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Assessing the Determinants of Savings in Pakistan: An Evidence from PSLM 2010-11

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Abstract

The present study aims at investigating the determinants of the savings in Pakistan by using Pakistan Social and Living Standards Measurement (PSLM) survey data collected by Pakistan Bureau of Statistics (PBS) for the year 2010-11. The Multiple Regression Model is estimated for finding out the household saving determinants. The results reveal that savings have positive relationship with income, livestock, number of earner, while these are negatively related with education, gender of the household head and poverty in Pakistan. The regional level analysis reveals that marginal propensity to save is higher in rural areas as compared to urban counterpart. Among the provinces it is the highest in Punjab and lowest in Sindh. To promote savings among households in Pakistan, policies aiming at increasing income of the people should be formulated and implemented. Other policies include creation of job opportunities and provision of loan for livestock especially for the poor and females.

Keywords: saving, income, livestock, earner, education, poverty, Pakistan.

Introduction

Enduring and sustainable growth process is inevitable for the welfare of the society, because it targets public service delivery, innovation, entrepreneurship, provides employment opportunities and causes of reduction in poverty. Economically developed economies have been able to improve their living standard, reduce poverty level, strengthen their political and social institutions, achieve political stability and preserve their natural environments (Barro, 1996; Easterly, 1999; Dollar & Kraay, 2002; Fajnzylber et al., 2002; Shahbaz et al., 2008).

Steady and stable growth can also be achieved by the production of competitive goods and vast use of advance technologies. This cannot be achieved without an increase in the level investments into the real sectors of the economy. Investment is essential for development process (Harrod-Domar, 1939-1946; Chenery & Strout, 1966; khan et al., 1992; Masson et al., 1998); Nasir et al., 2004; Afzal, 2004; Aktas et al., 2012; Bairamli & Kostoglou, 2010; Rehman et al., 2010; Beckmann et al., 2013). Government support of direct investments into the real sectors could build constructive investment environment for the provision, development of production of competitive goods and services. It is necessary to attract investments from domestic as well as international sources for the production of these goods. Production potential and capacity of the economy increases with the increase in these investments. Thus, economic growth depends upon capital accumulation that is stimulated through the mobilization of domestic savings as well as foreign capital inflow. The higher rates of investment mostly financed by domestic savings are necessary to ensure sustained rates of economic growth which are essential to relieve the widespread poverty in developing countries like Pakistan (Shahbaz et al., 2010).

Savings provide the basis for investment, which further contributes towards development process. Several studies (Solow, 1956; Jappelli & Pagano, 1994; Afzal, 2004; Dirschmid & Glatzer, 2004; Beckmann et al., 2013) emphasized the vital role of saving and investment on the route of economic growth. An adequate level of national saving is essential for achieving the investment and growth rate targets, because it establishes an economic link between past, present and future development of the country (Kazmi, 1993).

Lewis's (1955) traditional theory and some other studies (Malik & Baharumshah, 2007; Levine & Renelt, 1992; Carroll & Weil, 1994; Aghion et al., 2006) highlighted that saving is one of the important determinants of economic growth that must be enhanced to lead the developing countries on the way of development. "Savings provide a cushion of security against future contingencies for the" individuals and households, whereas for the nation, it provides investments and capital that are needed in the developmental efforts. The marginal propensity to save (MPS) should be raised by appropriate policies and incentives to achieve higher growth rate with comparative price stability (Unny, 2012). National saving plays an important role for achieving high rate of growth for an economy. Higher level of saving brings higher level of investment which will lead to growth in industrial sector, quality of products improved, stability in prices of products and upturn in employment level which ultimately lead to higher growth of the economy (Rehman et al., 2010).

Usually savings are done by three entities in an economy, which are government saving, corporate or business saving and household saving. Household saving is one of the important instruments for any economy and is considered a fundamental instrument of welfare in developing countries (Mahlo, 2012).

"In the literature, there is wide support to the idea of the positive influence of attraction of domestic savings on the level of investments and on the economic growth. The realization of the objective of a steady economic growth and development is a very difficult task without mobilization of savings and investments" (Kazmi, 1993).

Level of investment and domestic saving are closely related with each other in the long run. There is positive correlation between economic growth and investment, but the financing of investment for achieving sustainable rate of economic growth becomes a major concern for an economy. For some countries, domestic savings are enough to meet the demand for funds, whereas in others countries domestic savings are inadequate to match demand for funds. In this case, foreign savings are also required for investments, which help government to establish infrastructures. When development and other construction activities are started in the country, these generate employment opportunities for the people. On the other hand costs of the project increase because of interest and fringe benefits and heavy remuneration given to foreigners. It also makes unstable economic growth in the long run because it makes current account deficit and debt burden to increase. Therefore, increasing efforts are necessary to stimulate domestic savings to weaken the dependency on foreign funds (Aktas et al., 2012). For the government to remain less dependent on the foreign investment it is important for the country to mobilize the savings of the people into the economy because domestic saving provide the basis of domestic investment which will provide better stability of the economy (Bairamli & Kostoglou, 2010).

One of the key elements of the Medium Term Development Framework (MTDF) 2005-10 strategy for Pakistan was, to encourage higher level of investment and high saving rate efforts would be made to enhance public as well as private savings through provision of supporting environment. Savings of the population are usually the leading part of domestic saving in developing countries especially lower income predominantly agricultural economics (Ayub, 2001). In developing

countries like Pakistan household saving contributes more than 75 percent in national saving (Rehman et al., 2010).

