

DEMOGRAPHIC AND SOCIOECONOMIC DRIVERS OF HOUSEHOLD SAVINGS IN PAKISTAN: REVISITING CLASSICAL SAVING MODELS

Ali Taymoor¹, Muhammad Salahuddin Ayyubi², Muhammad Ali Bhatti³,
Muhammad Ghulam Shabeer^{*4}

¹MPhil in Applied Economics, FC College (A Chartered University)

²Assistant Professor, Department of Economics, FC College (A Chartered University)

³Associate Professor, Department of Economics, FC College (A Chartered University)

^{*4}Department of Economics, University of Management and Technology, Lahore.

¹taymoorbhatti@gmail.com, ²salahuddinayyubi@fccollege, ³alibhatti@fccollege.edu.pk

^{*4}imgshabeer@gmail.com

DOI: <https://doi.org/10.5281/zenodo.15422457>

Keywords

Socioeconomic and demographic factors, Household savings, OLS, HIICS survey, household saving behaviour, types of wealth

Article History

Received on 07 April 2025

Accepted on 07 May 2025

Published on 15 May 2025

Copyright @Author

Corresponding Author: *

Muhammad Ghulam Shabeer

Abstract

This study examines the effect of household characteristics on their savings in Pakistan. The models of savings, developed by Keynes, Landau, and Klein, have been estimated using the OLS method. HIICS data from 2015-16 was used for this study. It was observed that an increase in household income raised their savings, while an increase in the average number of dependents per earner decreased household savings. Consistent with the appeal of the lifestyle Income Hypothesis, it was observed that the savings decreased as the age of the Head of a household increased. However, interestingly, household savings were negatively affected by higher educational achievement of the Head, perhaps due to a lesser reliance on pecuniary savings among the households headed by individuals with superior human capital status. Although the direct effect of education on saving was found to be negative, the indirect effect was positive, because increased educational accomplishment coincided with increased earnings, while increased earnings correspond to increased savings. The effect of household wealth on net lifetime saving was negative, at least in cases of less liquid forms of wealth-property and precious metals.

INTRODUCTION

The accumulation and mobilisation of savings are important for a household and a country alike. For households, saving is a future consumption, and it provides a fallback should something unexpected happen. For a country, savings can increase economic growth by increasing its productive capacity, as Harrod (1936) and Domar (1946) models generated the link between savings and growth by introducing intermediary factors: investment and capital. Saving is accumulated at two levels – public

and private. Total savings are therefore composed of public savings of the government and private savings of domestic firms and households.

Income is the main factor in determining savings, as Keynes's Absolute Income Hypothesis postulates that savings always increases with an increase in income, but the effect of income on consumption gradually decreases at higher levels of income. In the long run, saving is directly proportional to income, with a simple definition of savings as the remainder of

income after consumption. Saving can be analysed at two levels, i.e., Macro and Micro. National saving is one of the most critical macroeconomic variables with its microeconomic foundations as well. The macroeconomic factors that influence national savings are GDP, interest rate, inflation rate, share of direct and indirect taxes to tax revenue, trade

openness, etc. While household-based characteristics that influence savings are microeconomic and are influenced by a host of household features that can influence their pattern of savings, household datasets offer a wide range of their characteristics to expose these microeconomic determinants of household savings.

Table 1: National and domestic Savings¹ in Pakistan (% of GDP)

Years	National Saving	Domestic Saving	Foreign Saving
1970's	11.2	7.4	5.8
1980's	14.8	7.7	3.9
1990's	13.8	14	4.6
2000's	14.7	16.1	0.9
2010's	14.57	8.18	2.62
2010-11	14.2	9.7	-0.1
2011-12	13	7.84	2.07
2012-13	13.9	8.7	1.08
2013-14	13.4	7.7	1.28
2014-15	14.7	8.6	1.03
2015-16	13.9	7.8	1.74
2016-17	12	6.5	4.1
2017-18	11.3	5.9	6.1
2018-19	10.8	4.1	4.8
2019-20	13.9	6.8	1.5

Source: Government of Pakistan, Pakistan Economic Survey (Islamabad: Various Issues)

Table 1 illustrates that Pakistan's national savings are stuck at around 13.8% of GDP. Thus, the problem of low savings in the country drew the attention of the authors to undertake this study.

