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Editorial

Journal of Econmics and Behavioral Studies (JEBS) provides distinct avenue for quality research in the ever-changing fields of economics & behavioral studies and related disciplines. Research work submitted for publication consideration should not merely limited to conceptualisation of economics and behavioral devlopments but comprise interdisciplinary and multi-facet approaches to economics and behavioral theories and practices as well as general transformations in the fileds. Scope of the JEBS includes: subjects of managerial economics, financial economics, development economics, finance, economics, financial psychology, strategic management, organizational behavior, human behavior, marketing, human resource management and behavioral finance. Author(s) should declare that work submitted to the journal is original, not under consideration for publication by another journal, and that all listed authors approve its submission to JEBS. Author (s) can submit: Research Paper, Conceptual Paper, Case Studies and Book Review. Journal received research submission related to all aspects of major themes and tracks. All submitted papers were first assessed by the editorial team for relevance and originality of the work and blindly peer reviewed by the external reviewers depending on the subject matter of the paper. After the rigorous peer-review process, the submitted papers were selected based on originality, significance, and clarity of the purpose. The current issue of JEBS comprises of papers of scholars from South Africa, Sweden, Nigeria, Nepal and China. Entrepreneurship & small business promotion, finance-growth nexus, effect of scented direct mailings, brand positioning, fiscal policy shocks & private consumption, financial literacy & behavior, choice of tertiary institutions, marketing factors influencing the voting intention and culture & pro-social behavior were some of the major practices and concepts examined in these studies. Current issue will therefore be a unique offer, where scholars will be able to appreciate the latest results in their field of expertise, and to acquire additional knowledge in other relevant fields.

Prof. Sisira R N Colombage, Ph. D.
Editor In Chief

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Poor People's Perceptions of Government Support for Entrepreneurship and Small Business Promotion in a Developing Country

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Abstract: Unemployment is a global concern; therefore many developing countries focus on entrepreneurship development and small business promotion as a possible solution. Entrepreneurs are regarded as drivers of the economy as they not only provide income for themselves but also create job opportunities for other people. The South African Government focuses on job creation as a priority, involving many strategies and policies. However, many marginalised and impoverished people still do not benefit from these policies. The central purpose of this article is to analyse poor people's perceptions of the role of government in creating jobs and assistance in providing entrepreneurial skills training and support. A socio-economic household survey, consisting of approximately 3200 households, was conducted within various areas in the Metsimaholo, Moqhaka, Ngwathe and Mafube Local Municipalities, all located in the rural Northern Free State region in South Africa. Results of the survey show that 68.3% of participants feel that government is not doing enough to create jobs while a total of 49.1% indicated that government could assist in job creation by providing entrepreneurial skills training. A total of 56.2% indicated that they would like to open a small business. Improved government support and initiatives could lead to many poor households generating their own income through entrepreneurial activities.

Keywords: *Entrepreneurship, Government support, rural townships, small business development, South Africa*

1. Introduction

Over the years, various constraints that affect many developing countries, including South Africa, have been identified. Of the main problems, the three that are linked are unemployment, leading to poverty, which ultimately causes inequality in communities and countries (Phillips, Moos & Nieman, 2014; The National Planning Commission, 2012). In trying to resolve these issues and as a result of failure to absorb job seekers in the public and private sectors, many South African policies are aimed at supporting development of small businesses and entrepreneurship. A considerable number of researchers and policy makers regard entrepreneurship as a link to sustained and increased economic development and growth. Entrepreneurship and small business development is not only a priority in developing countries but also in developed countries because it is perceived as a driver of accelerated economic growth. Developing countries need entrepreneurial enabling environments and lenient regulations to stimulate new business development, thereby ultimately creating new employment opportunities (Kroon, 2002; Botha, Nieman & van Vuuren, 2007; Sivvam, 2012; Ambrish, 2014; Phillips, Moos & Nieman, 2014). The South African Government has devoted vast amounts of resources in supporting entrepreneurs and small businesses since 1994. Despite this, South Africa was rated 35th out of the 54 countries participating in the Global Entrepreneurship Monitor (GEM) in 2009 and dropped to 53rd out of 70 countries in the 2014 report (Herrington, Kew & Kew, 2009; Herrington, Kew & Kew, 2015). In addition, South Africa's reported early-stage entrepreneurial activity (TEA) rate is also performing poorly, well below the average. Government development efforts should include financial and non-financial support, especially to previously disadvantaged groups and marginal communities. The aim of this article is therefore to analyse poor people's perceptions of the role of government in creating jobs and assistance with entrepreneurial skills training and support in their communities.

2. Literature Review

No consensus exists on how or when government should intervene in the economy or to what extent any interventions should be implemented. But one certainty is that developing countries and struggling communities should be assisted with sustainable methods to support themselves (Koven & Lyons, 2003). Entrepreneurship and small business development should be considered one of the tools or methods within a

Local Economic Development (LED) strategy (Meyer, 2013; Meyer, 2014) to achieve this. Never before has entrepreneurship been more important than it is currently. Entrepreneurs are fundamentally creators of new employment and wealth. In addition, they also address and often resolve challenges which societies face across the globe. Entrepreneurs are innovative and creative and they come in all shapes and sizes (WEF, 2011). As Rania Al Abdullah stated at the Global Education Initiative private meeting in Davos in 2007, "society faces a strong need to encourage people to practice believing the unbelievable, using imagination and courage and tapping into the inner entrepreneur". She added that with the right skills and mind-set entrepreneurs can be created even outside of the formal education system (WEF, 2007).The Department of Rural Development and Land Reform (2010) concurs, indicating that support for local entrepreneurship and leadership is needed in rural areas to strengthen linkages with the main economic hubs, improve income levels and address the poverty and quality of life in such areas. The development potential of rural towns is determined by several factors: diversity of local culture, geography and terrain, complexity and level of the local economic systems, access to technology, quality of local leaders and level of entrepreneurship (Meyer, 2013). Many impoverished people living in rural areas lack the necessary resources in order to successfully start and manage a small business. These resources include, but are not limited to, education, skills, training, access to credit and lack of basic infrastructure (Field, Jayachandran & Pande, 2010). In addition to this, indigent rural women are even more disadvantaged by other barriers and challenges, such as lack of business management skills, inter-role conflict, high risk averseness, lack of female role models, inequality and gender bias, lack of confidence as well as the pressure of child care (Kock, 2008; Lebakeng, 2008).

Definitions: Many different definitions have been developed over the years to explain the term "entrepreneurship". In an earlier definition from the early 1930's (cited in De Bruin, Brush & Welter, 2006) "entrepreneurs" are described as those who "create new combinations, new markets, and product or distribution systems". More recently, entrepreneurs were described as people who added value and wealth by creating new processes and developing new ideas, assembling resources and taking action to make things happen (Ambrish, 2014). Some of the traits frequently associated with entrepreneurs include being risk takers, being innovative, exploiting opportunities, being success driven, thinking outside of the box as well as being creative and optimistic. Various definitions also exist for the term "small business" and are linked to factors such as size, the country the enterprise is situated in, annual turnover, number of employees and even the industry or sector within which the business falls. But consensus exists that it is an independently or privately owned and operated business forming part of a specific economic sector. Small businesses are often referred as suppliers of specific needs within a community (SBA, 2015) and are considered important contributors to LED. The South African Revenue Service even provides a zero tax rate for small businesses registered as a Small Business Corporation (SBC) and complying with certain criteria up to a taxable annual income of R73 650(approximately $5877.80 at R12.53 per $) in order to assist with growth potential (SARS, 2015). No clear or generally acceptable definition of "rural" exists, but this could be classified as an area where human settlements and infrastructure occupy only small portions of the landscape and consist of up to 10 000 people (Gauteng Department of Agriculture and Rural Development, 2011)."Poverty" is defined as "a situation where an individual lacks command over commodities that are deemed essential to realise a reasonable standard of living" (World Bank, 2001). Poverty can further be described as an absence of income which results in inadequate health, housing, education and access to resources and basic services (Meyer, 2013).

The role of government in economic development: Meyer (2013) opines that the role of the government in development includes various aspects. These include, but are not limited to, ensuring a stable political environment, policy implementation, good governance, support and assistance with creation of employment, as well as provision of social grants and support to poor communities. Vidovic (2014) adds to this perspective by indicating that the state or government performs three main functions: distribution, stabilisation and allocation. A key role of government in development is creating an enabling environment for the local communities and private sector to flourish and be successful (Phillips, Moos & Nieman, 2014). This can only be achieved by strong leadership and coordination. Another important contributor to development is skills training; government could assist local entrepreneurs to start small businesses by undertaking research in product development. As the local government is the sphere of government nearest to rural communities, it should play the most involved role including facilitation, coordination, stimulator, enabler and even developer. In addition to this, further assistance should be provided in the form of one-stop-information

centres, marketing the region, providing incubators, job centres and skills development (Meyer, 2013). In an attempt to develop entrepreneurship, the South African government entrusted the Department of Trade and Industry with synchronising important features of implementation filtering from government support strategies (Phillips, Moos & Nieman, 2014). According to Rogerson (2004) the South African government has done a very good job in creating supporting policies and has put in vast amounts of resources to support small business but the implementation of these policies are questionable.

