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Tel. +39 0854219109 – Fax +39 0854219380
Website: www.gler.it
E-mail: gler@fondazionepescarabruzzo.it

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Burhan Ali Shah[*], Iqra Sajid[†]

IMPACT OF INTEREST BEARING DEBT ON REAL SECTOR GROWTH: MEDIATING ROLE OF FINANCIAL SECTOR GROWTH

Abstract

This study examines the impact that debt has on real sector growth by taking financial sector growth as a mediating variable. A sample of 26 highly indebted economies is selected on the basis of debt-to-GDP ratio. Data are collected from the World Bank and OECD over a five-year period, with GDP disaggregated into the real and financial sectors. The four-step regression (Baron and Kenny 1986) is then applied. A significant negative relationship is found between debt and real sector growth and between financial sector growth and real sector growth. However, a positive relationship is observed between debt and financial sector growth, thus confirming the mediating role of financial sector growth between debt and real sector growth.

JEL CLASSIFICATION: E31; E43; G01; H63; O4; O5; P5.
KEYWORDS: DEBT; REAL SECTOR GROWTH; FINANCIAL SECTOR GROWTH; GDP; SAFE RETURN; FINANCIAL CRISIS.

[*] Assistant Professor, School of Management Sciences, Quaid-i-Azam University Islamabad, Pakistan, Tel: +92-333-5586658; *E-mail address*: burhanali@qau.edu.pk
[†] School of Management Sciences, Quaid-i-Azam University Islamabad, Pakistan, *E-mail address*: s.iqrasajid@gmail.com

1. Introduction

Real sector growth refers to the growth of productive sectors in an economy such as agriculture, industry and services (Sanusi 2011). By contrast, financial sector growth refers to the growth of stock markets, banking sector and non-banking financial institutions (Loayza and Ranciere 2006). However, financial growth is thought to be an illusion (Zaman 2014) because it leads to stock market growth with no actual investment in the real sector of the economy, resulting in financial crisis (i.e., 2007, Daly 2008). Daly (2008) observes that before the crisis, "paper exchanging for paper was 20 times larger than exchanges of paper for real assets" (p.16). The value of real assets was no longer sufficient to guarantee the increasing debt levels, creating a situation of debt deflation. Similarly, in the 1980s, the demand for financial assets rapidly increased, which caused financial inflation (Arrighi 1994) due to investors' preference for financial assets over productive assets that earn higher and safer returns, particularly on interest bearing securities. In the 1970s, even non-financial companies diverted most of their reserves to financial investments instead of investing in real assets (Krippner 2011), causing financial inflation (Orhangazi 2008).

The Bank for International Settlements (BIS) predicts only a 1.6% growth rate in the USA, UK, and Japan over five years (from 2015 to 2020), which is lower than the 2.3% growth rate between 2001 and 2007 and is approximately half of the post-war 20th century average. Growth in emerging economies such as India and China is also expected to decline. The decline in real GDP is due to a reduction in business investment (BIS Quarterly Review 2015, p.1) caused by declining aggregate demand in the economy (Keynes 1936), mainly due to interest-based debt (Mian and Sufi 2014).

The financial sector protects debt-based borrowings on the pretext that it generates wealth by leveraging debt (Keen 1995). However, the banks' product is a debt overhead that results in debt deflation and binds borrowers to service debts, causing significant reductions in investment and consumption. In reality, the banker's business strategy is to convert a major part of the economic surplus into a stream of interest payments (Minsky 1992). However, paying debt obligations diverts the earnings from being invested in real capital, thus creating debt deflation and enforcing financial austerity (Keen 2000). Infrastructure and capital are additionally depleted to

save revenues to pay creditors and bankers, thus diminishing the economy's productive powers (Hudson 2012).

The literature (Hudson 2012; Milberg and Winkler 2013; Norgaard et al. 2009; Chapra 2009) supports the argument that conventional debt as a secure investment opportunity results in the financialization of the corporate sector and, in some cases, even the financialization of the whole economy, which negatively affects real economic growth. The "global credit bubble" of 2007 caused the worst financial crisis since the great depression, but debt did not stop growing. In fact, the level of borrowing to GDP is higher today than it was in 2007, which has created new threats to financial stability and global economic growth (Dobbs et al. 2015, p.10). Interest-bearing debt provides a great amount of money for non-productive purposes that eventually create financial market bubbles with harmful effects on real sector growth (Geanakoplos 2009).

The detrimental effects of the continuous growth of debt need to be examined to provide options for countries suffering from high indebtedness. Therefore, this study aims to provide empirical evidence that interest-bearing debt may promote financial growth through financial inflation while hampering real growth of the economy. Thus, the study intends to investigate the impact of interest-bearing debt on real sector growth of the economy while taking financial sector growth as a mediating variable. It specifically intends to meet the following objectives:

1. To determine the relationship between debt and real sector growth.
2. To determine the relationship between debt and financial sector growth.
3. To determine the relationship between financial sector growth and real sector growth.
4. To determine the mediating effect of financial sector growth between debt and real sector growth.

The present study differs from previous research in various important aspects. Previous researchers examined only one component of total debt, i.e., foreign debt (Jenkins 1998; Greene and Delano 1993), public debt (Reinhart and Rogoff 2010), or domestic debt (Singh 1999), due to the non-availability of data on total debt and finance sector development for a large number of countries (Leung 2003). However, in the current study, the huge data bank of the World Development Indicator (WDI) is used to draw empirically reliable observations.

Second, previous studies investigated the relationship between the financial sector and GDP instead of real sector growth due to the non-availability of GDP data in dis-aggregated form. In such cases, a positive association between the two is almost certain, as the financial sector is a component of GDP. It creates a misconception because people's investments in debt-based contracts ultimately increase financial sector growth but reduce real sector growth (Christopoulos and Tsionas 2004). Therefore, the current study takes GDP minus the financial sector as a measure of the real sector (ISIC[1] Rev 4 2008) and determines the relationship between real sector growth and financial sector growth.

Third, there is a contradiction in literature that examines the impact of financial sector growth on real sector growth. Some studies (Christopoulos and Tsionas 2004; King and Levine 1993; Levine and Zervous 1998; Beck et al. 2000; Al-Malkawi and Abdullah 2011) observed a significant positive influence of financial sector growth on real sector growth, while other studies (Favara 2003; Haiss et al. 2011; Loayza and Ranciere 2006; Rousseau and Wachtel 2005; Rajan 2005) reported a significant negative impact of financial sector growth on real sector growth, primarily due to the use of different proxy variables to measure financial sector growth (Adu et al. 2013). Contrary to previous research, this study uses the actual measure (dollar value) of the financial sector instead of using proxy variables to measure the effect of financial sector growth on real sector growth, leading to more reliable results and, hence, acquiring paramount significance.

Finally, previous studies either investigated the relationship between debt and real sector growth or financial sector growth and real sector growth, but in the present study, all three variables are combined together to empirically test the mediating effect of financial inflation. This is probably the first attempt to do so.

2. Literature review

After the longest and deepest global financial crisis in 2007, it was expected that the world's economies would reduce their debt levels (Schularick and Taylor 2012). However, debt has continuously increased in almost all nations (Dobbs et al. 2015, p.10), resulting in a debt overhang effect, with the current debt stock exceeding a nation's future capacity to

[1] International Industrial Classification Standards, Revision 4

repay it, which negatively affects investment and economic development (Krugman 1988; Sachs 1990; Karagol 2012). Moreover, repayment of external debt or debt servicing cost results in crowding out, leaving very little to make investments for growth purposes (Karagol 2012; Diaz-Alejandro 1981). Many authors (Chowdhury 2004; Clements et al. 2003; Elbadawi et al. 1997) found that large amounts of interest-bearing debt reduces investment and ultimately diminishes real sector growth, which is important for the economic development of a country (Lucas 1988). Therefore, hypothesis (H_1) is formulated to examine this relationship.

H_1: There is a significant negative relationship between debt and real sector growth.

In boom-bust periods, attractive financial innovations induce people to borrow more thereby increasing the debt level in the economy. This is followed by the breakdown of stock market bubbles eventually leading to a great recession (Fisher 1937, p. 41). According to Mian and Sufim, (2009), interest-based mortgage loans combined with insurance offering risk-free returns to the lender creates stock market bubbles that ultimately result in financial crisis. Mortgage credit is extended with only 5% or less as equity, resulting in a higher leverage factor of 20 to 1. Such a practice enables both speculators and optimists and finances a larger bubble that ultimately bursts in a global financial crisis (Acharya and Richardson 2009). A 100% reserve system instead of the fractional reserve system may resolve the debt overhang issue and eliminate excessive debt from the economies (Fisher 1937, p. 41).

According to Chapra (2009), extreme competition and stockholders' demands for higher yields trapped the banks to issue credit to subprime borrowers who usually did not qualify for credit under prime loaning criteria. The issuance of loans for speculation or non-productive purposes created higher levels of inflation due to excessive money supply and eventually resulted in the financial crisis of 2007. Wilson (2009) also supported the argument that the presence of sub-prime borrowers was a main reason behind the financial crisis. However, the preference for financial assets (especially interest bearing debt) over real assets creates excessive financial sector growth at the expense of real sector growth (Krippner 2005). The risk-free returns on conventional debt enhance financial sector growth and ultimately reduce real sector growth (Hudson 2012). Similarly, investment in the stock market is more lucrative for corporations than is investment in real assets due to higher earnings from more liquid financial

assets. Consequently, business firms do not reinvest the majority of their profits in real productive investment, leading to financial sector growth (Robert 2016). The following hypothesis (H_2) is developed to investigate this argument.

H_2: There is a significant positive relationship between debt and financial sector growth.

It is the continuously growing size and importance of financial transactions and financial markets in the economy and dominance of financial assets, particularly debt securities, that leads to the financialization of the economy (Krippner 2005, p. 173; Dore 2008, p. 116-117). It is the growing dominance of the financial economy over real economy (Wade 2005). For instance, the vast increase in money and credit throughout 2007 increased the asset prices that were used as mortgage to obtain loans, thus further increasing the money supply but not leading to more investments (Gennaioli, Shleifer and Vishny 2012), resulting in the financialization of the economy. People searched for capital gains from inflated asset prices and bought those assets whose prices were increasing at higher rates; to support their purchases, further loans were available at lower interest rates (Hudson 2012). This phenomenon led to a decreased rate of saving and increased rate of interest-bearing debt in the economy, converting the economy's circular flow into a vicious circle eliminating all rationalities behind the realistic ability to pay (Keen 1995). In this process, the non-financial corporate sector acts more like a financial sector by giving high priority to shareholders' value rather than to innovativeness and growth of productive assets. This new business model aims to reduce production-side risk by cutting costs of R&D, which is required for innovation, leading to the critical long-term impact of financialization on production growth (Milberg and Winkler 2013, p 237). The returns on real sector investments either become lower than the risk free returns on debt securities or do not cover the risk-adjusted cost of capital, resulting in a preference for financial assets over real assets, leading to a huge decline in real sector growth (Bloom, Bond and Reenen 2007; Guiso and Parigi 1999). This implies that financial sector growth accelerates financial inflation as both financial and non-financial sectors of the economy invest in financial assets for the sake of fixed and safe returns on debt securities, resulting in negative impacts on real sector investment (Orhangazi 2008). Therefore, the following hypothesis (H_3) is established.

H_3: There is a significant negative relationship between financial sector and real sector growth

Major companies use credit to finance their corporate buyouts and increase the price of products to service their debt. Paying financial charges leaves less available for real investment. Similarly, for the economy as a whole, an increase in levered debt increases interest payments and fees to bondholders and bankers, thus leaving little to spend on goods and services. In this way, financial overhead grows, slowing new investment and squeezing out the real economy (Hudson 2015). Lazonick (2014) observes that corporate profitability does not increase economic prosperity because corporate executives spend their profits in stock repurchases. Financial wealth is generated by increasing the stock prices, not by creating more goods. The situation becomes worse when employment, tangible capital investment and R & D expenditures are cut back to provide purely financial returns rather than expanding productions by investing in real assets (Milberg and Winkler 2013). For instance, in 2007, a mortgage-backed new financial security was created to meet the high growth in demand of dollars with insurance against default. Rating agencies assigned AAA ratings to that security, certifying them as extremely safe (Loayza and Ranciere 2006). Consequently, the mortgage debt doubled from $7 trillion to $14 trillion over a five-year period from 2002 to 2007, generating a huge amount of "toxic debt" (Geanakoplos 2009).

A negative correlation is observed between an increasing debt-to-GDP ratio and economic growth (Cohen and Sachs 1985; Clements et al. 2003) and between foreign debt and economic growth (Chowdhury 2004) due to the negative effects of debt on the "efficiency of capital and labor" (Cunningham 1993), thus exposing the highly indebted economies to debt overhang problems (Sawada 1994). Many other studies (Chowdhry 2001; Siddiqui and Malik 2001; Easterly 1999, 2001, 2003; Sen et al. 2007) also observe the negative effects of higher debt levels on economic growth. However, an optimal debt ratio of 38.4% encouraged economic growth in the early 1980s, but a higher debt ratio of 40.7% to 50.9% negatively affected economic growth from 1986-93 (Smyth and Hsing 1995). A lower growth rate was found in economies with a public-debt-to-GDP ratio of more than 90% (Reinhart and Rogoff 2010). Further, in developing economies, a gross external-debt-to-GDP ratio above 60% decreased the annual growth rate by 2 percent, but an external-debt-to-GDP ratio above 90% cut the annual growth rate in half (Reinhart and Rogoff 2008). Cohen and Sachs (1985) observe that an increase in foreign debt is not advantageous to economic growth. Similarly, Alesina and Tabellini (1988)

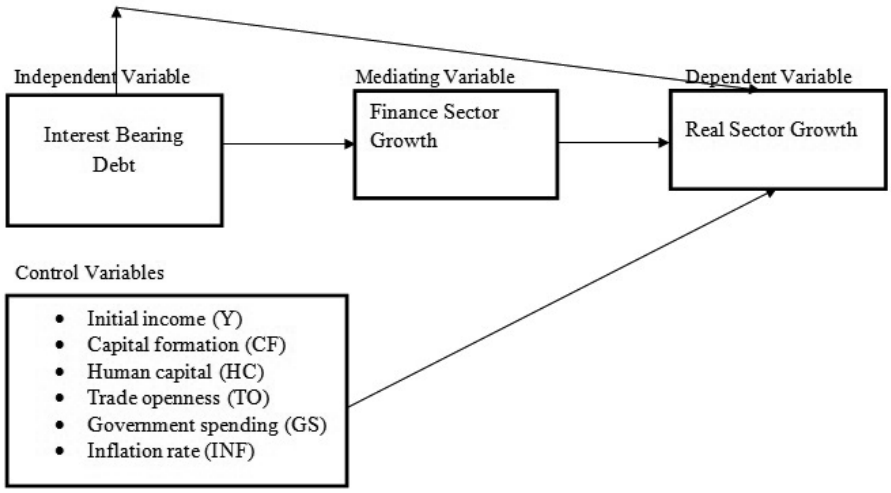
and Dornbusch (1988) observe that foreign debt effects economic development by changing economic policies. For instance, to repay foreign debt, the tax rates are increased, which leads to capital flight from the country and discourages domestic investment. Dornbusch (1988) holds the opinion that foreign debt impacts economic growth through inflation rates instead of tax rates. However, Burguet and Fernández-Ruiz (1998) consider that domestic debt is more expensive compared to concessionary external debt. Abbas and Christensen (2007) observe that a domestic debt above 35 percent of the bank deposits ratio weakens economic growth. Governments' domestic borrowings reduce the funds for private sector investment and results in decreased growth, welfare and capital accumulation (Diamond 1965; Hauner 2006). Generally, a high debt level increases default risk and results in restricted credit, reduced confidence and decreased investment (Greene and Delano 1993; Jenkins 1998; Leung 2003) due to an increase in domestic economic uncertainty (Khan and Haque 1985).

Economic growth is affected by a number of other factors, including increasing initial income (Romer 1986), international trade openness (Harrison 1994, 1996), inflation (Phillips 1958; Umaru and Zubairu 2012), government expenditures (Sala-i-Martin 1990), investment in human capital (Denison 1961; Benhabib and Spiegel 1994) and gross capital formation (Shuaib and Danial 2015). These variables are all controlled (Favara 2003; Cecchetti et al. 2011; Akram 2011) to minimize their effects (Kothari 2004) on the relationship between debt and real sector growth.

The theoretical framework developed for the purpose of this study is given in figure 1, which explains the variance in real sector growth due to interest-bearing debt. The growth trend of total-debt-to-GDP ratio is determined to find its negative impact on real sector growth. Financial sector growth is included as a mediating variable (Hudson 2012; Loayza and Ranciere 2006), which results in the financialization of economy and activates a negative relationship between debt and real sector growth. This relationship is represented in the form of the following hypothesis (H_4).

H_4: Financial sector growth mediates the relationship between debt and real sector growth.

Figure 1. Theoretical framework.



3. Research methodology

This study intends to examine the impact of debt on real sector growth by taking financial sector growth as a mediating variable. Hence, the study is based on hypothesis testing. The E-Views software is used for data analysis. The study combines a cross-country analysis with a 5-year time series to generate panel data. The time series data for five years (2010 - 2014) are collected from the official website of the World Bank for 26 economies in the world. The 26 economies are selected from the list of 47 economies ranked on the basis of their debt to GDP ratio by BIS and the IMF.

