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RESEARCH ARTICLE

Impact of Income Distribution on Aggregate Consumption

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Abstract: There is controversy about the main determinant of consumption behavior and the role of income distribution on aggregate consumption. Keynesian consider current income as the main determinant and income distribution as relevant, whereas Classicals consider interest rate as the main determinant and income distribution as irrelevant. Keynesian believe that marginal propensity to consume (mpc) is less than average propensity to consume (apc) and apc declines as income increases. Therefore, in a growing economy, the proportion of consumption in aggregate demand must fall. Consequently, economic activity may stagnate if there is no compensating increase in other components of aggregate demand. However, time series data testifies to a constant apc. In this paper, Keynesian consumption function is tested using cross-sectional micro data of Pakistan economy. The results confirm Keynesian view that rich people have lower marginal propensity to consume than poor people. The paper concludes that constancy of long run apc may be due to increase in household debt and household wealth which also influence consumption positively. Therefore, a suitable income redistribution scheme is advisable to control any possibility of economic stagnation and to ameliorate the problem of cascading household debt.

Keywords: consumption function, income distribution, aggregate demand, average propensity to consume, relative income, permanent income

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1. Introduction

There are opposite views regarding any role of income distribution in aggregate economic activity. The classical view is that income distribution does not matter whereas Keynesian view is that it does. In classical framework, interest rates significantly affect household decision making. The higher is interest rate, the more savings are and less is consumption and vice versa. At the equilibrium interest rate, savings are equal to investment as well as aggregate demand equal to aggregate supply (Mankiw, 2021; Branson, 1979; Keynes, 1937; Ohlin et al., 1937). The possibility of any glut of unsold goods and services or deficient aggregate demand for a prolonged period is rare. This theory remained popular till the onset of Great Depression but then faded as it could not explain persistent unemployment satisfactorily. At that time, Keynes (1936) came up with an alternative theory that individual households decide their consumption looking mainly at their current income and ignoring small changes in interest rates. He also opined that rich people consume proportionately less income than poor people do. Thus, he guessed the role of income distribution in aggregate consumption and

aggregate demand in an economy.

To explain consumer behavior, there are four main theories in literature. Absolute income hypothesis (AIH) that is attributed to Keynes (1936), relative income hypothesis (RIH) that is propounded by Duesenberry (1949), permanent income hypothesis (PIH) that is advocated by Friedman (1957), and lastly life-cycle hypothesis that is presented by Ando and Modigliani (1963). According to AIH, the current disposable income of a consumer is the main determinant of his consumption. If his income increases over time, then his consumption also increases but proportionately less than the increase in income. That is, his marginal propensity to consume (mpc) is less than one and his average propensity to consume (apc) is a declining function of his disposable income. Verification of this theory as such is difficult because time series micro data on individual consumption and income is hardly available anywhere. However, AIH also implies that, on average, mpc of a low-income consumer should be greater than that of a high-income consumer. In this form, this theory has been tested by many researchers and validated by most of them.

AIH has been widely quoted and discussed, since its inception, in textbooks of macroeconomics (Froyen, 2013; Branson, 1979). An important implication of this theory, referred as 'stagnation thesis', is that proportion of aggregate consumption in total GDP, of a growing economy, decreases over time. Therefore, if such a proportionate decrease in aggregate consumption is not compensated timely with an equal increase in other components of GDP such as aggregate investment, government expenditures and net exports, then economic growth in the country will stagnate. Hence, policy implication of AIH is that to maintain the proportion of consumption in total GDP of a growing economy, government needs to implement some regular income redistribution scheme from high-income to low-income households.

Initially Keynesian theory was accepted very well but it lost its luster soon after Kuznets (1946) published his seminal work on consumption behavior. He analyzed long-run time series aggregate consumption and income data for the US economy. His major conclusion has been that apc is not a falling function of income; rather it has been constant over decades though income increased a great deal over that period. In other words, it totally negated 'stagnation thesis.' However, a few years later, Modigliani and Brumberg (1954) concluded that cross sectional and short-term time series data validate Keynesian consumption function while long-run time series data validate Kuznets' findings. These findings are taken as stylized facts of consumption. They neither contradict nor support either of the two theories completely. Therefore, the other three theories of consumption, RIH, PIH and LCH basically try to reconcile these stylized facts.

