Microcovariates of Savings in Pakistan

Saud Ahmed Khan[1]

Abstract:

An empirical analysis is carried out to identify the potential micro-covariates of saving within the framework of Perceived Household Utility Theory to explain the behavior of saving individuals. The said theory focuses households' socio-economic characteristics in determining the level of household savings. The analysis is carried out for Pakistan and provincial level. Latest Household Income and Expenditure Survey HIES 2018-19 data is analyzed for the purpose; the results ascertain that household ownership of land, location (provincial entity), age, marital status and income are significant covariates of household saving accumulation in Pakistan. Overall households exhibit the characteristics of developing countries with some exemptions, a faction that mimics the household characteristics specific to high income countries.

Per capita Income is positive and significant but contributes minutely to savings, landownership adds significantly, age contributes positively to savings as speculated by Life Cycle theory. Being married hampers the savings. Access to internet aids to savings, it might be explaining the association to financial inclusion. Urban region remained insignificant at Pakistan level and in KPK and Balochistan; in Punjab it is found positively significant but in Sindh it is negative, this mixed result might average out the effect of urban region at Pakistan level.

Key Words: Private Savings, ANCOVA Model, Life Cycle Theory, Perceived Household Utility Theory, Impulse Indicator Saturation.

JEL classifications*:* D14, C21

---

[1] Pakistan Institute of Development Economics (PIDE) Islamabad, Pakistan. Email: saud@pide.org.pk

1. Introduction

Micro level saving is considered as a preventive measure, preparatory action and an act of asset accumulation to counter future financial needs such as children education, health expenditures, business risk, natural adversities and support for old age inactive life. Undoubtedly it may play a significant role in the development of the economy; there are number of potential factors that may explain saving individuals' behavior.

According to Life-Cycle theory individuals make consumption decisions based on the available sources over their life span, the theory further states that the higher the unemployment rate the lower the savings rate (Modigliani & Brumberg1954). At a young age with low-income people save less, they save more during their productive years and then dissave in older age/ after retirement (Modigliani 1965). This saving and dissaving model based on the assumption of smoothening the consumption over life span.

Keynes highlights precautionary motives and postulates that people defer their current income and save for future to maintain the utility level of consumption. Leland (1968) further specifies the motives of saving as health expenditures, income interruptions, children's education, retirement etc. The bequest model postulates differently and stats that individuals may have bequest motives to save for their heirs.

Saving is a core source of funds required for investment. Private Savings may contribute significantly to National savings. Evidently the savings have been lowest in Pakistan as compared to neighboring economies. The income insecurity and social uncertainty hinders the private savings badly, consequently the marginal propensity to consume is much higher than the marginal propensity to save. Micro level savings are hardly available for investments, at finest these savings end up in asset accumulation, but the loss of real value of assets and tendency to maintain consumption level with fixed income put pressure to accumulated amount and individuals end up with dissaving.

Saving behavior varies with the income group, the lowest income group has the highest marginal propensity to consume that leads to lowest propensity to save. The savings patterns are also distinct in rural and urban factions of population. For urban population, health, education and shelter are the core motives of savings. It is expected that perceived household utility theory might explain better, the behavior of saving individual.

1.1 Motivation and Significance of the study

Macro level analysis involves derived and/or adjusted variables which might not be able to explain specific theoretical channels; consequently, the outcomes of such analysis may mislead the policy experts due to invalid results of macro analysis. Governed by time series analysis, most of the empirical studies focus on addressing the time series anomalies of macro data sets with less emphases on explaining the theoretical channels. A comprehensive micro level analysis using the latest available data sets may explore the true phenomenon explaining savings behavior. There is a need to ascertain Microcovariates of private savings; these covariates influence decisions of households towards aggregate savings. These factors may help policy makers in devising future interventions and help in course correction of existing policies.

After 18th amendment in constitution of Pakistan, education, health etc. are provincial matters now. Due to independence in policy making, it can be assumed that private savings attributes may differ at regional level; this is because of the response of individuals to prevailing government interventions. The provinces differ in other attributes also such as the available resources and budget allocations to specific heads which ultimately affect the priorities of saving individuals.

The motive of the study is to validate the perceived household utility theory at overall Pakistan level and at provincial level, it is expected that outcomes of the study may help policy makers in devising pertinent policy and for course correction of existing policy interventions. Micro level analysis may provide better insight to identify the appropriate covariates of private savings under perceived household utility theory, which may help devising appropriate government interventions to improve saving levels at Pakistan and provincial level. Distinct socio-economic features in geographically separated regions may also differ significantly, which may reflect through different covariates of private savings at provincial level.

