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DETERMINANTS OF PRIVATE SAVING: A CASE OF PAKISTAN

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ABSTRACT

This paper investigates the impact of demographic factors like age, income, dependency ratio, education of males and females and the economic factor of financial depth on household savings in Pakistan. The results were obtained for time series data of 1975-2008 by applying cointegration analysis. The study concludes that increase in per capita income, expected age, deepening of financial system, increase in years of education of both males and females are positively associated with higher saving rate but increase in dependency ratio has negative impact on saving rate. So in order to increase the rate of savings, there is a need to focus on the deepening of financial system on one hand, and improving the education of males and females, increasing the level of income and expected age and reducing the dependency ratio on the other hand.

Keywords: Financial system, Dependency ratio, Education.

INTRODUCTION

Saving is a crucial determinant of economics growth as the investments are mainly financed by savings and higher investments boost up the rate of economic growth. Household saving is an important determinant of welfare as well when the credit and insurance markets are not available because it helps households to tackle the unanticipated variations in their incomes. Domestic savings consists of three components: corporate, household and national savings. In developing countries like Pakistan a larger proportion of domestic savings consists of household savings. It constitutes three forth of national savings in our economy but the rate of household savings is only about 11 percent during the last three decades. This is due to low rate of savings and consequently

low rate of investment which created differences in economics performance between Pakistan and South East Asian Countries during 1970'sand 1980's.

The low rate of domestic savings in Pakistan is creating high reliance on foreign capital inflows to finance investments in infrastructure, education and all social and economic activities such as funds from IMF and other International institutions which impose heavy conditions. Although foreign capital is inevitable at earlier stage of development but over dependency on foreign capital can lead economy vulnerable to external shocks. This fear of vulnerability emphasizes the need to enhance domestic resource mobilization so that the economy becomes self-sufficient. This paper examines the impact of various demographic variables on household savings by using co integration analysis. The Paper is structured as follows: section ii provides literature review. Section iii describes model and data Econometric methodology is presented in section iv results and conclusion follows section.

LITERATURE REVIEW

Demographic factors such as dependency ratio, size of population, composition of family are the determinants of savings, Leff (1969), (Hussain, 1995; Hussain, 1996), Wakabayashi and Mackellar (1999) and Yasin (2007). Leff's findings showed that high dependency ratio was the reason for the differences of saving rate of developed and underdeveloped countries and that increase in saving was not proportional to increase in income due to higher rate of population growth, which has also kept the ratio of working age population unchanged over the past two decades despite of increase in life expectancy, Hussain (1996). Financial deepening had positive impact on private savings. Kim and Zang (1997) found that dependency burden helps to predict about the rate of savings provided the variations across countries and across time were controlled. Yasin (2007) in investigating the impact of demographic structure on private savings for fourteen emerging markets estimated significant positive relationship of the national saving ratio with the percentage of working population and negative relationship with children population groups respectively in the majority of the countries but no conclusive relationship was found with elderly population group, but Wakabayashi and Mackellar (1999) in china found that Saving rate varies inversely with elderly and youth dependency ratios both. The increase in life span and decline in child mortality increases capital formation and savings, Ram and Schultz (1979). Savings serve as a means for financing of rural industries and education had positive impact on savings Brata (1999). He also found that males tend to save more than females. Burey and Khan (1992) found that although average income and savings were higher for urban household but the propensity to save was higher for rural house hold. The dependency ratio and education have negative influence on savings but no relationship was found between savings and occupation of household, and they found that savings increase with age but decline when age crosses a certain limit findings consistent with life cycle hypothesis. Ahmad and Asghar (2004) found that household's income had a positive impact on

both rural and urban areas. Wealth (ownership of house) and dependency ratio had a negative impact on saving behavior in Pakistan (including rural-urban). The impact of employment status showed that only employed persons had positive savings. Various categories of education had a negative influence on household saving behavior for overall Pakistan as well as for urban Pakistan but had opposite influence for rural areas. Further the male headed households were more likely to save in overall and in urban area but not in rural Pakistan and saving decreased with age at a decreasing rate. Lee (1998) estimated that in United States, the retirement savings contributed about 30% to private savings. Female labor supply and wage rate has a positive impact on consumption and as well as savings, but when couples with children consequently decline, but along with increase in income and wage rate savings increase. Finally they found that increase in female labor supply increase the propensity to save out of secondary earner's income, Apps and Rees (2001). Baharumshah *et al.* (2003) investigated the saving behavior in fast growing Asian economies (Singapore, south Korea, Malaysia, Thailand and Philippines) and found positive impact of economic growth and income and negative impact of capital inflows on savings in short run in all Asian countries except Thailand but mixed results were found in long run. The impact of dependency ratio was inconclusive in long run but had positive impact in short run on savings.Demography is the study of human populations, their size, composition and distribution. The understanding of demographic changes has importance in development because it provides a powerful predictive tool through which the trends of future can be viewed easily. Population's composition may be described in terms of basic demographic features age, sex family and household status-an by features of the population's social and economic context-ethnicity, religion, language, education, occupation, income and wealth. Demography is a central component of societal context and social change. Demographic changes provide best Understanding about the challenges of future planning and to create a policy environment that takes maximum advantages of demographic potential.