This paper analyses the impact of various demographic and socio-economic features of households in shaping their savings in Pakistan. The paper is composed of five sections. After the introduction is provided in the first section, the second Section carries a review of the relevant literature. The third section provides the theoretical framework of the study and the methodology adopted for this purpose, followed by the results of the estimated regressions and their thorough explanations in the fourth section. The fifth and last section is dedicated to documenting the conclusions of the study.

2. Literature Review

Different studies are conducted in Pakistan to examine the saving behaviours of households from the national level to the district level, and from rural to urban-headed households. These studies identify different characteristics with which household saving behaviour changes. The HIES dataset is repeatedly being used in these micro-level studies. For example, some general conclusions indicate that education level negatively affects the saving rate in Pakistan, and savings decline with an increase in family size. Some of the studies are as follows:

Income is the lifeblood of the household, whether you live in a village or a city. Therefore, it is found significant and positive across the globe (Michael, 2013). However, when Landau introduced the log of income square in his model, the saving-income relationship changed and became negative. It was empirically investigated by Akhter (1986); later on, by Khan and Nasir (1999); and the latest study found in this regard was by Khan et al. (2016) and Abedeen et al. (2024).

The age of the household head was used as one of the factors influencing household savings in several studies, and it was found to be negative in its relationship with saving [Akhter, 1987; Burney et al. 1992; Carpenter and Jensen, 2002; Ahmed and Asghar, 2004; Khan et al. 2016]. Life Cycle Income Hypothesis postulates a non-linear relationship between age with savings. Therefore, different researchers also studied the age square to confirm this relationship.

These studies confirmed its validity for Pakistan and found a significantly negative impact on saving.

Several dependents in the household are studied in different forms, such as the dependency ratio Burney et al., 1992) and Khan et al. (2016); and several dependents (age<15 and age>65) were studied by Akhter (1986 & 1987). It was found in the studies that the number of dependents adversely affects savings, i.e., households with more dependents have lower savings, whereas households with fewer dependents have higher savings.

The impact of education of the Head of a household on savings was studied in two ways in Pakistan: number of years of educational achievement (Rehman et al. 2011) and in the form of dummy variable of education, i.e., no formal education or illiterate (all those below primary education); all those with primary education up to matriculation; all those with matriculation but without a degree level education; and professional degree holders by Burney et al. (1992) and Shabeer et al., (2024). In Pakistan, both studies found an inverse relationship between the educational achievement of the household head and the savings. The results of these studies contradicted the research conducted in other countries. Pakistani researchers Khan et al. (2016) and Ahmad and Asghar (2004) argued that a household head's education has a negative relationship with saving because more educated people spend more on educational expenses of their children as compared to uneducated people. On the other hand, Solmon (1975) found that saving propensities, both on average and at the margin, increased with increased years of education. Therefore, both types of studies were found in international literature, i.e., positive impact of education on savings (e.g., Bennett 2018) and

negative impact of education on savings (Khan et al. 2016; Anwar et al., 2024).

Saving behaviour of the households is also affected by the gender of the head of the household, though it varies across developed and developing countries as well as urban and rural areas. Bashir et al. (2013) found in their primary data study of Punjab that women saved for short-term periods, whereas men saved for medium to long-term periods. Khan et al. (2016) also endorsed that the households headed by men saved more than the ones headed by women. Fisher (2010) also differentiated saving attitudes across women and men. The IMF report (2015) expressed that women had less wealth and lower earnings than men in the developing countries of the world. Bajtelsmit and VanDerhei (1997) mentioned in their study that women were more conservative in investing in financial resources than men, as women were considered more risk-averse. So, mixed results were found for the impact of gender on saving behaviour. More concisely, saving behaviour is influenced by the living conditions experienced by the household under study.

The locality of the household changed their saving behaviour as this phenomenon is approved by the Relative Income Hypothesis. According to it, consumption patterns change due to the vicinity of the household. Occupation of the household is one of the major components in determining the saving behaviour of the household because it directly affects the propensity to save of the household at the margin. Urban-headed households were found to save more than rural households because there were more opportunities and facilities in urban areas supporting their intent to save.