Investment level in Pakistan decreased from 19.33 percent of (GDP) from 2005-06 to 15.08 percent of (GDP) in 2012-13, because national saving also declined in the same period. It declined from 15.2 percent in 2005-06 to 13 percent of GDP in 2012-13. Gross domestic saving (GDS) of Pakistan also remained low as compare to other South Asian, China and Islamic economies. GDS was 13.3 percent of (GDP) in 2011 in Pakistan, while in the same time period India had 33.7 percent, Bangladesh 17.8 percent, Sri Lanka 18.3 percent, China 52.5 percent, Indonesia 34 percent, Malaysia 40 percent, Saudi Arabia 53 percent and United Arab Emirates (UAE) had 41 percent GDS as percentage of (GDP). Pakistan's GDP growth was also lower than that of these countries in the same period. Household sector contribute more than 75 percent in national saving and it provides the basis for investments in real sector which will further lead of economic growth of the country. Larger the rate of saving, larger will be the investment and hence economic growth. Above statistics of GDS can be taken as an indication of how these countries developed themselves through high and sustained growth rate of savings and how they achieved high GDP growth rates. These South Asian and Islamic countries have high rate of savings on persistent basis, which is prerequisite for sustainable growth of the economy.

Several studies have been conducted to find the determinants of saving at international as well as national level. Following studies tried to investigate the determinants of saving internationally (Denizer & Wolf, 1998; Masson et al., 1998; Callen & Thimann, 1997; Athukorala & Tsai, 2003; Orbeta, 2006; Horioka & Wan, 2007; Hufner & Koske, 2010; Akpan et al., 2012; Mahlo, 2012; Gedala, 2012; Unny, 2012; Chhoedup, 2013; Teshome et al., 2013) and found that income, dependency ratio, interest rate, family size, education level, age, GDP growth rate , livestock, land ownership and gender of the head of family were major determinants of saving.

As far as Pakistan is concerned, some studies [Khan et al., 1992; Khan and Raheem (1993) ; Sinha (1998-99), Afzal (2004), Nasir and Khalid (2004), Ahmad et al. (2006) , Azam and Shakeel (2012), Farhan and Akram (2011), Shaikh (2012)] estimated the determinants of saving using the time series data. Whereas the other studies [Burney & Khan, 1992; Siddique & Siddique, 1993; Khan and Nasir, 1998; Ahmed and Asghar, 2004; Khan et al., 2009; Rehman et al., 2010;] used the cross sectional data to find the factors affecting saving. The last two studies covered only tehsil level areas of two different districts. In these studies the intercepts of saving function were positive and marginal propensities to save were very high that may not be justified in developing countries like Pakistan. Further these results of both studies cannot be generalized on Pakistan level.

The other more recent one is Ahmed and Asghar (2004) which used the cross sectional data of HIES 1998-99 that is at national level. This study showed that the slope of the saving function (MPS) is 0.886 in Pakistan which is quite unrealistic especially with respect to Pakistan. Again the intercept of the saving model is 1392.04 (positive) which is again against the Keynesian saving function. In rural areas the slope was 0.94 while in urban area it was 0.79. These marginal propensities to saves seem quite unrealistic in developing countries like Pakistan. According to Keynse Income Hypothesis, the standard mathematical equation of consumption function is $C= co + cY$. Saving is function of income $S=f(Y)$. Where $Y = C + S$. Thus, $S=Y - C$. Putting the value of C, $S= Y-(C0+cY)$. $S= Y- C0- cY$. $S = -C0 + (1-c) Y$. $S =-S0 + sY$. Where $s=1-c$. Thus the intercept of the saving function must be negative. This study is different from the previous ones in different respects. This study is using the fresh available PSLM 2010-11 data collected by Pakistan Bureau of Statistics (PBS) which is representative of national with rural/urban break up. There is no study that has been conducted at the provincial level in Pakistan. Additional poverty is very important variable to affect the saving which has been ignored especially in Pakistan.

The purpose of this study is to focus on what are the factors/determinants, which can affect the level of saving in Pakistan, specifically those factors which affect the level of household saving because its shre is more than three forth in national saving.

The remaining part of the study is organized as follows. Section II provides the literature review, whereas the data and methodology are discussed in the section III. Results and discussions are interpreted in the section IV whereas the final section concludes and suggests policy recommendations.

Literature Review

Several studies have been conducted to investigate the determinants of household saving at micro as well as macro level. Some researcher conducted time series analysis while the others used the cross sectional data to find the saving determinants. Some of the existing work is discussed below.

Burney and Khan (1992) estimated the pattern of household savings in Pakistan. The HIES data for the period 1984-85 was used. Age and education of the family head, employment status, dependency ratio, secondary earning, and occupation were used as major determinants of household saving. The OLS technique was used for the analysis. The results showed that dependency ratio and education of the family head has a negative effect on household savings in Pakistan. No systematic relationship was found between savings and employment status and between occupation of the family head and household saving.

Khan et al. (1992) estimated the relationship among dependency ratio, foreign capital inflow and saving rate using time series data from 1959-60 to 1987-88. Saving rate was used as dependent variable, while per capita income, real rate of interest, foreign capital inflow, dependency ratio, openness of the economy, foreign aid and terms of trade were used as explanatory variables. The OLS technique was applied. The results concluded that income, real interest rate, term of trade and openness of the economy was positively related with saving while dependency ratio and foreign aid have negative impact on saving.

Khan and Raheem (1993) analyzed the relationship among foreign aid, domestic saving and economic growth using time series data from 1960 to 1988. The OLS technique was used to estimate the impact of Foreign Direct Investment (FDI), remittances, foreign loan, real interest rate, per capita growth rate and foreign grants on domestic savings. The results suggested that per capita growth rate and lagged value of dependent variable was positively and significantly related with domestic savings. Foreign loans and grants were inversely related to domestic saving. Negative but insignificant relationship was found between FDI and domestic saving.