1.2 Perceived Household Utility Theory

The theory focuses on households' socio-economic features in defining the level of household savings. Saving is an important element to combat unforeseen adverse events; it is meant for addressing emergencies and sometimes it acts as a form of investment. Individuals are generally not inclined towards 'saving for investment', a delicate reason could be the lack of awareness. Within the framework of perceived household utility theory potential determinants of household savings are:

i.   Ownership of land

ii.   Family size

iii.   Profession

iv.   Place and type of accommodation

v.   Age

vi.   Family living conditions

vii.   Marital status and

viii.   Advantageous infrastructure such as electricity, roads, internet.

Saving patterns are different in Pakistan, some people save for children marriages and other for Holy pilgrimage; savings for these attributes do not reflect in saving schemes or in other investment schemes. Savings for marriages are usually spent on buying GOLD; for Hajj purpose people hold cash to avoid Bank Interest (*riba*). A sample of convenience consist of middle-class Pakistani households reveals that people are obsessed with owing a house or residential plots, and the savings are spent on nonproductive piece of land and never are available for capital formation.

2. Literature Review

In this section a brief review is presented on the theoretical channels and empirical findings. A plethora of literature is devoted to exploring the potential determinants of private savings, mostly at macro level. Existing empirical literature validates distinct theoretical channels using appropriate data sets and proposes different determinants exploring cross-sectional and times series data. A good number of existing studies validate our findings also.

There are many theories explaining distinct channels of savings phenomenon, Adam Smith, John Stuart Mill, Ricardo amongst others highlight the importance of savings that leads to capital formation for future economic needs. The classical economists promoted the idea that dissaving effect capital formation negatively (Niculescu-Aron and Mihaescu, 2014). A cut in current consumption may be invested for increased future consumption; savings in the short run may result in a stable future economy (Ramsey 1928). Due to mathematical complexity Ramsey's theoretical model couldn't attract academia and policy makers, however, his theory was further explained through long term growth theory for a decentralized market economy by Cass and Koopmans in 1960's.

Under specific economic conditions an individual may consume less than the disposable income, it may be due to inflated prices or shortage of consumable goods; in this situation the government should intervene forcefully and utilize individuals' savings to produce goods (Hayek 1932).

The Absolute Income Hypothesis proposes that consumption is directly proportional to income, but growth rate of income is higher than that of consumption and results in savings of excess income (Keynes 1936). The real balance effect propagates that an individual's consumption increases due to growth in real balances of wealth during recession that causes increased production and create employment opportunities in the economy (Pigou 1943).

The Permanent Income Hypothesis states that consumption depends on changes in permanent income not on transitory income; individuals smooth their consumption by saving during high income periods and borrow during low-income periods to maintain a consistent standard of life (Friedman 1957).

The Life Cycle Hypothesis explains that savings are higher in middle ages as compared to the extremes of ages. It further hypothesize that savings for retired life is the ultimate motive of any individual (Ando and Modigliani, 1963; Modigliani and Ando,1957; Modigliani and Brumberg,1954).

The Perceived Household Utility Theory states that households, instead of individual members, make decisions to maximize overall utility given the benefits of goods & services and the amount of time spent on activities (Hensher & Stopher, 1979; Shem, 2002). The theory extends to the existing theories of household behavior. The theory explains how individuals perceive and make utility related decisions instead strictly following a conventional utility maximization framework.

Though it is not objective of our study to establish any causal direction, we found that the relation between saving and economic growth is positive and bidirectional; savings stimulate economic growth and vice versa (Lewis,1955; Solow,1970; Romer,1986,1990; Lucus,1988; Barro,1990; Bacha, 1990; Jappelli and Pagano, 1994). However, a positive unidirectional relation is also hypothesized that economic growth causes savings (Carroll-Weil, 1994). It is a good food for thought for future study to explore the causal directions in case of Pakistan.

A sizable empirical literature is found validating one theory or other using time series and cross-sectional data sets; these empirical studies ratify each other's findings. Some studies are based on primary data collected at specific area survey (Mateen et al 2025); but we report prominent studies utilizing HIES data covering the whole Pakistan. A previous study concludes with the same results using HIES 1998/99 data (Ahmad and Asghar 2004), they identified wealth, employment, education, age and dependency ratio as potential covariates explaining saving behavior. Using HIES 1984-85 data it is reported that urban household income and savings level is higher than those of rural and

overall Pakistan also dependency ratio has negative effect on savings (Burney & Khan 1992); further they report saving behavior is consistent with Life Cycle Hypothesis.