METHODOLOGY

All the data used in this study has been gathered from Federal Bauru of Statistics, Economic Survey (different versions) published by Ministry of Finance, Annual Report (2005) published by State Bank of Pakistan. (2005-2006) published by Social Policy and Development center in Pakistan. The model consists of seven variables: household savings(HS), per capita income (PCINCOME), dependency ratio (DR), life expectancy (LIFEX), Male literacy rate (MLR), female literacy rate (FMLR) and financial depth (M2/GDPR). Household savings are the disposable income less the consumption expenditures. Various hypothesis regarding saving and consumption had been developed since the Keynes had postulated the Income Hypothesis in economic theory. In this study we measured savings in financial terms and have taken data in rupees. Per capita income is the income per person in a population and income is always considered to be the crucial determinant of saving. Life expectancy (expected age) is the expected (in statistical sense) no of

years of life. The life cycle hypothesis assumes the dependency of consumption and saving behavior on the individual's age in the life cycle. Young people have relatively low incomes and low (possibly negative) saving rates. As income rises in middle age years, saving rate also increases accordingly. Retirement causes fall in income and there begins a period of dissaving. There is an ambiguity about the impact of education on savings. The ambiguity arises because on the one hand, educated households have relatively higher consumption; while, on the other hand, educated people are likely to earn more as well. In literature the dependency ratio is defined as the percentage age of the population aged 14 below plus the percentageage of the population aged 65 and above and is expected to have negative influence on savings. Demographers modified the life cycle model by introducing the stages of dependency which can depress public as well private savings i-e, childhood as well as retirement is added to the life cycle. In this study we do not categorize the dependency ratio into young and old dependency but take this factor as a whole and the dependency ratio has been obtained by subtracting labor force participation rate (LFPR) from unity. DR = 100 –LFPR. The ratio of M2/GDP is known as financial depth, used to measure the money supply. It measures the overall size of financial intermediary sector and is strongly correlated with both the level and rate of change of real GDP per capita income. In this study we calculated financial depth by dividing the values of M2 by the GDP. So our model takes the following form

HS=f (PCINCOME, DR. FMLR, MLR, LIFEX, M2GDPR) …….. (i)

In order to determine the long run relationship of household savings with demographic determinants, the estimation methodology employed below involves first determining the stationary of time series by employing the augmented dickey fuller test (ADF) then Johansoncointegration technique is employed to determine the existence of long run relationship among all the variables involved and estimation of cointegration equation to determine the positive or negative relationship of savings with the variables taken into consideration.

Table-1. Unit roots test

Variables	Lag length	ADF level	First difference
Household savings (HS)	8	-1.014174	-10.17254
Dependency ratio (DR)	8	-0.588909	-5.609535
Female literacy rate (FLR)	8	0.954356	-7.411637
Male literacy rate (MLR)	8	-2.457381	-8.757581
Expected Age (LIFEX)	8	-1.835512	-6.393979
M2 /GDP (M2GDP)	8	-2.835512	-6.243002
Per capita income (PCINCOME)	8	-0.548954	-5.090003

ADF is modeled as $\Delta Xt = \alpha + \beta t + \delta Xt\text{-}1 + \sum \delta j \Delta Xt\text{-}j+1 + €t$ …… (2)

Critical Values: 1%= -3.724070

5%=-2.986225

10%=-2.6326604

RESULTS AND DISCUSSION

The results of unit root test are shown in table-1.

Applying ADF test in order to check the statinarity of time series, results showed that all the variables are non-stationary at level but become stationary after the first difference. Optimal lag length has been selected by AIC criterion.

The JohansonCointegration Results are shown in table-2 and 3.

Table-2. The Results of Johansen Cointegration Test

None*	0.781893	153.3701	125.6154	0.0003
At most 1 *	0.684939	104.6415	95.75366	0.0106
At most 2	0.583017	67.68181	69.81889	0.0732
At most 3	0.471584	39.69106	47.85613	0.2338
At most 4	0.306761	19.27915	29.79707	0.4730
At most 5	0.203018	7.554998	15.49471	0.5141
At most 6	0.009128	0.293443	3.841466	0.5880

Trace test indicates 2 cointegratingeqn(s) at the 0.05 level

*Denotes rejection of the hypothesis at the 0.05 level

Mackinnon-Haug-Michelis (1999) p-values

Table-3. Normalized Co-integration

Co integrating Equation(s):		Log Likelihood	-10.87505	
Normalized co integrating coefficients (standard error and t-statistics in parentheses)				
Variables	LIFEX	PCINOME	M2GDP	MLR
	.4+80	1.1800	4.1453	0.1300
	(0.11940)	(0.45939)	(0.94177)	(0.00527)
	FMLR	DR		
	0.0784	.0841		
	(0.03221)	(0.05136)		

Log Likelihood = -10.87505

Standard errors and t-statistic are in parentheses.

CONCLUSION

Long run Economics growth of a country depends on persistent investment which is financed by domestic savings or through foreign capital inflows. In this paper we have examined the determinants of household savings specially demographics by applying the methodology of unit root test and Johansson Juseline technique. The results of the test point towards the positive impact

of income, financial development, life expectancy, education of male and females but negative of dependency ratio. High rates of population growth constitute barrier to economic development and dependency burden effects not only physical capital formation and saving, but also affects human capital formation. So there is a need to expand policy efforts to lower the growth rate of population in our country. In order to increase the saving rate in Pakistan, there is a need to focus on improving the education of both males and females because education increases not only the employment opportunities but also improves the improve the capabilities of both males and females to manage household expenditure. There should be policies for educating the females of Pakistan so that they might be able to get some employment and earn their own income and contribute to enhance savings. The per capita income appears to have positive influence on savings. The policy implication that can be drawn from our study is to increase household savings; there is a need to increase the incomes of households. The policy implication of positive relationship of financial depth with savings is that government should focus on deepening of financial sector. Further where, a large proportion of the population consists of children society finds accumulation of savings difficult. For this reason investment in longevity (health services, better food production, and so on) has an out- standing importance for such society because it increases the rate of saving.

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