Support to small businesses and entrepreneurs: Since 1994, as mentioned the South African government has invested immense resources in order to assist entrepreneurs and small businesses, especially in previously disadvantaged and marginal communities. Some of these entrepreneurial initiatives to create an enabling environment for new entrepreneurs include the Small Enterprise Development Agency (SEDA), the Gauteng Enterprise Propeller (GEP), the Small Enterprise Finance Agency (SEFA), and the National Empowerment Fund (NEF) (SEDA, 2015; GEP, 2015; SEFA, 2015; NEF, 2015). Contrary to this, many obstacles also exist that hinder an easy start up for entrepreneurs and small business success. These include rigorous labour and tax laws and unnecessary red tape when registering a new business. As a result of the limited success of government programmes many private businesses and other groups have also started programmes to support entrepreneurs.

3. Methodology

Sample: The sample for this study consisted of rural poor people residing in various areas in the Metsimaholo Local Municipality, Moqhaka Local Municipality, Ngwathe Local Municipality and Mafube Local Municipality, all located in the northern Free State Province, South Africa. Criteria for selecting the respondents were that they had to be residing in a rural and impoverished area or township. The following townships were selected for the household survey conducted during 2013:Moakeng (Kroonstad), Rammulotsi (Viljoenskroon), and Matlwangtlwang (Steynsrus),all situated in the Moqhaka local municipal area; Zamdela (Sasolburg), Refengkgotso (Deneysville), and Metsimaholo (Oranjeville),situated in the Metsimaholo municipal area; Namahadi (Frankfort), Qalabotjha (Villiers), Ntswanatsati (Cornelia), and Mafahlaneng (Tweeling),situated in the Mafube local municipal area. Towns situated in the Ngwathe municipal area include Tumahole (Parys), Phiritona (Heilbron), Makwallo (Vredefort), Ngwathe (Edenville), and Kwawatsi (Koppies).

Sampling method: The data was collected per household using a community survey method. Layout plans of all the areas surveyed were collected from the various municipalities in order to determine the sample stratification regarding the geographical distribution and concentration of households in the area. The questionnaire was designed with an electronic answer sheet for ease of capturing.

Research instrument and method: A questionnaire was designed after in-depth literature reviews and a comparison of similar studies' questionnaires. This comprised predominantly closed-ended, multiple-choice questions in order to simplify the data analysis process. The questionnaire was pre-tested, after which the contents were finalised. Field workers were trained to complete the survey with the respondents from the various households, and a total of 3208 households were interviewed. Each member in the household was interviewed to determine their employment status, income, skills, preferences to employment etc. The survey data was analysed by means of SPSS. The focus was placed on levels of poverty, skills and perceptions of local government in rural communities. However, for this article only the data from questions pertaining to respondent's perception of government support towards small business and entrepreneurial assistance was used.

4. Results and Discussion

During the data collection process 3208 questionnaires were collected from various communities and townships in the northern Free State area. This province is also known as the central province of South Africa and covers approximately 10.6% of the total area of the country. The Free State consists of five district municipalities; this study is focused on one of these: the Fezile Dabi District Municipality. This municipality consists of four local municipalities: the Ngwathe, Moqhaka, Metsimaholo and Mafube Local Municipalities. It

is considered an important agricultural and industrial area, containing major environmental features such as the Vaal River, the Vredefort Dome and the Vaal Dam (Meyer, 2013). Table 1 summarises some key components of general information regarding the area.

Table 1: Summary of general information

Municipal area	Formal dwellings (%)	Average household size (members)	Average number of children in school per household	Average number of employed people per household	Average number of unemployed people looking for work per household	Average household income per month (R)
Fezile Dabi DM	75.9	3.73	1.28	0.68	1.12	1404
Moqhaka LM	68.6	3.66	1.18	0.51	1.18	1191
Mafube LM	80.2	4.01	1.55	0.51	1.34	1196
Metsimaholo LM	79.6	3.57	1.18	0.82	1.12	1590
Ngwathe LM	73.7	3.93	1.39	0.61	1.15	854

Source: Meyer, 2013

From Table 1, it is evident that the areas under discussion are considered poor with an average income of only R1 404 (approximately $112.1) per household per month. If divided by the average household size, this amount equates to a mere R376.40 (approximately $30.04) per person per month which is below the poverty line of $1.25 per day. Many different calculations have been performed to determine the level of poverty and minimum amounts deemed adequate to live a quality life, ranging from $1.00 to $2.50 per person per day (Ravallion, 2010), but the most common rate used as per the World Bank is set at $1.25 per person per day (Meyer, 2013). At the current rand/dollar conversion rate (R12.53 per $1 as per date of completing this article), $1.25 equates to approximately R15.66 per day. Multiply this by an average of 30 days and the poverty line can be set at approximately R469.80 per person per month. From the data it is also evident that more people per household are unemployed and seeking employment than those who are actually working and generating an income. In addition to Table 1, the average number of youths (15-24 years old) in the total region who is not working per household was calculated at 0.55. With the current youth unemployment rate at above 50 percent in South Africa, this figure adds to the globally growing concern over youth unemployment issues (StatsSA, 2015). The survey further found that the skills of the unemployed people who participated were predominantly in the farming/gardening and catering/cooking industries, followed by the building/construction and retail/selling sectors. Table 2 indicates the level of entrepreneurial intent regarding whether or not respondents want to open a small business.

Table 2: Entrepreneurial intent per municipal area

Municipal area	N	Respondents who would like to open a small business (%)	Respondents who do not want to start a small business (%)	Respondents who are uncertain (%)
Fezile Dabi DM	3208	56.2	34.2	9.6
Moqhaka LM	530	57.8	35.8	6.4
Mafube LM	270	51.7	45.2	3.1
Metsimaholo LM	1422	45.7	39.1	15.2
Ngwathe LM	986	72.8	22.4	4.8

Source: Own Compilation

Table 2 clearly indicates that respondents have entrepreneurial intent as 56.2 percent of all respondents replied that they would like to start a small business in the region. Metsimaholo Local Municipality (LM) recorded the lowest intent at 45.7 percent and Ngwathe LM the highest with 72.8 percent. An effort should be made to involve these respondents in entrepreneurial development programmes and provide them with the necessary assistance to possibly start a small business. In addition to asking respondents if they would like to start a business, they were asked what type of business they would like to start. The responses were as follows: 12.5 percent were interested in opening a farming or gardening business; 37 percent a retail/selling business; within the catering and cooking sector, 20 percent; while 9.6 percent were interested in a sewing or clothing business; 13.2 percent in the building, construction, electrician or plumbing industries, with 5.3

percent and 2.4 percent in the computing and steelwork/welding sectors respectively. Table 3 reflects the opinions of respondents regarding the role the government is playing in creation of new job opportunities. Respondents were asked if they thought that government is doing enough to create new jobs.

Table 3: Government's role in creating new employment opportunities

Municipal Area	N	Respondents who think that government is not doing enough (%)	Respondents who think that government is doing enough (%)	Respondents who are uncertain (%)
Fezile Dabi DM	3208	68.3	18.7	13
Moqhaka LM	530	57.1	29.8	13.1
Mafube LM	270	68.1	19.8	12.1
Metsimaholo LM	1422	72.4	16.2	11.4
Ngwathe LM	986	68.7	15.8	15.5

Source: Own Compilation

A total of 68.3 percent of respondents from households in the region were of the opinion that government is not doing enough to assist in the creation of jobs and new employment opportunities while 18.7 percent feel satisfied with the role government is playing. The Metsimaholo LM households are the least satisfied with the local government's role in job creation efforts while Moqhaka LM are the most satisfied, but still generally unsatisfied. Respondents were further asked how government could assist in the job creation process; a summary of the results is listed in Table 4.

Table 4: Government's assistance and support required

Municipal area	N	Skills training (%)	Public works projects (%)	Provide facilities (%)	Provide land (%)	Assist with finance (%)	Support co-ops (%)
Fezile Dabi DM	3208	49.1	33.6	5.0	4.0	3.1	3.8
Moqhaka LM	530	58.5	27.2	4.0	2.5	1.5	4.4
Mafube LM	270	58.5	28.5	4.6	2.3	2.3	1.9
Metsimaholo LM	1422	44.5	41.2	5.7	4.1	2.4	1.5
Ngwathe LM	986	47.5	28.2	4.5	5.2	5.2	7.2

Source: Own Compilation

From Table 4, it is evident that all the areas under discussion have a strong need for skills training because all reported a rate of above 40 percent, with Moqhaka LM and Mafube LM being the highest at 58.5 percent. The second most important resource requested by respondents was the development of new public works projects, in other words projects financed and constructed by government in order to provide infrastructure for various purposes to the community (APWA, 2015). These projects generally create large volumes of work opportunities which are not sustainable over a long period as they are normally contract based. In a study conducted by Thawala (2008) it was found that South African public works programmes were in many cases not properly implemented and managed. These programmes do create employment and entrepreneurial development, but at a very high cost to the taxpayers. Some problems arising from South African public works programmes included lack of clear objectives and long-term vision; they are unsystematic and fragmented; there are inappropriate administration processes and corruption; there is a lack of government commitment as well as inadequate project maintenance (during and after); lack of training that should result in long-term development; mostly politically driven with very little long-term sustainable employment being created. Respondents further indicated that they require facilities, land, finance and support for co-ops. What was surprising was that respondents from all of the areas reported a very low need for finance. A possible

explanation for this could be that respondents feel that they first need to acquire skills so that using money provided for starting a business would be wisely spent.