In case of secondary data, it is important to gather data from reliable sources to have accurate estimations about the results (Kothari 2004). Therefore, data for all the control variables and central government debt are collected from WDI[2], whereas the data for the real sector, private sector debt and the financial sector are collected from national accounts on OECD[3]

[2] http://data.worldbank.org/
[3] http://stats.oecd.org/

statistics. From OECD statistics, insurance and financial services are taken as the financial sector, and the remaining sector-wise aggregate of GDP is taken as the real sector (ISIC, Rev 4 2008). The growth rate of the financial sector and real sector is calculated by taking down the lag difference of respective series. Table 1 shows the description and sources of different dimensions used in this study.

Table 1. Description and Source Variables.

Variables	Description	Source
GDP	Gross Domestic Product (Current LCU)	WDI
GDP Deflator	GDP Deflator (base year varies by country)	WDI
Financial Sector (FS)	Insurance and Financial Services (Current LCU)	OECD stats, National Accounts
GDP per capita	GDP per capita (Constant LCU)	WDI
Private Sector Debt	Private Sector Debt (% of GDP)	OECD stats, National Accounts
General Government Debt	Central Government Debt (% of GDP)	WDI
Exports (X)	Total Exports (% of GDP)	WDI
Imports (M)	Total Imports (% of GDP)	WDI
Consumer price index (CPI)	Consumer Price Index (2010=100)	WDI
Capital Formation (CF)	Gross Fixed Capital Formation (% of GDP)	WDI
Human Capital (HC)	Gross Secondary School Enrolment Ratio (%)	WDI
Government spending (GS)	Government Final Consumption Expenditure (% of GDP)	WDI

3.1. Measurement of variables

This research applies the exact volume of the financial sector (dollar value) instead of proxies from available data sources such as the WDI and OECD statistics.

GDP is a combination of the agricultural sector, manufacturing sector and service sector. The service sector includes transport & communication, insurance and financial services (Shahzad 2015). Thus, the financial sector, comprising insurance and financial services, is itself a part of GDP. Therefore, the study disaggregated GDP into real and financial sectors to obtain a more accurate measure of growth. Table 2 gives the statistical formulas used to measure the variables of this study.

Table 2. Variable Derivation by Statistical Formulas.

Variables	Proxies/formulae	Source
Nominal Size of Real Sector	$rs_t = GDP_t - fs_t$	ISIC Rev 4, (2008)
Price Size of Real Sector	$RS_t = \frac{rs_t}{(Gdp\ deflator)_t} \times 100$	Anderson (2012, p. 27)
Price Size of Financial Sector (FS Real)	$FS_t = \frac{fs_t}{(Gdp\ deflator)_t} \times 100$	Anderson (2012, p. 27)
Real Sector Growth (RSG)	$RSG_t = \frac{RS_t - RS_{t-1}}{RS_{t-1}} \times 100$	(Reilly and Brown 2011)
Total debt as % of GDP	$TD_t = PSD_t + GGD_t$	(Cecchetti et al., (2011)
Financial Sector Growth (FSG)	$FSG_t = \frac{FS_t - FS_{t-1}}{FS_{t-1}} \times 100$	(Reilly and Brown 2011)
Initial Income (Y)	$Y_t = \ln(GDP\ per\ capita)_t$	(Levine 1993; Favara 2003)
Trade Openness (TO)	$TO_t = X_t + M_t$	(Frankel and Romer 1999; Levine 1993)
Inflation Rate (INF)	$INF_t = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}} \times 100$	(De Gregorio 1993; Levine and Zervous 1993)

3.2 Sampling technique and sample size

In this study, purposive sampling is used in which part of a population is selected as a sample that conforms to the specific criteria set by the researcher (Neuman 2002). OECD economies with more than 100% of debt to GDP ratio are selected owing to the harmful effect of such a higher debt to GDP ratio on the economy (Cecchetti and Kharroubi 2013). Thus, the economies of Japan, Ireland, Portugal, Belgium, the Netherlands, Greece, Spain, Sweden, Denmark, France, Italy, the United Kingdom, Norway, Finland, the United States, Hungary, Austria, Australia, Poland, Canada, Germany, Israel, Slovakia, China, the Czech Republic and Turkey are included in the sample for this study. Further, in purposive sampling, a quota sampling technique is used to ensure that certain groups are adequately represented (Kothari 2004). Therefore, the 9 powerful economies, including the USA, the UK, Japan, France, Australia, Canada, Israel, China and Germany, due to their influential impact on the global economy, are made part of the sample. Thus, 26 economies over the last five years comprise the sample size for this study. Cecchetti et al. (2011) analysed a sample of only 20 economies.

4. Data analysis and discussion

4.1. Descriptive statistics

Table 3 reports the observations of mean, median, standard deviation of debt, real and financial sector growth of the selected economies. In cases of debt, mean > median (1.367>1.198), reflecting a negatively skewed distribution (Isotalo 2001), which means that a large number of countries have higher debt rates. The standard deviation does not indicate any major differences between debt rates of the selected countries. According to the maxima and minima values [(23.06) - (-8.31)], the rate of debt could fluctuate within the range of 31 and could take the highest value of 23.06 and the lowest value of (-8.31).

Real sector growth has a positively skewed distribution, with a mean < median [(-1.130) < (-0.515)], indicating that a large number of countries have smaller real sector growth rates. The relatively small value of standard deviation shows small differences in real sector growth in the sample countries. The maxima and minima values [(10.06)-(-7.50)] for real sector

growth indicate a range of 17, with the highest value of 10.06 and the lowest value of -7.50.

Financial sector growth is negatively skewed distribution, which a mean > median (1.950>1.486), which indicates a large number of countries with higher financial sector growth rate. The standard deviation is higher for financial sector growth than it is for the other two variables, indicating greater variation among countries for their financial growth rates. The maxima and minima [(30.43) - (-16.51)] for financial sector growth show a large range of 46, within which the rate of financial sector growth could fluctuate, with the highest value of 30.43 and the lowest value of -16.51, which indicates higher level of volatility.

Table 3. Descriptive Statistics of Debt, Real and Financial Sector Growth.

Descriptive Statistics Analysis	Debt	Financial Sector Growth	Real Sector Growth
Mean	1.367	1.950	-1.130
Median	1.198	1.486	-0.515
Standard Deviation	3.69	7.15	2.94
Maxima	23.06	30.43	10.06
Minima	-8.31	-16.51	-7.50
Range	31.37921774	46.95254219	17.57179768

The descriptive statistics show that the debt and financial sectors have the highest volatility compared to real sector. A high level of volatility is dangerous for the global economy, as exemplified by financial crisis of 2007, when the abnormal growth and sudden decline of debt brought more volatility in the financial sector, which ultimately hampered economic growth in various economies (Loayza and Ranciere 2006).

4.2. Correlation

Table 4 shows the correlation between debt, financial sector growth and real sector growth. A moderate negative correlation of 0.69 (Greene 2003) is

observed between debt and real sector growth. The result is supported by the findings of Cohen (1993), Clements et al., (2003), and Chowdhury (2004). Similarly, a moderate negative correlation of 0.62 (Greene 2003) is observed between financial sector growth and real sector growth. Arcand et al. (2012), Haiss et al., (2011), Loayza and Ranciere (2006) find a similar correlation between the two. However, a moderate positive correlation of 0.53 (Greene 2003) is observed between debt and financial sector growth. Geanakoplos (2009) and Gennaioli, Shleifer and Vishny (2012) also find a positive correlation between debt and financial sector growth.

Table 4. Correlation between Debt, Financial Sector and Real Sector Growth.

Variable	Debt	Financial Sector Growth	Real Sector Growth
Debt	1		
Financial Sector Growth	0.532804	1	
Real Sector Growth	-0.69299	-0.62871	1

4.3. Jarque-Bera Test of Normality

Table 5 shows the results of the Jarque-Bera test applied to test the volatility of debt, financial sector growth and real sector growth (King and Levine 1993).

Table 5. Jarque-Bera Test of Normality.

Test of Normality	Debt	Financial Sector Growth	Real Sector Growth
Jarque-Bera	396.3359(0.0000)	12.9943(0.0015)	59.7849(0.0000)

( ), shows probability

For all three variables, including debt, financial sector growth and real sector growth, the p-value of the Jarque Bera statistic is significant at the 1%

level of significance, implying that the distributions are not normal. It is therefore concluded that there is much volatility in debt, financial and real sector growth rates across countries and time. More volatility means more risk, which may not be good for the global economy (Favara 2003).

4.4. Redundancy Test

A redundancy test is applied to exclude unimportant and insignificant variables from the model (Asteriou and Hall 2015). A Wald restriction on coefficient test is used to test the hypothesis that a variable is insignificant. The results of the Wald test of joint significance for independent and control variables are given in table 6. Real sector growth is the dependent variable for all the Wald tests. It is observed that only human capital (HC) is found to be highly insignificant in the given model. Therefore, human capital is excluded from the model for further analysis. All other variables are found significant at the 0.01 and 0.05 levels of significance.

Table 6. Wald Test Results.

Method: Wald test for restrictions on coefficients Dependent Variable: RSG						
Variables	F-Statistic	P-Value	T-statistic	P-value	Chi-square	P-value
DG	118.2645	0.0000*	-10.87495	0.0000*	118.2645	0.0000*
FSG	83.66653	0.0000*	-9.146941	0.0000*	83.66653	0.0000*
Y	4.108118	0.0448**	2.076967	0.0398**	4.108118	0.0427**
CF	14.10683	0.0003*	3.755905	0.0003*	14.10683	0.0002*
HC	0.021182	0.8845	-0.145542	0.8845	0.021182	0.8843
TO	4.018144	0.0471**	2.067352	0.0407**	4.018144	0.0450**
GS	17.34107	0.0001*	-4.164260	0.0001*	17.34107	0.0000*
INF	3.939702	0.0493**	2.104228	0.04518**	3.939702	0.0472**

*,shows significance at 1 percent
**,shows significance at 5 percent

4.5. Regression Analysis

This study applies the four-step regression approach proposed by Baron and Kenny (1986) to investigate the relationship between debt and real

sector growth, with financial sector growth used as the mediating variable (Wahba and Elsayed 2015).

In step 1, the regression is run between debt as an independent variable and real sector growth as the dependent variable. Table 7 shows the regression results. The results show that debt has a significant negative impact on real sector growth, at the 0.01 level of significance. The R^2 and adjusted R^2 values indicate that the independent variable, i.e., debt, accounts for 48% variance in the dependent variable, i.e., real sector growth. This confirms that a high debt burden and debt servicing cost reduce real sector investment and negatively impact economic growth (Elbadawi et al. 1997; Easterly 1999, 2001, 2003; Siddiqui and Malik 2001; Chowdhury 2001, 2004; Clements, Bhattacharya and Nguyen 2003; Sen et al. 2007). The result also confirms that a debt-to-GDP ratio more than 100% results in a sharp decline in real sector growth (Cecchetti et al. 2011; Cecchetti and Kharroubi 2012; Reinhart and Rogoff 2010).

Table 7. Regression between Debt and Real Sector Growth.

Parameter	Value
Coefficient	-0.552122
Standard error	0.050770
t-statistic	-10.87495 (0.0000)
R squared	0.480234
Adjusted R squared	0.476173
F-statistic	118.2645(0.000000)
Durbin Watson Stat.	1.485481

( ), shows probability

In second step, the regression is run between debt and financial sector growth. The regression result, given in table 8, shows that debt has a significant positive effect on financial sector growth at the 0.01 level of significance. The R^2 and adjusted R^2 values show that the independent variable, i.e., debt, accounts for 28% of the variance in the dependent variable, i.e., financial sector growth. The result is found to be consistent with those of Geanakoplos (2009), Gennaioli, Shleifer and Vishny (2012) and Mian and Sufi (2009), who find a positive correlation between debt and financial sector growth during the financial crisis of 2007.

Table 8. Regression between Debt and Financial Sector Growth (Mediator).

Parameter	Value
Coefficient	1.030655
Standard error	0.144688
t-statistic	7.123276 (0.0000)
R squared	0.283880
Adjusted R squared	0.278286
F-statistic	50.74106 (0.000000)
Durbin Watson Stat.	1.589017

( ), shows probability

In the 3rd step the regression is run between financial sector growth (mediating variable) and real sector growth. Table 9 shows the regression results, indicating that financial sector growth significantly affects real sector growth at the 0.01 level of significance. The R^2 and adjusted R^2 values show that financial sector growth causes a 39.5% variation in real sector growth. The results confirm a negative relationship between financial development and economic growth (Loayza and Ranciere 2006; Favara 2003; Rousseau and Wachtel 2005; Haiss et al. 2011; Arcand et al. 2012).

Table 9. Regression between Financial Sector Growth and Real Sector Growth.

Parameter	Value
Coefficient	-0.258948
Standard error	0.028310
t-statistic	-9.146941 (0.0000)
R squared	0.395275
Adjusted R squared	0.390551
F-statistic	83.66653 (0.000000)
Durbin Watson Stat.	1.638038

( ), shows probability

After finding significant results of regression between debt and real sector growth (step 1), debt and financial sector growth (step 2) and financial sector growth and real sector growth (step 3), Baron and Kenny suggest a 4th step for testing mediation through multiple regression. In this step, debt and financial sector growth are taken as independent variables, and real sector growth is taken as a dependent variable. Table 10 shows the results of the multiple regression and indicates that both debt and financial sector growth have a significant influence on real sector growth at the 1% level of significance. However, when using financial sector growth as a mediating variable, the level of significance of debt is reduced from 0.0000 (see table 4.5) to 0.0410 (see table 4.8). This result suggests that financial sector growth partially mediates the relationship between debt (independent) and real sector growth (dependent). The R^2 and adjusted R^2 values indicate that debt and financial sector growth cause a 57.4% variation in real sector growth.

Table 10. Results of Multiple Regressions.

Parameter	Debt	Financial Sector Growth
Coefficient	-0.213	-0.149240
Standard error	0.099	0.028180
t-statistic	-2.15152 (0.041032)	-5.295919 (0.0000)
Summary Statistics for Multiple Regression		
R squared	0.574255	
Adjusted R squared	0.567551	
F-statistic	85.65046 (0.000000)	
Durbin Watson Stat.	1.483069	

( ), shows probability

It is observed that secure returns on debt securities promote the financialization of the economy and reduce the investment in the real sector (Hudson 2012; Milberg and Winkler 2013, p. 237), which may lead to a financial crisis, e.g., 2007 (Daly 2008; Norgaard et al. 2009). The results empirically confirm the mediating effect of financial sector growth between debt and real sector growth and supports all these theoretical foundations.

4.5.1. Regression for Control Variables

Real sector growth, a dependent variable for this study, is also regressed against all the control variables i.e., Y, CF, TO, GS, INF (Favara 2003; Cecchetti et al. 2011), and the results are reported in table 11. Y, TO, and INF are found to be significant at the 5% level of significance, while the influence of CF and GS is at the 1% level of significance.

Table 11. Regression for control variables.

Variable	Coefficient	Probability (Sig)	Standard Error
Initial income (Y)	0.10821	0.0478**	0.0521
Capital formation (CF)	0.26694	0.0003*	0.071073
Trade openness (TO)	0.00623	0.0487**	0.003014
Govt. spending (GS)	-0.26023	0.0001*	0.062492
Inflation rate (INF)	0.24141	0.0451**	0.11472

*, Shows significance at 1 percent
**, Shows significance at 5 percent

5. Conclusion and recommendations

This study examines the relationship between debt and real sector growth with financial sector growth taken as a mediating variable in a sample of 26 highly indebted economies with debt-to-GDP ratios of more than 100% over a five-year period (2010-2014) by applying the Baron and Kenny (1986) mediation model.

The results indicate a significant negative relationship between debt and real sector growth. Financial sector growth assumes the form of financial inflation as the mediator enhances the negative relationship between the two. Financial inflation is observed through a positive relationship between debt and financial sector growth and a negative relationship between financial

sector growth and real sector growth. Excessive growth of the financial sector reduces investment in the real sector. These findings are supported by Favara (2003), Haiss et al. (2011), Loayza and Ranciere (2006), Rousseau and Wachtel (2005), Rajan (2005), who also observe a negative relationship between interest-bearing debt and economic growth.

It can be reasonably inferred from the findings of this study that increasing debt and financial sector growth at the expense of real sector growth increases income inequality and creates financial bubbles that result in financial crises, hitting the economy badly. Hence, it is concluded that increasing debt and debt servicing costs reduces the investment in real and productive assets. Greater financial sector investment causes a diversion of resources from the real sector towards the financial sector, which is not always productive for the economy (Guiso and Parigi 1999). If the investment in the financial sector exceeds that in the real sector, it may negatively impact the economy and cause a financial crisis (Kaminsky, Reinhart and Vegh 2003; Norgaard et al. 2009; and Gennaioli et al. 2010). Therefore, there is a need to balance between the growth of the financial and the real sector of the economy by encouraging investment in productive sectors of the economy instead of non-productive sectors.