Comparing our study using latest HIES 2018-19 data set with previous studies using HIES-1984-85 and HIES-1998-99 data sets we don't find much change in the proposed Microcovariates explaining behavior of saving units in Pakistan. Almost same factors are proposed in other studies using time series and primary data collected through specific surveys. Life Cycle Hypothesis persists, increase in income stimulates savings, dependency ratio hampers savings; also, different consuming patterns and consumption priorities significantly affect saving decisions in urban and rural areas. The reason that the behavior of saving individual is not much changed over the years is due the fact that family structure, societal norms and demographics are consistent over the decades in Pakistan.

This study contributes to the existing knowledge of field manifolds; updated data sets are utilized; it is explored that savings behaviors are distinct not only in rural-urban classification but also at provincial level. The study provides segregated analysis at provincial level; with added computational power the study utilizes the latest Impulse Indicator Saturations technique ensemble with ANCOVA model. Excess to internet is explored and it is highlighted that a faction of population mimics the household characteristics specialized to high income countries, it may indicate a change in household demographics in future.

3. Methodology

An empirical analysis is carried out to identify the potential micro-covariates of saving within the framework of Perceived Household Utility Theory to explain the behavior of saving individual in Pakistan. The said theory focuses households' socio-economic characteristics in determining the level of household savings.

Latest HIES 2018-19 data is analyzed for the purpose; suggested by the density plot analysis, semi elastic structure is employed for the estimation. Results ascertain that household's ownership of land, location, age, marital status and income are significant covariates of household saving accumulation in Pakistan. Significant provincial dummies of our basic ANCOVA model suggest distinct analysis for each province; consequently, the analysis is extended to Provincial level hence a total five models are estimated to be one for each province and a general model using whole data set. Following General to Specific modeling, Autometrics technique is employed with fusion of Impulse Indicator Saturations (IIS) using Ox Metrics software. Impulse indicator saturation is a contemporaneous tool for outlier detection, it outperforms the least trimmed squares (LTS), M-

estimator, and MM-estimator (Muhammadullah et al 2022). Outliers contain important information, winsorization or removing outlier leads to loss of important information so instead of adjusting data for outliers it is better to incorporate their effect through IIS technique.

To control the potential heteroscedasticity associated with cross-sectional data, Heteroscedasticity-Consistent Standard Errors (HCSE) are employed to estimate t-stats and corresponding p-values. Almost all the signs of estimated parameters are aligned with the relevant theory; it is expected that findings may provide guidelines for devising relevant policies particularly the capital accumulation policies.

3.1 Data and Variables

Total 5588 observations of HIES 2018-19 micro data utilized for the analysis. Overall households exhibit the characteristics of developing countries with some exemptions; a faction mimics the household characteristics specialized in high income countries. About 83% household live in independent house/compound, this shows social preference of privacy, only 4% enjoy rent free dwelling, 51% live in urban areas and about 52% have access to internet. Out of a total of 5588 individuals, 44% represent Punjab, 31% Sindh, 14% KPK and 11% represent Baluchistan as represented in Fig. 1.