Different proxies for Wealth measurement are used in Pakistan, such as homeowners and renters. Akhter (1986) and Rehman et al. (2011) used the size of landholding and the value of the house. It was found that the renters saved less than homeowners, even though renters had 18% higher per capita income than homeowners (Akhter, 1986). Fagereng et al. (2019) found in their panel data study of Norway that the relationship between saving rate and wealth depends on capital gains, whether we include capital gains in saving or not, though, both have different results - if capital gain is not included in saving, then the saving rate decreases with an increase in wealth;

whereas, when it is included in saving, then the saving rate increases with an increase in wealth. The reason behind the positive relationship is believed to be the fact that wealthier households usually own assets with better capital gains, thereby choosing not to sell their assets for more regular capital gains from their assets. Thus, the wealth effect varies with the definition of saving being used in the analysis.

3. Methodology and Theoretical Framework

People with higher incomes usually save more, whereas lower incomes have few prospects for saving. Saving, at the household level, is conveniently defined as the remaining income after carrying out the consumption expenditures. Household saving is generally defined as the remaining part of income after paying for consumption expenditure. It is said that consumption and saving are two streams, flowing from the fountain of income. However, there are also some other microeconomic factors (besides income and consumption) that determine the saving behaviour of individuals, such as possession of wealth, educational achievement, type of locality, etc. Various studies expressed this phenomenon by using different theories such as the Relative Income Hypothesis (RIH), the Absolute Income Hypothesis (AIH), the Lifecycle Income Hypothesis (LIH), and the Permanent Income Hypothesis (PIH). AIH represented it as a pattern, where saving always increases with an increase in income such that the propensity to consume is greater than that to save, on the margin. Kuznets (1946) presented empirical findings of time series data that contradicted this hypothesis and developed a new argument which said that, in the long run, propensities to consume and save do equalise on average. Duesenberry (1949) presented the RIH and argued that an individual’s consumption does not depend on his own (absolute)

income but on his (relative) income vis-a-vis the incomes of the people in his surroundings. It means that an individual with the same income may consume, depending on their income level compared to other people in their setting. In simple words, consumption, according to RIH, depends on the locality of one's residence. Since consumption depends on the locality, saving was also argued to depend on the locality according to RIH. Modigliani (1954) came in with LIH, arguing that a person’s age determined their consumption pattern during their life. According to LIH, in the beginning comes a phase when one saves more and spends less and then with time the person starts to save less and spends more, thereby smoothing the pattern of spending over the lifespan of their earning and spending. According to LIH, one builds assets in the early part of his life and then uses these assets later in their life. Friedman (1957) distributed the consumption into two parts: *permanent* consumption and *transitory* consumption, where the former was influenced by *permanent* income and the latter was affected by *transitory* income, which is defined as unexpected income such as bonuses.

Data Sources

This study uses the data from Household Integrated Income and Consumption Survey (HIICS), which was carried out during the period from September 2015 to June 2016. This survey was conducted under the PSLM project. The sample consisted of 24,238 households which included 33% rural households and 67% urban household units. The highest share in the sample is from Punjab (43%) followed by Sindh (25%), KPK (22%) and Baluchistan (10%). Table 2 gives a list of all the variables being used in this study by clearly identifying the nature of the variable and its brief description in front of it.

Table 2: List of Variables Used in Regression Analysis

Variables	Description
<u>Dependent Variable:</u>	
Saving Income Ratio	Savings divided by income
<u>Independent Variables:</u>	
<u>Economic Characteristics of the Household</u>	
Income	Total annual income of the household in rupees

Log of Income	Log of total household annual income
Log of Income square	Square of the log of the total household annual income
Inverse of Income	Inverse of total household annual income
Wealth:	
• Property	Estimated value of property in rupees
• Precious Metals	Estimated value of metals, e.g., gold, silver, etc., in rupees
• Net lifetime Saving	Cash holding of the household - Debt

Demographic Characteristics of the Household

Age	Age of the household head in years
Age square	Square of the Age of the household head
Dependents per earner	Total number of dependents divided by the number of earners in the household
Urban	Urban area = 1, 0 otherwise (rural, reference category)

Social Characteristics of the Household

Education level:	Years of schooling
------------------	--------------------

Table 3 provides a comprehensive picture of all the critical variables used in the study to describe how these variables were investigated in earlier studies. Each row in Table 3 is dedicated to one variable that is estimated in the selected studies available in the literature. There is a brief description of each variable and its effect on the savings. The last column lists all the studies that have estimated the variable under question. There are a total of eleven

variables selected in Table 3, and the effect of each variable is quite stable across the studies, except one, i.e., education, which was estimated to show both negative and positive impacts on savings by different authors.