The supporters of Islamic finance observe that the lack of PLS between creditors and borrowers creates unruliness in the financial system that leads to unnecessary and imprudent lending by conventional banks (Chapra 2009; Zaman 2014). Further, the central banks' role as the 'lender of the last resort' encourages imprudent lending by banks and leads to inflation (Chapra 2009; Kayed and Hassan 2011). The Islamic financial system may prove helpful in resolving the problem of financial inflation by eliminating interest (Ahmad 2010), discouraging investment for speculative purposes (Ahmad 2010; Gheeraert and Weill 2015), controlling unnecessary credit extension (El-Gamal 2004), promoting productive/real sector investment (Mounira 2008) through risk sharing (Azhar and Ashadi 2008; Gheeraert and Weill 2015), reducing financial market bubbles (Azhar and Ashadi 2008) and increasing employment and self-employment prospects and creating need-fulfilling products and services (Gheeraert and Weill 2015). Similarly, in Takaful, a group of people insure each other against individual failures but do not insure the group as a whole against systemic risk. Thus, if the group as a whole buys an asset bubble, they are not protected. Therefore, the lessons from Takaful may prove helpful in reducing financial bubbles and financial crises (Mian and Sufi 2014).

Changyong (2012) observes that the rate of transformation of foreign debt into domestic investment affects the economic growth of a country. Future research could be done that takes debt transformation rate as a mediating variable. Future research may also empirically compare the impact of interest-bearing debt with a PLS based system subject to availability of reliable data on the PLS system.

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Rayenda Brahmana[*] - Gesti Memarista[†]

FINANCIAL PLANNING BEHAVIOUR AMONG THE YOUNG: EVIDENCE FROM MALAYSIAN UNIVERSITY STUDENTS

Abstract

This study examines the effect of socio-demographics, saving motives, and financial literacy on the financial planning behaviour of 457 university students in Malaysia. For a robustness check, the model is rerun by introducing saving attitude as the proxy for financial planning behaviour. However, the conclusion remains the same. The findings show that students will have better financial expenditure planning if they have better motives for savings and are financially literate. Interestingly, demographic factors did not have significant effects on financial planning. Governments and family will play important roles by giving better motivation and financial education to students.

JEL CLASSIFICATION: G02; G20
KEYWORDS: FINANCIAL PLANNING; SAVINGS; FINANCIAL KNOWLEDGE; SOCIO-DEMOGRAPHICS; UNIVERSITY STUDENT.

[*] Centre of Business, Economics, and Finance Forecasting, Universiti Malaysia Sarawak, Kota Samarahan, Sarawak 94300, Malaysia; *E-mail address*: brkhresna@unimas.my.
[†] Faculty of Economics, Universitas Kristen Petra, Siwalankerto, 60236, East Java, Indonesia; *E-mail address*: gesti@petra.ac.id.

1. Introduction

The literature extensively documents why adults save money (Bernheim, Garrett, and Maki 2003; Lusardi and Mitchell 2007a; Lusardi and Mitchell 2007b; and Van Rooij, Lusardi, and Alessie 2011). However, it is rare to find research investigating the actual savings behaviour among students. An example is Bernheim et al (2003), who surveyed households and found the importance of financial education on the wealth of working adults. Lusardi and Mitchell (2007a) stated that financial literacy plays a role for baby boomers in their future savings. Puri and Robinson (2007) found a link between happiness and savings in adults. The findings showed very clearly that savings are determined by financial literacy and other psychological factors.

However, what makes students save money? Are savings habits simply a function of their demographic profiles or is saving related to motives? Does financial literacy significantly influence the students' financial planning? Abramovitch, Freedman, and Pliner (1991) conducted an experimental study of students' spending by giving them $4, in cash or credit card, and these students had to spend the money in an experimental store. The results showed that the students with cash money spent the same amount as those who used a credit card. Furnham (1999) conducted a survey of over 250 young British participants and stated that the regularity of savings, as well as the amount of money saved, is influenced by the amount of money received. Raghubir and Srivastava (2009) investigated the consumption behaviour of undergraduate students. They found that students tended to spend more money in large denominations. However, none of the prior findings empirically investigated the role of saving motives and/or students' financial literacy in savings behaviour.

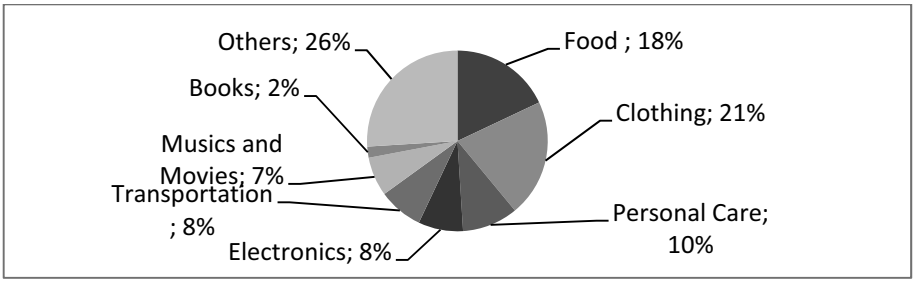
Unlike prior research in youth savings behaviour (e.g., Waerneryd 1998; Furnham 1999; Lusardi et al 2011), this paper addresses the determinants of the savings behaviour of Malaysian students. In detail, this research aims to examine the students' saving motives and the students' financial literacy in determining their financial planning.

Why are saving motives and financial literacy important for students' financial planning behaviour? The literature has many examples on the link between saving motives and financial literacy and the effects of these two variables on financial behaviour. For example, Lusardi and Tufano (2009)

found that debt struggles are experienced by people with bad financial literacy. Stango and Zinman (2006) documented a similar conclusion that the accumulation of wealth is associated with the level of saving motives and financial literacy. Further, Lusardi and Mitchell (2007a, 2007b) found a significant role of financial literacy on better retirement planning. A study by Sallie-Mae (2009) also concluded that a sound financial attitude is due to motives and literacy. That study surveyed undergraduate students about credit card use and determined 84% of students needed more financial management education. Furthermore, 64% of them studied financial topics in high school because it would affect their financial decision making.

It is noteworthy that as a group, students spend almost half of their income on clothes and food, representing 21% and 18% of the total, respectively. The other spending categories of books, games, movies, transportation, etc., are each less than 10%. This implies that students have focused their spending cuts on clothes and food. However, what are the determinants of this spending behaviour? That is a question this research aims to tackle.

Figure 1. Typical student spending.



Source: The Atlantic (2013)

Malaysia is no exception to this financial behaviour. In July 2013, Malaysia's population was estimated to be 29,947,600, making it the 40th most populated country in the world. That population is dominated by youths as the result of baby boomers of the 1990s. Wealth management companies in Malaysia have concerns about bad financial behaviour among the Malaysian youth. This is due to low levels of financial knowledge among Malaysians, which is rated below five on a scale of one to ten after taking

into account individuals who live in rural and urban areas. This lack of knowledge might cause increased spending among Malaysians. Furthermore, the research study done by Ibrahim, Harun, and Isa (2010) stated that undergraduate students have low management with their money due to low levels of financial literacy. According to Ibrahim et al. (2010), although there are financial based seminars conducted on campus, the participation of students is low. This may lead to financially illiterate students on campus. Hence, they cannot make good financial decisions since most of them do not manage their own prosperity well.

However, there is little investigation into young people's socio-demographics, saving motives, and financial literacy, which directly affect their financial planning. Therefore, this research aims to assess more features about the relationship between financial planning and socio-demographics, saving motives, and financial literacy among university students in Malaysia.

2. Prior Research

Financial planning behaviour is a young person's comprehensive estimation of current and future financial state to predict their future asset values, withdrawal plans, cash flows, and retirement plan by using financial instruments. This can be explained through lifecycle theory. Crown (2001) argued that students tend to have few savings to cover their consumption needs, which already surpass their income due to their intentions. Students will need these estimations to achieve their financial objectives in the future, together with evaluations of their asset growth rates, and to ensure the steps taken will be successful. Additionally, a good financial plan can always show students the need to be careful with decision making in order to safeguard a smooth transition through the lifecycle's financial phases, such as changing asset distribution or reducing spending. Thus, liquidity of financial plans is important because it reduces risk when facing infrequent financial changes.

2.1 Socio-Demographics and Financial Planning among University Students

Studies have documented that there is a significant relationship among socio-demographic factors, such as gender, race, religion, and financial planning, for young people. Previous research shows that female and male young people have different patterns of spending (Birari and Patil 2014),

which might influence the groups to have differences in financial planning. Furthermore, the age group of 17-25 years is likely to spend more on clothing, and they may become more impulsive buyers due to their brand consciousness (Kamath 2006). According to research by Sorooshian and Tan (2013), male students in particular are fascinated with buying expensive gadgets. Meanwhile, females usually spend money on shoes, bags, and clothes since they want to look nice for classes. Attri (2012) also mentioned that a difference in genders was observed in having different wise purchase behaviours and savings habits. The previous study found that female respondents spend more on personal grooming, while male respondents spent the highest amount on entertainment. Additionally, the research found education level to be the observing probability for a variety of variables. Respondents with higher education and higher incomes will have better financial situations (Webley and Nyhus 2005). Furthermore, demographic variables are considered significant in household's savings studies (Ahmad, Atiq, Alam, and Butt 2006). Hence, the research hypothesizes that socio-demographics is related to financial planning among young people.

2.2 Saving Motives and Financial Planning among University Students

Warneryd (1999) mentioned that saving motives may be expressed as an intention that can affect saving behaviours. A person who has saving motives tends to accept the related saving behaviour compared to people that do not have saving motives. The theory stated by Katona (1975) defined saving as dependent on the willingness and the capability of someone to save based on assumption. In addition to that, this theory is a combination of psychological variables and economic variables. Mostly young people's savings are dependent on their willingness and their financial expectations and attitudes. Apart from that, Otto (2013) also concluded that saving motives usually depend on the willingness of an individual to save.

The saving motive is a significant factor that might affect financial planning among young people. If young people have a motive to save, their financial planning will be positively affected. Financial planning is an important factor for savings behaviour, especially among households (Lusardi 2003). According to Birari and Patil (2014), young people have issues in their intertemporal savings because of their low level of awareness. Those young people tend to proceed with spending their money for shopping, buying fast food, and transportation in large portions. Young

people have the attitude of "live for today" instead of a belief of "saving for the future" (Kamath 2006). Thus, young people have lower levels of precautionary savings because they believe that saving happens if spending decreases. Moreover, since their current account likely contains only liquid assets consisting of cash and credit cards, Ziegelmeyer (2009) stated that emphasis on limiting spending and not falling below the minimum amount should reflect a precautionary attitude towards risk that should therefore raise precautionary savings, at least on average. Based on the results of previous research, Bachman (1983) discusses that college students would rather spend their optional revenue on instant satisfaction of their needs instead of saving the money for their future. Individuals who have lower levels of financial knowledge will tend to have poor financial planning, and their saving plans are inconsistent with the expectation of saving models (Kennickell, Starr-McCluer, and Sunden 1996). Therefore, this study hypothesizes that the saving motives have positive and significant impacts on financial planning among university students. The outcome of saving motives is related to financial resources as found in the study done by Xiao and Anderson (1997).

2.3 Financial Literacy and Financial Planning among University Students

Financial literacy is the part of financial planning that includes knowledge and the ability to understand financial choices. According to Burns and Dwyer (2007), financial literacy is a financial skill that contributes to money and investment management, financial planning, and budgeting skills. Moreover, to make any financial decision, deeply understanding financial literacy is very important for young people. Wilddowson and Hailwood (2007) explained financial literacy as the narrow focus on basic money management abilities, including savings, insuring, budgeting, and investing, as well as the ability to read, manage and analyse personal finance conditions. Moreover, Burns and Dwyer (2007) mentioned that people with higher financial literacy tend to have higher education, generate higher income, and have their own homes. Nevertheless, Pillai, Carlo and D'souza (2010) stated that young generations are rarely exposed to basic personal finance skills, such as monthly budgeting or other long-run financial planning.

Lack of this financial information and knowledge about financial literacy will cause young people to have potentially poor finance planning. Ibrahim

et al. (2010) found that once students have money abundance, they simply spend it on necessities as well as items that are not necessities. This spending attitude obviously shows that students show a lack of financial literacy, which needs to be changed. In a previous research study, Lusardi and Mitchell (2007b) also concluded that being poorly knowledgeable about financial practices and products may confound a person's ability to invest or save for retirement, undermining their well-being in old age. New trends in fashion, sports, video games, electronic gadgets, mall culture and music are important contributors to wasteful spending among the youth in the Asian subcontinent due to lack of financial literacy and prudence (Pillai, et al. 2010). Additionally, financial literacy relates to the financial systems that influence the way people save, borrow, invest and manage their financial affairs (Widdowson and Hailwood 2007). That means it will affect consumer financial planning. Therefore, this study hypothesizes that financial literacy has positive and significant impacts on the financial behaviour among university students.

Table 1. Previous Research.

Author	Scope	Method	Findings
Attri, R. (2012)	Population size among the youth of 275 respondents aged 14 to 30 years old.	• Pilot test • Sampling method • Convenience method	The young people believe spending more on entertainment, eating out, gadgets and personal grooming rather than believe much in saving.
Bachman, J. G. (1983).	A large sample of high school seniors is surveyed each year, with mail follow-up surveys of smaller samples of each graduating class conducted since 1976.	• Survey percentage	The analyses summarized that high school students earn plenty of money but also spend more on their own entertainment. However, some of them experience a decline in their standard of living throughout the years immediately following high school.
Birari, A. and Patil, U. (2014)	Educated youth group with sample size of 150 in Metro city, Tier 2 and semi urban areas.	• ANOVA • SPSS	The research clearly shows how students in Aurangabad city spend in various categories. Youths spend a large portion of their money on shopping, fast food and transportation. Meanwhile, different genders have different spending habits. Girls do not spend at all on alcohol or tobacco and spend more on cosmetics, beauty care

			and shopping. Furthermore, none of the boys in junior college save money, and they instead spend money on shopping, eating out, etc.
Ibrahim, D. I. D., Harun, R., and Isa, Z. M. (2010).	All the degree students in Bachelor's in Marketing programmes, Bachelor's in Administration Science, Bachelor's in Islamic Banking and Bachelor's in Information Service at UiTM Kedah with a sample size of 200	• Correlation analysis • Chi-Square analysis	This research study concluded that the degree students at the UiTM Kedah campus are severely lacking in their financial knowledge. Thus, their money management abilities are very weak.
Lusardi and Mitchell (2007b)	Survey of consumers concentrating on respondents aged 18 to 97 years old.	• HRS sample analysed	Financial literacy surveys in many developed nations show that consumers are poorly informed about financial products and practices. This is concerning because it compromises the ability of people to save or invest for retirement, undermining their well-being in old age.

Pillai, Carlo, and D'souza (2010)	The sample covered both unemployed and employed young adults aged from 18 to 30 years old.	• Exploratory method	This study found that the practical application of such knowledge to real-life circumstances rather than the question of financial literacy problems.
Sorooshian, S. and Tan, S. K. (2013)	A small sample size of Taylor University students was chosen randomly**.**	• Qualitative as well as quantitative analysis methods • Convenience sample random sampling • Statistics Package for Social Sciences software (SSPS) • ANOVA	Among the variables studied the most significant spending behaviour is for phone expenses. Most of the students spend more on their devices, as they use laptops, PDAs and other technologies for studies related to everyday tasks. They are technology savvy as well.
Webley, P. and Nyhus, E. K. (2005)	One consisting of couples and one involving of singles. Households involving couples were only used if both the husband and wife had completed the questionnaire.	• Sampling method • OLS regression analysis	Parental behaviour of conversing financial matters with children and parental orientations, such as conscientiousness and future orientation, have a weak but clear impact on children's economic behaviour and on economic performance in adulthood.

Widdowson and Hailwood (2007).	Particular focus is on the financial literacy of non-expert consumers of financial services which is the members of the general public.	• Quarterly financial disclosures • Mandatory credit ratings	Financial literacy is a main source at many levels that is an important element in enabling people to manage their financial matters and can make an important contribution to the soundness and efficiency of the financial system as well as to the economy performance.
Ziegelmeyer, M. (2009).	Households with a household head between the age of 20 and 50 years old.	• Random route sample • Access panel	This study has examined the effects of different causes on a subjective measure of precautionary savings in a qualitative and quantitative way using the German SAVE dataset 2005-2007.

3. Methods

This research conducted a survey study by distributing a questionnaire in 10 Malaysian universities in 2015. The sampling technique is random sampling where undergraduate students are the unit of analysis. The questionnaires were distributed by field officers in face-to-face surveys. We successfully collected approximately 580 questionnaires, although only 457 questionnaires were used.

The questionnaire items were developed by adapting and adopting previous research. For financial planning, the items are adapted from Lusardi and Mitchell (2007a, 2007b). The savings planning adapted items used by Furnham (1999). The saving motives are adapted from Furnham (1999),

Canova, Rattazzi, and Webley (2005), and Fisher and Montalto (2010). Hereafter, the financial literacy items follow Lusardi and Mitchel (2007a, 2007b). The questionnaire is designed in 4 sections. Section A consists of demographic profiles of respondents, including gender, age, religion and state of residence This section is designed to understand the effect of student demographics on financial planning. Section B consists of the financial planning of respondents, including the robustness test of savings planning behaviour. Section C is for the saving motives, and Section D consists of financial literacy.

The model is run under the partial least squares-structural equation model (PLS-SEM) because PLS-SEM is powerful in terms of model fit and prediction. Moreover, unlike ordinary least square (OLS), this model includes latent variable into the estimation model, giving better standard error variance and avoiding most endogeneity and exogeneity problems. The estimation model is as follows:

$$FinPlan_i = \alpha_1 + \beta_1 Gender_i + \beta_2 Race_i + \beta_3 Religion_i + \beta_4 State_i + \beta_4 Motive_i + \beta_5 FinLit_i + \varepsilon_i$$

where $FinPlan_i$ is the financial planning. We use two measures for it, which are financial planning and saving planning. Meanwhile, $Motiv_i$ is the saving motive, and $FinLit_i$ is financial literacy. These two variables are the main independent variables in this research. Lastly, the demographic factors, including gender, race, religion, and state, are the control variables.