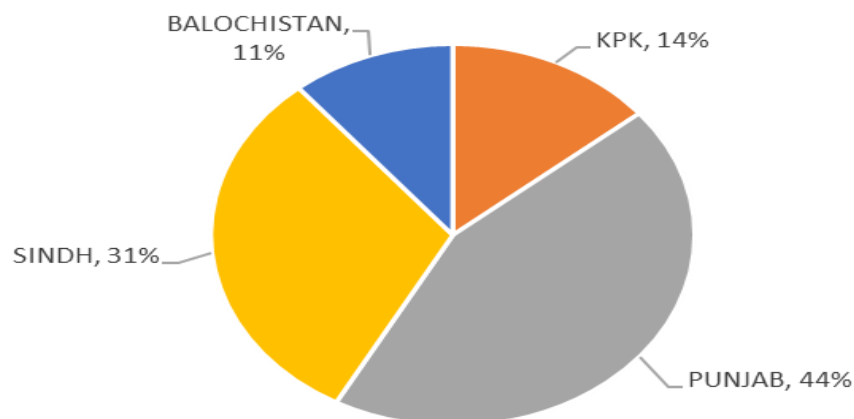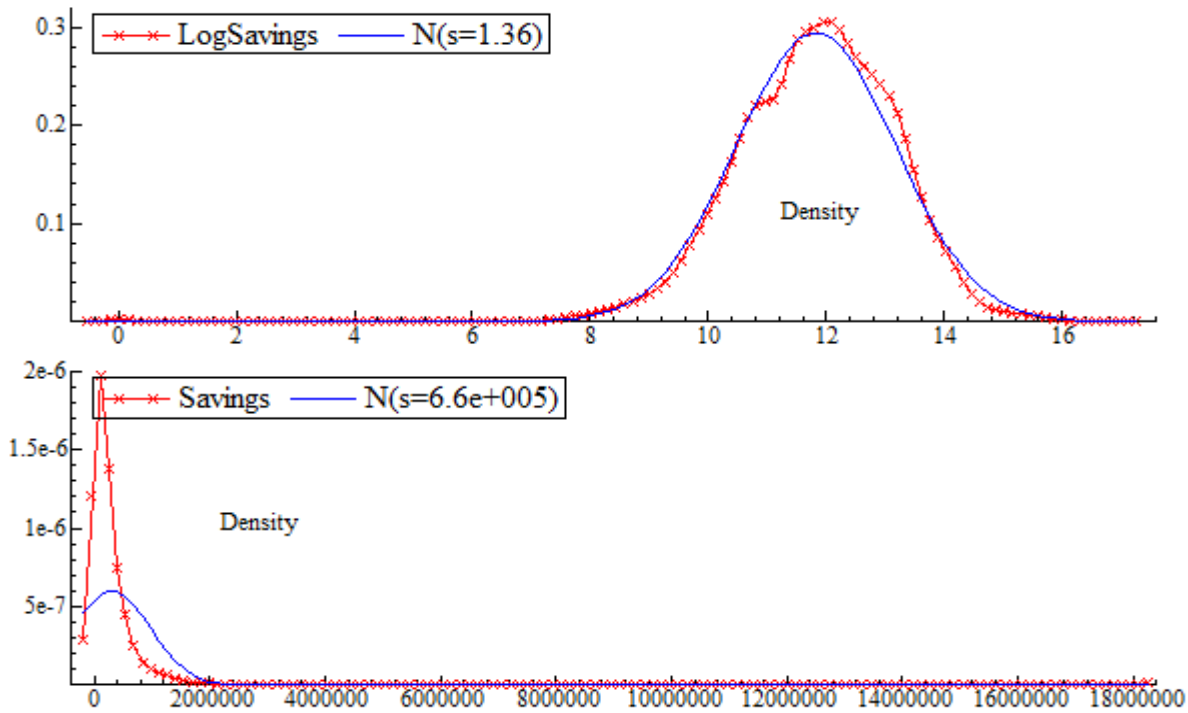Figure1:Provincial Representation in HIES 2018-19 Data

Table.1 provides data depiction; the blend of quantitative and qualitative variables suggests an ANCOVA (Analysis of Covariance) structure. For smooth log transformation, ZERO savings are replaced by ONE (only 05 data points out of 5588 observations); and ZERO income is replaced by median income (only one data point out of 5588).

Table.1
Data description

Variables	Description
SAVINGS	Net Savings at present (PKR) *(log transformed series is used for analysis)*
Potential Covariate	
Income	Income per month (PKR)/*per capita*
Region	Urban/Rural, Dummy=1 for Urban zero otherwise; Rural is reference attribute
Province	Dichotomous dummies, PUNJAB is taken as reference attribute
Marital Status	Dummy = 1 for Married, zero otherwise
Age	In years
Household Size	Number of Family members
Dwelling type	Dummy =1 for independent house/compound
Landowner	Dummy =1 if HH owns land
Internet	Dummy =1 for access to internet

The log transformed saving series is more aligned with simulated series for normal reference as compared to saving series at level. The density plots in Figure.2 below recommend use of log transformed SAVING (dependent) variable, that suggests a semi-elastic model.

Figure.2: Density plots of 'Savings' and 'LogSavings'

4. Empirical Findings

Table.2 below provides parsimonious Model#1 suggested by Autometrics technique; without loss of generality and focus of the study, the significant Impulses are not reported here. Total 36 impulses are found significant, most of these (17 outliers) belong to data from PUNJAB followed by KPK (11 of these), only four belong to data sets each from province Sindh and Balochistan. Since the outliers are relative in nature and possess masking effect, hence other models on provincial data sets may have different numbers of impulses with distinct locations. Since the functional form of the model is log-lin, the estimated parameters (of qualitative and quantitative regressors) are transformed accordingly for explanation of the results in Table.2 and in consequent models estimated for the provinces.