RIH states that relative income of a household in society matters more than its own absolute income to determine its consumption expenditures. Every household tries to maintain its standard of living and its relative consumption within its immediate neighborhood. Therefore, if income increases without any change in income distribution, then individual as well as aggregate apc remains constant. However, if average household income increases amid worsening income distribution, then people on the upper end of income distribution increase consumption of conspicuous or positional items such as jewelry, big cars and houses and other luxury items as they want to distinguish themselves in society.

At the same time, people on the lower end of income distribution start emulating them by drawing down their savings and accumulating their debt. Frank et al. (2014) adapted the same view and named it expenditures cascading. As a result, aggregate apc increases in face of deteriorating income distribution amidst a growing economy. Apparently, it contradicts the Keynesian view that aggregate apc decreases as income increases, but it conforms to the Keynesian standpoint that aggregate apc increases only if lending to lower income brackets increases.

Friedman (1957) in his PIH and Ando and Modigliani (1963) in their LCH plead that consumption is not only based on current income but also on income expected over lifelong period. According to PIH, current consumption is mainly determined by permanent income and partly by current income. That is, people increase or decrease their consumption only if they are convinced that the increase or a decrease in their income is permanent. Their consumption does not change much in response to any change, big or small, in their current income, which they believe is transitory. According to LCH, people want to have a smooth consumption pattern or a stable standard of living throughout their life which can be afforded with their total lifelong income earned from work and from property and other sources. The common point of PIH and LCH is that apc is a constant function of the average lifelong income, which cannot be estimated without using interest rate as the discounting factor for expected future stream of incomes. The two-period inter-temporal utility maximization model of consumption that is also included in most of the textbooks captures the spirit of both Keynesian and classical schools of thought. In this model, current consumption is a positive function of current and future incomes and a negative function of interest rate (Gordon, 2006; Branson, 1979).

However, Kuznets (1955) further deemphasizes any need for redistributive measures of personal income. Analyzing time series macro data, he concludes that income distribution, due to market forces, worsens over the initial stages of industrialization and improves later. Initially productivity difference between primary and manufacturing sectors is big because migration of workers from agriculture to industry is low due to lack of required skills and education. It accentuates income inequality. However, over time workers acquire requisite skills and training that eases their migration from agriculture to industry. Hence, worsening income distribution in the economy narrows down. To substantiate his conclusion, he contrasts income distribution of USA, UK and Germany, which have been at the advanced stages of development around the middle of twentieth century, with that of India, Ceylon and Puerto Rico, at their initial stages of development at that time. He found less income inequality in the former group of countries than in the latter. This research and previous research of Kuznets (1946) minimized the scope of Keynesian consumption function and downgraded its policy implication of income redistribution scheme.

However, the hot selling book of Piketty (2014) and Piketty and Saez (2006 and 2003) reveal uninterrupted deterioration in income distribution, starting from late 1970s, in the developed countries such as USA, UK and Germany has rekindled research interests in Keynesian standpoint. It has discredited Kuznets' over optimistic theory of natural decline in income inequality in market economies. Piketty and Saez (2014) state, "The compression of incomes (in the developed countries) occurred primarily because of the fall of top capital incomes induced by the world wars, the Great

Depression, and the regulatory and fiscal policies developed in response of these shocks. In particular, there was no decline in structural income of labor force (as preached by Kuznets)."

Furthermore, Palley (2002a and 2002b) has identified several factors which countered not only the dampening effect of worsening income distribution on aggregate consumption as implied by the 'stagnation thesis' but they also created conditions leading towards excess aggregate demand. These factors include first the unprecedented increase in household debt due to which aggregate consumption expanded over this period (Frank et al., 2014). Second, the share of profit in functional distribution of income swelled and, in turn, stimulated the proportion of investment spending in aggregate demand. Third, the longest spell of economic expansion and booming stock market in the 1990s boosted business outlook and encouraged extra investment and consumption spending. However, in his view, these mechanisms have been largely exhausted as evidenced by the unexpected slow recovery after injecting heavy policy stimulants to quell damaging effect of Global Recession of 2007-8. He has further criticized the mainstream view of 'export-led growth model' (Palley, 2012) and 'zero lower bound economics' (Palley, 2019) both of which are grounded upon the mainstream view of irrelevance of income distribution for aggregate consumption. He has therefore emphasized the need for some kind of redistributive measures to encourage domestic demand-led growth model. These viewpoints indirectly revived the credibility of Keynesian stance on consumption theory.