4. Findings

4.1. Reliability

This research employs two main criteria used for testing goodness of fit measures, which are reliability tests and validity tests. Reliability is a test of how consistently a measuring instrument measures whatever concept it is measuring. Meanwhile, the validity test is used to verify how well an instrument measures the particular concept it is intended to measure (Sekaran and Bougie 2010).

The reliability test is used to check the stability of questionnaire measurement over time. Cronbach's alpha was used to measure the consistency reliability of variables in this study. It is the best examination to assess the inter-item consistency of our measurement items (Sekaran and

Bougie 2010). The value of Cronbach's alpha coefficient of 0.5 and above is considered acceptable, as suggested by Nunnally and Berstein (1994). Further, Hinton, Brownlow, McMurray, Conzens (2004) argue that this cut-off point is generally accepted as indicating a moderately reliable scale, while a lower number generally indicates low reliability. The result for reliability is shown in Table 2.

In terms of reliability, our findings show that Cronbach's alpha is higher than 0.5 for all variables. Cronbach's alpha for financial planning is 0.622, savings planning attitude is 0.865, saving motives is 0.688 and financial literacy is 0.725. This means that all items proposed are reliable and fulfil the requirements for this research study.

Table 2. Reliability test of the variables.

Variable	Cronbach's Alpha	No. of Items
Financial Planning	0.622	5
Saving Attitude	0.865	20
Saving Motives	0.688	4
Financial Literacy	0.725	5

4.2. Validity

We also tested the validity of items used. This test determines how well the results obtained from the measurements are in accordance with the theories from which the tests are designed (Sekaran and Bougie 2010). According to Hair, Black, Babin, and Anderson (2010), the loadings of each item has to be 0.5 or an average of 0.5. However, if we refer to Bryman and Bell (2014) or Sekaran and Bougie (2010), the threshold is 0.7 or an average of 0.7. Using both thresholds, our validity test still shows all items pass and support the item validation.

Table 3. Validity test for financial planning.

Items	Financial Planning	Loading
FP 1	I have a habit of saving money regularly.	0.850
FP 2	I do not think about money.	0.833
FP 3	I like to know where I spend my money every month.	0.824
FP 4	It is hard for me to stick to a budget with unexpected expenses.	0.815
FP 5	Investing seems complicated to me.	0.649

Table 3 reports the validity test of financial planning. The highest loading is item number 1, which is "I have a habit of saving money regularly". The loading is 0.850. Meanwhile, the lowest loading is item number 5, which is "Investing seems complicated to me". The loading for item number five is 0.649. The other items range from 0.815 to 0.833, which are higher than the threshold of 0.5. This implies that all items of financial planning are a good proxy as dimensions.

Next, we proceeded to the validity of savings planning attitude, which is shown in Table 4. The results showed the loading factor for each item of saving attitude. The lowest validity item is item number 13 which is: "I wouldn't be without a credit card". Meanwhile, item number 13 has the highest loading. The rest have loading more than 0.5, indicating that all twenty items are valid measurements.

Table 4. Validity test for saving attitude.

Items	Saving Attitude	Loadings
SA1	It is important for me to save.	0.845
SA2	I tend to spend money as soon as I get it.	0.658
SA3	I believe in putting some money aside for a rainy day.	0.743
SA4	I save because I want something special.	0.809
SA5	I am interested in looking at different ways of saving money.	0.775
SA6	I have always tried to save.	0.819
SA7	Money is for spending.	0.805
SA8	Every once in a while, I like to go on a big spending spree.	0.742
SA9	I never pay for something if I can get credit.	0.701
SA10	I do not like owing money.	0.717
SA11	Having a lot of money has never been my aim in life.	0.782
SA12	I do not care if I do not have much money.	0.874
SA13	I would not be without a credit card.	0.613
SA14	Everybody should have a bank account.	0.820
SA15	Modern people use cheques and cards, not cash.	0.654
SA16	I believe in making money work for me.	0.734
SA17	You cannot get far without a bank account.	0.747
SA18	I never seem to have enough money.	0.683
SA19	I do not believe I will ever be rich.	0.650
SA20	I love shopping.	0.809

For the loading of saving motives, Table 5 reports that item number 2, “I am saving to earn extra interest on my money”, has lowest loading. It has a loading of 0.644. The highest loading is for item number four, which is “I am saving because my parents advised me to open a bank account”. The loading for item number four is 0.886. Because the range of the loading is

from 0.644 to 0.886, it implies that the four items are valid to proxy the dimension.

Table 5. Validity test for saving motive.

Items	Saving Motive	Loading
SM 1	I am saving to keep my money safe.	0.655
SM 2	I am saving to earn extra interest on my money.	0.644
SM 3	I am saving because my parents opened a bank account for me.	0.733
SM 4	I am saving because my parents advised me to open a bank account.	0.886

Meanwhile, Table 6 reports the validity test of financial literacy. There are five items in financial literacy dimension, and the lowest loading is item number five where the loading is only 0.699. The highest loading is item number four, "Suppose that in year 2010, your income has doubled and prices of all goods have doubled too. In 2010, how much will you be able to buy with your income?" with a loading value of 0.757. Because the loading ranges from 0.699 to 0.757, it indicates that all items of financial literacy are a good proxy as the dimension.

Table 6. Validity test for financial literacy.

Items	Financial Literacy	Loading
FL 1	Suppose you had RM100 in a savings account and the interest rate was 2% p.a. After 5 years, what do you think about the money that you would have in the account in the future?	0.699
FL 2	Suppose you had RM100 in a saving account and the interest rate is 20% p.a., and then you never withdraw money or interest payments. After 5 years, what do you think about the money that you would have in the account today?	0.711
FL 3	Imagine the interest rate on your savings account was 1% p.a. After 1 year, how much would you be able to buy with the money from this account?	0.706
FL 4	Suppose your income has doubled and prices of all goods have doubled too in 2010. How much will you be able to buy with your income in 2010?	0.757
FL 5	Assume a friend inherits RM10,000 today and then his siblings inherit RM10,000 3 years from now. Who is richer because of this inheritance?	0.648

4.3. Descriptive Statistics

Table 7 presents the descriptive statistic that consists of calculating the value of the median, mean, and standard deviation for all variables in this study, which contains 457 observations. The variables in this research study are financial planning, saving attitude, saving motive, financial literacy and the control variables in socio-demographics, including gender, race, religion, and the state. The result indicates that the information is normally distributed, as the median and mean values are closely related.

Table 7. Descriptive statistics of the variables.

Variables	Median	Mean	Standard Deviation
Gender	0.280	0.3184	0.467
Race	2.742	2.851	0.773
Religion	2.375	2.111	1.043
States	9.233	8.667	4.954
Saving Attitude	3.000	2.805	0.634
Plan	3.00	2.752	0.446
Motives	2.850	3.0846	0.683
Literacy	1.720	1.867	0.547

Table 7 implies that the students in Malaysian universities have low savings planning and low financial planning. The mean values for these two variables are lower than the midpoint of the Likert-scale, which are 2.805 and 2.752 for savings planning and financial planning, respectively. This result also agrees with the low financial literacy, where the mean value is only 1.867.

4.4. Financial Planning of Students

Table 8 shows the estimation of students' financial planning. There are five columns, where column (1) is the baseline model, (2) is the saving motive model, (3) is the financial literacy model, (4) is the combination of saving motives and financial literacy, and the last one is the full model.

The baseline model shows that none of demographic profiles have a significant role on the financial planning of students. This implies that it is does not matter whether the students are female or male, Malays or non-Malays, Muslim or others, or from big states, such Selangor, Kuala Lumpur and Penang, or small states, such as Kedah and Perlis. Students from Selangor do not have different financial planning than students from small states, such Kedah or Perlis. This result also implies that all Malaysian students have similar levels of financial planning.

The full model confirms that results of the demographic profile still do not

affect financial planning even though saving motive and financial literacy have been added. However, saving motives and financial literacy have significant contributions towards the financial planning of Malaysian students. The saving motive of students contributes significantly to financial planning with the coefficient value of 0.521 at significance level of 1%. Meanwhile, financial planning contributes significantly and positively to financial planning, also at a 1% significant level. The coefficient value of financial literacy on financial planning is 0.101.

This study attempts to examine the role of saving motives and financial literacy on the monetary attitudes of young people, an interesting topic for financial industries to target young consumers. Indeed, students are economically very active, and the majority depended on parents for their income. It is interesting to investigate what makes them plan their finance.

This study allows us to understand that the financial planning of university students is determined by the saving motives and financial literacy, which is consistent with prior research of Canova et al (2005), Furnham (1999), and Lusardi et al (2011). When motivation to save is higher, the students better plan their finances. This result may be important to financial industries, such as wealth management, banking, and insurance because the way young people save is similar to the way they consume. However, the encouragement for young people is rarely found from their external circle. Financial industries are not the same as the clothing companies that vastly advertise their products to the young people. Those kinds of massive advertisement lead to consumption. This assessment agrees with Lowenstein and Prelec (1993) and Furnham (1999) in that a young person has to feel motivated by seeing the positive impact of it, such as savouring future pleasure. By having motivation to save, students may undertake better financial planning.

Our results also show that the saving motivation has to come from the parents. It is obviously seen that students in Malaysia will open accounts or save because their parents told them to. Therefore, to have better financial planning, it has to start from the inner family.

Meanwhile, in terms of financial literacy, students have to have better literacy in finance for having better financial planning. The descriptive statistics reported that the financial literacy of Malaysian students is low and significantly affects financial planning. This implies that financial planning of young people is low in Malaysia because of low financial literacy. This conclusion agrees with previous research, including Lusardi and Mitchell

(2007a), Lusardi and Mitchell (2007b), Lusardi and Tufano (2009) and Van Rooij et al (2011). People may make bad financial decisions because of their low financial literacy.

Table 8. Regression estimation towards financial planning.

Variables	Coefficient (SE)				
	Baseline (1)	Motives (2)	Literacy (3)	(2) + (3)	Full Model (1)+(2)+(3)
Constant	2.084***	1.112***	0.093***	1.432***	2.109***
	(0.412)	(0.322)	(0.052)	(0.533)	(0.577)
Gender	-0.018				-0.035
	(0.168)				(0.068)
Race	-0.048				-0.013
	(0.102)				(0.052)
Religion	-0.064				-0.015
	(0.239)				(0.039)
States	-0.053				-0.006
	(0.209)				(0.007)
Motives		0.942***		0.753***	0.521***
		(0.237)		(0.272)	(0.172)
Literacy			0.475***	0.385***	0.101***
			(0.136)	(0.128)	(0.036)
R-Square	0.213	0.082	0.024	0.094	0.343
Adjusted R-Square	0.202	0.079	0.021	0.088	0.330

Note: ***, **, and * denote the statistical level of significance at 1%, 5%, and 10%, respectively.

4.4.1 Robustness Test: Savings Planning Model

There are some people who argue that the financial planning as well as savings planning are different things. People may have better planning for savings than finance (such as stock market participation, insurance, budgeting, and credit card use). Hence, we use savings planning as another dependent variable to investigate that issue.

Table 9 reports the results of savings planning estimation. The conclusion is similar to the financial planning model. First, there is no demographic profile that has a significant effect on the students' savings planning. This means that there is no difference in the savings planning of male and female students. The same conclusion goes for race, religion, and states. Students with Malay backgrounds have no difference in savings planning when compared with non-Malay students.

Table 9. Regression estimation towards savings planning.

Variables	Coefficient (SE)				
	Baseline (1)	Motives (2)	Literacy (3)	(2) + (3)	Full Model (1)+(2)+(3)
Constant	2.02148***	1.274***	0.103***	1.117**	1.4763**
	(0.511)	(0.382)	(0.035)	(0.533)	(0.615)
Gender	-0.0189				-0.028
	(0.108)				(0.018)
Race	-0.0576				-0.00983
	(0.099)				(0.095)
Religion	-0.0512				-0.01035
	(0.324)				(0.058)
States	-0.03975				-0.00564
	(0.348)				(0.017)
Motives		0.895***		0.813**	0.5992***
		(0.307)		(0.362)	(0.184)
Literacy			0.665***	0.539**	0.1313**
			(0.224)	0.218	(0.053)
R-Square	0.386	0.012	0.046	0.11	0.417
Adj. R-Square	0.378	0.009	0.043	0.104	0.405

Note: ***, **, and * denote the statistical level of significance at 1%, 5%, and 10%, respectively.

Interestingly, saving motives and financial literacy are also significantly related to students' savings planning. Saving motives contributed significantly at the 1% level to savings planning, and the coefficient value of regression is 0.5992. This result implies that the higher the motivation to save, the more likely students undertake savings planning. Meanwhile, financial literacy contributed significantly to savings planning at the 5% level, with a coefficient value of 0.1313. This means that when students have higher financial literacy, they have better savings planning. Hence, these results portray that having better saving motivation and financial literacy induces savings planning in Malaysian students.

5. Conclusion

This study addresses the phenomenon of saving attitude and financial planning effort engaged by the Malaysian government towards Malaysian students. The main motivation of this research is that there is a lack of attention given to these financial behaviours considering the nation-wide promotion by Malaysian government. Therefore, this study argues that the student's financial behaviour may be due to their saving motives and financial literacy. This paper might be used as a foundation for any further research in this topic on emerging markets with more focus on demographical specific context.

This paper uses two prominent variables in explaining financial behaviour: saving motives and financial literacy. The saving motive items are adopted from Furnham (1999). Meanwhile, the financial literacy adopted the model developed by with slight modification in measures. The results allow us to draw conclusions about certain conceptions regarding financial behaviour, and empirical evidence found about financial behaviour is similar among the young people, especially undergraduate students. In addition, the results also show that demographic factors may not necessarily influence the financial behaviour of undergraduate students. For instance, the demographic factors of gender, race, religion, and state did not have any effect on the students' financial behaviour. It is noteworthy that this result suggests to policy makers that saving motives and financial literacy are important factors for helping young people in their financial planning. For example, student loans can be more intelligently planned by educating young people in saving motives and financial knowledge.

However, the findings from this research must be validated in combination with research in other countries to verify some facts about certain common variables that may be representative among university students. The limitation of this research is only to focus on examining the role of saving motivation and literacy on university students' financial behaviour. However, due to the different education systems and family cultural values among countries, particularly between developed and developing countries or between west and east countries, this research can be extended in a few additional investigative directions. First, more in-depth analysis can be done through an experimental design that complements the results of this study. Second, the overall demographic profiles of youths from each country may be different due to the differences in education systems and family values. Lastly, the roles of family subjective norms and government incentives for financial behaviour on influencing undergraduate students can be another direction for this study.

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Zia Ur Rahman[*] - Manzoor Ahmad[†], Wu Chongbo[‡]

TOURISM, TERRORISM AND ECONOMIC GROWTH IN CASE OF PAKISTAN: AN ECONOMETRIC MODEL APPROACH

Abstract

This empirical study attempts to indicate the impacts of tourism and terrorism on economic growth in Pakistan with augmentation of expenses and inflation variables to Tourism-led Growth (TLG) hypotheses. An abundance of literature has demonstrated the FDI and export nexus with economic growth, but this study focuses on the abovementioned variables. The stationarity of the data has been checked through ADF tests and is stationary at first differences, while stability, serial correlation and problems of heteroscedasticity have also been detected through various techniques in order to ensure the robustness and consistency of our model. The Johansen's co-integration test revealed that there is long-run co-integration among variables; the test results show a significant positive impact of tourism on economic growth. Terrorism and inflation have statistically negative significant impacts on growth, and expenses have negative insignificant impacts on economic growth. In addition, the Granger causality test shows the existence of long-run one-way Granger causation running from tourism to economic growth. This study suggests that policy makers should take appropriate steps to attract more international tourists in order to attain long-run economic growth in Pakistan.

JEL CLASSIFICATION: F43, Z30, EOO.
KEYWORDS: TOURISM; TERRORISM; EXPENSES; INFLATION; JOHANSEN'S COINTEGRATION TEST; PAKISTAN.

[*] Ph.D. Scholar of World Economics, Research School for Southeast Asian Studies, Xiamen University Fujian 361005, P.R China, Phone: +86-133-58376512; *E-mail address*: zrahman915@yahoo.com.
[†] Ph.D. Scholar of Industrial Economics, School of Business, Nanjing University Jiangsu 210008, P.R China.
[‡] Professor of Research School for Southeast Asian Studies, Xiamen University Fujian 361005, P.R China.

1. Introduction

Economic growth means a sustainable increase in real output. To attain sustainable economic growth is the ultimate goal of every nation. Many countries of the developed world and some Asian nations are enjoying sustainable growth, including Thailand, Korea, Japan, Indonesia, Singapore, and especially India and China. Pakistan is also an important Asian and developing economy that has been striving to accomplish sustainable long-term economic growth since its independence but has failed. What is the reason? There are many factors that hinder economic growth, such as limited government understanding of the real factors or poor policy implementations towards economic growth. However, it is difficult to answer this question so easily (Iqbal et al. 2013). Economic growth can be affected by different factors because of its complex nature. Economists identify several factors that contribute to economic growth, positively or negatively. The present study tries to present an empirical analysis of an essential research question: 'Do tourism, government expenditure, terrorism and inflation influence the economic growth progression of Pakistan?' The following is a detailed discussion of the factors and their impact on gross domestic product (GDP) growth in Pakistan, which is important to this study.