Siddiqui and Siddiqui (1993) examined the household saving behavior in Pakistan utilizing the HIES data which was collected by Pakistan Bureau of Statistics for the period 1969 to 1988. The Weighted Least Square (WLS) technique was used to estimate the saving function. Income, dependency ratio, and employment status were used as major determinants of saving. The study found that there was positive relationship between income and savings, dependency ratio has negative relationship with household saving that shows that population pressure has a strong negative impact on saving.

Callen and Thimann (1997) assessed the determinants of household saving. The data from 21 OECD (Organization for Economic Cooperation and Development) countries was collected for the period 1975 to 1995 for the analysis. Household saving to GDP was used as dependent variable, while corporate saving, government saving, disposable income of the household, unemployment rate, real rate of interest, taxes and inflation were used as independent variables. The linear

regression method was used for estimation. The results suggested that government policy has a significant impact on the household saving and income growth has a strong positive influence on household saving, the old-age dependency ratio has negatively correlated with household saving, the real interest rate was significant in some specifications, inflation was positively related to household saving, the ratio of direct taxes to total government revenue was found to have a significant negative impact on saving, while the indirect tax ratio is insignificant.

Sinha (1998-99) estimated the relationship between saving and economic growth. Time series data from 1960 to 1995 was used. The granger causality technique was used to estimate the role of saving in Pakistan's economy. The results demonstrated that both private and total saving have a long run relationship with GDP, growth of total saving causes the growth of GDP and the growth of private saving does not causes the growth of GDP which means that the growth rate of government saving causes the growth rate of GDP .

Denizer and Wolf (1998) explored household saving determinants in transition economies. The study based on household matching surveys for three central European economies Hungary, Poland and Bulgaria. The study concluded that female headed household less save as compare to male headed household while larger size of the family had higher saving. Households who already had more of the consumer durables and house ownership save less in all three economies. The dummy variable of land ownership was negatively related with household saving in case of Bulgaria and Poland. Saving was negatively affected by education and self-employment while household headed by pensioners save less than other household in three countries. Household income was positively and significantly related with saving.

Khan and Nasir (1998) analyzed the stylized facts of household savings in Pakistan. Micro level data was used from HIES for the year 1993-94 which was collected by PBS. Household saving was obtained by using residual approach. The result showed that educated households save less than uneducated households and savings of the households in government sector were more as compare to private sector. It was also concluded that educated households spend more as compared to uneducated households for maintaining their living standard.

Masson et al. (1998) examined the determinants on private saving using large sample panel data of 21 industrial countries for the period 1973 to 1993 and from 40 developing economies for the period 1982 to 1993. The OLS method was used on both time series and cross sectional data. The results showed that growth of GDP is positively related with private saving specially for the developing countries and dependency ratio has a low effect on private saving behavior. Per capita income has significant positive impact on private saving behavior. The real interest rate and changes in terms of trade have significant positive impact on saving behavior for industrial countries and negatively related with private saving behavior for developing countries.

Athukorala and Tsai (2003) estimated the household saving determinants in Taiwan. Time series data from 1952 to 1999 was used. Saving rate, inflation, rate of growth disposable income, unemployment rate, young dependency ratio, government saving, corporate saving, real interest rate, household wealth and social security payments were used as major determinants of household saving. Saving function was estimated in this study derived from the life cycle hypothesis. The ARDL bound testing approach was used. The results showed that growth rate of disposable income, real interest rate were significantly positive impact on household saving and age dependency, young dependency, government saving, social security contribution payments and access to credit facilities have significant negative impact on household saving. Unemployment in its short run variation has positive impact on precautionary saving of households.

Afzal (2004) estimated the saving and investment functions in Pakistan using time series data from 1960 to 2003. National saving as percentage of GDP was used as control variable while

real GDP growth, inflation, nominal interest rate on saving deposits, nominal exchange rate, inflow of foreign capital as percentage of GDP, per capita real income, lagged value of saving, and real investment were used as explanatory variables. Two stage least square (TSLS) method was used in order to estimate saving function. The results concluded that real per capita income, interest rate on deposits and growth of real GDP were positively and significantly related with national saving. Inflation, foreign capital inflow as percentage of GDP and exchange rate had negative impact of national saving. The coefficients of lagged saving and real investment were also positively related with national saving.

Ahmed and Asghar (2004) analyzed the saving behavior in Pakistan utilizing HIES data of 1998-99, which was collected by PBS. The OLS technique was applied to estimate the impact of income, educational level, age, dependency ratio, wealth, gender and employment status on savings. The results showed that income and employment status has positive effect on household saving and inverse relationship was found between dependency ratio and family savings, household saving also affected by gender of the household head and the results showed that female headed households save less than male headed household.

Dirschmid and Glatzer (2004) tried to find the determinants of Austrian household saving rate using time series data from 1960 to 2002. Saving rate was used as dependent variable while growth of real disposable income of households, real interest rate, inflation rate, budget balance and expenditures on public social security as a percentage of disposable household income were used as independent variables. The error correction model was applied in order to captures the impacts of these variables in short and long run. The study found that real disposable income and real interest rate were positively and significantly related with saving in short run and long run. Inflation had no direct effect on saving in short run while in the long run saving of the households increase due to inflation by 0.62 percent. Budget balance negatively related with saving rate showed that household save more when budget balance falls. Social security expenditures provide incentive for saving in short run but it did not play an important role in the long run.