Therefore, the debate over the role of income distribution for economic activity can better be settled by re-estimating AIH using alternative data set. Therefore, this paper aims to estimate Keynesian consumption function afresh for latest cross-sectional data of Pakistan economy.

Particularly there are three main objectives of this research: -

- To estimate Keynesian consumption function for all households.
- To divide all households first into 4 quarters each having the same number of households and then into two groups as poor and non-poor based on projected poverty line for the year 2015-16.
- To investigate whether consumption function is linear or concave by including the square term of income in the specification.

The scheme of this paper is that its next section reviews the relevant literature. Section three is for methodology. Section four contains estimation results and their discussion. The last section is reserved for conclusions and policy recommendations.

2. Literature Review

Keynes' consumption theory is considered a big theoretical leap in the history of economic thought because it reversed the priority order of decision making. Prior to his theory, consumption decision of a household has been viewed as residual or secondary while saving decision as vital or primary (Bunting, 2001). According to loanable funds theory the current investment is promoted by individual saving to the same extent as present consumption is diminished (Backhouse and Boianovsky, 2024; Blackford, 2021). Keynes (1937, p.248) states, "The theory of the interest which prevailed before 1914 regarded it as the factor which ensured equality between saving and investment... The novelty in my treatment of saving and investment consists of the level of income (in conjunction with certain other factors) ensures this equality." Keynes (1936 p.94 & 97) stated, "There are not many people who will alter their way of living because the rate of interest has fallen from 5 to 4 percent." and "a man's habitual standard of life usually has first claim on his income." It means that Keynes identified income as the major and interest rate as a minor determinant of consumption. About the exact relationship between consumption and income, Keynes (1936, p.96) introduced the fundamental psychological law, according to which, "the men are disposed, as a rule and on average, to increase their consumption as their income increases, but not by as much as the increase in their income. That is to say …. dC/dY is positive and less than one." It is clear from this description that mpc (dC/dY) is less than one and apc is a declining function of income. However, there is not much discussion whether mpc is also a falling function of income or a constant function.

Soon after publication of Keynes' book General Theory of Employment, Interest and Money in 1936, empirical testing of Keynesian consumption function started. Few earlier studies, which used cross-sectional data such as Gilboy (1937, 1938 and 1939) and Staehle (1937, 1938 and 1939), not only validated Keynesian stance but also emphasized that Keynes should have inculcated the role of income distribution more explicitly in his consumption theory. For example, Gilboy (1938) notes that the fitted consumption function is nonlinear which implies that in addition to apc, mpc is also a declining function of income. Staehle (1937, p.142) states, "the proportion of income spent on consumption goods increases when income ceteris paribus diminishes and diminishes when income increases…. The more income is concentrated in the hands of receivers of large income, the smaller, according to our regression equation, will be the proportion of total income spent on consumption goods". Staehle (1939) also clearly states that Keynes should have inserted some variable characterizing the distribution of incomes in the description of his fundamental psychological law. After noting such comments, Keynes (1939) replied to Staehle, "individual propensity to consume as being (normally) such as to leave a wider gap between income and consumption as income increases, it naturally follows that the collective propensity for a community as a whole may depend (inter alia) on the distribution of incomes." However, he did not bother himself to mend his fundamental psychological law because his prime objective was doctrinal rather than statistical explanation of the law (Thomos, 1992; Garcia-Lizana and Perez-Moreno, 2012). It made it easier for later authors to overlook completely the importance of income distribution in determination of aggregate consumption

though Metzler (1943) and Lubell (1947) simulated the impact of hypothetical income redistribution from the rich to the poor and found it positive for aggregate consumption in the economy.