Tourism has a key economic importance for a nation; it creates a substantial amount of foreign exchange income that contributes to the economic growth of a nation. The revenue from international tourism is a valuable source of earning for all nations; it alleviates the pressures on the balance of payments. Tourism in Pakistan has increased with decreases in terrorism recently. In 2016, the number of international tourists to Pakistan tripled compared to 3 years before.[1] According to a Pakistan Tourism Development Corporation (PTDC) report, foreign tourists have increased since 2013 to 1.75 million, though domestic travellers have increased 30 percent and number 38.3 million.[2]

According to a WTTC report, it is expected that domestic travel expenditures will jump 5.6 pc (Rs 2.13 tr) in 2027 from (Rs 1.24 tr) 5.3 pc per annum in 2017. In 2016, total spending by foreign tourists was Rs 93.8

[1] *Bloomberg* reported.
[2] Dawn.com Updated September 30, 2017 4478

billion and is expected to jump to Rs 96.7 billion in 2017; it is forecast to rise to Rs 204 billion by the end of 2027. In 2016, Pakistan ranked 47th among 185 countries in tourism direct and absolute contributions and 136th in terms of relative contribution to GDP; it is expected the industry will employ up to 4.8 million people by 2027. Pakistan's scenic exquisiteness has historically fascinated overseas and home tourists and travellers equally, but the country's image as a tourist destination was marred due to terrorism and militancy, mainly in the northern parts of the country.[3]

Pakistan has improved its ranking in the tourism industry. Less than a million international tourists came to Pakistan in 2017, currently ranking 124 out of 136 countries as noted in the Travel and Tourism Competitiveness Index 2017 released by the World Economic Forum.[4] The worst attribute for Pakistan, as noted by the report, was visa attainment, where the ranking was 135 out of 136 countries. Amongst the 136 countries, the government's prioritization of travel and tourism industry was ranked at 132, while the sustainability of travel and tourism industry development ranked 128. Effectiveness of marketing and branding to attract tourists ranked 125. The quality of tourism infrastructure ranked 123, while hotel rooms ranked 129. Pakistan has a total of 36 world heritage cultural sites, and the attractiveness of natural assets scored 127.

In 2017, the travel and tourism industry continues to make a real difference in the lives of millions of people by driving growth, creating jobs, decreasing poverty and nurturing development. Travel and tourism directly produced 1,337,500 jobs in 2016 (2.3% of total employment), and this was forecast to grow by 2.3% in 2017 to 1,368,000. This mainly replicates the economic activity produced by related industries, such as hotels, travel agents, airlines and other passenger transportation. Travel and tourism's

[3] A World Travel and Tourism Council (WTTC) report titled "Travel and Tourism Economic Impact 2017" cited by *Bloomberg* estimated tourism's contribution to the economy at Rs 2.03 trillion ($19.4 billion) ─ 6.9 pc of the Gross Domestic Products (GDP). The WTTC forecasted this contribution to rise 6pc this year, and to exhibit a 5.8 pc per annum increase, reaching Rs 3.8 tr ($36.1 bn) ─ 7.2pc of GDP ─ in 2027.

[4] Pakistan improved its ranking in the 2017 Travel and Tourism Competitiveness Index released earlier this year by the World Economic Forum. Local reports also suggest tourism is on the rise in the country.

share of total national investment will rise from 9.2% in 2017 to 11.4% in 2027[5].

The causal association between tourism and economic growth is well presented in various studies focused on multiple nations, sample periods, variables and econometric methods and deliver mixed findings. The results of the various studies consist of four main hypotheses: tourism-led growth; growth-led tourism; feedback hypothesis, indicating there is bidirectional causality between inbound tourism and economic growth; and the neutrality hypothesis, when no causality exists between international tourism and economic growth.

Ohlan (2017), in his study of the newly developed Bayer and Hanck combined test specification, found that tourism, economic growth and financial development were co-integrated in the period of 1960-2014. He also revealed that inbound tourism increases economic growth, both in the long run and short run, and his findings further indicate long-run one-way Granger causation from tourism to economic growth. Although tourism nexus growth empirically has been investigated intensively, the direction of causality is still under debate in developing economies. Kostakis and Theodoropoulou (2017) used spatial data analysis to suggest a connection between tourism and economic growth while using data from 2000-2014 for Southern Europe's regions. The empirical findings divulge the existence of the significant conditional convergence hypothesis that is associated with the endogenous growth theory. Their findings also show that tourism and human capital supply seem to have positive influences on regional income. Dogru and Bulut (2017) investigate the causal relations between tourism development and economic growth. Their research outcomes indicate that there is bidirectional causality between growth in tourism receipts and economic growth, proposing that economic growth and tourism development are interdependent and that tourism development fuels economic growth, and vice versa. Barahona (2017), used co-integration and Granger causality tests to check the hypothesis of tourism-led economic growth in Thailand. His results showed that tourists from South Asia and Oceania led or increased Thailand's economic growth. Ribeiro et al. (2016) examine the economic influences of expenditure on tourism in Brazil, which shows that tourist expenditure in the Northeast was responsible for a 3.9% increase in

[5] Travel and Tourism Economic Impact 2017 Pakistan, World travel and tourism Council

the Northeast's GDP. Furthermore, the sectorial analysis showed significant spill-over effects to the rest of Brazil, especially from manufacturing industries. Tugcu (2014), in his research using panel data for the period 1998-2011, applied panel Granger causality to specify that causality between tourism and economic growth depends on the country group and tourism indicator. Furthermore, European countries are better able to generate growth from tourism compared to Mediterranean countries.

The tourism industry, especially in the previous few decades, is a crucial source of income generation for developing economies (Atan and Arslanturk, 2012). The impact of tourism on economic development and growth is replicated in exports. This study will apply the so-called tourism-led growth (TLG) hypothesis, using time series data, from this perspective, which is a simple reflection of the export-led growth hypothesis. The growth hypothesis refers to a situation in which tourism plays a vital role in the economic growth process either directly and/or as a complement to other production factors. Upon examination of the literature, it is noted that tourism growth studies are classified under two strands. The first strand includes studies that investigate the causal association between tourism and economic growth by employing the Granger causality test with time series data. The second strand of the literature is composed of studies that analyse the association between tourism and economic growth by using cross-section or panel data and indicate that there can be mixed results on the association between tourism and economic growth that are sensitive to the specific country group being examined.

The relationship between economic growth and tourism development has been broadly examined in tourism economics literature. A number of studies reported evidence of a relationship between economic growth and tourism development that supports unidirectional causality from tourism development to economic growth, and others showed support from economic growth to tourism development. There is also support for bidirectional causality, and some studies have found no causality between economic growth and tourism development, while a variety of empirical techniques have been applied to investigate the causal relationship between tourism and economic growth (Tugcu 2014).

Terrorism hinders economic growth. There is no single definition of the term terrorism. In general, terrorism means any activities or actions that increase fear and anxiety in the world, a region or a country. Historically, many researchers and academicians have given much more attention to the

cause and consequences of war and internal conflicts; however, existing economic literature has not significantly utilized and analysed the interruption of terrorism on economic growth (Shahbaz et al. 2013). Recently, Pakistan is facing the menace of terrorism, facing the costs of Afghan War after the Soviet invasion in 1979 and the US occupation. Pakistan is also influenced by numerous ethnic, political, religious and linguistic clashes, which have enhanced terrorist activities in the country. According to Pakistan official estimation, the economy has been impacted to the extent of more than US$ 51.3 billion between 2001 and 2010, which has caused a huge reduction to GDP growth and FDI, damage to infrastructure and the tourism industry, capital and human flight, and much more. [6]

Survila et al. (2017) examined the impact of terrorism on the tourism sector of Lithuania by using secondary data and carried out (qualitative) surveys. Since the possibility of a terrorist attack in Lithuania is trivial, their study emphases the Lithuanian outbound tourism sector. It is worth emphasizing that tourists become the victims of not only pre-planned but also of individual terrorist attacks. The purpose of their study was to identify how Lithuanian tourists and experts perceive dangers and whether this affects their choice of trips and what measures can reduce the impact of terrorist attacks on tourism. Basu and Marg (2010) examine the impact of political instability and terrorist activities on tourism industry in three Middle East countries: Egypt, Jordan and Lebanon. This industry is an important and key factor to their development. They found that The Sharm-el-Sheikh event triggered a loss of 8% of international tourism earnings in 2004 and a loss of 0.56% of GDP of 2005. Likewise, Dahab incidents affected 8% of international tourism incomes of 2005 and 0.53% of GDP of 2006. Incidents in Jordan in November 2005 affected 7% of international tourism revenues of 2004 and 1% of GDP of 2005. In the case of Lebanon, two major incidents, the war of 2006 and a terror occurrence in May 2008, caused a 17.3% and 7.2% reduction in international tourism revenues compared with 2005 and 2007, respectively. Iqbal et al. (2013) examined the influence of important determinants, including similar FDI, exports, and exchange rate as well as terrorism and political instability on the economic growth in Pakistan from 1973 to 2010. The empirical results showed that exports, FDI and exchange rate positively impact economic growth in Pakistan, while terrorism and political instability negatively impact

[6] Pakistan Embassy, Economic division FY (2011).

economic growth. Shahbaz et al. (2013) studied the causal relations between terrorism and economic growth in Pakistan by incorporating capital and trade openness in a production function. The study was conducted from the period 1973 to 2010. The ARDL test showed that there is a long-run association between terrorism and economic growth. The Granger causality test shows that terrorism affects economic growth. Gaibulloev and Sandler (2008) compute the influence of terrorism and conflicts on income per capita growth in Asia from 1970-2004. Their panel estimations indicate that transnational terrorist attacks have significantly negative consequences. An additional terrorist incident per million persons reduces GDP per capita growth by approximately 1.5 percent. Transnational terrorism decreases growth by crowding in government expenditures. An internal conflict has the greatest growth concern, more than twice that of transnational terrorism. However, in our study, we did not find any causation from terrorism to tourism, although terrorism has a significant negative impact on economic growth in this study.

Like other developing countries, one of the utmost essential objectives of macroeconomic policies in Pakistan is to sustain high economic growth together with low inflation. However, there has been substantial debate on the nature of the inflation and growth association. Therefore, this study will also attempt to address the effect of inflation on growth. To achieve sustainable economic growth joined with price stability is the vital goal of macroeconomic policies for the majority of nations in the world (Umaru and Zubairu 2012). Madurapperuma (2016) observed the impact of inflation on economic growth in Sri Lanka during the period 1988 to 2015 by applying a Johansen co-integration test and an Error Correction model and found that there is a long-run negative and significant association between economic growth and inflation. Kasidi and Mwakanemela (2015) observed the influence of inflation on economic growth and found a relation between inflation and growth. Time-series data for the period 1990-2011 was employed, and there was a negative relation between the variables. Their results show no evidence of co-integration between inflation and economic growth in Tanzania. Shuaib et al. (2015) studied the effect of inflation on the economic growth in Nigeria from 1960 to 2012. The empirical result revealed that there is no co-integrating association between inflation and economic growth for Nigeria. Additionally, they observed a causality association between the two variables by employing pair-wise Granger

causality. We can see from the observations of the above studies that there are mixed findings by various researchers for different economies.

In the past few years in the economic history of Pakistan, the pace of economic growth is gradually decreasing, but the size of government expenditure is gradually increasing. This study will also examine the expenses of percent of GDP on economic growth. Increments in government expenditures above this minimum level have a decreasing effect on economic growth. At several levels of expenses, the effect of government expenses on the production of goods and services is negative. Unnecessary government spending makes everyone poorer.[7] According to various academic research studies, unnecessary government spending damages economic growth. There is substantial debate over the impacts of corruption and government spending on growth. This study will provide a contribution to the debate, starting with a tourism-led growth model and extending it to account for the effects of government spending, namely, expense to GDP. Many studies have just addressed military spending and functional spending.

There are numerous indiscretions in the nation leading to public turmoil, and there is growing fraud in government actions caused from an unsuitable public financial arrangement and execution commonly seen in some developing nations. Terrorism also leads to increased military expenditure, and private resources were then used to counter terrorism as the USA increased their military expenditure to 100 billion dollars from 2001 to 2005 for the war on terror in Afghanistan and Iraq and spent 5 billion dollars on transportation and airport security annually. However, firms have also paid additional money annually because of the risk and threat of terrorism (Anwar et al. 2017). However, in some terrorist-affected countries and developing countries, most of the government expenditure goes to military expenditure rather than to investment or functional expenditure. The importance of the question comes from the fact that the military sector uses a large portion of the limited resources of any society. Those scarce resources have alternative uses in the productive sectors of the economy. In the case of Pakistan,

[7] Currently, the United States and most developed countries' governments spend excessively, which reduces economic growth. In other words, as governments divert resources away from private entrepreneurs, jobs, investment, and productivity decline, which ultimately slows down the economy (Joint Economic Committee Republicans Monday, March 27, 1995 report).

productive and functional expenditure on infrastructure, health, human capital and education is less than 4% total GDP. B.C. Olopade and D.O. Olopade (2013) tried to measure how fiscal and monetary policies (government expenditures) affect economic growth and development in Nigeria. Their result showed insignificant relations amongst the majority of the components, including expenditure, economic growth and development.

There are many studies that have addressed tourism and economic growth in developed and European countries while using panel data; however, this study will bridge the gap for developing countries like Pakistan. The major objective of the article is to examine empirically the long-run and short-run impacts of tourism, terrorism, inflation, and government expenses on the economic growth of Pakistan to understand the importance of those variables in the process of economic growth and to propose policy measures and recommendations to attain a high and sustainable GDP growth level. This objective is carried out by using tourism-led growth hypotheses (TLG) with an augmentation of other variables in the function. The hypotheses formulated for the testing are that increasing international tourism inflow will positively influence economic growth, as an increase in tourism will promote growth of Pakistan, and that terrorism, expenses and inflation will have negative impacts on economic growth. The study contributes to existing growth and tourism economics literature in the following ways: ADF tests are used to test the order of integration of the variables, and the Johansen's co-integration and Vector Error Correction Model (VECM) are applied to examine both short-run and long-run associations. Direction of causal relation is investigated by a Granger causality approach.

2. Speciation of the Model and Methodology

2.1. The development of the model

Various models have been used by different studies, like the growth-led tourism hypothesis, the feedback hypothesis and the neutrality hypothesis, but the current study will apply the so-called tourism-led growth (TLG) hypothesis using time series data, which is a simple reflection of the export-led growth hypothesis.

$$Gr_t = f(Tour_t, Terr_t, Inf_t, Exps_t) \quad (1)$$

The econometric analysis is based on a simple regression frame work derived from the Tourism-led Growth (TLG) hypotheses. A simple log-linear form of the above equation is:

$$logGR_t = \beta_0 + \beta_1 logTour_t + \beta_2 logTerr_t + \beta_3 logInf_t + \beta_4 logExps_t + \mu_i \quad (2)$$

While:
'Gr', Gross domestic product growth,
'Tour', Tourism Receipts,
'Terr', Terrorism incidents regardless of doubts,
'Inf', Inflation rate,
'Exps', Expenses,
'μ', Error Term
't', time period annually.

All the variables are taken in the logarithmic form; β_0 is constant, while β_1,β_2,β_3 and β_4, indicate coefficients. Coefficients of elasticity are measures of the degree of responsiveness.

2.2. Data Collection

Time series secondary data over the period 1995-2015 have been used for analysis. Based on data availability, the explanatory variables included in the empirical model—GDP growth, tourism (% export), inflation, consumer prices (annual %) and expenses (% GDP)—are collected from the World Development Indicators (WDI, 2017 www.worldbank.org), while data for terrorism is taken from the Global Terrorism Database (www.start.umd.edu/gtd) for all terrorist incidents regardless of doubt.

2.3. Estimation Procedures

For time series data analysis, there are different methods that can be employed on the basis of the nature of the data. Such techniques include the ARDL model, VAR and Johnson Co-Integration techniques; the first step in time series data is to check the stationarity of the data through PP and ADF tests. For the current study, we have used the VAR-based Johnson Co-Integration test to check the long-run relation between the variables and Vector Error Correction Model (VECM) to measure short-run and long-run

relationships between them. If all of the variables of interest were found of nature I (1), then the Johnson co-integration can be utilized. However, there are a few steps to be done before proceeding.

2.3.1. Unit root test

First, we will check the stationary of the data; it is essential to check first for possible non-stationary problems (unit root). Ignoring unit root problems would lead to spurious regression. We have used the Augmented Dickey and Fuller (ADF) test to check the stationarity of the data. The general form of various test is:

$$\Delta Y_t = \delta Y_{t-1} + \mu_t \quad \text{(i)}$$

The equation for intercept and no trend can be written as follows:

$$\Delta Y_t = \alpha + \delta Y_{t-1} + \sum_{i=1}^{p} \alpha_t \, \Delta y_{t-i} + €_t \quad \text{(ii)}$$

OLS can be used in a condition if all the variables of interest found stationarity at level. If it is higher than level, then a different test be used.

2.3.2. Optimal lag Length

The second necessary step is to find optimal lags in time series data. The Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC) have been used to decide the optimal lag length on the basis of minimum values of these both criteria. To attain proper empirical results, the selection of the optimal lag length is an essential task.