Nasir and Khalid (2004) investigated the saving and investment behavior in Pakistan using time series data from 1971 to 2003. The OLS technique was applied to estimate the saving behavior. Growth rate of national saving was used as dependent variable while, budget deficit, remittances, government investment and government current expenditure as percentage of GDP, real rate of interest, terms of trade index, and GDP were used as explanatory variables. The results showed that increase in govt. current expenditure raises savings, The coefficient of govt. investment and budget deficit are negative which showed that these spending are not providing the extra returns for individuals/corporate sector to save more, the increase in GDP growth rate positively and significantly affects savings rate, Remittances positively related with savings rate and increase in real interest rate leads to increase in saving rate.

Ahmad et al. (2006) examined the household saving behavior in Pakistan, by using the Johansen-Juselius co-integration approach. The data from 1972 to 2003 was used. Per capita income, inflation rate, dependency ratio, real rate of interest were used as explanatory variables while household saving was used as dependent variable. The study found that growth of per capita income, and real interest rate have significant positive impact on household saving while dependency ratio and inflation rate have significant negative impact on household saving and public saving is having significant inverse relationship with household saving.

Orbeta (2006) estimated the relationship between family saving and household size in Philippines. The data collected from Annual Poverty Indicator Survey (APIS) for the period 2002 was used for the analysis. The OLS technique was used to estimate the relationship. The results

showed that household saving decline due to one member increase in the family. Rate of household saving can be enhanced by reducing the number of children in the family and it will protect the families from short falls of income.

Babatund et al. (2007) examined the determinants of saving of cooperative farmers in Ondo state of southwestern Nigerian. The data collected from one hundred and fifty cooperative farmers using structured questionnaires was used. The multiple regression technique was used. The Study found that income was positively but not significantly related with the saving of cooperative farmers. The coefficient of household size had negative sign showed that as the member of family increases expenditures also increases and saving declines. More years of cooperative membership leads to more saving. Interest rate charged on loan positively and significantly related with cooperative saving. The results also concluded that female cooperative farmers save more than male farmers. Food expenditures and amount of money borrowed negative influence on saving of the cooperative farmers.

Horioka and Wan (2007) analyzed the determinants of household saving in china's provinces using panel data from 1995-2004, which was taken from china household survey, China Statistics Year book, China population Statistics yearbook and International Financial Statistics. Saving rate calculated as household saving to household income used as dependent variable. The study concluded that there was positive and highly significant relationship exists between saving rate and its lag value. Growth rate of income had positive and significant influence on saving rate. Real interest rate had positive and significant impact on saving rate in china. In the pooled sample of rural and urban household dependency had negative and significant impact on saving rate while the young and total dependency had significant but positive relationship with saving rate. The results also concluded that impact of inflation rate on saving rate was unstable because it was negative and significant in the sample of total household while it was insignificant in sample of rural and urban household sample. In the pooled sample of rural and urban household it was positive and significant. There were no significant differences between the saving rates of rural and urban households because it was positive and significant in one out of four cases.

Abdelkhalek et al. (2009) explored the microeconomic determinants which explain the behavior of household saving in Morocco. The OLS method was used on data that was collected from Community Based Monitoring System (CBMS) survey for Moroccan households. It was concluded that saving rate positively affected by household income in both rural and urban households. Female headed households save less than male headed households in Moroccan economy but results of interaction variable "gender of the household head and household income" showed that women save more than male. Saving rate decreased as household size and number of unemployed member in the household increases in case of urban households.

Khan et al. (2009) investigated the difference between household saving in different rural areas of three tehsils of districts of Karak (Pakistan) and sample was collected from 300 respondents through questionnaire. Annual household saving was used as dependent variable while, annual household disposable income, gender of the family head, ownership of land and livestock, and dependency ratio were used as independent variables. The ANCOVA technique was used to analyze the data and negative relationship between saving and gender of the household head showed that female headed household save more than male headed household, ownership of land livestock, and household income had positive effect on household saving.

Kibet et al. (2009) estimated the household saving determinants in rural area of Nakuru District of Kenya. The method of least square was used by the study. The data collected from 359 farmers, teachers and entrepreneur through multistage sampling technique. The results concluded that income was positively and significantly related with saving. Credit access and dependency ratio

had negative effect on saving. Negative coefficient of age showed that, as one year increase in the age of the household head brings 51.26 Kenyan shilling decline in household saving. Businessmen households save more than teachers and farmers. Study also concluded that interest rate charged on deposits motivate the people to save more. Transportation cost of saving institutions had negative influence on saving. The dummy variable used for gender with positive sign showed that male headed household save more than female headed household.

Hufner and Koske (2010) analyzed the determinants of household saving rates of G7 countries with the panel co-integration framework since 1970s using time series data from 1970 to 2008. The results showed that real interest rates, disposable income and inflation are important determinants of household saving rates in most of the countries. Real per capita disposable income was positively related with France, Germany, Japan, Italy and Canada. Italy and France had notably larger impact of real per capita income on saving rate as compare to other countries. Variable of real per capita income for the United Kingdom and United States surprisingly had not significant impact. Except United Kingdom and United States, real interest rate had significant impact on saving rate for all other countries. The negative coefficient of real interest rate for France and Germany suggested that income effect was more important than substitution effect. By contrast, real interest rate had positive influence on the household saving ratio for Canada, Japan and Italy.

Akpan et al. (2012) analyzed the determinants of savings among workers of agro based firms in Nigeria. The study used cross sectional data that was collected randomly from 250 workers from the agro based firms. Households saving, income, consumption expenditure, tax, age of worker, experience, education, other family member's income, farm output value, membership of Isuzu Association in Years and household size were used as major determinants of savings. The method of Two Stage Least Square (TSLS) of simultaneous equation system was used. The results suggested that income, education and experience has positive and significant impact on savings. Household size and tax was negatively related with savings of the workers and finally workers belonging to local contribution groups had positive impact on their savings.