Table.2
Model#1, analysis on the whole data set

Model#1: LSavings	Coefficients	HCSE	P-values
Per Capita Income	5.03696e-005	3.891e-006	0.0000
KPK	-1.45109	0.05651	0.0000
Balochistan	-0.251455	0.05380	0.0000
Sindh	-0.601702	0.03175	0.0000
Age	0.00743211	0.001035	0.0000
Married	-0.156986	0.03898	0.0001
Access to Internet	0.527837	0.03205	0.0000
Landownership	0.385949	0.04007	0.0000
Household size	0.0708233	0.004637	0.0000
Intercept	11.0110	0.05114	0.0000
Diagnostics			
SER	1.08632	Log-likelihood	-8368.59
SD(LogSavings)	1.35732	Overall F-test	F(45,5542)=70.67[0.000]**
Normality test for Residuals	Chi^2(2) =3.4454 [0.1786]	Adj.R^2= 0.359457	

HCSE = Heteroscedasticity-Consistent Standard Error. p-values in brackets. e-00x = 10^{-x}

Referring Model#1 (using whole data set, i.e. total 5588 observations), the negative Provincial dummies indicate less savings as compared to Punjab (the reference attribute). These significant dummies also suggest separate analysis on a provincial level. Per capita Income is positive and significant but contributes only 0.005% to savings, landownership adds significantly about 47%, age contributes positively to savings as speculated by Life Cycle theory. Being married hampers the savings of about 15 percentage points. Access to internet aids significantly to savings, it might be explaining the association to financial inclusion; specifically, money transactions using smart online applications may save travelling cost and probable intermediary cost. Access to the internet, especially at social media platforms, is playing a vital role in raising money with minimum fixed cost by simply sharing video clips, pictures, advertising etc.

Surprisingly the household size is significant positively, though only seven percentage points but it is contrary to the theory proposing savings' covariates; this could be due to the significant effect of the fraction of sample that mimics the characteristics of high-income countries. This can be

explained as if each increasing member of family contributes to the savings with additional income. A further disaggregated analysis at provincial level might help identify the reason behind this anomalous result. The standard error of regression (SER) is less than the standard deviation of dependent variable (LogSavings) confirming the relevance of covariates, the same is validated by overall F-test. The JB test of normality confirms that residual series is normally distributed.

Table.3
Model#2 for the province KPK

Model#2: LSavings	Coefficients	HCSE	P-values
Per Capita Income	4.07623e-005	1.525e-005	0.0077
Age	0.0121885	0.003654	0.0009
Married	-0.299742	0.1425	0.0358
Access to Internet	0.858241	0.1153	0.0000
Landownership	0.300776	0.1254	0.0167
Independent	0.392822	0.1423	0.0059
Intercept	9.66498	0.1711	0.0000
	Diagnostics		
SER	1.46879	Log-likelihood	-1401.6
SD(LogSavings)	1.79373	Overall F-test	F(9,770) =43.53 [0.000]**
Heteroscedasticity test for Residuals	F(10,768)= 1.6307 [0.0935]	Adj.R^2	0.329486

HCSE = Heteroscedasticity-Consistent Standard Error. p-values in the brackets. e-00x = 10^{-x}

Results in Table.3 refer to Model#2 for the province KPK; qualitatively the results are almost the same as in Model#1 above except for the independent dwelling is significant here. Independent accommodation is significantly contributing to household savings in KPK, may have some social or cultural explanations. Per capita income is contributing even lesser in KPK than the overall Pakistan, consequently being married hampers savings severely relative to overall Pakistan. The 'age' is contributing relatively more in KPK, this might indicate longer active life at KPK. Only three significant impulses are found within data belonging to KPK, it indicates closely clustered dataset which also manifest in homoscedastic residuals.

Table.4
Model#3, PUNJAB

Model#3: LSavings	Coefficients	HCSE	P-values
Per Capita Income	4.63367e-005	3.976e-006	0.0000
Urban	0.144897	0.04550	0.0015
Age	0.00939658	0.004183	0.0248
Age^2	-4.75410e-005	5.358e-005	0.3750
Married	-0.159114	0.05691	0.0052
Access to Internet	0.537629	0.04301	0.0000
Landownership	0.285232	0.05545	0.0000
Household size	0.0685531	0.006820	0.0000
Intercept	10.9947	0.08483	0.0000
		Diagnostics	
SER	0.970811	Log-likelihood	-3399.58
SD(LogSavings)	1.17985	Overall F-test	F(35,2424)= 34.51 [0.000]**
Heteroscedasticity test for Residuals	F(14,2421)=1.8812 [0.0240]*	Adj.R^2	0.322956

HCSE = Heteroscedasticity-Consistent Standard Error. p-values in the brackets. e-00x = 10^{-x}

Table.4 presents results of Model#3 for the province PUNJAB; qualitatively the results are almost the same as in overall. Positive contribution of Urban region in Punjab indicates supportive infrastructure that help increase individual's contribution to savings. Per capita income is contributing more to Punjab as compared to KPK province, being married hinders less in Punjab than KPK. The negative coefficient (though not significantly different from ZERO) of Age- squared variable indicates the saving and dissaving model based on the assumption of smoothening the consumption over life span (Modigliani, 1965). Unlike KPK the household size in Punjab is found significant, indicating the contribution of family members to income and consequently in family savings. Total 27 impulse indicators are found significant, indicating the highest number of outliers in Punjab data.