2.3.3. Johnson Co-integration Test

The third necessary step in this study is to utilize the VAR-based Johnson co-integration estimation method developed by Juselius and Johansen (1990) to compute the empirical long-term association between dependent and independent variables. If no stationary but I (1) time series are co-integrated, we can run the Vector Error Correction Model (VECM) to examine both the short-run and long-run dynamics of the series.

2.3.4. Error Correction Model

When there are long-run relations between the variables, i.e., the variables are co-integrated, there is an error correction sign. A conventional ECM for co-integration series can be shown as follows:

$$\Delta Y_t = \beta_0 + \sum_{i=1}^{n} \beta_i \Delta Y_{t-i} + \sum_{i=0}^{n} \delta_i \Delta X_{t-i} + \Phi z_{t-i} + \mu_t \quad \text{(iii)}$$

A co-integration equation is thus:

$$z_{t-i} = ect_{t-i} = Y_{t-i} - \beta_0 - \beta_i X_{t-i} \quad \text{(iv)}$$

Z and ECT are the OLS residuals from the above long-run co-integrated regression; error correction relates to the fact that the last period deviation from log-run equilibrium (error) influences the short-run dynamics of the dependent variables. Thus, the coefficient of ECT 'Φ' is the speed of adjustment because it measures the speed at which the dependent variable returns to equilibrium after a change in independent variables.

$$\Delta loggr_t = \beta_0 + \sum_{i=1}^{n} \beta_1 \Delta(loggr)_{t-i} + \sum_{i=1}^{n} \beta_2 \Delta(logExpens)_{t-i} + \sum_{i=1}^{n} \beta_3 \Delta(logInf)_{t-i} + \sum_{i=1}^{n} \beta_4 \Delta(logTerr)_{t-i} + \sum_{i=1}^{n} \beta_5 \Delta(logTourm)_{t-i} + \Phi ect_{t-i} + \mu_t \quad (3)$$

3. Results and Discussion

This section elaborates the empirical association among economic growth, tourism, terrorism, inflation and expenses on the basis of an econometric estimation method of Johansen co-integration. ADF unit root analysis signifies that some variables are non-stationary at level. However, to achieve stationarity at first differences. The Johnson test is compulsory in this situation to check if any long-run relationship exists among them. The unit root ADF test result is reported in table 3.1.

Table 3.1. Unit Root Analysis.

ADF Test Statistic					
	Level		First Differences		
Variables	Constant	Intercept and no trend	Constant	Intercept and no trend	Conclusion
$logGr_t$	-3.8085	-2.9350	-3.8315***	-5.3604***	I(1)
$logExpens_t$	-3.8315	-1.6831	-3.8573***	-4.9138***	I(1)
$logInf_t$	-3.8085	-1.4375	-3.0299**	-3.7559**	I(1)
$logTerr_t$	-3.8085	-0.7290	-3.8315***	-4.3181***	I(1)
$logTourm_t$	-3.8085	-0.9902	-3.8315***	-5.3260***	I(1)

Where (***), (**) and (*) represent 1%, 5% and 10% levels of significance level.

Through unrestricted VAR estimation we found that one lag is appropriate for our model estimation; the AIC and SC values are the lowest. Table 3.2 shows the results of lag selection criteria, which is reported below.

Table 3.2. Lag Selection Criteria.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	67.24186	NA	6.83e-10	-6.915762	-6.668437	-6.881659
1	120.4881	70.99493*	3.38e-11*	-10.05423*	-8.570275*	-9.849611*
2	141.2818	16.17288	1.28e-10	-9.586861	-6.866281	-9.211730

*indicates lag order selected by the criterion

LR: Sequential modified LR test statistics (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion.

3.2. Johnson co-integration test

The VAR-based Johnson co-integration estimation method developed by Juselius and Johansen (1990) was used to compute the empirical long-term association between dependent and independent variables. Table 3.2 shows the unrestricted co-integration rank test (Trace); the null hypothesis of no co-integration is rejected. From the finding of trace statistics, we reject the null hypothesis while accepting the alternative hypothesis of existence of co-

integrations. The estimation table of the Johnson co-integration test is available at appendix table no. (I).

Table 3.2. Unrestricted Co-integration Rank Test (Trace).

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.912916	91.02960	69.81889	0.0004
At most 1	0.794370	47.09378	47.85613	0.0589
At most 2	0.474474	18.62360	29.79707	0.5202
At most 3	0.323431	7.043190	15.49471	0.5726
At most 4	0.000568	0.010219	3.841466	0.9192

**MacKinnon-Haug-Michelis (1999) p-values

* denotes rejection of the hypothesis at the 0.05 level, while alternative is excepted; trace statistic indicates 1 co-integrating eqn(s) at the 0.05 level.

3.3. The Empirical Results

From our analysis, we have found there is co-integration, which means a long-run relationship exists between variables, so we use VAR to estimate the VECM model: See table no. (II) For VECM model complete estimation. The result of the Estimated VECM with GDP growth is the target variables:

$$\Delta loggr_t = 0.0621 - 0.674ect_{t-1} - 0.364\Delta(loggr)_{t-1} - 2.906\Delta(logExpens)_{t-1} + 0.892\Delta(logInf)_{t-1} - 0.547\Delta(logTerr)_{t-1} - 3.514\Delta(logTourm)_{t-1}$$

Co-integrated (Long Run) Equation;

$$ect_{t-1} = 1.000(loggr)_{t-1} + 1.531(logExpens)_{t-1} + 1.310(logInf)_{t-1} + 0.54(logTerr)_{t-1} - 6.84(logTourm)_{t-1} + 14.743$$

Table 4.3. the long-run normalized coefficient

Normalized long-run Coefficient			
Variables	coefficients	Standard Error	t-statistic
logExpens	-1.5313	(0.9991)	[1.5326]
logInf	-1.3107	(0.234)	[5.6013]
logterr	-0.5491	(0.1276)	[4.3015]
logtourm	6.846	(1.0206)	[-6.7086]
C	14.74331		

Note: T0.01=2.72, T0.05=2.02, T0.10=1.68

The long-run coefficient has been calculated from the unrestricted equation by dividing the coefficient of each independent variable by the first lag values of the dependent variable and multiplying by the minus sign (Shahbaz et al. 2013).

D(LOGGR) = C(1)*(LOGGR(-1) -1.5313*LOGEXPENS(-1) - 1.3107*LOGINF(-1) -0.5491*LOGTERR(-1) + 6.846*LOGTOURM(-1) + (14.74331) + C(2)*D(LOGGR(-1)) + C(3)*D(LOGEXPENS(-1)) + C(4)*D(LOGTERR(-1)) + C(6)*D(LOGTOURM(-1)) + C(7)

Table 4.4. the short-run normalized coefficient from vector error correction estimate

Short- Run Normalized coefficient and ECM	
Variables	coefficients
D(logExpens)	-7.7921
D(logInf)	-0.3036
D(logterr)	-0.1855
D(logtourm)	1.1878*
ect	-0.6604***
C	0.05541

(*), (**), (***) represent 10% and 5% and 1%, respectively

In the short run, tourism is significant at the 10% level, while other variables are insignificant. It can be seen from Table 6 that the error correction term (C (1)) in the equation is statistically significant at the 1%

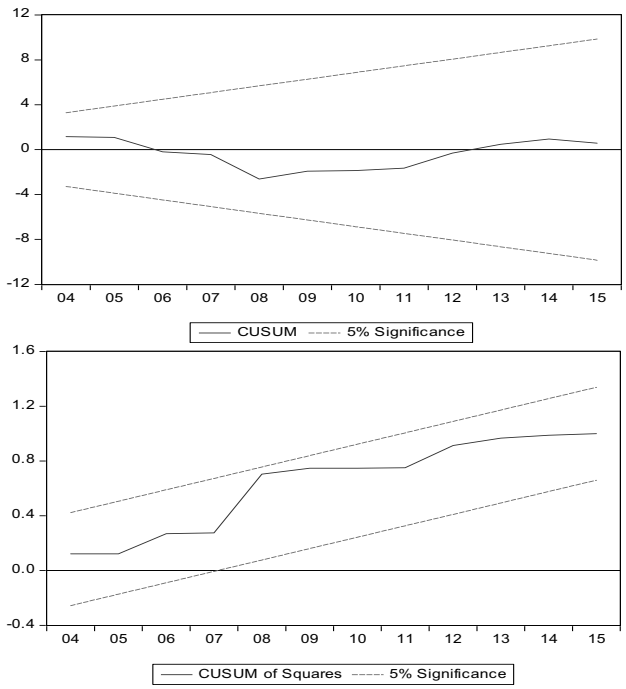
level and bears a negative coefficient. Therefore, the model is reliable. Further, the short run coefficients are calculated with the help of a Wald coefficient restrictions test. In the short run, expenses and inflation influence economic growth negatively but insignificantly. The ECM results indicate the convergence of the model and implies that approximately 66% of adjustments take place every year. This analsis will help decision makers in developing strategies and policies to accelerate economic growth through tourism and other variables.

The results of the long-run and short-run estimations are presented in table (4.3) and table (4.4); other different diagnostic tests, shown in the appendix table (4.5(A),(B),(C)), present the LM serial correlation test, which indicates that model is free from any serial correlation problems. There is also no problem of heteroscedasticity; the result is presented in table (4.6) and table (4.6(A)); the White Test is also significant at 5 percent, which is presented in table (4.7). Further, the Jarque–Bera test in Figure 3 shows that the functional form is correct and the distribution is normal. Table (4.8) shows the Granger causality test, and table (4.9) shows the Wald-coefficients test. While Figures 4 and 5 show impulse response functions and residual graphs, Figures 6 and 7 show correlogram and variance decomposition combined graphs, respectively.

3.3. Stability Checking

The stability of the model is checked through the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) tests.

Figure 1-2. Stability of the model.



Figures 1 and 2 show that the estimated line is well within critical limits at a 5% level. The estimated models are thus reliable and stable. This entails that all the coefficients in the error correction model are constant.

4. Discussion of Findings

The estimated coefficients of all of variables were explained in terms of elasticities with respect to the dependent variable (Growth) during the given time period. Statistically, the estimated coefficients of tourism are significant at 1 percent and have a positive impact on growth in the long run and the short run. This outcome was also favoured by Ohlan (2017), Kostakis and Theodoropoulou (2017), Dogru and Bulut (2017) and Ribeiro et al. (2016).

The estimated coefficient of terrorism is also significant in the long run. The negative effect of terrorism on growth is a consequence of different internal and external factors concerning politics, economy, and social network. This result is also consistent with the results of Iqbal et al. (2013) and Shahbaz et al. (2013). The coefficient of terrorism is -0.5491, which shows that, on average, a 1 percent rise in terrorist incidents causes growth to decrease by 0.5491% in the long run. The coefficient of inflation is also found to be statistically significant. The estimated coefficient of inflation is -1.3107, which shows that a 1% increase in inflation rate can cause growth to decline by 1.3107% in the long run. This result is also consistent with Shuaib et al. (2015) and Kasidi and Mwakanemela (2015). The negative estimated coefficient of the expenses showed that on average, a 1% increase in expenses will decrease growth by 1.5313% in the long run. This estimated coefficient, however, is not found to be statistically significant. This result is consistent with the findings of B.C. Olopade and D.O. Olopade (2008) and Attari and Javed (2013). Also in the short run, tourism has a positive impact, while terrorism, inflation and expenses have negative impacts on economic growth in Pakistan. The Granger causality tests in table 4.8 in the appendix also show that there is one-way Granger causality running from tourism to economic growth in the long run. Our result is supported by the findings of Ohlan (2017) and Dogru and Bulut (2017).

5. Conclusion and suggestions

This study sets out to examine the tourism and economic growth nexus with augmentation of other variables of terrorism, expenses and inflation from the evidence of the tourism-led economic growth (TLG) hypothesis in Pakistan. Observing the significance of the impact of important determinants, which is less realized and demonstrated for tourism, terrorism, expenses and inflation on the economic growth in Pakistan, was empirically verified by using time series annual data over the period 1995 to 2015, which are available from different sources. The VAR-based Johansson's co-integration test was used to check the long-run association among variables. The results show that tourism has a positive and significant impact on economic growth. This means this industry has the potential to improve growth in Pakistan. Expenses have a negative but insignificant impact, while inflation and terrorism have negative and statically significant impacts on economic growth in this study. The government should cope with terrorism

and maintain stable inflation rates. It is generally assumed that modest and stable inflation rates stimulate the economic growth of a country. Unnecessary spending can be recovered through tax revenue, which will be a burden on the public in the future, ultimately impacting production and growth.

This study suggests new perceptions and insights for new policies in Pakistan for sustainable economic growth. The study suggests that policy makers should take appropriate steps to cope with severe terrorist incidents and keep and provide better security and peace in the country to attract more international tourists in order to achieve long-run economic growth. The government should also cut unnecessary spending and should incrementally add productive expenditures. Spending on infrastructure and archaeological sites should be promoted to improve access to archaeological and scenic tourist spots in the country. The government should also ease visa processes for foreign tourists. However, there is some limitation to this study, as there are several tourism growth hypotheses available to evaluate the economic impact of tourism. All tourism growth hypotheses are different in terms of nature, structure, the results driven, demands of the data and complexity. There are 4 tourism-growth hypotheses, but this study only uses TLG hypotheses. There are also many factors affecting Pakistan's growth, but current studies only incorporate the abovementioned variables to the TLG function. However, the purpose of this paper is to check the TLG hypotheses for developing economies like Pakistan. This can be followed by many developing economies to study the effectiveness of tourism on growth.

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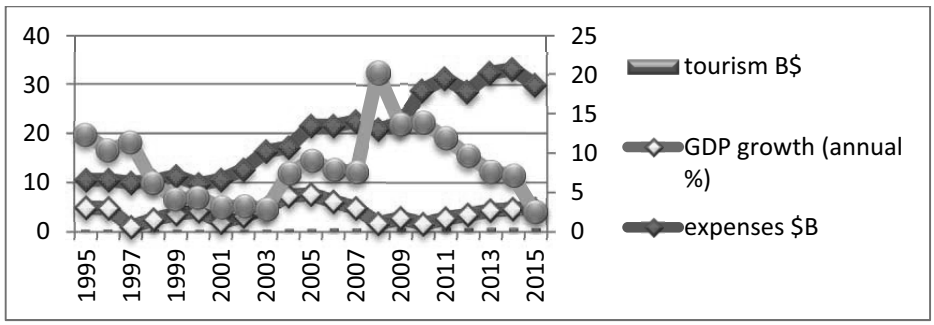
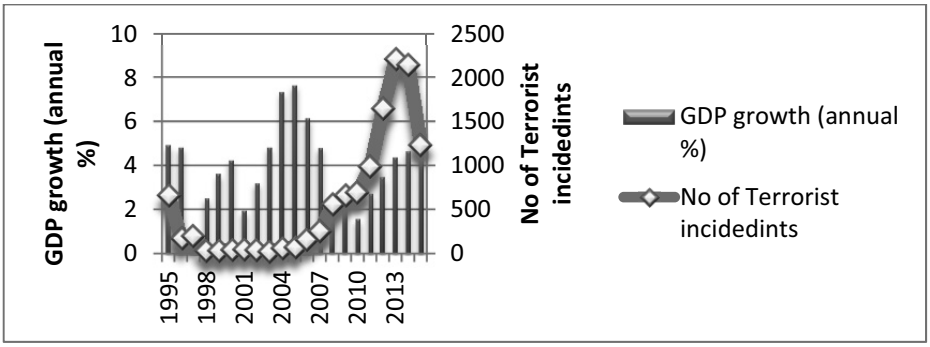
Appendix

Figure 1. Total No. of Tourism receipts; GDP growth and Annual Expenses.



Source: www.worldbank.org

Figure 2. Total No. of Incidents that occurred annually.



Source: www.globalterrorisimdatabase.com

Table 4.5(A). VEC Serial Correlation LM Test

Null Hypothesis: No Serial Correlation at lag order h

Lags	LM-Stat	Prob
1	25.38919	0.4407

Probs from chi-square with 25 df.

Table 4.5(B). Breusch-Godfrey Serial Correlation LM Test.

F-statistic	0.0156	Prob. F(1,11)	0.9029
Obs*R-squared	0.026908	Prob. Chi-Square(1)	0.8697

Table 4.5(C). VAR Residual Serial Correlation LM Test

Lags	LM-Stat	Prob
1	21.63535	0.6567

Table 4.6. Heteroscedasticity Test: Breusch-Godfrey

F-statistic	0.212668	Prob. F(10,8)	0.9871
Obs*R-squared	3.990148	Prob. Chi-Square(10)	0.9478
Scaled explained SS	2.699023	Prob. Chi-Square(10)	0.9876

Table 4.6(A). VAR Residual Heteroscedasticity Tests: No Cross Terms (only levels and squares).

Joint test:		
Chi-sq	df	Prob.
157.1023	150	0.3292

Table 4.7. White Test: VEC Residual Heteroscedasticity tests, No Cross Terms (only levels and squared joint test).

Joint Test		
Chi-sq	df	Prob.
197.4838	180	0.1767

Table 4.8. Granger Causality Test
VEC Granger Causality/Block Exogeneity Wald Tests

Dependent variable: D(LOGGR)			
Excluded	Chi-sq	df	Prob.
D(LOGEXPENS)	1.516514	1	0.2181
D(LOGINF)	2.646934	1	0.1037
D(LOGTERR)	2.499282	1	0.1139
D(LOGTOURM)	3.428572	1	0.0641
All	4.316135	4	0.3649

Table 4.9. Wald-Coefficient Test
c(3)=c(4)=c(5)=c(6)=0

Test Statistic	Value	df	Probability
F-statistic	1.128018	(4, 12)	0.3889
Chi-square	4.512070	4	0.3411

Figure 3. Jarque-Bera Test.