Farhan and Akram (2011) examined that does saving behavior is effected by income in Pakistan along with inflation and dependency ratio? The Auto regressive distributed lag (ARDL) approach to co-integration was used to explain the short run and long run relationship between level of income and saving behavior using time series data from 1985 to 2009. The results of the study suggested that inflation and average dependency ration have negative impact on gross domestic savings and income per capita has positive impact on saving.

Jangili (2011) estimated the relationship between domestic saving, investment and GDP for India using time series data from 1950-51 to 2007-08. The co-integration analysis was used to check long run relationship and the granger causality test was used to check causal relationship among these variables. The results concluded that higher level of GDS and gross domestic investment leads to higher economic growth. It was empirically suggested that domestic saving and investment led economic growth came from household sector in India.

Mistzel (2011) analyzed the causal relationship between saving and economic growth in the countries where level of income were different. The granger causality test was used on gross domestic saving and GDP for advanced as well as an emerging and developing economies. It was concluded that gross domestic saving was the cause of changing gross domestic product in emerging and developing economies. Similarly gross domestic product caused by gross domestic saving in granger sense in countries with advance economies. The main finding of the study was economic policy of any country "either developed or emerging" should be encourage to people to save more

because saving of the people establish the basis for investment which further lead to economic development of the economy.

Mahlo (2012) investigated the determinants of household saving of South African households. The data collected from the South African reserve bank for the period 1990Q1 to 2009Q3 was analyzed by using the co-integration technique. The results of the study concluded that household income had positive and significant relationship with South African household saving. The results were in line with permanent income hypothesis, which states that, financially strong and richer household saves more as compare to poor households. Other result was in line with life cycle hypothesis that household consumption and saving had significantly negatively related. Household debt had negative influence on household saving while interest rate positively and significantly related with household saving.

Rehman et al. (2010) tried to find out the determinants of household saving behavior in district Multan, Pakistan. Primary data directly collected from 293 respondents who were head of their families by using stratified random technique. The OLS method was used to estimate the determinants of saving. Income, age of the head, education of the household head, marital status, spouse participation, children's educational expenditures, household size, size of land holdings, region of residence, value of house and number of live stocks used as major determinants. The results concluded that family size, education of the family head, children's educational expenditures, liabilities to be paid, value of house and marital status were significantly and inversely affecting household savings. While household income, spouse participation, size of the land holding and total dependency rate had significant and positive relationship with saving of the household in district Multan. The value of MPS was recorded 0.63 for district Multan.

Azam and Shakeel (2012) analyzed the impact of foreign capital inflow on household saving in Pakistan. Time series data from 1981 to 2010 was used. Household saving was used as control variable while remittances, FDI and foreign aid were used as major independent variables. The results showed that remittances and foreign direct investment had positive and significant impact on saving and foreign aid had negative impact on saving.

Gedala (2012) investigated the determinants of household saving behavior in the rural and tribal area of district Visakhapatnam, India. Sample size consists of 120 households that were collected from rural and tribal households. For finding out the determinants saving in both rural and tribal areas, the multiple and logistic regression approach were used. The results suggested that age of the household head positively related with saving and square of the head's age negatively related with saving, which showed that saving increase with the age but tends to decline when cross a certain limit. Female headed households less save as compare to male headed households. Saving behavior was not affected by educational status of the household head. Those household save more who had their own house as compare to those who had not in both rural and tribal areas. Saving of the households significantly and positively affected by income. Medical expenditures and dependency ratio had negative influence on savings. The value of MPS was 0.99 and 0.03 for rural and tribal areas respectively.

Shaikh (2012) analyzed the consumption and saving behavior in Pakistan using time series data from 1974 to 2010. In order to find the determinants of saving, the ordinary least square approach was used. Saving rate was used as response variable while GDP, real exports, remittances, inflation growth rate were used as explanatory variables. It was concluded that growth rate of GDP, remittances, exports to GDP ratio were positively and significantly related with saving rate in Pakistan while saving rate negatively affected by inflation rate.

Unny (2012) tried to identify the determinants of saving in rural households of Kerala state. Primary data collected from the hundred rural households was used in the study. The results showed

that age of the household head positively and significantly related with income. Number of dependents and number of female children were negatively but not significantly related with the saving of the rural households. The study also concluded that as the year of education increases saving of the rural household also increases. Income and assets positively and significantly related with household saving of the rural household in kerala state. The value of MPS was 0.26.

Xu (2012) investigated the impact of age structure of population and economic growth on saving rate in china using time series data from 1963 to 2006. Young and old dependency ratio, and GDP per capita were used as independent variables, while household saving ratio calculated as "household saving divided by disposable income of household" was used as dependent variable. The Vector Error Correction Model (VECM) and the Engle Granger Co-integration tests were used. It was found that household saving rate negatively and significantly affected by both young and old dependency ratio while GDP per capita had positive impact on saving rate in china.

Chhoedup (2013) assessed the determinants of household saving in Bhutan. Study based on field survey and data was collected from 404 respondents using random sampling technique. The OLS method was used for the estimation. It was found that income of the household was positively and significantly related with household saving. Age and square of age had positive and negative signs respectively, which showed that age had life cycle effect on household saving in Bhutan. The results also concluded that household in urban areas save more as compare to rural areas. Household size and total dependency were negatively related with saving level of the household. As the member of family increases houselhod saving tends to decline. Married male headed household save more as compare female headed and unmarried male headed household. Households save more who had house ownership than others. The dummay variables of land and livestock ownership had negative influence on household saving. Among the households in Bhutan, the value of marginal propenstiy to save was 0.36.