Table 3 is designed to help the reader know the prior position of researchers with regard to selected variables affecting savings in a country.

Table 3: Relationship between Expected Variables in the Case of Pakistan

Variable	Description	Signs	Used by authors
Age	Age of household head	Negative	Burney, N.A., and Khan, A.H. (1992) Ahmad, M., & Asghar, T. (2004) Khan, A. H., Khalid, U., & Shahnaz, L. (2016).
Dependency ratio	Number of dependents in a household	Negative	Akhtar, Sajjad (1987) Burney, N.A., and Khan, A.H. (1992) Ahmad, M., & Asghar, T. (2004) Khan, A. H., Khalid, U., & Shahnaz, L. (2016).
Education	Dummy variable for education =1 if the household head is literate =0 if otherwise	Positive	Akhter, Sajjad (1987)
		Negative	Akhtar, Sajjad (1987) Burney, N.A., and Khan, A.H. (1992) Carpenter, S.B., and Jensen, R.T. (2002). Ahmad, M., & Asghar, T. (2004) Khan, A. H., Khalid, U., & Shahnaz, L. (2016).

Employment	Dummy variable =1 if the household head is employed =0 if otherwise	Positive	Akhter, Sajjad (1986), Carpenter, S.B., and Jensen, R.T. (2002). Ahmad, M., & Asghar, T. (2004)
Family system	Nuclear or joint	Positive	Khan, A. H., Khalid, U., & Shahnaz, L. (2016).
Gender	=1 if household head is male; =0 if female	Positive	Ahmad, M., & Asghar, T. (2004) Khan, A. H., Khalid, U., & Shahnaz, L. (2016).
Household size	Number of people in a household	Negative	Akhter, Sajjad (1986); Akhtar, Sajjad (1987) Khan, A. H., Khalid, U., & Shahnaz, L. (2016).
Income	Income	Positive	Akhter, Sajjad (1986); Akhtar, Sajjad (1987) Burney, N.A., and Khan, A.H. (1992) Carpenter, S.B., and Jensen, R.T. (2002). Ahmad, M., & Asghar, T. (2004) Khan, A. H., Khalid, U., & Shahnaz, L. (2016).
Location	Dummy variable =1 if location is urban; =0 if rural	Negative	Burney, N.A., and Khan, A.H. (1992) Khan and Nasir (1999) Carpenter, S.B., and Jensen, R.T. (2002). Khan, A. H., Khalid, U., & Shahnaz, L. (2016).
Marital Status	Married or Unmarried	Positive	Khan, A. H., Khalid, U., & Shahnaz, L. (2016).
Wealth	proxy: rental income	Negative	Akhter, Sajjad (1986), Ahmad, M., & Asghar, T. (2004)

Source: Author's Compilation

Model Specification

Economic theory suggests various consumption/savings hypotheses, e.g., AIH of J. M. Keynes, RIH of James Duesenberry, PIH of Milton Friedman, and LIH of Ando-Brumberg-Modigliani. We have developed a simple model which is mainly based on AIH.

$$S = \beta_0 + \beta_1 Y + \beta_2 z$$

Where S stands for saving and Y stands for income, whereas z shows a vector of other demographic and socio-economic features of the household. The above saving model can be made more flexible by allowing the non-linear terms concerning income, i.e.

$$\frac{S}{Y} = \beta_0 + \beta_1 Income + \beta_2 dependents\ per\ earner + \beta_3 age + \beta_4 age\ square + \beta_5 education\ level + \beta_6 property + \beta_7 precious\ metals + \beta_8 Net\ lifetime\ saving + \beta_9 region + \mu$$