5. Conclusion and Recommendations

It is evident from the study that three of the main problems in the South African society: poverty, unemployment and inequality, are prominent in the study region. Households that participated in the study felt let down by government as they believe that government is not assisting enough in the creation of employment opportunities. In general, the households have fewer people who are in employment than they have who are actively seeking employment. The households are also very poor and in general earn less than the $1.25 per day rate deemed adequate to live a quality life. A new poverty line of $2 per day is used in many instances and this rate reveals the study group as even more impoverished than against the previous measure. More than half of the households interviewed in the region would like to start a business and require assistance predominantly in skills training from the government. One of the main challenges to rural development is to disrupt the "vicious cycle of poverty". This could to a certain extent be achieved by providing poor communities the tools to help themselves. Entrepreneurship development should definitely be considered as one of these tools. Other important factors to consider in rural development are improved community development, improved leadership, more active citizenship and rising living standards through economic opportunities. This can partly be achieved through entrepreneurship. Some possible recommendations for improving job creation, entrepreneurship and small business development through government initiatives in rural areas include:

- **Economic development:** focussing on projects in the region that may lead to economic development and growth in employment opportunities
- **Creation of labour intensive projects:** economic sectors that have the potential to create labour intensive jobs should be supported
- **Creation of an enabling environment for local small businesses:** this includes functions such as provision of land, creation of development zones, provision of services and infrastructure, access to finance, tax policies and incentives
- **Local community involvement:** if community members are involved to a certain extent in decision making processes such as planning and implementation, it could create a sense of belonging and social cohesion
- **Skills training and development:** local people should be invited to special skills training workshops provided for them in their area
- **Support of local businesses:** government should support local business initiatives by granting small tenders such as infrastructure maintenance, grass cutting and other similar projects to entrepreneurs in the specific area
- **Clustering of businesses:** clustering of similar, interconnected and competitive industries could lead to enhanced competition and new innovation
- **Providing incubators and mentorship:** building business incubators in the various areas and providing mentorship to entrepreneurs and small business owners could accelerate growth potential

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The Finance-Growth Nexus: Evidence from Emerging Markets

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Abstract: The finance growth literature ignores the role of bond markets in financing private investments. Moreover, the impact of bank crisis on the finance growth link has been largely overlooked. This paper aims at casting light at the finance growth link in emerging economies by accounting for bond markets and controlling for banking sector crises. Data on economic growth and financial development indicators for 15 emerging economies (drawn from Africa, Asia, Latin America, and Europe) were analysed using a system generalized-method-of-moments (GMM) technique. It is observed that while banking sector development is related to economic growth (albeit negatively), no statistically significant relation is observed between stock markets and/or bonds markets and economic growth. Moreover, a banking crisis is found to affect the finance growth link in such a manner that the link weakens when a banking crisis is introduced to the model. Our results are robust to omitted variable bias, simultaneity problem, heteroscedasticity and autocorrelation.

Keywords: *Stock markets; Bond markets; Banks; Economic growth*

1. Introduction

Financial markets and institutions have many functions that include, among others, maturity intermediation where they make a large long-term loan out of small short-term deposits, help entrepreneurs diversify risk by raising capital through issuance of debt and equity securities, and serve as lubricants of the economy by facilitating transactions. Although many agree on the foregoing functions of financial markets and intermediaries, the question of whether or not financial development drives economic growth has been the subject of debate for many decades. The debate produced a large body of theoretical and empirical literature. Theory predicts that finance promotes economic growth by ameliorating the information asymmetry problem, increasing investment efficiency, encouraging capital accumulation and human capital development (Blackburn et al. 2005; De Gregorio and Kim 2000; Greenwood and Jovanovic 1990; Bencivenga and Smith 1991). The empirical test of the finance-growth nexus, pioneered by Goldsmith (1969), produced a large body of literature with assorted results. Early empirical studies by (King and Levine, 1993; Atje and Jovanovic, 1993) and later by (Levine and Zervos 1998; Rajan and Zingales, 1998; Beck and Levine, 2004) and more recently by (Dawson, 2008; Bittencourt, 2012, Herwartz and Walle, 2014) found that financial development promotes economic growth. On the other hand, (Naceur and Ghazouani 2007; Ram, 1999) found no such relationship in their studies. Some found bidirectional relationships between the two (Thangavelu et al., 2004) and others found growth driving financial development (Chakraborty, 2008).

Both theoretical postulates and empirical findings are far from conclusive. The major theoretical debate is on the direction of causality and on the channels through which finance can promote economic growth. Similarly, empirical studies could not produce conclusive evidence on the direction of causality and on the strength of the relationship. This is attributed to, among others, an inability to find appropriate measures of financial development, unavailability of data, lumping together countries of different levels of economic growth, and using a wrong econometric specification. Consequently, our understanding of the finance-growth link is still incomplete. For this reason, the current study examined the finance-growth link by using the annual data from 15 emerging economies over the period 1997–2011. To circumvent simultaneity, a system generalised methods-of-moments (GMM) model was used. The study contributes to the existing body of literature by introducing bond markets and financial crisis into the model. Empirical tests have only focused on banks and stock markets, disregarding bond markets. The author argues that bond markets play no lesser role than banks and stock markets. Although emerging markets did not have well-developed bond markets in the past, this has changed and bond markets now constitute more than 50% of the gross domestic product (GDP) in some of them (World Bank, 2013). It therefore deserves to be included in the empirical model. Besides, while it is clear that the banking sector crisis adversely affects both financial development and economic growth, empirical studies started to recognise its effect on the finance-growth link only recently

(see the first attempt by Rousseau and Wachtel, 2011). The rest of the paper is organised as follows. Section 2 presents a review of related theoretical and empirical literature; section 3 presents data and methodology; section 4 presents the findings; and the last section concludes.

2. Literature Review

Financial markets and institutions channel savings of surplus units to deficit units, and help foster investment activities. However, whether this function of financial markets and institutions can boost economic growth remains contentious. The relationship between financial development and economic growth was first postulated by Schumpeter (1934) who argued that the financial system can be used to channel resources into the most productive use, hinting that financial development can lead to economic growth. In contrast, a few decades later, Robinson (1952) argued that financial development does not lead to economic growth, but rather follows it. This sparked interest among scholars and led to the emergence of a large body of theoretical and empirical studies.

Theoretical underpinnings: The theoretical model underpinning the link between finance and growth is based on the ability of financial markets and institutions in: (1) ameliorating the problem of information asymmetry (Diamond, 1984; Bose and Cothren, 1996; Blackburn and Hung, 1998; Morales, 2003; Blackburn et al., 2005); (2) increasing the efficiency of investments (Greenwood and Jovanovic, 1990); (3) enhancing investment productivity (Saint-Paul, 1992); (4) providing liquidity, thereby allowing capital accumulation (Bencivenga and Smith 1991); and (5) allowing human capital formation (De Gregorio and Kim 2000). Diamond (1984) emphasised on the ability of financial intermediaries to monitor investment projects at a lower cost, which eventually increases entrepreneurs' access to funds. In the absence of intermediaries, monitoring costs would be too large as to discourage credit to entrepreneurs. As shown by Bose and Cothren 1996), this particular attribute of intermediaries promotes resources allocation thereby leading to economic growth.

Various other theoretical models have been developed with emphasis on a particular channel through which finance affects growth. For instance, Blackburn and Hung (1998) show that intermediaries contribute to economic growth by managing the moral hazard problem by designing incentive-compatible loan contracts. The contracts are used to avoid diversion of funds towards other purposes. Bencivenga and Smith (1991) emphasised on the ability of intermediaries in attracting deposits from a large number of depositors out of which they create loans that can be used to finance long-term investment projects. This, according to Bicenvenga and Smith, promotes capital formation, thereby leading to economic growth. Saint-Paul (1992) explains the benefits of financial markets in promoting technology specialisation. He shows that entrepreneurs can engage in a specialised technology that poses more risk but they can diversify the risk with the help of financial markets. De Gregorio and Kim (2000) focus on intermediaries' ability to allow individuals to specialise in skills useful in industrial development.

However, researchers disagree on the direction of causality between finance and growth. While most theories predict unidirectional causality where finance leads to economic growth, some (de la Fuente and Marín, 1996; Saint-Paul, 1992; Greenwood and Jovanovic, 1990; Khan, 2001) show that finance and growth have a bidirectional causal relationship. Saint-Paul (1992) shows that when innovation increases, so does the demand for financial services, which in turn leads to growth in the intermediary sector. Similarly, Khan (2001) posits that growth enhances financial development by raising borrowers' collateralisable net worth and finance promotes growth by increasing return on investment, and hence the rate of economic growth. In sum, although different theoretical models have been developed to explain the link between finance and growth, disagreements prevail on the direction of causality between the two.

Empirical evidence: Empirical testing of the finance-growth theory was pioneered by Goldsmith (1969), who set the stage for a series of studies over the last two decades. Goldsmith (1969) concluded, with caveats, that financial development is positively linked to economic growth. The empirical inquiry into the finance growth nexus was reignited later by King and Levine, 1993a) who found a strong correlation between financial development indicators and economic growth parameters. They also concluded that the level of financial development of a nation can be used in predicting that nation's economic growth for 10 to 30 years to come. King and Levine developed a theoretical model in another paper (King and Levine, 1993b) to reveal

the channels through which finance can boost economic growth, and reconfirmed this through sets of empirical evidences that combined cross-country studies, country cases on financial reform, and firm-level data. However, concern emerged among scholars that the econometric model used in King and Levine (1993a) might have been affected by the estimation bias caused by simultaneity, omitted variables, and country-specific fixed effects. To mitigate the simultaneity bias, Atje and Jovanovic (1993) introduced initial-level financial development indicators into their model, and found that stock market development has a significant effect on economic development, but to their surprise, the banking sector did not have a similar effect on economic growth. Similarly, Levine and Zervos (1998) concluded that both stock market development and banking sector development are important in explaining economic growth. While the empirical studies by (King and Levine 1993; Atje and Jovanovic, 1993; King and Levine 1993; Levine and Zervos, 1998) focused on the effect of financial depth on economic growth at a macro level, Rajan and Zingales (1998) attempted to test the theory using firm-level data. In their pioneering work, Rajan and Zingales show that external finance-dependent industries grow quickly in countries with developed financial systems, implying that finance boosts growth through its effect on industrial activities.