Table.5
Model#4, The Province SINDH

Model#3: LSavings	Coefficients	HCSE	P-values
Per Capita Income	6.91872e-005	5.090e-006	0.0000
Urban	-0.171410	0.06762	0.0113
Age	0.00735743	0.001666	0.0000
Married	-0.0946817	0.06019	0.1159
Access to Internet	0.476371	0.05462	0.0000
Landownership	0.591277	0.08068	0.0000
Household size	0.0905120	0.006976	0.0000
Intercept	10.2597	0.09695	0.0000
Diagnostics			
SER	0.974984	Log-likelihood	-2436.22
SD(LogSavings)	1.15368	Overall F-test	F(18,1736): 39.99 [0.000]**
Heteroscedasticity test for Residuals	F(13,1730)=2.0402 [0.0150]*	Adj.R^2	0.28579

HCSE = Heteroscedasticity-Consistent Standard Error. p-values in the brackets. e-00x = 10^{-x}

The estimated results of province SINDH (Model#4) are given in Table.5. Qualitatively we found no significant difference in this model and previous models, but here Urban region/location is found negative and significant; it indicates that either the infrastructure in Sindh is not favorable or worsens law and order situation in urban region of Sindh hinders household savings. Followed by Punjab, a total of 11 impulse indicators are found significant.

Table.6
Model#5, The Balochistan

Model#5: LSavings	Coefficients	HCSE	P-values
Per Capita Income	6.58532e-005	1.602e-005	0.0000
Age	0.0198341	0.009274	0.0329
Age^2	-0.000200268	0.0001178	0.0897
Married	-0.269011	0.1404	0.0558
Access to Internet	0.241972	0.09688	0.0128
Household size	0.0740531	0.009496	0.0000
Intercept	10.7364	0.1833	0.0000
		Diagnostics	
SER	1.1372	Log-likelihood	-912.628
SD(LogSavings)	1.30509	Overall F-test	F(9,583)= 21.86 [0.000]**
Heteroscedasticity test for Residuals	F(9,580)=1.3593 [0.2034]	Adj.R^2	0.240743

HCSE = Heteroscedasticity-Consistent Standard Error. p-values in the brackets. e-00x = 10^{-x}

Table.6, presents results of Model#5 for the province Balochistan, here too income contributes to savings but only in fraction, marriage hinders the savings and access to internet contributes significantly. 'Age' contributes significantly; the negative and significant coefficient of Age-squared variable confirms the saving and dissaving model based on the assumption of smoothening the consumption over life span (Modigliani, 1965). Only three Impulse Indicators are found significant, it means that data set is closely clustered, and it is validated by homoscedastic residuals.

5. Comparison of results

In all five models explained above the contribution of core determinants remained same qualitatively, however some features are distinct and vary amongst the regions already explained under each of the five models. Table.7 below provides a comparative analysis of quantitative results of core regressors in all five models. Per capita income (PCI) contributes highest in province Sindh and least in KPK; consequently, Marriage hinders most in KPK and least in Sindh. Age contributes highest in Balochistan followed by KPK, it contributes least to Sindh; it indicates that in Balochistan active life

is longer than any other provinces. Landownership contributes highest in Sindh and none of the provinces are nearer to Sindh, it may be explained as either the productivity is higher in Sindh or more land is available per family, it is more likely that later is true; landownership remained insignificant to contribute to savings in province Balochistan. Access to internet contributes most in KPK and least in Balochistan, access to internet is highly correlated to infrastructure; its least contribution also indicates the poor infrastructure in Balochistan. Except for KPK the household size remained a contributor to savings, as if each increasing family member contributes to income and consequently to family savings, its contribution is highest in Sindh.

