance which implies that statistically, the equilibrium error term is not zero, suggesting that consumption adjusts to a change in the same period is about 43.49 % and balance is carried to the next period.

ADF Test for Stationary

Table 1: Including only Intercept

Name of variable	Level	1st diff	Critical value @ 1%	Stationary at level
Final consumption	4.959070	-3.070584	-2.6369	I(1)
Gross Value Added	6.258572	-2.779908	-2.6344	I(1)
Gross National Expenditure	5.436035	-2.932769	-2.6344	I(1)
Gross Saving	3.264209	-4.768467	-2.6344	I(1)
Natural Resources	2.110184	-3.720159	-2.6344	I(1)
Total Reserve	-1.5379	-5.169037	-2.6344	I(1)

Table 2: Johansen Cointegration test

Series: FC GNE GSV GVA NR TR				
Lags interval: 1 to 1				
	Likelihood	5 Percent	1 Percent	Hypothesized
Eigenvalue	Ratio	Critical Value	Critical Value	No. of CE(s)
0.663869	112.9467	94.15	103.18	None **
0.641413	78.05856	68.52	76.07	At most 1 **
0.492469	45.23984	47.21	54.46	At most 2
0.403125	23.53751	29.68	35.65	At most 3
0.182980	7.024002	15.41	20.04	At most 4
0.017258	0.557075	3.76	6.65	At most 5

*(**) denotes rejection of the hypothesis at 5%(1%) significance level

L.R. test indicates 2 cointegrating equation(s) at 5% significance level

Table 3: Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DGNE	0.483562	0.17668	2.736956	0.011
DGSV	0.002543	0.18691	0.013606	0.9892
DGVA	0.208111	0.22817	0.912105	0.3701
DNR	1.388271	0.18862	7.360006	0.0003
DTR	-0.237008	0.17446	-1.358565	0.186
LRESID	-0.434959	0.22702	-1.915993	0.0664
C	1.61E+08	2.54E+08	0.63321	0.5321
R-squared	0.981	Mean dependent var		3.54E+09
Adjusted R-squared	0.976615	S.D. dependent var		6.87E+09
S.E. of regression	1.05E+09	Akaike info criterion		44.56773
Sum squared resid	2.87E+19	Schwarz criterion		44.88518
Log likelihood	-728.3676	F-statistic		223.735
Durbin-Watson stat	2.262343	Prob(F-statistic)		0.00000

CONCLUSION AND RECOMMENDATION

The study revealed that the rapidity of adjustment towards long run steady state is found below one, for consumption, gross national expenditure, gross value added, gross natural resources, gross domestic savings and total reserves, indicating that the adjustment process is slow and short-term disequilibrium of previous period never adjusts completely in the current period. Short run disequilibrium adjustment pace of consumption is statistically significant, indicating that short run discrepancies do not adjust completely in the same period.

The short-term policies of gross national expenditure and gross natural resources have favorable impact on consumption. The short-term policies have constructive impacts in term of output development. It results in gain of better internal performance, in term of consumption expenditure, capital expenditures. Short-term policies have favorable impacts in term of private and public investments. The short-term policies for gross domestic saving and gross value added are facing the dilemma. This may be due to the fact that people have little in their hands in terms of savings and if it is that too are becoming the part of other financial assets like the total reserves.

Based on these evidences it is apparent that consumption and wealth variables are important to determine the macroeconomic stability in Pakistan. If the government gives priority to long-term consumption on the basis of exploring the available natural resources, it can gain better results in economic growth, poverty alleviation and unemployment retardation. Parallel and effective running of permanent wealth hypothesis, policies are needed to devise the plan to increase the economic growth of the country keeping in view the above economic variables rather than focusing on the short term policies.

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