Due to notable advancements, after Second World War, in national data accounting methods, time series data became accessible more easily and its empirical analysis became more convenient and fashionable. However, consumption behavior analyzed using time series data by many authors including Kuznets (1946), Modigliani and Brumberg (1954) and Blinder (1975) did not validate the Keynesian position of falling apc in face of rising income. Rather, Modigliani and Brumberg (1954) clearly negated any role for income distribution to influence aggregate consumption as they wrote, "our new understanding of the determinants of saving behavior cast some doubts on the effectiveness of a policy of income redistribution for the purpose of the average propensity to save (or apc)."

To reconcile the empirical fact of constant apc, Friedman (1957) and Ando and Modigliani (1963) invented PIH and LCH respectively. According to both hypotheses, current consumption of a consumer depends less on his current income and more on his average lifelong or permanent income that is estimated by adding up all expected future income streams discounted with some appropriate rate, mostly the market interest rate. Hence, in these hypotheses, the market interest rate comes back as a crucial determinant of current consumption, a reminiscent of the long era before Keynes during which it has been the main determinant. Another common point of both hypotheses is that income distribution does not influence aggregate apc (Drakopoulos, 2021). Hall (1978) further extends this line of thinking by incorporating rational expectations hypothesis in consumption decision making and concludes that consumption is not even a predictable function of either current or some average lifelong or permanent income but follows a random walk.

Bunting (2001 and 1998) and Thomas (1992 and 1989) opine that the falling apc which emerges from Keynes' writings can be measured only from cross-sectional data. A long-term series data is not suitable to prove or disprove Keynes' stance as it highlights only the average behavior of all people and ignores their individual behaviors. Bunting (2001, p.152) states, "Cross-sectional data measures the behavior of consumer units at a point in time while times series data measures the average behavior of all the units through time." Bunting (2001, p.153) further writes, "failure to carefully distinguish between cross-sectional and time-series data, explains the conflicting empirical results that perplexed researchers since Keynes proposed his Law." Frank et al. (2010) extend the argument of RIH through so-called expenditure cascades. Their argument is that increase in income inequality persuades low-income people to cascade their expenditures by borrowed money because they want to keep up with Jones. In other words, an increase in income inequality leads to an increase in aggregate consumption as well as in household debt. Alvarez-Caudrado and Long (2012) conclude the same that aggregate saving decreases with income inequality. Cuaresma et al. (2018) also shows a positive relationship between aggregate consumption and income inequality. Piao et al. (2023) have concluded that income inequality has led to rising household which increases aggregate consumption in the short term but reduces it in the medium and long term.

To sum up, Keynesian consumption function is considered a big theoretical breakthrough in literature, yet it can be validated only by cross-sectional and short-term time series data. The forward-looking hypotheses of LCH and PIH better explain stylized facts of consumption including the constancy of apc in the long run. According to these hypotheses, consumption is a function of the average lifelong or permanent income which cannot be estimated without using interest rate as the discounting factor for future income flows. After inculcating rational expectations hypothesis in the analysis, the extreme view came up that consumption is not predictable but follows a random walk. On the other hand, it is argued on algebraic grounds that time series data represents the average behavior of all individuals whereas the Keynes' consumption function talks about the behavior of individuals. Another reason is that constancy of long run apc is probably due to piling up of household debt and increasing wealth of stock owners owing to booming stock markets. Both factors affect consumption behavior positively and thus drive up aggregate apc. It means that testing Keynes' Law using recent cross-sectional data is still imperative which is the sole objective of this paper.

3. Methodology

In literature, Keynesian consumption function has been estimated by the following equation:

$$C_i = \alpha_0 + \alpha_1 Y_i + \mu_i \qquad (1)$$

Where C stands for private consumption

Y stands for disposable personal income

a0 represents autonomous consumption

a1 is coefficient of Y and represents marginal propensity to consume (mpc)

i refers to data of a given individual. It varies from 1 to n and

μi represents the error term.

To achieve the first objective of this study, equation (1) is estimated using data of all households. To achieve the second objective, at first the entire sample of households has been divided into 4 quarters such that each quarter contains 25 percent of total households. Income level of the first quarter households is the lowest and that of the fourth quarter households, it is the highest. Then the entire sample has been divided into two groups, poor and non-poor. A household has been categorized as poor if its per person annual income is less than Rs.36360. This amount is the estimated poverty line for 2015-16, the year of HIICS data collection.