Table.7
Quantitative Comparison of results from all five models

%	MODEL# 1 PAKISTAN	MODEL# 2 KPK	MODEL# 3 PUNJAB	MODEL# 4 SINDH	MODEL#5 BALOCHISTAN	MAX	PROVINCE	MIN	PROVINCE
PCI	0.0050	0.0041	0.0046	0.0069	0.0066	0.0069	SINDH	0.004	KPK
age	0.7432	1.2189	0.9397	0.7357	1.9834	1.9834	BALOCHISTAN	0.736	SINDH
married	-14.5284	-25.8991	-14.7101	-9.0338	-23.5865	-25.90	KPK	-9.034	SINDH
internet	69.5261	135.9008	71.1943	61.0220	27.3759	135.90	KPK	27.376	BALOCHISTAN
landowner	47.1010	35.0907	33.0071	80.6294	0.0000	80.63	SINDH	0.000	BALOCHISTAN
Hhsize	7.0823	0.0000	6.8553	9.0512	7.4053	9.051	SINDH	0.000	KPK

6. Conclusion and Policy Recommendations

This section concludes and provides policy recommendations. The findings are indicative and suggest the solution to bridge the saving-investment gap, the potential solution can be generalized to similar economies. The suggestions stem in the cause and provide viable remedy.

6.1 Mitigations of Findings:

The negligible contribution of income is indicative towards 'Tax Financed' government budgets which hamper the disposable income and consequently the savings. In a consumption led growth economy, 'Tax Financed' budgets coerce the consumption that further decreases the investments through decrease in demand.

A productive middle-aged agent is expected to save more than the younger one, about two thirds of the population is below 30, that's the reason for the smaller contribution of age in explaining the savings. Landownership contributes much higher relative to age and income; individuals are obsessed with owning a house or residential plots, usually these savings are spent on nonproductive pieces of land and never are available for capital formation.

Saving patterns are different in Pakistan, people plan and save for children marriages and for Holy pilgrimage; savings for these attributes do not reflect in saving schemes or other investments. Savings for marriages are spent usually on buying GOLD and for Hajj purpose people hold cash to avoid Bank Interest (*riba*). It is evident that savings at micro level, in the form of minute cash, are used as protection to unforeseen adverse events or for consumption swaps only; these cash in hands are rarely available for investment purposes.

A sample of convenience consist of middle-class Pakistani households reveals that people are obsessed with owing a house or residential plots, and the savings are spent on a nonproductive piece of land and never available for capital formation.

6.2 Bridging the Saving- Investment gap:

Keeping in view the factors highlighted above, some immediate and long-term policy interventions may be considered to shorten the saving-investment gap. It is expected that apposite propagation of proposed interventions will increase the confidence of saving individuals and may also attract other macro actors related to saving-investment phenomenon.

1. New saving products (schemes) aligned with sharia compliance may attract skeptic saving individuals and may help bridge the gap between savings and investment; to achieve the equilibrium, soft loans may be offered to finance children's education, marriages, health expenses, pilgrimage etc. Apart from the role of commercial Banks, National Savings Schemes may be allowed to offer loans to individuals aligned with sharia compliance.

2. Stabilized prices will increase the disposable income and consequently make savings

available for investment. Bad governance is the main cause of price disparity within the same vicinity; it fades out any positive effects of Inflation Targeting Monetary policy.

3. Social uncertainty coerces households to keep cash in hand for any uncertain situation. Political stability and improved law & order situations are expected to increase individuals' confidence and may enhance savings available for investment.

4. In the long run, house owing schemes may be introduced to offer shelter at the time of retirement. If guaranteed, an individual will prefer to save rigorously to achieve this lifetime goal; the ownership of an individual is key to success in this investment otherwise many such schemes couldn't mature and failed halfway.

5. There should be no TAX on earnings from savings, national savings shouldn't be utilized for budget deficits. Taxes shrink the income, it works adversely in two ways, one, it reduces the disposable income and consequently the savings, and it also reduces demands that in turn disturbs the demand-investment channel.

References

Aghion P, Comin D, Howitt P, & Isabel T. 2009. When Does Domestic Saving Matter for Economic Growth? *Harvard Business School, Working Paper* No. 09–080.

Agrawal P., Sahoo P., Dash R.K. (2009). Savings behavior in South Asia, *Journal of Policy Modeling* 31 (2009) 208–224.

Ahmad, M. and T. Asghar, 2004. Estimation of saving behavior in Pakistani using micro data. *The Lahore Journal of Economic*, 9(2): 73-95.

Ando, A., & Modigliani, F. (1963). The" life cycle" hypothesis of saving: Aggregate implications and tests. *The American economic review*, 53(1), 55-84.

Bacha, E. L. (1990). A three-gap model of foreign transfers and the GDP growth rate in developing countries. *Journal of Development Economics*, 32(2), 279-296.