Benhabib and Spiegel (2000) moved a step forward by testing the effect of financial development on total productivity growth and investment activities using the generalised method of moments (GMM), and found that financial development promotes growth by enhancing total productivity and investment activities. They introduced the GINI coefficient into their model to capture country-specific attributes and noted that their findings changed when country-specific effects were introduced, implying that financial development indicators are broad measures of a country's financial sector. This left a lesson that a more vivid picture of the finance-growth nexus can be understood by finding proxies that can capture country-specific indicators of financial development. Calderón and Liu (2003) confirm a positive effect of finance on growth for the whole sample of 109 countries but they also found bidirectional causality when the sample is split between developed and developing countries. Dawson (2008), on the other hand, found a strong positive relationship between finance and growth when financial development is measured using growth in M3. Surprisingly, his proxy model where financial development is measured using depth, i.e. the ratio of M3 to GDP, revealed a negative relationship between finance and growth. Due to conflicting results, he cautions that proxies for financial development should be prudently selected before arriving at any valid conclusion.

In contrast to the foregoing studies that found finance leading growth, Blanco (2009) found that it is economic growth that drives financial development. Further, by splitting the sample into different income groups, he found that there is bidirectional causality for the middle-income group, even contradicting a study on countries in the same region by Bittencourt (2012) who found a strong relationship between finance and growth. More surprisingly, Hartmann used data for 74 economies over the period 1975–2005, employing In-sample tests and the Out-of-sample forecast comparison technique to establish causality between finance and growth, and found that economic growth promotes financial development but not vice versa, ruling out the popular view that finance drives growth. Their finding is robust even after grouping samples into different income groups. However, Herwartz and Walle (2014), using mostly the same number of countries as in Hartmann et al. (2012) over the period 1975–2011, utilising a flexible semi-parametric technique, found that the finance-growth link is stronger in high-income economies than in low-income ones. They also reveal that the finance growth link turns negative for low-income economies when they have a large government or if they are open to international trade.

While the foregoing studies only considered the role of financial intermediaries, researchers (Rousseau and Wachtel 2000; Durham, 2002; Enisan and Olufisayo, 2009; Cooray, 2010) studied the role of stock markets on economic growth. Rousseau and Wachtel, 2000; Durham, 2002) focused on countries from all income groups but Cooray (2010) focused on developing countries. They found that a liquid stock market development promotes economic development. In contrast, Durham (2002) finds that a positive relationship between stock market development and growth holds only for high-income countries. Enisan and Olufisayo (2009) found the role of the stock market on financial development to vary from country to country even within Africa. Similarly, studies that considered both financial intermediaries and stock market development are not conclusive. For instance, researchers (Levine, Zervos 1998; Rajan and Zingales, 1998; Demirgüç-Kunt and Maksimovic, 2002; Levine, 2002; Beck and Levine, 2004; Masoud and Hardaker, 2012) found that both stock markets and financial intermediary development are important for economic growth. But Naceur and

Ghazouani (2007), who examined the finance-growth link in 11 Middle East and North African (MENA) economies, found no impact of either financial intermediary or market development on growth. They even reveal that the link between financial development and growth turns negative when controlling for stock market development.

Although many of the finance growth studies are based on large sets of cross-country data, there are some country case studies. Adu et al. (2013), who examined Ghanaian data over the period 1961–2010, found that financial development affects economic growth. They noted that the relationship between finance and growth is as good as the proxy selected. In their model, the finance growth nexus became positive only when they used financial development indicators such as private credit to GDP and private credit to total credit. The relationship turned negative when they used broad money (M3) as a proxy. On the other hand, Carp (2012), found no relationship between stock market development and growth based on Romanian data for 1995–2010, while Marques et al. (2013) found a bidirectional relationship between stock market development and growth in Portugal based on quarterly data from 1993–2011. For China, Allen et al. (2005) found no relationship between finance and growth, and justify this on the ground that credit allocation in the country is based on relationship and reputation rather standard mechanisms. This contrasts with the findings by Rousseau and Xiao (2007), who found that banks are important for Chinese economic development.

While most of the previous studies report a linear relationship between finance and growth, recent studies report non-linear relationship (see Law and Singh, 2014; Samargandi Fidrmuc and Ghosh, 2015). Law and Singh (2014) reported that finance can spur economic growth only up to a certain threshold, beyond which it impedes growth. This was confirmed by Samargandi Fidrmuc and Ghosh (2015) who reported that too much finance curtails economic growth in middle income economies. This in fact begs a legitimate question of how much finance is too much? An answer to this question has been provided by Ductor and Grechyna (2015) who reported that growth in private credit that exceeds growth in real output would be too much. Other recent studies recognized the importance of institutional quality in affecting the finance growth link. For instance, Law Azman-Saini and Ibrahim (2013) reported that a country needs to achieve a certain threshold level of institutional development for its financial development to spur economic growth.

In general, despite existence of a large body of theoretical and empirical literature, the theoretical prediction as well as empirical evidence is far from conclusive. Theories on the direction of causality are divided. The controversy is apparent in empirical literature too. While (King and Levine, 1993a; Atje and Jovanovic, 1993;Levine and Zervos, 1998; Rajan and Zingales, 1998; Demirgüç-Kunt and Maksimovic, 2002; Beck and Levine 2004; Herwartz and Walle, 2014; Demirgüç-Kunt et al., 2013) conclude that there is a significant effect of finance on growth, (Durham, 2002; Calderón and Liu, 2003) found that bidirectional causality emerges when the sample is split into developed and developing countries. Similarly, Rioja and Valev (2004) found that the finance growth link is uncertain for low-income regions, strongly positive in intermediate regions, and small in high-income regions. Therefore, as Kirkpatrick (2005:632) rightly puts it, "our understanding of the fundamental relationship between financial development and economic growth therefore remains incomplete". Many reasons can be presented as causes of the disagreement. Firstly, some of the disagreements are attributed to differences in the indicators of financial development used by different authors. For instance, Dawson (2008) and Adu et al. (2013) reveal that their findings vary by the financial development indicator used. Secondly, cross-country studies are believed to be plagued by the omitted variable bias, the simultaneity problem and the country-specific bias (Rajan and Zingales, 1998; Wachtel, 2003). Finally, as noted by Ericsson et al. (2001), averaging of long cross-sectional data over years, common in most cross-country studies, induces estimator bias.

3. Data and Methodology

Data: Data for financial development indicators for 15 emerging economies over the period 1997 to 2011 were obtained from Global Financial Development Database (GFDD) of the World Bank updated on April 2013. Data for economic growth indicators over the same period were obtained from World Development Indicators (WDI) of the World Bank. The author intentionally selected emerging economies following empirical findings that the finance-growth nexus varies across different income groups. Besides, unlike previous studies, original data rather than aggregated averages are used following the findings of Ericsson *et.*

al., (2001) that aggregated averages induces simultaneity bias, causing estimated coefficients to deviate significantly from underlying parameters.

The number of emerging economies selected mainly depended on data availability, and 15 emerging economies[1] were identified of which one from Africa six from Asia five from Latin America, and three from Europe. The countries in the sample had a strongly correlated per capita GDP among themselves. The author adopted financial development indicators used in Beck and Levine (2004), and added bond markets, which have been excluded from finance-growth link literature. Inclusion of the bond market is justified based on two grounds. Firstly, firms use bonds as an additional source of financing besides stocks and bank loans. Secondly, the bond market is growing in magnitude in many emerging economies. For instance, volume of bond markets in 2011, measured using outstanding private debt securities to GDP (%) was 58% in Malaysia, 23% in China, 21% in Brazil, and 18% in South Africa (World Bank,2013). Following the findings of Rousseau and Wachtel (2011) that crisis has a dampening effect on the finance growth link, banking sector crises dummy was used to control for financial crisis. The banking crisis dummy, detailed in periods, presented in Table 1.

Table 1: Banking crisis periods

Country	Crisis period
Argentina	2001-2003
Brazil	1997-1998
China	1998
Colombia	1998-2000
Czech Republic	1997-2000
Indonesia	1997-2001
Malaysia	1997-1999
Philippines	1997-2001
Thailand	1997-2000
Turkey	2000-2001

Source: Global Financial Indicators, World Bank

Financial development indicators were regressed on growth while controlling for banking crisis, initial per capita GDP, government size (general government consumption expenditure to GDP ratio), trade openness (sum of import and export to GDP ratio), secondary school enrolment rate, and inflation. Economic growth is measured using change in per capita GDP, and financial development indicators are measured using stock market turnover to GDP ratio (stock market development), private credit by deposit money banks and other financial institutions to GDP ratio (banking sector development), and outstanding private debt securities to GDP ratio (bond market development). Control variables used in the model are all log transformed. Moreover, a dummy variable for banking crisis was introduced. The following general panel model specification was used:

$$Y_{it} - Y_{i,t-1} = \beta_1 Y_{i,t-1} + \beta_2 F_{it} + \beta_3 X_{it} + \eta_i + \varepsilon_{it} \quad [1]$$

Where Y_{it} is the log of GDP per capita of each country and $Y_{i,t-1}$ is its lagged value, F_{it} is a matrix of financial development indicators, *i.e.*, bond market development, stock market development, and bank development, X_{it} is a matrix of control variables, and η is a country fixed effect. The above dynamic panel model is estimated using a system GMM[2], developed by Arellano and Bover (1995) and Blundell and Bond (1998). Arellano and Bond (1991) proposed a two-step GMM estimator with the following moment conditions

[1] Countries in the data set included Argentina, Brazil, China, Colombia, the Czech Republic, India, Indonesia, Malaysia, Mexico, Peru, the Philippines, Poland, South Africa, Thailand and Turkey.