To achieve the last objective of this study that consumption function could be nonlinear as opined by Gilboy (1938), the quadratic income term has been included as shown in the following equation:

$$C_i = \beta_0 + \beta_1 Y_i + \beta_2 [Y_i]^2 + \mu_i \qquad (2)$$

If coefficient of the quadratic term comes out to be negative and statistically significant, then it will

reinforce Keynesian stance that both mpc and apc are falling function of income. On the other hand, if this coefficient and the constant term turn out zero or insignificant, then it will conform the stance of LCH and PIH that mpc and apc are constant functions of income.

The data used for this study has been taken from Household Integrated Income and Consumption Survey (HIICS) 2015-16 conducted in Pakistan. It is the recent data available of its sort. In this survey, a two-stage stratified random sampling technique is adopted for the selection of households. At the first stage, 1,605 enumeration blocks (primary sampling units) are selected randomly from both rural and urban areas of all four provinces of Pakistan. At the second stage, from already selected enumeration blocks, 24,238 households are selected in total. From each enumeration block, between 12 to 16 households are selected based on systematic random sampling technique and the starting number in each enumeration block is selected randomly. Only in five percent cases, the number of households from a given block was less than 12.

Since the data used for this study is cross-sectional, therefore ordinary least square (OLS) method is appropriate. However, it may not yield asymptotically consistent and efficient estimates if data contains some outliers and faces the problem of heteroscedasticity. Both problems have been detected in the data. The outliers have been observed by drawing data and heteroscedasticity has been detected by running its test. The result of this test is given in table-B in the appendix. However, to deal with such a data, Chatterjee and Mächler (1995) have suggested regression estimation based on white heteroscedasticity consistent standard errors. This method yields consistent as well as efficient estimators even in the presence of outliers and heteroscedasticity. Therefore, this method that is in-built in the latest version of statistical software STATA has been used in this study.

4. Results and Discussion

In accordance with the second objective of this study, all households have been divided into 4 equal quarters. The range of income of each quarter and percentage of rural-urban households in each quarter is given in table 4.1 below.

Table 4.1: Income range and rural-urban decomposition of each quarter

Quarter	Income	Rural	Urban	Total
1st	<31667	20.9% (83.6%) (32.9%)	4.1% (16.4%) (11.2%)	25% (100)
2nd	31668 – 46800	16.85% (67.4%) (26.6%)	8.15% (32.6%) (22.3%)	25% (100)
3rd	46801 – 72000	14.5% (58.0%) (22.8%)	10.5% (42.0%) (28.8%)	25% (100)
4th	72001 – 4135000	11.25% (45.0%) (17.7%)	13.75% (55.0%) (37.7%)	25% (100)
Total		**63.5%** (100)	**36.5%** (100)	**100**

In the above table, income per person is calculated by dividing the total average income of each household by its average size. Column two shows the range of income in each quarter. It is the widest in 4th quarter. Column three gives the proportion of rural and urban population in each quarter (number in parentheses in the same line or row-wise) as well as the proportion of rural and urban population belonging to each quarter (number in parentheses below the line or column-wise). For the first 3 quarters who are relatively less well-off people, the percentage of households living in rural areas is significantly greater than that living in urban areas. For example, 83.6 percent of people in the first quarter who live in abject poverty as their average annual income (31667) is less than the estimated poverty line (36360) reside in rural areas while 16.4 percent reside in urban areas. However, for the 4th quarter, the situation is different; percentage of people living in rural areas is less than that living in urban areas. The last row shows that 63.5 percent of total population reside in rural and 36.5 percent in urban areas. Looking column-wise, almost one-third of the rural population (32.9%) live in the lowest income quarter. On the contrary, only one-sixth of the rural population (17.7%) live in the highest income quarter. The reverse is true for urban population. Only 11.2 percent of urban population belong to the lowest income quarter whereas 37.7 percent to the highest income quarter. Both row-wise and column-wise comparisons show that rural areas of Pakistan are concentrated with poor people and urban areas with rich people.