Shaheen et al. (2013) analyzed that how domestic saving effected by foreign capital inflow in Pakistan using time series data from 1980 to 2010. Gross domestic saving was used as dependent variable while GDP per capita, remittances, foreign direct investment and trade openness were used as explanatory variables. The co-integration approach by Engle (1987) and the error correction method was used. The study found that GDP per capita and trade openness were positively related with domestic saving while dependent variable negatively affected by remittance. Foreign direct investment also positively and significantly associated with domestic saving.

Teshome et al. (2013) analyzed the determinants of household savings in Ethiopia. A sample of 700 rural household respondents was collected from the East Hararghe zone of Oromia regional state of Ethiopia, using multistage sampling and Proportional to Size (PPS) technique. Gender and age of the household head, dependency ratio, education level, land ownership, live stock holding, access to credit, annual income, annual expenditures and annual investment were used as independent variables. The Tobit model was used for the analysis. The results suggested that 79.20 percent of the respondents practiced saving with the average amount of 11365.30 birr (Ethiopian currency). Income, education level of the household head, holdings of livestock, access to credit, investment were significant determinants of rural household savings in Ethiopia.

Thus the review of the earlier work on the determinants of household saving indicates that there are several studies which have been conducted in developing countries including Pakistan. Literature review also depicts that income is a major determinant of household saving and OLS technique was mostly used by the studies for assessing the saving determinants using micro level data.

Methodology

Reliable and accurate data is basic and necessary condition to execute a valid research. Similarly, an appropriate and suitable methodology is also essential for good research and to develop policies for the betterment of relevant sector.

Present section focuses on the several procedures applied by the study. It also provides the understanding related to different approaches that have been used by the study. Furthermore, the present section also provides detail information related to data sources, variable description, theoretical framework, and methodologies employed by the study.

Data

Present study uses fresh and available PSLM survey data for the period of 2010-11, which was collected by Pakistan Bureau of Statistics (PBS). Survey has been conducted since 1963 with some breaks, before the survey of 1998-99, it was Household Integrated Economic Survey (HIES), but in 1998-99 questionnaire and data collection procedure revised and known as "Pakistan Integrated Household Survey" (PIHS). In 2004 it was renamed as "Pakistan Social and Living Standards Measurement (PSLM)" survey. The detail of sample size is given below:

Table 1. Province Wise Sample Size

Province	**Sample Size**
Punjab	6954
Sindh	4098
Khyber Pakhtonkhwa	2954
Baluchistan	2335
Total	**16341**

Source: PSLM Survey 2010-11

Methodology

Appropriate and suitable methodology is prerequisite for obtaining the reliable results from the analysis. This section discusses the details on theoretical framework and methodologies used by study.

Theoretical Framework

Saving plays a critical role in capital accumulation and economic development that is acknowledged in the "Classical" growth models and "Two Gap" model. Solow (1956) suggested that country's economic growth can be influenced by the level of savings, higher level of savings lead to capital accumulation that further leads to growth of the economy. Malthus (1820) presented the concept of "optimum propensity to save". He said that capital accumulation is the most important determinant of economic development, while the source of the former is saving. Ricardo (1921) suggested that Capital formation depends on two factors. First, will to save. Second, capacity to save. The capacity to save is more important in capital accumulation. As Ricardo said, "Out of two loaves I may save one, out of four I may save three". Harrod (1939) developed his model of economic growth on the basis of three different concepts on rates of growth which are, Actual growth, natural growth and warranted growth, later is determined by saving ratio and warranted growth rate is the growth rate at which all savings are absorbed into investment.

Leibenstein (1957) in his thesis of "Critical Minimum Effort" suggested that the expansions of the growth agent are necessary for the process of economic development and "The saver" is one of the typical agents among them. Modigliani's (1966) Life Cycle model emphasized how savings

could be used to transfer purchasing power of the people from one phase to other phase of life. A glance through theoretical literature reveals that income is main factor determining the level of saving.

Model Specification

This study estimates the following saving function in Pakistan.

$S = f(Y, FH, LS, E, PR, EDU)$

The above general form of the model can also be written as under:

$S = \alpha_0 + \alpha_1 Y + \alpha_2 FH + \alpha_3 LS + \alpha_4 R + \alpha_5 PR + \alpha_6 EDU + e$

Variables Description

The explanation of variables is given below.

Dependent Variable

S =Saving. A continuous variable used for saving per capita per month. A residual approach is used to estimate household saving i.e. income minus expenditure.

Explanatory Variables

Y =Income is continuous variables used for income per capita per month.

FH = Female head is a dummy variable taking 1 if head of the household is female, otherwise 0.

LS =Livestock is also a dummy variable. It takes 1 if household has livestock, otherwise0.

E =Earner is a continuous variable used for number of earners.

PR =Poor is also a dummy variable. It takes 1 if household is poor, otherwise0. For the estimation of poverty the same technique was used as by Cheema & Sial (2012, 2012 & 2014).

EDU=education is a continuous variable.

e=error term

Hypotheses of the Study

Null Hypothesis:

$H_0 : \alpha_1 = 0$ *There is no relationship between saving and income*

Alternative Hypothesis:

$H_0 : \alpha_1 = 0$ *There is positive relationship between saving and income*

Null Hypothesis:

$H_0 : \alpha_2 = 0$ *Female Heads do not have lower saving than Male Heads*

Alternative Hypothesis:

$H_1 : \alpha_2 < 0$ *Female Heads have lower saving than Male Heads*

Null Hypothesis:

$H_0 : \alpha_3 = 0$ *Households with livestock do not have higher saving than who do not*

Alternative Hypothesis:

$H_1 : \alpha_3 > 0$ *Households with livestock have higher saving than who do not*

Null Hypothesis:

$H_0 : \alpha_4 = 0$ *There does not exist any relationship between saving and number of earner*