[2] A system GMM, developed by Arellano and Bover (1995, Journal of Econometrics 68: 29–51) and Blundell and Bond (1998, Journal of Econometrics 87: 115–143) is an improvement on the Arellano and Bond (1991, Review of Economic Studies 58: 277–297) dynamic panel data estimator. Arellano and Bover (1995) and Blundell and Bond (1998) proved that difference GMM estimator suggested by Arellano and Bond (1991) results in weak instruments. They suggested that a system of equations that

$E[y_{i,t-s}(\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0$ for $s \geq 2$; t=3,.....,T, [2]

$E[X_{i,t-s}(\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0$ for $s \geq 2$; t=3,.....,T, [3]

$E[F_{i,t-s}(\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0$ for $s \geq 2$; t=3,.....,T, [4]

In the two steps GMM, the error terms are assumed independent and homoscedastic in the first step. Residuals obtained in the first step are then used in the second step to construct a consistent estimate of the variance covariance matrix. However, Arellano and Bover (1995) and Blundell and Bond (1998) noted that lagged levels of persistent explanatory variables are weak instruments for the equation in differences. They suggested a system that combines regression in differences with regression in levels, with the following additional moment conditions.

$E[y_{i,t-s} - y_{i,t-s-1}(\eta_i + \varepsilon_{i,t})] = 0$ for $s = 1$, [5]

$E[F_{i,t-s} - F_{i,t-s-1}(\eta_i + \varepsilon_{i,t})] = 0$ for $s = 1$ [6]

$E[X_{i,t-s} - X_{i,t-s-1}(\eta_i + \varepsilon_{i,t})] = 0$ for $s = 1$ [7]

Therefore, a system GMM that satisfies all the above moment conditions and that is also heteroscedasticity and autocorrelation consistent was used.

4. Findings

Summary statistics: The descriptive statistics in Table 2 show that variation in the dependent variable across nations is not significant, indicating that sample economies are at the same level of economic growth. However, the between-economies variation (0.337) is larger than variation within each economy across time (0.185). This was true for the rest of the variables as well except inflation, which had a within variation of 8.804 compared to cross-country variation of 7.39. A look at financial development indicators shows that with a coefficient of 41.474, cross-country variation is the highest in the banking sector followed by bond markets (11.725). A very wide range between the minimum and maximum value of stock market turnover ratio implies that countries are different in terms of extent of stock market liquidity.

Table 2: Descriptive statistics of variables in the dataset

Variable	Mean	Std. Dev Overall, between, within	Min	Max
Growth indicator				
Log of GDP per capita	3.5456	0.375 (0.337) (0.185)	2.629	4.337
Financial development indicators				
Bond market capitalisation	8.7847	12.019 (11.725) (3.946)	0.000	62.810
Bank credit	52.8009	41.683 (41.474) (11.176)	9.774	165.802
M2	63.812	37.71 (38.037) (8.1052)	22.89	180.779
Stock market turnover ratio	59.4840	53.829 (48.921) (25.571)	1.559	313.477
Standard control variables				
Initial per capita GDP	3.4164	0.351 (0.362) (0)	2.631	3.914
Government size	1.127766	0.128 (0.127) (0.036)	0.755	1.357
Trade openness	1.769105	0.254 (0.25) (0.077)	1.2	2.343
Inflation	7.359525	11.345 (7.39) (8.804)	-1.408	85.733
Secondary school enrolment rate	1.88175	0.082 (0.073) (0.042)	1.645	2.022

combines instruments in the differences equation and instruments in the levels equation results in a consistent and efficient estimates. Therefore, we employed a system GMM estimator on STATA 12 using *xtabond2* command developed by David Roodman (2009, How to do xtabond2: an introduction to difference and system GMM in Stata, *The Stata Journal*,9(1) pp 86-136).

Table 3 presents correlation among variable in the dataset. Initial GDP per capita is strongly correlated with log of GDP per capita. Among the main repressors, bond market has a significant positive correlation with the dependent variable while stock market turnover has a strong negative correlation. Bank credit does not have a statistically significant correlation with the dependent variable. Among the control variables, secondary school enrolment rate, government size and trade openness are significantly correlated with per capita GDP while inflation does not have a significant correlation.

Table 3: Correlation results among the study variables

	Logarithm of GDP per capita	Initial per capita GDP	Bond market capitalization	Bank credit	Stock market turnover ratio	Govt. size	Trade openness
Initial per capita GDP	0.8196***						
Bond market capitalization	0.2961***	0.2844***					
Bank credit	-0.013	-0.0563	0.5881***				
Stock market turnover ratio	-0.235***	-0.4243	-0.0944	0.143**			
Government size	0.4862***	0.4475***	0.0572	0.192***	-0.0222		
Trade openness	0.1638**	0.0923	0.4823***	0.486***	-0.089	0.1322**	
Inflation	-0.0761	0.0198	-0.2073***	-0.234***	0.314***	-0.1459**	-0.128*
Secondary school enrolment rate	0.6903***	0.547***	-0.1117*	-0.1135*	-0.374***	0.3829***	0.134**

***p<0.01 ***p<0.05 ***p<0.1

Table 4: System GMM results: Banking Crises not controlled

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Bond market capitalization	-0.011	-0.0147	-0.0192	-0.0197	-0.0174
Bank credit	-0.0254***	-0.0166**	-0.0214**	-0.0171**	-0.0018**
Stock market turnover ratio	0.0161	0.083	0.0054	0.0654	0.0156
Log of initial per capita GDP	0.0634*	0.0504	0.0413	0.0432	0.0718*
Secondary school enrolment rate	0.2547**	0.2119**			
Government size	0.0874**		0.1092		
Trade openness	-0.0378			-0.0133	
Inflation	-0.0127				-0.0138
Observations	210	210	210	210	210
Arellano-Bond test for AR(2) in differences(P-value)	0.9	0.95	0.854	0.831	0.923
Sargan test of overid. Restrictions(P-value)	0.224	0.373	0.395	0.416	0.258
F-stat(P-value)	0.0000	0.0000	0.0000	0.0000	0.0000

***p<0.01 ***p<0.05 ***p<0.1

Analysis and discussion: Five different models were implemented by introducing different combinations of the control variables. As evidenced by the p-value of the Arellano-Bond test for AR (2) in differences, all the models are free from autocorrelation problem. The models are also free from over-identification problem as implied from the p-values of Sargan test of over-identified restrictions. Each of the models represents a good predictive power with all the variables, as implied from a statistically significant F-stat (P<0.01). In the first model, where all control variables were introduced, bond market capitalization and stock market turnover

did not have statistically significant effect on growth. However, bank credit has a statistically significant negative effect on growth. This is consistent with the prediction of Bose and Cothren (1996) that output decreases when banks invest in sophisticated monitoring technology. This was also confirmed by empirical findings of Dawson (2008) and Naceur and Ghazouani (2007). In the second model, where secondary school enrolment was controlled together with initial per capita GDP, the result remains the same except that the coefficients of both bond market capitalization and stock market turnover have decreased, but that of bank credit has increased. The result remains the same in the remaining three models except a slight change in the size of the coefficients. Stock market turnover and bond market capitalization have no statistically significant relation with growth, and bank credit has a statistically significant negative relationship with growth. This remains true regardless of whether the financial development indicators are introduced into the model together or individually[i].

To check the effect of banking crises on the finance-growth link, a bank crises dummy variable was introduced. Table 5 reports system GMM results wherein banking crises is controlled. The coefficients for bond market capitalization and stock market turnover have a slight change but both have still a statistically insignificant relationship with growth. Similarly, a statistically significant negative relation of bank credit with growth remains the same, and its coefficient has slightly increased. In models from 2 to 4, bank credit has a more statistically significant relation with growth, where significance improves moving from 5% to 1%. This is consistent with the findings of Rousseau and Wachtel (2011) that banking crises weakens the finance-growth link. In general, while bank credit has a statistically negative relationship with growth, stock market turnover and bond market capitalisation do not have a relationship with growth. To check the robustness of alternative measures of intermediary development, M2 to GDP ratio was introduced into the model, and it was found that M2 has a positive coefficient though not statistically significant. Similarly, alternative measures of stock market development, namely, stock market capitalisation and stock market value traded, were introduced into the models in lieu of stock market turnover, but the result remained unchanged.