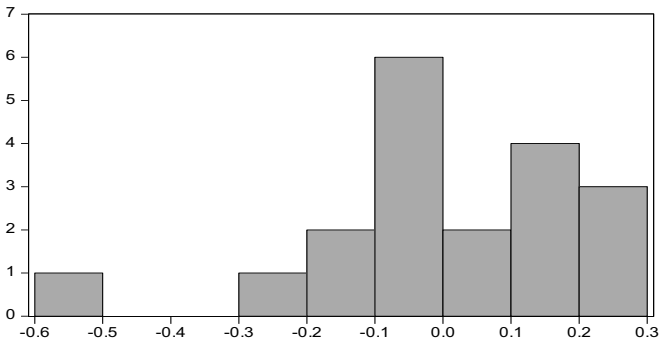


Figure 4. Impulse Response Functions.

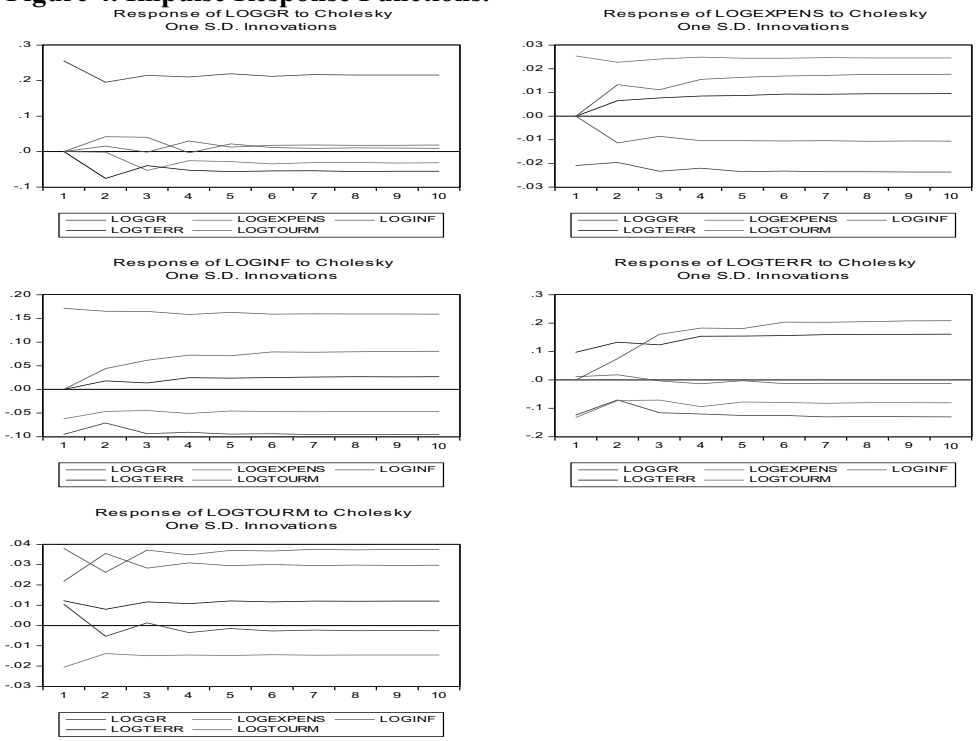


Figure 5. Residuals Graphs.

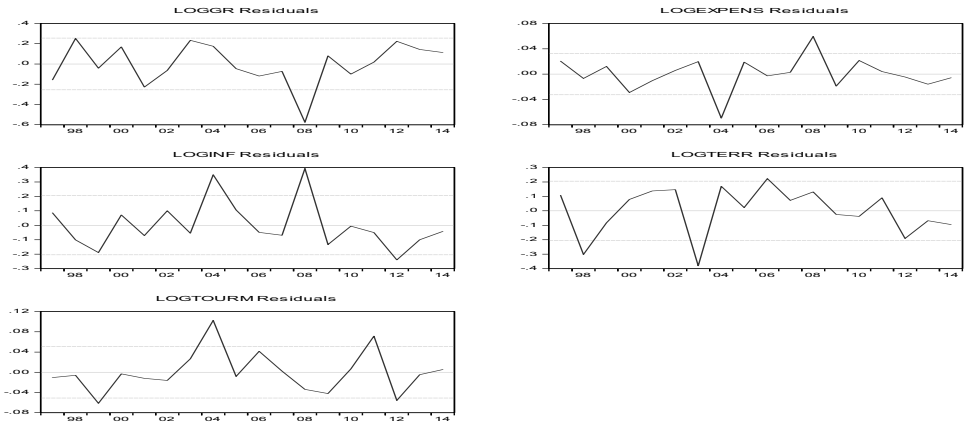


Figure 6. Correlogram Graphs.

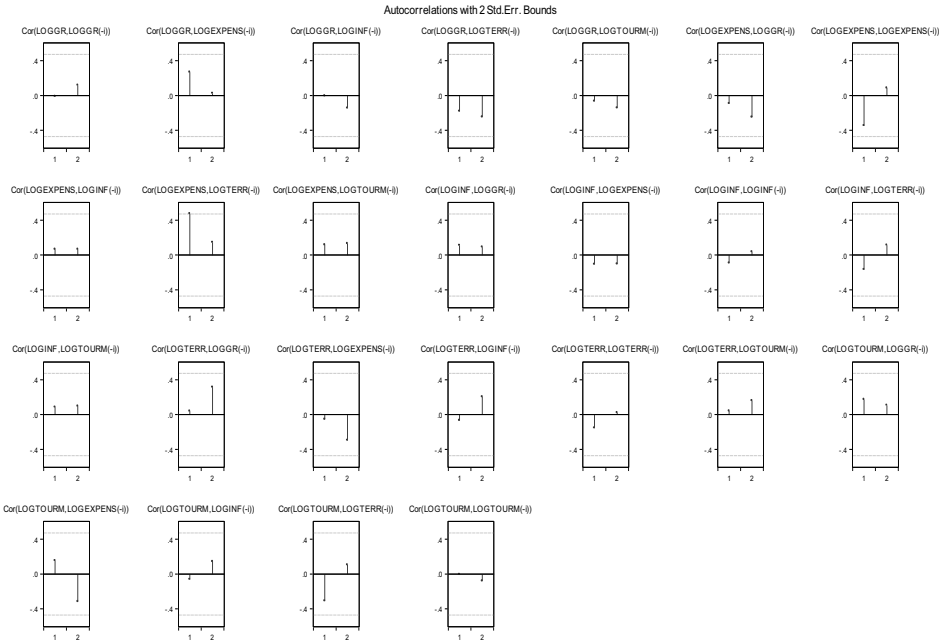


Figure 7. Variance decomposition combined graphs.

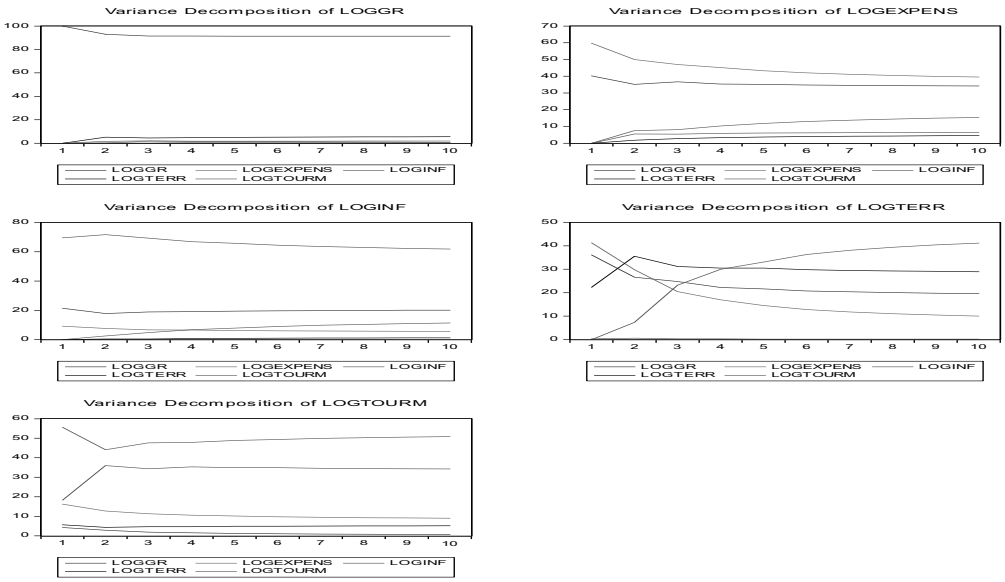


Table (I). Johnson co-integration test.

1 Cointegrating Equation(s): Log likelihood	117.7349			
Normalized cointegrating coefficients (standard error in parentheses)				
LOGGR	LOGEXPENS	LOGINF	LOGTERR	LOGTOURM
1.000000	1.531342	1.310725	0.549144	-6.84685
	(0.99912)	(0.23400)	(0.12766)	(1.02065)
Adjustment coefficients (standard error in parentheses)				
D(LOGGR)	-0.67476			
	(0.25687)			
D(LOGEXPENS)	-0.02449			
	(0.03313)			
D(LOGINF)	-0.05625			
	(0.20668)			
D(LOGTERR)	-0.14698			
	(0.20700)			
D(LOGTOURM)	0.008390			
	(0.05137)			

Table (II). Vector Error Correction Estimates.

Vector Error Correction Estimates					
Standard errors in ( ) & t-statistics in [ ]					
Cointegrating Eq:	CointEq1				
LOGGR(-1)	1.000000				
LOGEXPENS(-1)	1.531342				
	(0.99912)				
	[1.53269]				
LOGINF(-1)	1.310725				
	(0.23400)				
	[5.60139]				
LOGTERR(-1)	0.549144				
	(0.12766)				
	[4.30159]				
LOGTOURM(-1)	-6.84685				
	(1.02065)				
	[-6.70836]				
C	14.74331				
Error Correction:	D (LOGGR)	D (LOGEXPENS)	D (LOGINF)	D (LOGTERR)	D (LOGTOURM)
CointEq1	-0.67476	-0.02449	-0.05625	-0.14698	0.008390
	(0.25687)	(0.03313)	(0.20668)	(0.20700)	(0.05137)
	[-2.62687]	[-0.73932]	[-0.27216]	[-0.71004]	[0.16333]
D (LOGGR(-1))	-0.36844	-0.01297	0.160265	0.577494	0.008670
	(0.26406)	(0.03405)	(0.21247)	(0.21280)	(0.05281)

	[-1.39526]	[-0.38091]	[0.75430]	[2.71385]	[0.16418]
D(LOGEXPENS(-1))	-2.90601	0.063317	1.389313	4.243051	0.273882
	(2.35979)	(0.30433)	(1.89872)	(1.90163)	(0.47191)
	[-1.23147]	[0.20805]	[0.73171]	[2.23127]	[0.58037]
D(LOGINF(-1))	0.892895	-0.08007	-0.11106	-0.02768	0.109332
	(0.54882)	(0.07078)	(0.44159)	(0.44226)	(0.10975)
	[1.62694]	[-1.13133]	[-0.25151]	[-0.06259]	[0.99616]
D(LOGTERR(-1))	-0.54775	0.037303	0.070654	0.202848	-0.00852
	(0.34648)	(0.04468)	(0.27878)	(0.27921)	(0.06929)
	[-1.58091]	[0.83483]	[0.25344]	[0.72651]	[-0.12295]
D(LOGTOURM(-1))	-3.51437	0.180324	0.772349	0.967444	-0.25256
	(1.89798)	(0.24477)	(1.52714)	(1.52948)	(0.37956)
	[-1.85164]	[0.73670]	[0.50575]	[0.63253]	[-0.66541]
C	0.062140	-0.00753	-0.01876	0.050710	0.016143
	(0.06777)	(0.00874)	(0.05453)	(0.05461)	(0.01355)
	[0.91693]	[-0.86178]	[-0.34407]	[0.92855]	[1.19115]
R-squared	0.441229	0.347843	0.134744	0.551928	0.275752
Adj. R-squared	0.136444	-0.00788	-0.33721	0.307525	-0.11929
Sum sq. resids	0.716052	0.011909	0.463574	0.464997	0.028637
S.E. equation	0.255138	0.032904	0.205288	0.205603	0.051023
F-statistic	1.447674	0.977853	0.285501	2.258269	0.698029
Log likelihood	3.478479	40.34646	7.391562	7.363970	32.45010
Akaike AIC	0.391280	-3.70516	-0.04351	-0.04044	-2.82779

Schwarz SC	0.737536	-3.35891	0.302749	0.305815	-2.48153
Mean dependent	-0.00087	-0.0034	-0.00884	0.059809	0.011067
S.D. dependent	0.274556	0.032775	0.177526	0.247074	0.048227

Determinant resid covariance (dof adj.)	1.68E-11
Determinant resid covariance	1.43E-12
Log likelihood	117.7349
Akaike information criterion	-8.63721
Schwarz criterion	-6.6586

Waqas Amin[*] - Abdul Rauf [†], Muhammad Kaleem Khan [‡], Zeeshan Fareed[ǂ]

EFFECT OF OUTREACH ON THE EFFICIENCY OF MFIS IN LATIN AMERICA: DYNAMIC PANEL DATA ANALYSIS

Abstract

The purpose of this study is to determine the empirical relationship between outreach and efficiency to identify whether these two constructs are compatible or contrary to each other. We have applied the most sophisticated techniques, OLS, random-effect model, and generalized method of moment (GMM), while dealing with dynamic data. Our results indicate a compatible relationship between depth of outreach (ALB) and efficiency and breadth of outreach, measured by the number of active borrowers (NOAB) and showing a negative impact on efficiency. The findings of the study may be helpful in reaching a deep understanding of the relation between outreach and efficiency to form future policies that are consistent with the far-reaching development of MFIs.

JEL CLASSIFICATION: A10, E50.
KEYWORDS: OUTREACH; EFFICIENCY; LATIN AMERICA; DYNAMIC PANEL DATA ANALYSIS.

[*] School of Economics, Shandong University, Jinan. PR China, 27-Shanda nan lu, Jinan, Shandong, China, Phone: +86 13210541883; *E-mail address*: waqas.amin97@yahoo.com.
[†] School of Economics and Management Sciences, South East University, Nanjing, P.R. China; *E-mail address*: abdulraufhcc@gmail.com.
[‡] School of Economics and Management, Beijing University of Post and Telecommunication, Beijing, P.R. China; *E-mail address*: mkaleemkhan@yahoo.com.
[ǂ] School of Finance, Zhongnan University of Economics and Law, Wuhan, P.R. China; *E-mail address*: zeeshanfareed@hotmail.com.

1. Introduction

MFIs provide financial services to reduce poverty and improve social and economic conditions (Morduch 1999). Generally, poor people who have no access to formal lending institutions end up at the threshold of informal lenders and saving money under their pillows. MFIs discourage these unsecure and extortive measures of borrowing for poor people, offering them tailor-made financial services for saving and borrowing as per their necessities. Traditional banks and financial institutions discount these people as operating on a small scale, increasing transaction and monitoring costs; they also lack collateral to place against borrowings (Morduch 2000). Governments, NGOs, donors and large financial institutions, noting the significant role of MFIs in rendering financial services to the informal sector, started new microfinance projects (Conning 1999). These projects were encouraged when Muhammad Yunus was awarded the Nobel Prize for microfinance in 2006, and 2005 was proclaimed to be a microfinance year (Hudon 2009).

MFIs have been flourishing since then, attracting greater numbers of borrowers, offering new financial services, and incorporating new ideas to move further. Donations and subsidies are part and parcel of long-term sustainability for MFIs; however, these sources of funds are shortened due to a recent global recession (Pollinger et al. 2007). Therefore, MFIs have shifted their focus from donations to internal sources of finance to becoming sustainable institutions that prioritize durable performance. There appears to be a massive move of MFIs from being subsidized institutions to efficient, financially sustainable and profit-oriented institutions, i.e., institutions that place profit-making as their primary objective. This profit orientation enables the institutions to cover the costs of lending from revenue earned from portfolio advances and to shrink these costs to the greatest possible extent.

This shift in ideology of MFIs is followed by several fundamental changes such as augmented competition, commercialization of MFIs, technological revolution and changes in regulations (Rhyne and Otero 2006). Due to these developments, MFIs are attempting to change their behaviour and increase their product range. However, reaching the poorest of the poor and serving them with smaller loans is more challenging.

Researchers generally believe that these sustainable MFIs provide products so customized to the clients that they provide sufficient return to the MFIs, enabling them to satisfy the lending costs that ultimately make these MFIs sustainable institutions (Rhyne 1998). The sustainable MFIs are better able to eliminate poverty as these institutions charge greater rates of interest on well-off customers. They also visit clients' locations for collection, which simultaneously serves as a check on the progress of the projects. However, MFIs are exposed to distinct challenges for fascinating private investments, improving competence and achieving autonomy when serving the bottom-line poor.

The question that crops up here is whether and to what extent outreach has an impact on the efficiency of MFIs. The commercialization of MFIs may contribute to the outreach of MFIs by extending the amount of loans to the poor, providing them greater access to MFIs. Additionally, augmented competition, technological improvements and governmental policies may improve the efficiency and financial sustainability of MFIs and may increase resources for helping the poor. Thus, it can be argued that outreach and efficiency are compatible.