Where,

- $\frac{S}{Y}$ is ratio of savings to income of a household in the last year
- Betas ($\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, and \beta_9$) Measure the magnitude of the effect of each of the demographic and socio-economic variables.
- μ represents the error term

Since this study is using cross-sectional data, therefore, to avoid the problem of heteroscedasticity, the function of savings could be modified in the following manner:

$$\frac{S}{Y} = \alpha_0 + \alpha_1 Y + \alpha_2 \frac{1}{y} +$$

$\alpha_5 z$

Following Klein (1951), the non-linearity of the saving function may be captured as under. According to AIH, α_1 and δ_1 Should be significantly positive. The sign of the α_2 Equation 3 will determine the shape of the saving function. However, empirically, it was found to be negative. The negative signs of α_4 and δ_2 Show the support of the LIH of Ando-

Brumberg-Modigliani. Landau (1971) suggested the following form to test the non-linearity:

$$\frac{S}{Y} = \gamma_0 + \gamma_1 Y + \gamma_2 (\ln \ln Y)^2 + \gamma_4 Z$$

Once the model was finalised, the next step was to adopt the appropriate technique to get the best results from that, and the choice for our study was the popular and convenient Ordinary Least Squares (OLS) method. To avoid heteroscedasticity, all the regression models are estimated with the robust command. We applied robust Regression, as the data used for research analysis is cross-sectional, which usually creates the problem of heteroscedasticity.

Discussion on Empirical Results

This section empirically investigates the saving behavior of Pakistani Households by using three different saving models, i.e., Keynes, Klein and Landau. These methods are used to cover the non-linearity of the saving function and to go beyond just an increase in saving to a proportionate change in saving with an increase in income. The saving income ratio is used for regression analysis. The results discussed in the following sections are gathered from the sample, which included 24,237 Pakistani households.

This study empirically investigates the saving behaviour of Pakistani households with the help of the HIICS dataset of 2015-16. As compared to the empirical results of aggregate data, disaggregated household data causes the heterogeneity of households and provides valuable insights. The micro data provides more precise estimates of the saving-income relationships. The nonlinearity of the saving function concerning income has been studied by using Keynes, Klein and Landau specifications.

The overall national level regression results, i.e., based on the complete sample, are presented in Table 4. All three models of savings (Keynes, Klein and Landau) give qualitatively similar results except for net lifetime savings. The regression model results

exhibit that income, dependents per earner, wealth and regional location of the household, whereas age and education of the head of household significantly affect the savings behaviour in Pakistan. If we compare the three models based on the values of R-squared, the Coefficient of Determination, the Landau and Klein models (relatively speaking) fit the data better. Although the values of R-squared are low in all three models, it is very common in the case of cross-sectional data, which is the case with the present study.

The results of the Keynesian model show that the coefficients of income and the inverse of income are both highly significant. It implies a nonlinear relationship between income and saving. The estimated effect of income is positive, whereas that of the inverse of income is negative. It implies that the first derivative of APS concerning income is positive and the second derivative is negative. So, it can be inferred that as income increases, the APS increases at a decreasing rate. The results of the saving-income relationship of the Klein model are also consistent with the Keynesian model. The non-linearity of the saving-income relationship is modelled by including the log of income in the regression. The positive and highly significant coefficient of the log of income shows a nonlinear relationship between saving and income. The estimated coefficient of the log of income is 0.1852, i.e., if income increases by one per cent, the saving rate increases by 0.001852 units. Qualitatively similar results are obtained from the Landau model. The positive and extremely significant estimates of income and the square of the log of income variables confirm the positive and nonlinear relationship between APS and income. The implied positive first and second negative derivatives of APS concerning income suggest that APS will increase at a decreasing rate as income increases.