Alternative Hypothesis:

$H_1 : \alpha_4 > 0$ *There exists positive relationship between saving and number of earner*

Null Hypothesis:

$H_0 : \alpha_5 = 0$ *Poor households do not have lower saving than who are not*

Alternative Hypothesis:

$H_1 : \alpha_5 < 0$ *Poor households have lower saving than who are not*

Null Hypothesis:

$H_0 : \alpha_6 = 0$ *There is no relationhip between education and saving*

Alternative Hypothesis:

$H_1 : \alpha_6 < 0$ *There is negative relationhip between education and saving*

Results and Discussion

Saving is one of the important features for achieving high and sustainable economic growth. Moreover saving rates in the economy bring more capital accumulation and more investment. This will ultimately lead to the growth of industrial sector, employment generation, improvement in quality of products, stable prices and finally higher growth. Savings are the largest component of national savings in developed and developing countries (Rehman et al., 2010). This study estimates the determinants of savings in Pakistan which are given in Table 2. There is no multicollinearity problem (see at appendix-A).

Table 2. Determinants of Household Saving in Pakistan

Vaiables	Coefficient	Standard error*	t-statistic	P-value
Constant	-1386.09	99.24	-13.97	0.00
Income	0.27	0.03	9.99	0.00
Female head	-600.27	88.21	-6.80	0.00
Livestock	359.59	34.22	10.51	0.00
Education	-56.69	11.11	-5.10	0.00
Earner	102.34	12.38	8.26	0.00
Poor	-1243.30	241.23	-5.15	0.00
R-squared= 0.64 F statistic=275.29				

Source: Author's own calculations

*These are heteroscedasticity corrected standard errors .

Note. All the coefficients are statistically significant at 1 percent level.

Table 2 shows the household saving behavior with different socio-economic variables in Pakistan. It can be seen that household saving is significantly affected by income, gender of the family head, livestock ownership, household head education, number of earner and poverty. The coefficient of income is positive and thus compatible with prior theoretical expectations that there is a positive relationship between saving and income. It is statistically significant suggesting that per capita monthly saving increases by 0.27 unit if there is one unit increase in per capita household income. This shows that large and rapid increase in income tends to raise the rate of saving in Pakistan, because households' capacity to save increases with household income. The result is consistent with the following studies (Bautista & Lamberte, 1990; Burney & Khan, 1992; Brata, 1999; Orbeta Jr., 2006; Abdelkhalek et al., 2009; Kibet et al., 2009; Gedala, 2012; Denizer & Wolf, 1998). This mps is much less than that of the Ahmed and Asghar (2004) that was 0.88. Additionally According to the present study the autonomous savings are less than 0 supporting the Keynes saving

function. These results are inconsistent with Asghar (2004) in which autonomous savings were positive that are against the Keynes income hypothesis and there was no justification for this.

Saving is also affected by the gender of the family head. Female headed households have a significant coefficient with negative sign showing that female headed households save about Rs. 600 per month less than male headed households. The results of the study are similar with the findings of (Denizer & Wolf, 1998; Ahmed & Asghar, 2004; Abdelkhalek et al., 2009; Kibet et al., 2009; Gedala, 2012). As far as the livestock is concerned, holding of it affects savings significantly and positively. The result explores that households member having livestock can save almost Rs. 360 per month more than the households who do not have. The results are in line with the studies of (Khan et al., 2009; Rehman et al., 2011).

Education of the household heads has significant negative influence on savings for Pakistan. Our result supports (Burney & Irfan, 1991; Burney & Khan, 1992; Khan & Nasir, 1998; Ahmad & Asghar, 2004; Rehman et al., 2010) findings. From the above Table, it can be seen that the negative relationship exists between education of the household head and household saving. If there is one year increase in the education of family head, then there will be about Rs. 57 decrease in saving per month. It does not mean that saving start declining due to decrease in income; it happens because more educated family head want to spend more to maintain their standard of living. They spend more on their children education because they want to educate their children in well reputed and well established educational institutions. Saving may decline because household want to maintain living standard by spending more on building their home/ building/purchasing houses in posh area. Our results support those of (Burney & Irfan, 1991; Burney & Khan, 1992; Ahmad & Asghar, 2004) findings.

The number of earner is also an important variable to affect saving. As the number of earner increase, savings also increases. As one additional number of earner increases, savings increases by about Rs 102. The other important variable is poverty which has been almost ignored in Pakistan. The main reason for low saving in developing country like Pakistan is that there is poverty. The coefficient of poverty is negatively and significantly related with per capita saving. The results show that the savings of the poor are about Rs. 1243 less as compared to the non-poor.

Regional level Analysis

It is necessary to break up the analysis at regional level to have deep understanding of the situation. Thus, the determinants of the saving at rural/urban level are presented in Table 3.

The regional level analysis shows that the marginal propensity to save (mps) is higher in rural areas than urban areas. These results are consistent with Ahmed and Asghar (2004). It is 0.38 in rural areas meaning that one unit increase in income raises saving by 0.38 units. In urban area it is 0.20 showing that one unit increase in income increases saving by 0.20 units. This study thinks that these are quite realistic ones. These magnitudes are much less than the study immediately described. According to Ahmad and Asghar (2004) marginal propensity to save (MPS) was 0.79 in urban areas and it was 0.94 in rural areas. These marginal propensities to saves in both areas are quite unrealistic in developing countries like Pakistan.

Female heads have fewer saving in both urban and rural areas than male heads. But in urban areas savings are much fewer than the rural areas. As far as livestock is concerned, families having livestock have more saving than who do not have. The families with this save about Rs. 515 more than who do not in urban areas. In rural areas these families save Rs. 194 more than who do not have. In urban areas it is more effective than rural areas because in urban areas prices are higher than rural areas. Education is another important variable to affect saving in urban and rural areas in

Pakistan. Actually the educated people are more conscious about the future of their children. So they spend more on them as compared to illiterate person. So their savings are fewer.