Table 5: System GMM results: Bank Crisis controlled

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Bond market capitalization	0.0193	-0.00742	-0.006605	0.004544	-0.00473
Bank credit	-0.0031***	-0.0025***	-0.0028***	-0.0023***	-0.0025***
Stock market turnover ratio	0.0151	0.0668	0.0428	0.0534	0.0124
Log of initial per capita GDP	-0.0777*	0.0616*	0.0535*	0.0625*	0.0787**
Banking Crises	-0.0543**	-0.0597**	-0.0576**	-0.0613**	-0.0555**
Secondary school enrolment rate	0.2285**	0.2024**			
Government size	0.0877**		0.093*		
Trade openness	0.01192			0.004	
Inflation	-0.0011				-0.0012
Observations	210	210	210	210	210
Arellano-Bond test for AR(2) in differences(P-value)	0.356	0.368	0.396	0.393	0.378
Sargan test of overid. Restrictions(P-value)	0.532	0.753	0.717	0.772	0.614
F-stat(P-value)	0.0000	0.0000	0.0000	0.0000	0.0000

***p<0.01 ***p<0.05 ***p<0.1

5. Conclusion

Due to methodological flaws and conceptual confusions, research on the finance- growth link is inconclusive at best. Existing studies are criticized for failure to avoid simultaneity problem. Concerns are also raised

about the validity of conclusions drawn from studies that lumped together countries at different levels of economic and financial development. Moreover, ignoring the effect of banking crisis on finance growth link is considered to have caused some invalid conclusions. This study was therefore set out to shed light on the finance-growth link using data from 15 emerging economies drawn from Africa, Asia, Latin America, and Europe over the period from 1997 to 2011. Unlike previous studies, this study considered bond markets in addition to banks and stock markets. Moreover, attempts were made to see the effect of banking crises on the finance-growth link, and to ameliorate simultaneity problem, a system GMM was used. Contrary to previous empirical findings, banking sector development was found to have a statistically significant negative effect on growth in emerging economies. However, the negative effect of banking sector on growth disappears when M2 to GDP ratio is used instead of private credit by deposit money banks to GDP ratio. On the other hand, bond markets and stock markets do not have a statistically significant effect on growth. This study further confirms Rousseau and Wachtel (2011) finding that crisis dampens the finance-growth link. Three important inferences could be made from the results of this study. First, the often reported positive link between finance and growth might be caused by aggregation of countries of different economic growth and financial development. Second, as reported by Dawson (2008) and Adu et al. (2013) the finance growth link depends on the measures of financial development used. Last but not least, all economic episodes such as crisis in the banking sector need to be taken into account in studying the relationship between financial development and economic growth.

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[1] Countries in the data set included Argentina, Brazil, China, Colombia, the Czech Republic, India, Indonesia, Malaysia, Mexico, Peru, the Philippines, Poland, South Africa, Thailand and Turkey.

[1] A system GMM, developed by Arellano and Bover (1995, Journal of Econometrics 68: 29–51) and Blundell and Bond (1998, Journal of Econometrics 87: 115–143) is an improvement on the Arellano and Bond (1991, Review of Economic Studies 58: 277–297) dynamic panel data estimator. Arellano and Bover (1995) and Blundell and Bond (1998) proved that difference GMM estimator suggested by Arellano and Bond (1991) results in weak instruments. They suggested that a system of equations that combines instruments in the differences equation and instruments in the levels equation results in a consistent and efficient estimates. Therefore, we employed a system GMM estimator on STATA 12 using *xtabond2* command developed by David Roodman (2009, How to do xtabond2: an introduction to difference and system GMM in Stata, *The Stata Journal*,9(1) pp 86-136).

[1] Models for individual financial indicators not showed but available on request.

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Scent in Mail: The Effect of Scented Direct Mailings

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Abstract: The purpose of the present study is to test the effect of scent on response time and sales in direct mailings. It is proposed that congruent scent influences response time and sales in direct mailings. A total of 1571 direct mailings were sent out.The hypotheses were tested through a Mann-Whitney U test and a Wilcoxon signed-rank test. The results show that scent influences response time to direct mailings but that it does not influence sales.Future research should perform exploratory studies to test the effect of scent with regard to various forms of direct marketing and offerings as well as in general product and service contexts. Managers may want to consider scenting direct mailings when a fast response is critical. The result provides empirical support for the idea that scent has an effect on response time in direct mailings.

Keywords: *Scent in mail, direct mailing, response time*

1. Introduction

Increasing competition inmany markets hasforced managers to find new ways to efficiently reach consumers (Morrison, Gan, Dubelaar, & Oppewal, 2011). One recent approach that companies have begun to use in order to tailor their offerings and their communication is sensory marketing (Spence, 2012). Sensory marketing is aimed at stimulatingthe consumer through the five senses: sight, hearing, touch, taste and smell (Lindstrom, 2005). Stimulation of consumers' senses can evoke feelings and memories, which in turninfluencesconsumer behavior(Hultén, Broweus, & Dijk, 2009). Certainly, many practitioners are aware that sensory marketing can have an effect on sales, product evaluations and customer satisfaction (Bellizzi, Crowley, & Hasty, 1983; Turley & Milliman, 2000) (cf. Davies, Kooijman, & Ward, 2003; Mattila & Wirtz, 2001; E. Spangenberg, Crowley, & Henderson, 1996). Researchers have manipulated sensory stimuli such as music, colors and various shop fittings (cf. Turley & Milliman, 2000). In comparison to such stimuli, *scent* can be closely associated to specific products (Parsons, 2009) (cf. Odeh & As'ad, 2014). The aroma offreshly baked breadin bakeries or butter popcorn at movie theaters is closely associated with products, and the scents are perceived by many consumers as natural elements of the environment (cf. Bone & Ellen, 1994; Verma, 2014). However, the effects of scent have often been over looked in research on sensory marketing (Bone & Jantrania, 1992; Gulas & Bloch, 1995; Hultén et al., 2009)(cf. Cirrincione, Estes, & Carù, 2014), and very much so in research on *direct mailings*.

Research on scent can at least be traced back to the early 1930's, when it was found (Laird, 1932) that a clear majority of subjects preferred socks scented with narcissus over of unscented socks. More than three decades later, a similar study (Cox, 1967), this time using the scent of oranges, found that almost 90 percent of the respondents preferred the orange-scented socks over the unscented duplicates, as the scented socks were perceived to be better quality (Cox, 1967). In more recent studies it has been found that, for example, ambient congruents cents can increase consumer brand recall (Morrin & Ratneshwar, 2000). However, one problem of the previous research is that it was almost entirely limited to products, brands or venues (Teller & Dennis, 2012). Research that extends beyond product-specific environments (bakeries, cinemas, flower shops, etc.) is relatively limited (Bone & Ellen, 1998; Orth & Bourrain, 2005). To get a broader picture, further research should be performed outside the mentioned settings (Teller & Dennis, 2012). Indeed, the need for more research on the effect of scent has been noted (Knasko, 1995; Morrin & Ratneshwar, 2000)(cf. Jacob, Stefan, & Gueguen, 2014; Spangenberg et al., 1996).One area thatremainsunexploredis directmailings.Direct mailings is a massive industry estimated to have generated, for example, 12 billion U.S. dollars in the U.S. and 2 billion GBP in the U.K.in 2014(Statista, 2014), and importantly, the design of direct mailings is considered to be critical to their success (Feld, Frenzen, Krafft, Peters, & Verhoef, 2013). Consequently, this study tests the effect ofscent onresponse time and sales in reply to direct mailings.

2. Theory and Hypotheses

Within basic marketing, direct mailing is described as a cost effective way for businesses to reach out to targeted markets. Direct mailingmay also be referred to as direct marketing, which includes several approaches ranging from email, web ads, and television commercials,newspaper ads and billboards(Kotler & Armstrong, 2013). Naturally, direct mail is often perceived as unrequested mail where the sender has the intent to sell or provide information about products and services(Chang & Morimoto, 2003)(cf. Kumar & Sharma, 2014); therefore, it also often is perceived as unwanted(Kotler & Armstrong, 2013). As a result, the effectiveness of direct mailings is not a given. Managers want to make direct marketing more effective(cf. Durango-Cohen, Torres, & Durango-Cohen, 2013; Feld et al., 2013; Greenfield, 2004; Lorenxi, Friedmaun, & Paolillo, 1988; Malthouse, 1999). However, while recommendations on how to make direct marketing more effective are abundant and sometimes contradictory, empirical evidence is limited. There is empirical evidence for the importance of the visual design of the envelope as a driver of opening frequency. But the opening of a direct mailing envelope is merely a must for a response to the mailing; it is not in itself causing the response rate (Feld et al., 2013). Indeed, to improve response rates managers are increasingly making use of integrated campaigns, combining direct marketing with other channels (cf. Cooper, 2010). Developments in the field of direct marketing and its various offshoots are moving towards more specialized, differentiated approaches(Cooper, 2010), and one fruitful avenue may involve sensory marketing and scent.

Smell has been considered to be one of the most enigmatic senses in humans(Hultén et al., 2009). Unlike sight, touch and hearing, the sense of smell (along with taste) is a chemical sense(e.g. Morrin & Ratneshwar, 2000). That is, the sensory receptor cells in the nose are activated by chemical molecules(e.g. Cain, 1988). Although human survival no longer depends on the sense of smell,it is still very important. Children learn early to use scent cues in their environment, including the pleasant scent of fresh food orthe unpleasant odors such as those of foul food(Goldstein, 2009). Studies on this fundamental level has found that in general, a pleasant fragrance produces approach behavior while an unpleasant odor leads to avoidance behavior(e.g. Levin & McBumey, 1986; Takagi, 1989).