Table 4: OLS Estimates of Household Savings- Pakistan

Dependent Var: S/y	Keynesian	Klein	Landau
Income	1.42E-07***		1.68E-08**
Inverse of Income	-12850.82***		
Log of Income		0.1852***	
Square of the log of Income			0.0069503***
Dependents per Earner	-0.0141999***	-0.0156819***	-0.0154395***
Age	-0.0014809*	-0.0041945***	-0.0038427***
Age2	2.43E-05***	0.0000392***	0.0000357***
Education	-1.67E-03***	-0.0050994***	-5.09E-03***
Property	-1.33E-09***	-1.17E-09***	-1.52E-09***
Precious Metals	-2.33E-08*	-6.21E-08***	-6.95E-08***
Net Lifetime Saving	-1.25E-08*	1.33E-08***	7.90E-09*
D region	-0.07551***	-0.0919***	-0.09026***
Constant	0.18917***	-2.0201***	-0.8083449***
R-square	0.1797	0.2408	0.2447
Observations	24,237		

Source: Author’s Calculation from HIICS 2015-16 Data

In line with the spirit of LCH proposed by Ando and Modigliani (1963), several other important variables, representing demographic features like the number of dependents per earner and age of the head of household, are also included as control variables in our models. The results of all three specifications are consistent with LCH in this regard. These are quite similar qualitatively as well as quantitatively. The coefficients are significantly negative in all cases. An increase of one dependent per earner decreases the saving rate by 0.0142, 0.0157 and 0.0154 units in the case of Keynesian, Klein and Landau specifications, respectively. Many dependents require a larger budget share for basic needs like food, health and housing.

To capture the nonlinear connection between the age of the household head and the savings, age is included in linear as well as quadratic forms. According to our dataset, the ages of the heads of the households are less than 36, 45 and 55 years for the first 25%, 50% and 75% households, respectively. The coefficients of linear and quadratic terms are both significant in all three models. The coefficients of linear terms are negative, and those of the quadratic terms are positive in all three specifications. All these coefficients are highly significant except the coefficient of the linear term in the Keynesian model, which is significant at 10 per

cent. The derivatives of age and age square revealed that the turning points of saving rate are 30.47, 53.50 and 53.82 years according to the Keynesian, Klein and Landau models, respectively. The saving rate decreased up to these ages and then started to increase. Keeping the income and other factors at their minimum level, it also implies that absolute household savings are zero at these values. The household savings in absolute terms are negative/positive if the household head’s age is less than/greater than these values. Spio & Groenewald (1996) also found negative savings in the youngest age group.

The results of the impact of education on the head of the household on savings were significant, implying that the head’s educational status explains a substantial part of the household saving rate. Moreover, the educational achievement of the head of household was found to be negatively affecting the saving behaviour of households in all three specifications. These results are consistent with some earlier studies, e.g., Rha, Montalto and Hanna (2006). It implies that the attainment of a higher education level does not improve financial management in our example. Although the direct effect of education on saving is negative, the indirect effect through income is positive, i.e., a higher level of education will increase household income, and an increase in income increases savings.

According to the famous Pigou Effect, an increase in private wealth increases consumption. It implies that saving and wealth are negatively related to each other. Keeping in view the liquidity of an asset, this study divides household assets into three categories: physical property, precious metals and net lifetime savings. The net lifetime savings are the most liquid form of assets, and the physical property is the least liquid one. The results show that financial as well as non-financial savings play an important role in determining the saving behaviour of households in Pakistan. The regression results show a negative relationship between saving with property and precious metals across all three specifications. Whereas the results are mixed in the case of net lifetime savings, the most liquid form of asset. These variable signs change with the change of the model. Interestingly, the sign of the intercept also changes in these two models. According to the Keynesian specification, all three types of wealth are negatively related to the saving rate. The coefficient of property is significant at one per cent, whereas the coefficients of precious metals and net lifetime savings are significant at the 10 per cent level of significance. According to Klein's specification, all three coefficients are significantly different from zero at less than a one per cent level of significance. The variables of property and precious metal are significantly negative across all three specifications. The coefficient of net lifetime savings is negative in the case of the Keynesian model at a 10 per cent level of significance, but positive in cases of the Landau and Klein models. For the Klein model, this coefficient is significant at the one per cent level of significance. It can be concluded that the results of this study as a whole support the negative relationship between saving and wealth, at least in cases of less liquid forms of wealth. The coefficient of the regional dummy variable is negative and highly significant across all three specifications. It implies that the saving rate of urban households is significantly less than rural households with comparable characteristics. It indicates that lifestyle is relatively simple and less expensive in rural areas (as compared to urban areas), which enables them to save more.