Barro, R. J. (1990). Government spending in a simple model of endogeneous growth. *Journal of political economy*, 98(5, Part 2), S103-S125.

Burey, N. and A.H. Khan, 1992. Socio-economic characteristics and household savings. An analysis of household saving behavior in Pakistan. *The Pakistan Development Review*, 3(1): 31-48.

Cass, David (1965)."Optimum Growth in an Aggregative Model of Capital Accumulation". *Review of Economic Studies*. **32** (3): 233240. doi:10.2307/2295827. JSTOR 2295827.

Emmanuel O. Nwosu, Charles N. Anumudu, Chioma E. Nnamchi. Microeconomic Determinants of Household Savings in Nigeria, *Journal of International Development* 2019. 32, 150–167 (2020), doi:org/10.1002/jid.3440

Friedman, M. (1957). A Theory of the Consumption Function. *National Bureau of Economic Research,* Inc.

Hensher OA, Stopher PR. 1979. Behavioural Travel Modeling. Groom Helm: London.

Jappelli, T., & Pagano, M. (1994). Saving, growth, and liquidity constraints. The Quarterly

Journal of Economics, 109(1), 83-109.

Keynes, J. M. (1936). The General Theory of Employment, Interest and Money", London, 1974 edition.

Koopmans, T. C. (1965). "On the Concept of Optimal Economic Growth". The Economic Approach to Development Planning. Chicago: Rand McNally. pp. 225–287.

Leland HE. (1968). Saving and uncertainty: the precautionary demand for saving. *Quarterly Journal of Economics* LXXXII (August, 1968): 465–473

Lewis, W. A. (1955). The Theory of Economic Growth, Homewood, Illinois: Richard D. Irwin. Lucas, R. E. (1988). On the mechanics of economic development. *Journal of monetary economics*, 22(1), 3-42.

Masson, A., Pestieau, P. (1997). Bequests Motives and Models of Inheritance: A Survey of the Literature. In: Erreygers, G., Vandevelde, T. (eds) Is Inheritance Legitimate?. Studies in Economic Ethics and Philosophy. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-662-03343-2_3

Mateen.A., Mirda. R., Akhtar. R. S, Sari. I.D., Anwar. M. F, Fatimah. N. (2025). How Socio-Economic Factors Influence Household Saving Patterns: Insights from Faisalabad, Pakistan. *International Journal of Current Science Research and Review* ISSN: 2581-8341 Volume 08 Issue 03 March 2025 DOI: 10.47191/ijcsrr/V8-i3-42, Impact Factor: 8.048 IJCSRR @2025.

Modigliani F. (1965). The life cycle hypotheses of saving and intercountry differences in the savings ratio. In Induction, Growth and Trade, Eltis WA et al. (eds): Oxford, 1970; 197–225.

Modigliani, F., & Ando, A. K. (1957). Tests of the life cycle hypothesis of savings: comments and suggestions. Oxford Bulletin of Economics and Statistics, 19(2), 99-124.

Modigliani, F. and Brumberg, R.H. (1954) Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data. In: Kurihara, K.K., Ed., Post-Keynesian Economics, Rutgers University Press, New Brunswick, 388-436.

Muhammadullah S., Urooj A., Mengal M. H, Khan A. S., and Fereshteh Khalaj F. Cross Sectional Analysis of Impulse Indicator Saturation Method for Outlier Detection Estimated via Regularization Techniques with Application of COVID-19 Data. *Hindawi Computational and Mathematical Methods in Medicine.* Volume 2022, Article ID 2588534, 11 pages https://doi.org/10.1155/2022/2588534

Niculescu-Aron, I., & Mihaescu, C. (2014). Modelling the impact of economic, demographic and social determinants on household saving rate in the former socialist countries (Central and Eastern Europe). *Procedia Economics and Finance*,10, 104-113.

Ramsey, F. P. (1928). A mathematical theory of saving. *The economic journal*, 38(152), 543-559

Romer, P. M. (1986). Increasing returns and long-run growth. *Journal of political economy,* 94(5), 1002-1037.

Romer, P. M. (1990). Endogenous technological change. *Journal of political Economy, 98(5, Part2), S71-S102.*

Ouma, A. S. (2002). Financial Sector Dualism: Determining Attributes for Small and Micro Enterprises in Urban Kenya. A Theoretical and Empirical Approach Based on Case Studies in Nairobi and Kisumu. Published PhD Thesis, University of Cologne.

Solow, R. M. (1970). Growth theory. Oxford: Clarendon Press.