However, scentcan influence more complex behavior and perceptions (Baron & Kalsher, 1998; Guéguen & Petr, 2006; Teller & Dennis, 2012;Ward, Davies, & Kooijman, 2007). For example,a studyby Diegoet al. (1998)revealed thatambientscents made respondentssolve mathematical problemsmore quickly. And BaronandKalsher(1998) found that a pleasant scentcan improvesome aspectsof performance with regard to driving a vehicle. Likewise,physical performancehas been shown toimprove withthe help ofscent; Raudenbushetal. (2001)showed that the scent ofpeppermintcouldincrease physicalperformance inathletes. In terms of consumer behavior, Spangenberget al.,(1996) testedwhetheran ambientscentin a store would affectconsumer perceptionof time and their number of purchases. The resultsshowed that with a scent present, consumers had a shorter perception of time, but there was nosignificant effect on sales. Orth & Bourrain (2005) found thatthe scent of lavenderhada positive effect onconsumerperception ofa brand,but thatrisk-taking,and again, saleswere not affectedsignificantly (cf. Herrmann, Zidansek, Sprott, & Spangenberg, 2013; Madzharov, Block, & Morrin, 2015; Suha, Moonb, Han, & Ham, 2014). Additional research has shown that mood can be influenced by means of scent (Diego et al., 1998). Studies by Roberts & Williams (1992) and Warm et al. (1991) revealed that respondents' mood was positively affected by subjecting them to different scents such as vanilla, chamomile and peppermint. Lorig& Schwartz (1988) found that subjecting respondents to the scent of eucalyptus, lavender and apple increased their brain activity, decreased stress levels and ultimately had a relaxing effect. Such findings contribute to a relatively uniform perception that fragrances can have an effect on people's mood and well-being (Ehrlichman & Bastone, 1992; Hultén et al., 2009; Lorig & Schwartz, 1988).

The underlying theoretical rationale in many studies is basedon the belief thatscenthasa hedonisticeffect on humans. The rationale of the hedonisticeffectimpliesthat humans aim mainly for pleasure (Morrin & Ratneshwar, 2000). Humans primarily perceive scent in terms of comfort and enjoyment, which may be related to the fact that the areaof the brainthat interprets scent(the hypothalamus) alsois the center ofour emotions (Ehrlichman & Halpern, 1988)(cf. Bone & Jantrania, 1992). Through emotions, different behaviors can be activated andencouraged (Mitchell, Kahn, & Knasko, 1995). This line of thinking draws on the SOR(stimulus, organism, response) model(cf. Mehrabian & Russell, 1974), and likewise, much of therecent

research onscent and itsimpactis based on theSORmodel (Chebat & Michon, 2003; Donovan & Rossiter, 1994; Orth & Bourrain, 2005; Spangenberg, Sprott, Grohmann, & Tracy, 2006)(cf. Goi, Kalidas, & Zeeshan, 2014).

The SOR(stimulus, organism, response) model emerged in the 1960s against the background of findings in the social sciences, especially in psychology (Jacoby, 2002)(cf. H. Ehrlichman & Halpern, 1988). The model implies that environmental stimulus (S) causes emotional reactions in the organism (O) and thus influences the organisms' behavioral response (R)(e.g. Mehrabian & Russell, 1974). This logic is certainly in line with general behaviorism (cf. Skinner, 1974). However, the approach reflects ideas of hedonism and enjoyment as a major motive(H. Ehrlichman & Halpern, 1988)(cf. Goi et al., 2014). Specifically, the concept of stimulus-organism-response (SOR) has been deployed as a basis for explaining how pleasant fragrances and their effect can taint consumers' perceptions of products or services(Diego et al., 1998). According to the SORmodel pleasantfragrancesshould have a positive impactwhilstunpleasant odorsshould have anegative effect (Ehrlichman & Bastone, 1992). Over the years, the model has received backingfrom a variety ofresearch results(Chebat & Michon, 2003; Orth & Bourrain, 2005; Spangenberg et al., 2006; Turley & Milliman, 2000). For example, Chebat & Michon(2003) studied consumer behaviorin shopping centersand found thatpleasantscentsof peppermint, flowers, sandalwoodand citrushad apositive impact onhow consumersperceivedstore environmentand service. Likewise, the research of Orth & Bourrain(2005)showed that the scent of lavender had apositive effect onconsumers' perceptionof brands.

Spangenberg et al. (2006)deployed the SORmodelas a basis for testing the effect of scent on variables such as perceived time spent in the environment, sales (number of items purchased as well as money spent).The results showedthat there was a positiveimpact onboth perceived time spent in the environment and sales (both on number of items purchased as well as money spent)(ESpangenberg et al., 2006). The results with regard to perceived time spent in the environment can be related to the research of Lipman(1990), who provides evidence for how pleasantscents may increase the timecustomersstayin a venue.Spragenberg(1996)relates the effect on perceived time to how consumers receiveanenhanced experiencewhen they visita storewith an ambientscent, which in turn contributes to their perception of time. Comparable effects on time, or on the perception of time,have been shown inother contexts, ranging fromin chessgames(Francis, 1987)to working hours(Lefevre, 1988).Likewise, a studydonebyHirschand Gay(1991) showed thatthetime spentin ascentedcasino was longer (compared to unscented), which in turnled toincreasedrevenue(cf. Knasko, 1995; Leenders, Smidts, & Langeveld, 1999; Nixdorf, Teerling, & Köster, 1992). In general, it may be that the effects of scent with regard time have to do with information processing. A study (Mitchell et al., 1995)showed that scent can affectconsumerinformation processing; added scent resulted in increasedtime spentprocessing when evaluatinga product, which in turn contributed toimproving the evaluation ofthe product.

When it comes to the relationship between scent and sales,it has been argued that hedonisticrelevance isrelatively weak(Turley & Milliman, 2000). The majority ofthe research in the field deployseitherthe SORmodelorcongruenceas a theoreticalstarting point(Morrison et al., 2011). Thus, as an alternative tothe SORmodel (and hedonistic relevance),several scholars deploy congruenceas a starting point for their reasoning(cf. Bone & Ellen, 1998; Bone & Jantrania, 1992; Mattila & Wirtz, 2001; Mitchell et al., 1995). Acongruentscentis consistent with theconsumer's perception ofwhat, for example, a productshouldsmell like (Parsons, 2009). A fragrancethat is not consistent is referred to as incongruent(Bone & Jantrania, 1992).Research that deployscongruence as a starting pointmeasures the effect of the scentin relation toits various contexts (cf. Teller & Dennis, 2012). Such approaches are often based on the congruence or incongruence of scent in relation toa particular product orservice.Ascent thatdoes not matchits context (e.g. a particular product)is referred toasincongruent.It is generally implied that a congruentscent hasa positive impact oncustomers' purchasing behavior and product evaluation(Parsons, 2009; Spangenberg et al., 2006).

Studiesbased congruence or contextualcriteria include Bone & Jantrania (1992)on perception; Davieset al. (2003) on recognitionand reinforcement of experiences; Schiffer Stein & Blok (2002) on purchasing behavior and product evaluation. These studies demonstrated that products with congruent scents can attain more positive evaluations. Specifically, sun screen lotions and detergents with a congruent fragrance (coconut and lemon respectively)were deemed more favorableby consumersin comparison to incongruentcombinations(Bone & Jantrania, 1992). Several studies(e.g. Hultén, 2012; Morrison et al., 2011;

Spangenberg et al., 2006) have deployed the scent of vanilla as an independent variable. It appears that vanilla can have a similar effect onboth men and women; it is congruent in several contexts andgenerally perceived aspleasant (Hultén, 2012; Spangenberg et al., 2006). Indeed, vanilla has been found to haveaslightly positive impact onconsumers'purchasing behavior(Morrison et al., 2011). Comparable results have been achieved with lavender scent (Guéguen & Petr, 2006). Researchhas shownthat acongruentscent can cause consumers toremain longerina store(Schifferstein & Blok, 2002). As mentioned, it is implied that consumersevaluate contexts (and products)more positivelywhena matching scent is present. In an opposite manner,anincongruentfragrancethat does not fitthe contextcauses confusion(Parsons, 2009; Spangenberg et al., 2006). However, it has been argued that in comparison to no fragrances at all, in congruent scents still can have a positive impact on consumer behavior(Parsons, 2009).That is, it is important to consider that evenincongruentscentshelpus to recognizeand reinforceexperiences in retail environments,which in turn can be utilizedtoinfluence consumer behavior(Davies et al., 2003).

From the preceding discussionit is clear that scent can influence the amount of time consumersperceive they spend or the amount they actually spend in a setting (cf. Francis, 1987; Lefevre, 1988; Lipman, 1990; Spangenberg et al., 2006)and the effect may be understood in terms of an enhanced experience (Spragenberg, 1996). In addition, increased time spent has been associated with increasedrevenue (Hirsch & Gay, 1991)(cf. Knasko, 1995; Leenders et al., 1999; Nixdorf et al., 1992). These effects of scent with regard to time may have to do with information processing. That is, added scent results in increasedtime spentprocessing when evaluatinga product, which in turn improves consumers' evaluation ofthe product(Mitchell et al., 1995). Therefore, in regard to the relationship between scent and reply time to direct mailings we propose:
H1.Congruent scent has an effect onresponse time in reply to direct mailings.

Moreover, it is clear that scent can influence consumers' moods(e.g. Diego et al., 1998; Roberts & Williams, 1992; Warm et al., 1991),their brain activity and stress levels(e.g. Lorig & Roberts, 1990; Lorig & Schwartz, 1988)(cf. Ehrlichman & Bastone, 1992; Hultén et al., 2009), and various forms ofproduct evaluationsas well as purchasing behavior(Bone & Jantrania, 1992; Parsons, 2009; Spangenberg et al., 2006). Because the intent of direct mailings is to sell or provide information about products and services, we propose:
H2.Congruent scent has an effect onsales in reply to direct mailings.

3. Methodology

Selection: To compare the response time and sales in reply to unscented direct mailings to the response time and salesin reply to scented direct mailings, a total of1571 direct mailings were sent out to randomly selectedstart-up companies (they were allregistered at theCompanies Registration Officein April2014). Randomizationresulted in two samplesof n=793forthe experimental groupand n =778for the control group (the uneven numbers resulted from external falloff as a result of invalid orincorrect addresses revealed after the randomization process).