5 Conclusions and Policy Recommendations

It is common to blame low savings for low economic performance of Pakistan's economy while there is little discussion about the reasons responsible for the low savings, especially at household level. The authors have formulated the following critical conclusions from the results of this study.

Theoretically, income is the most significant variable to determine the savings of a household in any given country. It is critically important to note that all three models - Keynes, Klein and Landau support this assertion and establish a nonlinear relationship between the two variables. From Keynes' model, it can be inferred that the Average Propensity to Save (APS) increases at a decreasing rate in Pakistan.

Household savings are negatively associated with the number of dependents per earner. Pakistan has experienced a high population growth rate and fertility rate for a very long period, thereby keeping dependency ratios quite high and therefore adversely affecting savings with higher dependency ratios. Empirical results provide conclusive evidence on the negative influence of the dependency ratio on household savings in Pakistan.

To capture the nonlinear relationship between the age of the household and corresponding incomes, the study offers quite conclusive evidence since the age of the Head is included in linear as well as quadratic forms. The coefficients of linear terms were negative, and those of the quadratic terms were positive in all three specifications. All the coefficients were significant. The regression results of the complete sample revealed that the turning points of the saving rate were 30.47, 53.50 and 53.82 years according to the Keynesian, Klein and Landau models, respectively. The saving rate decreases up to these ages and then starts increasing.

The results of the study offer an important conclusion (that is peculiar to the case of Pakistan and perhaps other developing countries too, with similar circumstances) that the educational achievement of the household Head negatively affects household savings, thereby contradicting the international pool of evidence. It is important to note that there was consistency across all the specifications used in this study. It implies that less educated people save more in our sample. However, it must be noted that although the direct effect of the

Head's education on household savings was negative, the indirect effect is positive, i.e., a higher level of education will increase household income, and an increase in income increases savings.

The rural-urban divide is a clear demarcation line in terms of social accomplishments of all kinds across the developing countries around the world. Negative effect of the urban location of the household on their savings was found in the three models estimated in this study, suggesting that urban households of comparable characteristics fail to save as much as the rural households do. It indicates that lifestyle in rural areas, as compared to urban areas, is simpler and less expensive, which probably enables them to save more than urban households. These results support the key assertion of RIH.

This study classified household assets into three categories: physical property, precious metals and net lifetime savings. The net lifetime savings are the most liquid form of assets, and the physical property is the least liquid one.

The results show that financial as well as non-financial savings play an important role in affecting household savings in Pakistan. The regression results showed a negative relationship between saving with property and precious metals across all three specifications, whereas the results were mixed in the case of net lifetime savings. It can be concluded that the results of this study as a whole support the negative relationship between saving and wealth, at least in the case of less liquid forms of wealth.

References

- Abedeem, S. Z., Shabeer, M. G., & Rauf, M. M. (2024). Unravelling Fin-Tech Influence on Financial Penetration: The Global Assessment. *Journal of Asian Development Studies*, 13(1), 208-218.
- Ahmad, M., & Asghar, T. (2004). Estimation of Saving Behaviour in Pakistan using Micro-Data. *Lahore Journal of Economics*, 9(2), 73-92.
- Akhtar, S. (1986). Savings-Income Relationships in Urban Pakistan: Evidence from HIES 1979. *Pakistan Journal of Applied Economics*, 5(1), 13-46.
- Akhtar, S. (1987). Dependency, urbanization, education and household savings: some preliminary evidence from Pakistan/Dimension De La Famille, Urbanisation, Scolarité Et Épargne Des Ménages: Des Résultats Empiriques De Nature Préliminaire Au Pakistan. *Savings and Development*, 337-353.
- Ando, A., & Modigliani, F. (1963). The "life cycle" hypothesis of saving: Aggregate implications and tests. *The American economic review*, 53(1), 55-84.
- Anwar, Ayesha, Muhammad Salahuddin Ayyubi, Faheem Riaz, and Muhammad Ghulam Shabeer. "Regional Disparities in Food Security: An Empirical Analysis of Pakistan's Provinces and Region." *The Journal of Research Review* 1, no. 04 (2024): 502-511.
- Bashir, T., Hassan, A., Nasir, S., Baber, A., & Shahid, W. (2013). Gender differences in saving behavior and its determinants: Patron from Pakistan. *IOSR Journal of Business and Management*, 9(6), 75.
- Bajtelsmit, V. L., & VanDerhei, J. A. (1997). Risk aversion and retirement income adequacy, [w:] MS Gordon, OS Mitchell, & MM Twinney (Eds.), *Positioning pensions for the twenty-first century*.
- Bennett, P. (2018). *Examining the Effects of Education on Financial Savings Behavior* (Doctoral dissertation, University of Colorado at Boulder).
- Burney, N. A., & Khan, A. H. (1992). Socio-Economic Characteristic and Household Saving: An Analysis of Household Saving Behavior in Pakistan. *The Pakistan Development Review*, 31(1), 23-30.
- Carpenter, S. B., & Jensen, R. T. (2002). Household participation in formal and informal savings mechanisms: evidence from Pakistan. *Review of Development Economics*, 6(3), 314-328.
- Domar, E. D. (1946). Capital expansion, rate of growth, and employment. *Econometrica, Journal of the Econometric Society*, 137-147.
- Duesenberry, J. S. (1949). Income, saving, and the theory of consumer behavior.
- Fagereng, A., Holm, M. B., Moll, B., & Natvik, G. (2019). *Saving behavior across the wealth distribution: The importance of capital*