However, targeting financial sustainability may require sacrificing lending to the poorest of the poor. In some cases, lending to the poor may be very expensive, and therefore, outreach and efficiency may be incompatible. In the literature, particularly that referring to policy making, there is great debate on whether efficiency, sustainability and outreach are compatible or if they have trade-off value with each other (e.g., Kumar and Sensarma 2015; Rehman and Mazlan 2014; Kar 2011 and Hermes 2007). The debate generated two schools of thought, a welfarist view prioritizing outreach and an institutionalist view emphasizing financial sustainability.

Our study aims to go beyond the existing empirical analyses (e.g., Kumar and Sensarma 2015; Kablan 2012; Hermes 2011; Hermes 2007) by providing an in-depth analysis of the potential compatibility or trade-off between the efficiency of MFIs and their outreach by using a large dataset containing information for a large number of MFIs over a longer period of time. For the purpose of analysis, our dataset comprises 405 MFIs over 21 Latin American Countries for the period of 2005 to 2014 collected from the MixMarket database.

2. Literature review and hypothesis development

Many MFIs are functioning on the basis of donations and subsidies, which indicates their dependence on donors' funds. A great emphasis on the issue of sustainability has evolved into two approaches, the welfarist approach and the institutionalist approach (Robinson 2001). The welfarist approach suggests that microfinance institutions serve the poor with government donations and subsidies irrespective of financial sustainability (Morduch 2000; Dichter 1997; Hulme and Mosley 1996). According to this view, outreach and financial sustainability are negatively correlated, as serving the poor with small loans bears high costs. They also argue that the breadth and depth of outreach are reverse-edged as larger breadth can pay off for larger depth (Schreiner 2002).

The approach identifies MFIs as effective for reducing poverty and susceptibility as well as recovering the prosperity of the poor (Bassem 2012) as it highlights the access to the poor with suitable financial services to cater to their needs (Rhyne 1998). In this view, the difference between income and credit costs is curtailed by government subsidies and donors' funds, and the level of success of MFIs is determined by the extent to which poor people are served (Schreiner 2002). The most highlighted practical example of this approach is exercised by Grameen Bank (Robinson 2001).

On the other hand, institutionalists argue that MFIs focus on obtaining financial sustainability through rendering financial services to a greater number of people with greater efficiency, charging high profit rates and operating at a large scale (Bhatt and Tang 2001). The proponents of this approach claim that financially sustainable institutions can operate for longer time periods, serve with broader outreach and thus become capable of serving the poorest people. They argue that the purpose of MFIs is to enlarge the boundaries of financial systems in the long run, while having a greater breadth may cause lower depth (Schreiner 2002; Von Pischke 1991). According to this financial approach, governments and NGOs are merely temporary sources of funding, while welfare can be achieved over the longer run and by deepening financial access for the poor by making MFIs such that private investors find it profitable to invest (Schreiner 2002). According to this approach, MFIs target their financial services to poor people who have productive ideas and want to effectively use these ideas to be financially self-sufficient (Bassem 2012).

The literature does not provide widespread evidence on this issue and is generally subjective. The most recognized study on the issue was conducted by Cull et al. (2007) and determined the relationship between outreach and performance over 49 countries and 124 MFIs. The basic objective of the study is to determine whether there is a trade-off between the depth of outreach and performance. The study shows that the profitability of MFIs focusing on individual loans is better than the MFIs that provide group lending. The study also observed that MFIs focusing on individual lending have a high proportion of clients who are better off and a low proportion of borrowers who are women, which is termed mission drift.

Hence, for policy formulation, it is very important to know whether efficiency and outreach are compatible or incompatible. Unexpectedly, a few studies have been conducted on this issue in an appropriate manner. A majority of studies are merely subjective and are investigated using insufficient datasets, with the exception of a few including Cull, Demirgu¨c_-Kunt, and Morduch (2007). Thus, there is vast room for improving our understanding of this issue. Other important studies on the issue are discussed below:

Hermes et al. (2011) investigated the existence of a trade-off between sustainability and outreach using data from 435 MFIs for the period from 1997 to 2007. The study determines the relationship between cost efficiency as measured by stochastic frontier analysis and depth of outreach as measured by average loan balance (ALB). The study found a significant negative relation between cost efficiency and depth of outreach. Stated more technically, MFIs with a high level of ALB usually have low efficiency. The results are found to be robust after the addition of several control variables. The study of Hermes et al. (2011) is the most acknowledged work on the outreach and efficiency relationship.

Cull et al. (2011) also conducted an important study to add to our insight into the relationship between outreach and efficiency. The study also controlled the relationship between outreach and efficiency by including supervision and regulations in the model. The majority of MFIs, particularly large MFIs, started to obtain deposits from the public (Harsarska et al. 2007), the safety of which has become a pertinent policy issue. The regulations and supervision have increased lending costs for MFIs, which raises the question of whether such incremental costs have implications for profitability/efficiency and outreach. Using data for 245 MFIs, the study shows that supervision has a negative relationship with outreach whereby it

is negatively related with the percentage of borrowers who are women and positively related with the average loan balance.

Wydick, Karp and Hilliker (2011) determined the factors of outreach. In particular, the study examined the role of social networks in determining access to micro-financing. A recent trend of studies has been seen focusing on how social networks determine individual decision making. The study found several reasons for imitation of behaviour among a social network or group: (1) the members of a social network face identical circumstances; (2) they have similar backgrounds; (3) they show consistency with the group by demonstrating similar behaviour; and (4) they imitate the behaviour of others, as this may be contributory to the acquisition of particular goals. The approach of this study was used by Wydick et al. (2011) in determining how to spread MFIs to prospective customers in rural and urban regions. The study used data from 465 households in Guatemala. The empirical results show that the access to credit of households is significantly linked to their church networks. The important implication for the study is that MFIs should consider social networks to broaden or deepen outreach about their financings.

Abate, Borzaga and Getnet (2014) analysed the relation between cost efficiency and depth of outreach using a sample of 107 MFIs in Ethiopia. The study found that obtaining cost efficiency and serving the poor at the bottom are contradictory objectives, and the more cost-efficient MFIs are those with high average loan balances per borrower. Bos and Millone (2015) examined the trade-off between social and financial efficiency. The study suggests that the depth and breadth of outreach both decease due to mission drift.

Given the above discussion, we may conclude that the relationship between outreach and efficiency has mixed empirical as well as theoretical literature. One group determined access to have a negative relationship with efficiency, as found by Navajas et al. 2000, Cull et al. (2007), Hermes et al. (2011) and Kar (2012), and another group determined access to have a positive relationship with efficiency, as evidenced by Robinson (2001), Zeller and Meyer (2002), Quayes (2012) and Montgomery and Weiss (2011). Therefore, we propose the following hypothesis:

Hypothesis: the breadth of outreach has a positive impact on efficiency, and the depth of outreach has a negative impact on efficiency.

3. Methodology

3.1. Data collection and Measurement of Variables

Data were collected from MixMarket and World Bank Development Indicators (WBDI) for 21 countries in Latin America consisting of 405 MFIs from 2005 to 2014. Variables may have missing values due to MFIs' entry into or exit from industry. We present the following explanation and measurement of selected variables:

Operational efficiency denotes the extent to which MFIs are able to deliver services to the poor at minimum cost (Bhatt and Tang 2001). The foremost purpose of MFIs is to provide services to the low-income class who have no access to banking credit and small-sized loans without any collateral. The provision of such small-sized credits is always costly and inefficient to MFIs. The extension of a few big loans is relatively less expensive than several small-sized loans due to several fixed costs associated with advancing activities such as monitoring and transaction costs (Meyer 2002). Therefore, one of the biggest trials for microfinance is to operate at minimum cost to diminish the charges incurred by borrowers (Gonzalez 2007). Inefficiency is one of the important factors restricting the sustainability of MFIs. Many of the institutions are far flung from obtaining economies of scale for disbursement of these costs (Ledgerwood 1999).

Measurement of efficiency is generally performed using accounting ratios such as operating ratio and cost per borrower (Quayes 2012; Cull et al. 2007). Some recent studies used the latest economic techniques such as stochastic frontier analysis and data envelopment analysis (Servin et al. 2012; Hermes et al. 2011; Hasan and Tufte 2001; Haq et al. 2010; Gutierrez-Nieto et al. 2007). In this study, efficiency is measured by cost per borrower (CPB) (Quayes 2012; Hudan and Traca 2011).

Outreach is defined as the degree to which financial services are provided to the bottom-line poor. It is multi-dimensional, including depth and breadth of outreach. Depth of outreach is measured using the average loan balance (ALB) as a proxy, and the breadth of outreach is measured using the number of active borrowers (NOAB) as previously measured by Ashraf et al. (2014).

Additionally, several controlling variables included in the study are divided into two classes: institutional variables and macroeconomic variables. Institutional variables include regulation status, type of ownership, number of offices, capital ratio, diamonds, and size and age of MFIs.

Macroeconomic variables include real GDP and number of total MFIs in Latin American countries (table 1).

Table 1. Measurement of Variables.

Variables	Notation	Measurement
Outreach Depth	ALB	Average loan balance per borrower
Outreach Breadth	NOAB	Number of active borrowers
Efficiency	CPB	Cost per Borrower
Control Variables		
Regulation status	RG	1 if Regulated & 0 if not regulated
Type of ownership	Bank, NGO, CO, NBFI	1 if concerned ownership, otherwise 0
Number of Offices	OFF	Number of offices in a country
Capital Ratio	ETA	Equity to total assets
Number of diamonds	DM	Number of diamonds earned
Size	SIZE	Total assets
Age	AGE	1 if new, 2 if young and 3 if mature
GDP	GDP	Real GDP
Number of MFIs	COUNT	Number of MFIs in a country

3.2. Econometric Analysis

On the basis of the above discussion, we are able to form the following equation to be estimated in this chapter:

$E = \alpha_1 + \alpha_2 OR_{it} + \alpha_3 control_{it} + \in_{it}$

where E denotes efficiency, OR_{it} reflects the vector of outreach and $control_{it}$ refers to the vector of other controlling variables included in the study. Moreover, $\in_{it}$ is an idiosyncratic term.

Econometric analysis is conducted using a panel data approach that is effective against multicollinearity and improves the degree of freedom

(Hsaio 2014). Generally, panel data analysis includes a fixed-effect model (FE) and random-effect model (RE).

The model of the study includes time-invariant variables such as ownership status; therefore, we used an RE model when the FE model was not efficient. RE is run with robust standard error clustered at the institution level to control heteroscedasticity and autocorrelation (Wooldridge 2002).

As a base model, we run OLS with robust standard error (SE) that is effective against heteroscedasticity and autocorrelation. To identify the appropriate model between OLS and RE, we found the Breusch-Pagan Lagrange multiplier (LM), which shows that RE is appropriate for the model of the study.

Quayas (2012) states that the model with outreach and efficiency may have problems of endogeneity, as the study claims that outreach is determined by profitability and that simultaneously profitability is determined by outreach. Therefore, we enlarged our estimation to the two-step generalized methods of moment (GMM) of Arellano et al. (1995) together with the Roodman (2006) procedure combined with finite-sample corrected SE suggested by Windmeijer (2005).

4. Results

We present the result of outreach with efficiency while controlling other variables. The LM test shows that the results of RE are more reliable than OLS. Nevertheless, OLS is presented as a threshold model. Finally, we used a dynamic panel data technique that is recognized to be the most powerful approach in cases with panel data.

Table 2 presents the relationship of outreach with efficiency. We found a negative impact of ALB on CPB as previously found by Quayas (2012). It may be because small loans have identical terms that entail diminished costs of MFIs relative to the larger loans that produce high administrative costs and high CPB. However, the coefficient is insignificant. Breadth (NOAB) is also found to have an accelerating effect on efficiency, although diminishing CPB as the coefficient of NOAB is found to be negative and significant using OLS as well as RE. The type of ownership has no effect on efficiency as is found in the case of profitability. OFF is found to have a positive coefficient for CPB, but this is significant only in the case of OLS. The increase in OFF reduces efficiency by increasing CPB. SIZE is found to have a positive impact on CPB as an increase in size increases the cost per

borrower due to agency and dysfunction problems (Karray and Chichti 2013). AGE is found to have a negative coefficient for CPB but only in the case of OLS. This indicates that mature firms are better able to reduce CPB, thus increasing efficiency. RG is found to have a positive coefficient for CPB as RG increases cost per borrower and reduces efficiency. Diamond rating (DM) is significant and has a positive coefficient in the OLS as well as the RE model. ETA is observed to have a negative coefficient, indicating that highly capitalized MFIs are more efficient in reducing CPB and enhancing efficiency. GDP is found to have a positive coefficient, and finally, COUNT reduces cost per borrowers, making MFIs more efficient.

When selected variables are thought to have the problem of endogeneity, the estimations should not be confined to OLS or RE. Therefore, we extended our estimations to the GMM technique to address this issue. Efficiency (CPB) is found to be significantly positively related with ALB and negatively related with NOAB as found using OLS and RE. SIZE and GDP are found to be significantly related as found in the OLS and RE models. AGE has a significantly negative coefficient that is also consistent with previous results found by OLS and RE. Moreover, types of ownership, COUNT, ETA, DM and RG are found to be insignificant. The diagnostic tests also verified the goodness of the model with significant AR(1) and insignificant AR(2). The validity of the instruments is confirmed with Hansen J-statistics that are found to be insignificant (table 3).

Table 2. Outreach and Efficiency.

	OLS		RE	
CPB	Coef.	t	Coef.	z
ALB	-.0298451	-0.81	.1046766	0.98
NOAB	-.6254453	-55.53*	-.6940463	-19.44*
CO	-.338234	-1.07	-.6041314	-4.76*
BANK	.0233782	0.07	-.2228124	-1.88***
NBFI	.116986	0.37	-.1205348	-0.97
NGO	-.0208181	-0.07	-.1919258	-1.44
OFF	.000551	2.23**	.0008842	1.50
SIZE	.5662075	15.32*	.511564	4.67*
AGE	-.1104768	-5.60*	-.0299438	-1.07
RG	.1258969	4.66*	.1383789	2.00**
DM	-.0279966	-2.17**	-.0263941	-1.16
ETA	-.1163331	-2.58**	.1137734	1.45
GDP	.1356963	20.06*	.1825576	12.28*
COUNT	-.2001319	-13.71*	-.1687311	-5.83*
C	-.0412086	-0.11	-2.051865	-4.62*
Observations	2625		2625	
F stat	357.48*			
Wald chi^2			8632.20*	
Adj. R^2	0.65		0.63	
LM test – chi^2		2771.31*		

Table 3. Outreach and Efficiency - Dynamic Panel Data Analysis.

Cpb	Coef.	Corrected Std. Err.	T	P>t
CPB				
L1.CPB	.2138669	.0701599	3.05	0.002
ALB	.2866753	.1487488	1.93	0.055
NOAB	-.6335601	.0802128	-7.90	0.000
OFF	.0116149	.085421	0.14	0.892
SIZE	.3098334	.1150265	2.69	0.007
AGE	-.1904116	.0864955	-2.20	0.028
GR	-.1352925	.1659165	-0.82	0.415
DM	-.051076	.0374184	-1.36	0.173
ETA	.1649877	.1717554	0.96	0.337
GDP	.0777567	.0220573	3.53	0.000
COUNT	-.0696825	.0510918	-1.36	0.173
BANK	.0366286	1.12754	0.03	0.974
NGO	.5885719	1.215051	0.48	0.628
NBFI	.4889812	1.182166	0.41	0.679
CO	-.1138162	1.139694	-0.10	0.921
C	-1.034874	1.56725	-0.66	0.509
F – stat	39.98*			
AR(1)	-3.84(0.000)	Hansen J-stat	307.19(0.155)	
AR(2)	1.33(0.182)			

5. Conclusion

The main objective of MFIs is to provide inexpensive credit to poor people who are not target customers of banks due to their shortage of collateral (Kent and Dacin 2013). Most of the MFIs report their mission as lending to the poorest and/or rural areas or empowering women (Serrano-Cinca and Gutierrez-Nieto 2014). However, recently, financial performance is deemed to be a necessary condition for achieving success as some researchers and practitioners argue that the provision of financial services to poor people over the long term cannot be provided unless MFIs are financially sustainable (Christen 2001). Therefore, Kent and Dacin (2013) note that performance and outreach are complementary to each other as the accomplishment of one reinforces the achievement of the other.

Nevertheless, in an economic condition with inelastic loan demand, charging high interest to strengthen financial performance merely reduces outreach in depth and breadth over the short term.

On the other hand, other groups suggest that the main purpose MFIs of reaching the poorest people, known as outreach, may be halted by focusing on financial sustainability. They suggest a trade-off between financial performance and outreach. The study is an attempt to address ongoing issues in the relationship between efficiency and outreach. The findings of the study will be useful for policy formulation that may provide important insights for the revolutionary development of MFIs.

Data were collected from MixMarket and World Bank Development Indicators (WBDI) for 21 countries in Latin America consisting of 405 MFIs from 2005 to 2014. Variables may have missing values due to MFIs' entry or exit from industry. Efficiency (CPB) is found to be significantly positively related with ALB and negatively related with NOAB. More specifically, efficiency increases with an increasing average loan balance per customer and decreases with an increase in the number of active borrowers.

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