Table 3. Determinants of Household Saving in urban and rural areas of Pakistan

	URBAN		RURAL	
Vaiables	**Coefficient**	**Standard error***	**Coefficient**	**Standard error***
Constant	-1310.64 (-17.57)**	74.589	-1509.558 (-11.24)**	134.32
Income	0.20 (12.73)	0.02	0.38 (8.26)	0.0456
Female head	-698.55 (-3.44)	203.13	-397.25 (-5.48)	72.431
Livestock	513.97 (5.57)	92.28	194.25 (6.75)	28.794
Education	-35.38 (-4.53)	7.81	-45.78 (-4.43)	10.329
Earner	212.11 (9.75)	21.75	67.77 (5.98)	11.327
Poor	-1946.89 (-4.03)	483.24	-582.49 (-2.43)	239.245
R-squared = 0.57, F(6, 6300) = 109.34			R-squared = 0.75, F(6, 9115) = 161.96	

Source: Author's own calculations
*These are heteroscedasticity corrected standard errors.
**Within brackets are t-values estimated at heteroscedasticity corrected standard errors.
Note. All the coefficients are statistically significant at 1 percent level.

As far as number of earner is concerned, the results show that there is positive relationship between number of earner and savings. As the one earner increases, it raises saving by about Rs. 212 in urban areas and almost Rs.68 in rural areas. The earners bring more saving in urban areas than rural areas. These results are also close to reality because in urban areas, the salary/wages are higher than rural areas.

As far as poverty is concerned, there never has been estimated the relationship between poverty and saving in Pakistan. These results are also according to the expectations. There is negative relationship between poverty and savings. The poor families have fewer savings that the non-poor. This is equally valid in urban and rural areas. In urban areas the poor save about Rs. 1947 and in rural areas almost Rs. 582 less than the non-poor.

Analysis at Provincial level

To break the analysis at only rural/urban level is not sufficient. It is also essential to do the analysis at provincial level. The results at provincial level are given in Table 4.

The results given in the table depict that marginal propensity to save is the highest in Punjab among all the provinces and it is lowest in Sindh. It is 0.29 in Punjab and it is 0.10 in Sindh. The explanation is same as has been given in the previous pages. Female heads have fewer savings than male heads in all the provinces except Sindh. In Sindh the relationship is positive, but it is not statistically significant. The female heads have most negative savings in Punjab among all the provinces. The reasons may be that in Punjab the women are most spendthrifts than any other

province. Education has inverse relationship with savings in all the provinces. It has the most negative relationship in Punjab. Again as already has been described that in Punjab the people are more sensitive to their children future as compared the other provinces. The number of earner has positive relationship with savings in all of the provinces. As far as poverty is concerned, it has negative relationship with saving in all of the provinces. It has the most negative relationship with saving in Baluchistan and least negative one in Sindh.

Table 4. Determinants of Household Saving in the Provinces of Pakistan

	Punjab	**Sindh**	**KPK**	**Baluchistan**
Vaiables	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
Constant	-1311.96 (-10.56)*	-716.19 (-13.69)*	-1271.35 (-17.62)*	-1147.79 (-11.42)*
Income	0.29 (6.11)	0.10 (9.82)	0.23 (12.60)	0.24 (8.17)
Female head	-584.69 (-5.20)	31.83 (0.17)	-821.53 (-4.57)	-44.31 (-0.16)
Livestock	424.93 (8.26)	198.97 (6.72)	203.31 (4.30)	72.84 (1.64)
Education	-59.64 (-2.68)	-7.41 (-2.02)	-22.61 (-3.49)	-9.81 (-2.67)
Earner	91.83 (4.00)	108.36 (8.42)	130.73 (6.05)	59.07 (3.47)
Poor	-769.63 (-3.01)	-6062.85 (-2.74)	-719.89 (-2.68)	-1954.32 (-4.67)
	R-squared = 0.6792, F(6, 6494) = 190.41	R-squared = 0.3118, F(6, 4007) = 44.92	R-squared = 0.4808, F(6, 2595) = 65.91	R-squared = 0.6346, F(6, 2305) = 57.52

Source: Author's own calculations

*Within bracket are t-values estimated by heteroscedasticity corrected standard errors.

Note. All the coefficients are statistically significant at 1 percent level except female head in Sindh.

Conclusion and Policy Implications

The most of the savings are done by households in developing countries like Pakistan. The savings cause investment to increase resulting in rapid economic growth. The present study aims at investigating the determinants of the household savings at Pakistan by using Pakistan Social and Living Standards Measurement (PSLM) survey data, which was collected by Pakistan Bureau of Statistics (PBS) for the year 2010-11. The Multiple Regression Model is estimated for the purpose mentioned previously. The results of the study reveal that household income, livestock, education, gender of the household head, number of earners and poverty are the major determinants of household saving in Pakistan. Savings have positive relationships with income, live stock and number of earner whereas these have negative ones with education, poverty and female head. To promote household savings among households in Pakistan, policies aiming at increasing income of

the people should be formulated and implemented. Further more Government should create job opportunities and provide loan for live stock especially for the poor and females.

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APPENDIX-A

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. vif
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Variable	VIF	1/VIF
education	1.20	0.833381
ymonpc	1.15	0.871868
earner	1.11	0.901262
livestock	1.11	0.901495
femhead	1.06	0.942411
poor	1.05	0.950998
houseown	1.03	0.975381
Mean VIF	1.10	