- gains (No. w26588). National Bureau of Economic Research.
- Fisher, P. J. (2010). Gender differences in personal saving behaviors. *Journal of Financial Counseling and Planning*, 21(1).
- Friedman, M. (1957). The permanent income hypothesis. In *A theory of the consumption function* (pp. 20-37). Princeton University Press.
- Harrod, R. F. (1939). An essay in dynamic theory. *The economic journal*, 49(193), 14-33.
- International Monetary Fund. (2015). *Gender and income inequality*.
- Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*, Palgrave Macmillan.
- Khan, A. H., Khalid, U., & Shahnaz, L. (2016). Determinants of Household Savings in Pakistan: Evidence from Micro Data. *Journal of Business & Economics*, 8(2), 171.
- Khan, H.A., and Nasir, Z.M. (1999). *Household Savings in Pakistan* (Report No. 167). Washington DC, USA: World Bank.
- Klein, L. R. (1951). Estimating patterns of savings behavior from sample survey data. *Econometrica: Journal of the Econometric Society*, 438-454.
- Kuznets, S., Epstein, L., & Jenks, E. (1946). Front matter to "National Product Since 1869". In *National Product since 1869* (pp. 17-0). NBER.
- Landau, L. (1971). Saving Functions for Latin America. *Studies in development planning*, 299, 321.
- Michael, K. (2013). *Savings habit and use of savings among households in Ga-East municipality* (Doctoral dissertation, University of Ghana).
- Modigliani, F., & Brumberg, R. (1954). Utility analysis and the consumption function: An interpretation of cross-section data. *Franco Modigliani*, 1(1), 388-436.
- Pakistan Bureau of Statistics, G. (2017). Household Integrated Economic Survey (HIES) 2015-16. Retrieved from <http://www.pbs.gov.pk/content/household-integrated-economic-survey-hies-2015-16>
- Rehman, H.; Bashir, F. and Faridi, M. Z. (2011b). Saving Behavior among Different Income Groups in Pakistan: A Micro Study. *International Journal of Humanities and Social Science*, 1(10).
- Rha, J. Y., Montalto, C. P., & Hanna, S. D. (2006). The effect of self-control mechanisms on household saving behavior. *Journal of Financial Counseling and Planning*, 17(2).
- Shabeer, M. G., Zafar, Q., Anwar, S., & Nadeem, A. M. (2024). Evaluating innovation and institutions for tech-trade: A global assessment in the quest for sustainable economic prosperity. *Journal of Asian Development Studies*, 13(1), 163-175.
- Solmon, L. C. (1975). The relation between schooling and savings behavior: an example of the indirect effects of education. In *Education, income, and human behavior* (pp. 253-294). NBER.
- Spio, K., & Groenewald, J. A. (1996). Rural household savings and the life cycle hypothesis: The case of South Africa. *South African Journal of Economics*, 64(4), 294-304.