Further, all households have been divided into two groups, poor and non-poor. A typical poor person's annual income is less than Rs.36360, that is the estimated poverty line for 2015-16. The range of income of each group and percentage of rural-urban households in each group is given in table 4.2 below.

Table 4.2: Income range and rural-urban decomposition of poor and non-poor groups

	Income	Rural	Urban	Total
Poor	<36360	26.9% (80.3%) (42.4%)	6.6% (19.7%) (18.1%)	33.5% (100)
Non-poor	36360 – 4135000	36.6% (55.0%) (57.6%)	29.9% (45.0%) (81.9%)	66.5% (100)
Total		**63.5% (100)**	**36.5% (100)**	**100**

Column two shows the range of per adult income in each group. The last column points out that the approximate percentage of households living in poverty was 33.5% in 2015-16. It is an alarming figure; one out of every 3 households in Pakistan lived below poverty line. Moreover, 80.3% of poor population is in rural areas. Column-wise, two out of every five adults (42.4%) living in rural areas are poor whereas one out of every five adults living in urban areas (18.1%) are poor.

The estimation results of equation (1) first using the data of all households and then using the data of each quarter turn by turn have been given in table 4.3 below.

Table 4.3: Regression results (equation one) for all households and for each quarter

Quartile	Intercept	MPC	R-square
Complete	128543* (0.00)	0.669* (0.00)	0.70
1	18073* (0.00)	1.133* (0.00)	0.59
2	37787* (0.00)	1.015* (0.00)	0.21
3	80973* (0.00)	0.844* (0.00)	0.16
4	255249* (0.00)	0.579* (0.00)	0.55

Note: One * represents significance at 1% level of significance.

The first row labeled 'complete' shows the results for all households. The goodness of fit that is judged from R-square is 0.7 that is good enough for cross-sectional data. It means that income explains about 70% variation in consumption. Both autonomous consumption and mpc are significant at 1% level of significance. The positive sign and magnitude of mpc (0.669) is also in line with the results of previous studies and Keynesian consumption function. The results for quarters 1st to 4th are given in rows labeled 1 to 4. The goodness of fit is satisfactory for quarters 1st and 4th as their R-squares 0.59 and 0.55 respectively are greater than .4 that is considered a benchmark for cross-sectional data. However, R-square for quarters 2 and 3 are 0.21 and 0.16 respectively, that is not sufficiently high but satisfactory. All the coefficients are highly significant and bear the expected positive sign. As implied by Keynesian theory, mpc of 1st quarter is the greatest 1.133 and mpc of the 4th quarter is the lowest 0.579. It indicates that the first 2 quarters must borrow or reduce their saving to maintain their living standard. On the other hand, households in the 4th quarter have a low mpc 0.579 or a high saving rate 0.421 (1 – 0.579).

The estimation results of equation (1) first using the data of all households and then using the data of poor and non-poor households turn by turn have been given in table 4.4 below.

Table 4.4: Regression results (equation one) for all households and for poor and non-poor households

	Intercept	MPC	R-square	Proportion of people
Complete	128543* (0.00)	0.669* (0.00)	0.70	100
Poor	28704* (0.00)	1.086* (0.00)	0.83	33.5
Non poor	147439* (0.00)	0.651* (0.00)	0.67	66.5

Note: One * represents significance at 1% level of significance.

The first row labeled 'complete' is same as given in table 4.3. Its explanation is given there. The results for poor and non-poor households are given in rows 2 and 3 labeled as poor and non-poor. The goodness of fit is 0.83 and 0.67, that is good enough. Autonomous consumption and mpc are highly significant. The mpc for poor households is 1.086 which indicates that their group must borrow money or decrease their saving to maintain their standard of living. The mpc for non-poor households is 0.651 which indicates that this group has a positive saving rate.

The estimation results of equations (1) and (2) using the data of all households have been given in table 4.5 below.

Table 4.5: Regression results (equation two) for all households

	Intercept	Income	Income^2	R-square
Model 1	128543* (0.00)	0.669* (0.00)	-	0.70
Model 2	66892* (0.00)	0.8737* (0.00)	$-4.82*10^{-8}$ (0.00)	0.83

Note: One star * represents significance at 1% level of significance.

The first row labeled 'Model 1' is same as given in table 4.3 and 4.4. The second row labeled 'Model 2' shows the results for equation 2. The value of R-square is 0.83 which is greater than that for equation 1. That is, equation two explains more variation in the dependent variable, aggregate consumption, than equation one. The coefficients of y and y^2 are of expected sign (positive and negative) and are also highly significant. Although the negative coefficient of quadratic term is close to zero, it indicates that not only apc but also mpc is a negative function of income. In other words, the consumption function is slightly concave, not a straight line as shown in textbooks to reflect AIH. This result is in line with the findings of Gilboy (1938) and reinforces Keynesian stance that income inequality curtails the component of consumption in aggregate demand of a growing economy.

5. Conclusion

Keynesian consumption function is considered as a significant contribution in the history of economic thought. It attaches more importance to current income than to interest rate for determination of consumption behavior. Though initial empirical testing based on cross-sectional

data validated Keynesian consumption function, the long run time series data negated one of its main implications that apc was a falling function of income. The implication of falling apc with respect to income is that aggregate consumption in a growing economy decreases proportionately. Its policy implication is that to maintain the proportionate share of consumption in aggregate demand, assuming the share of investment and net exports in GDP remains constant, the government should introduce any income redistribution scheme from the rich to the poor.

Constancy of apc while using time series macro data foiled the glamour of Keynesian concept of 'stagnation thesis' but falling apc using cross-sectional data kept Keynesian consumption theory alive at least for pedagogical purposes. To reconcile the constancy of apc in the long run and a declining apc in the short run, three theories, RIH, LCH and PIH have been proposed. An important implication of the last two theories is that aggregate apc in an economy does not depend on income distribution. Hence, income distribution becomes a normative concept only. This line of thinking combined with rational expectations hypothesis implied that consumption is not even a predictable function, rather it moves like a random walk. This point of view of irrelevance of any deliberate policy of income redistribution worked fine as long as income distribution in developed countries improved or at least did not worsen that is the period between the end of World War II and early 1970s.

However, worsening income distribution in developed countries particularly in USA since the 1980s has redrawn the attention of academia toward Keynesian consumption theory and RIH. Some of the critics point out that constancy of apc with respect to income can be proved only using the long run time series data which, in fact, analyses the average behavior of all people over time. It does not capture individual behavior, that is the basis of Keynesian theory. Other critics point out that in a long run data, rapidly increasing household debt and booming stock markets also affect apc positively and, thus, counter the negative impact of worsening income distribution on apc. Therefore, they reemphasize the importance of Keynesian theory. That is why this paper picked up latest cross-sectional data for Pakistan economy to estimate Keynesian consumption function.

To distinguish consumption behavior of different groups with respect to their income, all households have been divided first into 4 equal quarters and then into poor and non-poor groups. The estimated results remarkably confirm Keynesian consumption theory. That is mpc is less than apc. The mpc for a low-income quarter is less than that for a high-income quarter. Similarly, mpc of poor households is less than that of non-poor group. Furthermore, not only apc but also mpc is a falling function of income. These results indicate that income distribution matters to maintain the share of aggregate consumption in a growing economy.

The results of this study may be taken as suggestive as they are based on the micro data of one country, Pakistan. Also, estimated consumption functions consider only current income as the argument ignoring other possible independent variables such as household debt, household wealth and interest rate as suggested in other consumption theories. To strengthen these results, future

research may focus on estimating the same or similar hypotheses by using cross-sectional survey data of many countries across the world. Also, comparing estimated Keynesian consumption functions for different income groups in different countries will bring forth new evidence in support of or against Keynesian consumption function. It may also be worthwhile to include some proxy of income distribution as an argument of consumption function. Moreover, to inculcate the viewpoint of relative income hypothesis, household debt and an appropriate measure of non-working income and expectations about any change in the value of assets may also be taken as independent variables.

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Appendix

Table A-1: Result of Hetroscedasticity Test

Variable	Mean	Standard deviation	Minimum value	Maximum value
Consumption	438080	364297	15478	8941180
Income	426935	455020	18000	$1.24*10^7$
Heteroscedasticity test				
Chi2	7567	P-value		0.000