Measures

Scent: Two focus groups consisting of seven and eight participants respectively (five women and two men aged from 28 to 53 and three women and five men aged 20 to55) were deployed to identify and selecta scent thatwas consideredthe mostcongruenttothe setting, i.e. to the directmailings. The selection ofthe fragrances evaluated in the focus groups were all well-anchoredinpreviousresearch: vanilla,citrus, lavender, peppermint and eucalyptus (cf. e.g. Bone & Jantrania, 1992; Cain, 1988; Morrin & Ratneshwar, 2000; Morrison et al., 2011; Raudenbush et al., 2001). The scents were sponsored by a company specializing in exposure andscentingof different environments.The groups were introduced to the purpose of the sessions as well as to the format of the direct mailings. The participants received paper sticks upon which the scents had been applied. The discussion then concerned the contextswith which the scents were congruent as well as which scent, if any, fit with the direct mailings. Both vanilla and peppermint was deemed suitable. Therespondents associated vanilla scentwithpeace andcredibility whilepeppermintrepresented energyand spontaneity.In the end, peppermint was chosen as it was consideredthe mostcongruentwith the direct mailings. Next a procedure for scenting the direct mailings was developed. Specifically, the directmailingswere authentic ditto consisting of twopagesand apostage-paidreply form(all in a single envelope), withinformation about the companyand their

offer (the offer concerned website development and hosting).A pretest was performed by sending scented mailings through the mail to make sure that they were scented upon arrival. The results were deemed appropriate.

Response time and sales: Response time and sales were recorded for the experimentalandcontrol groups respectively.Sales could be made in two ways. One option was to submitthe postage-paidreply formthat camewith the mailing.The other option was to go through thecompany websiteonline wherethe sameresponse optionswere available. The date of each purchase was noted to establish the response time. A purchasewas recordedwhen ananswer sheetwas received or when an approvedregistration was madethrough the website.

Procedure: The directmailings weresent out and replies were tracked for 14 days (no replies were received after 14 days). The mailings were visually identicalexcept for thepersonalizednames and addresses. Directmailingsforthe experimental group were scented: Each mailing was sprayedon the frontand on the backleaving a distinctpeppermintscent. Each envelope in the experiment group was sprayedon the inside. Next, the mailings were put in the envelopes and the envelopes were sealed.

4. Results

H1-Response time: The1571 direct mailings generated a total of 43 sales during the 14 days sales were recorded; 20 sales in the experiment group and 23 sales in the control group, hence each day represented a measure. The normality of the distribution was assessed through probability plots, kurtosis and skewness. The z coefficients for both the kurtosis and the skewness were within +/- 2,58 (Table 1). However, the sig. values of the Kolmogorov-Smirnov and the Shapiro-Wilk tests were below 0,05 (Table 2), signifying that the distribution was non-normal (e.g. Hair, Black, Babin, Anderson, & Tatham, 2006), and therefore A Mann-Whitney U test was used to test the hypothesis(cf. e.g. Pagano, 1994).

Table 1: Descriptive

		Statistics	Std. Erorr	Z-score
Scent	Skewness	1,450	,597	1.450 / ,597 = 2.428
	Kurtosis	2,163	1,154	2,163 / 1,154 = 1.874
No Scent	Skewness	,997	,597	,997 / ,597 = 1.67
	Kurtosis	2,026	1,154	2,026 / 1,154 = 1.755

Table 2: Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
Scent	Statistic	df	Sig.	Statistic	df	Sig.
	,335	14	,000	,810	14	,007
No cent	,252	14	,016	,868	14	,040

The Mann-Whitney U testshowed that scent did elicit a statistically significant effect onresponse time in reply to direct mailings(Z = -1,972;p = 0,049) (Two tailed). *The results reject H0. (See Table 3 and 4)*

Table 3: Mann–Whitney U

	Group	Mean Rank
Resp.	Scent	17,98
days	No Scent	25,50

Table 4: Test Statistics

Mann-Whitney U	149,5
Wilcoxon W	359,5
Z	-1,972
Asymp. Sig. (2-tailed)	0,049

H2-Sales: Because the dependent variable was measured at the interval level and the independent variable consisted of two matching pairs, and the distribution of the differences between the two groups was deemed adequately symmetrical, a Wilcoxon signed-rank test was deployed to test the hypothesis(cf. e.g. Pagano, 1994). See Tables 5 and 6. The Wilcoxon signed-rank test showed that scent did not elicit a statistically significant effect on salesin reply to direct mailings (**Z** = -,406; **p** = 0,685) (Two tailed). *The results reject H1*

Table 5: Wilcoxon signed-rank test

	N	Mean Rank	Sumof Ranks
Negative Ranks	5[a]	6,80	34,00
Positive Ranks	7[b]	6,29	44,00
Ties	2[c]		
Total	14		

a.*No_Scent< Scent;* ***b.****No_Scent> Scent;* ***c.****No_Scent = Scent*

Table 6: Test Statistics

		No Scent - Scent
Resp. days	Z	-,406
	Asymp. Sig. (2-tailed)	,685

5. Conclusion

The results show that adding scentto the direct mailings had an effect on the response time in reply to the direct mailings.Specifically, the response time was shorter when a scent deemed congruent with the direct mailing by focus groups was added. The results show that adding scentto the direct mailings had no effect on sales in reply to the direct mailings. Specifically, both in absolute numbers (20 sales in the experiment group and 23 sales in the control group) and sales ranked with each day as a measure, more sales were found in the control group. However, the difference was not statistically significant.

Discussion: The fact that scent had asignificant effect onthe response timeunderlines the general conception that scent is related to time. One obvious explanation for the relationship draws on the SOR model and that scent enhance the experience(cf. E. Spangenberg et al., 1996), which in turn influences the time spent with the direct mailing(cf. Francis, 1987; Lefevre, 1988; Lipman, 1990; E. R. Spangenberg et al., 2006). That is, the respondents may spend more time in front of the direct mailing at the moment when it is received and thus decide faster. As a consequence, and in practical terms, managers may want to consider scenting direct mailings when a fast response from the target market is critical (as a response or intervention tothe actions of competitors).However, this explanation struggles when the model is extended to suggest that increasedtime spentprocessing when evaluatinga product in turn improvesthe consumer evaluation ofthe offering(cf. Mitchell et al., 1995), at least in the sense that improved consumer evaluation of the offering implies, in the end, increased sales. Added scent had no effect on sales. According tothe SORmodel, a pleasant scentshould have a positive impact, and indeed,Chebat&Michon(2003)found that peppermint is considered to be a pleasant scent. Thus, as the result show that scent had nosignificant effect onsales, it limits the applicability of SORmodel with regard to sales. This result is in line with several earlier studies which found no effect of scent on sales (e.g. Mitchell et al., 1995; Orth & Bourrain, 2005;E. Spangenberg et al., 1996).

Another interpretation of the observed relationship between scent and response time draws on congruence. One the one hand, congruence should contribute to an enhanced experience, in turn leading to the increased time spent with the direct mailing and the associated improved evaluation. On the other hand, congruence by itself (regardless of the time spent) should improve consumer evaluation (again the resultsdo not show evidence for this in terms of increased sales)(cf. Parsons, 2009; E. R. Spangenberg et al., 2006). Thus, both in terms of the SOR model and in terms of congruence, the results problematizeany association between increased time spent and increasedrevenue(cf. Hirsch & Gay, 1991; Knasko, 1995; Leenders et al., 1999;Nixdorf et al., 1992). Previous researchbyRaudenbushet al.(2001)and Baron&Kalsher(1998) showed thatpepperminthad anactivating effectand thatthe scentincreasedrisk taking. Hence an alternative explanation for the faster response time is that certain scents can elicit specific responses in consumers and that the chain of causality has little to do with the SOR model or congruence.

As mentioned, Spangenberg et al.(2006)found a positive impact of scent on both perceived time spent in the environment and sales (both on number of items purchased as well as money spent).However, it appears that a critical difference between Spengenberg and earlier studies is that the former deployed gender congruent scents rather than merely ambient scent(cf. Spangenberg et al., 2006).Thus, to make the results conform to the notion of congruence, it may be argued that the added scent in the present study wasnot congruent enough. That is, it may be that the scent was congruent enough to enhance the experience sufficiently to cause the potential buyers who would buy the product anyway decide or act faster. But the scent was not congruent enough to elicit additional sales. While deemed congruent by the focus group, peppermint may not be congruent enough with the direct mailings to influence sales. Consequently, an apparent limiting factor includes the potential for establishing scents strongly congruent with an offering, which in turn is decided by the characteristics of the offering, unless congruence is sought with the recipient. Congruence with the recipient could, for example, entail a male or female scent for a male respective female target market.

Theresults obtainedand the discussion above suggests severalfruitful avenues for further research.The possibility that certain scents can elicit specific responses in consumers and that the chain of causality may have little to do with the SOR model or congruence warrants more explorative studies on the effect of scents (including degrees of unpleasant scents) on direct mailings, regardless of the scents are deemed congruent or pleasant. In terms of congruence, more research is needed into what types of offerings or direct mailings allow the establishment of clearly congruent scents. Issues such as what scents are congruent with, for example, a book, a magazine, a music CD, a computer game CD, or with various consumer electronics, may depend on the media, the medium, and the target audience(this study did not take demographics into account). Various degrees of congruence with classes of offerings or with explicit contexts may be established. A related factor to consider is the level of involvement associated with the product or service being offered. An offering which is expensive and visible to others (e.g. cars, jewelry etc.) is generally a high involvement purchase. Cheap and non-visible offerings, such as for instance toothpaste and sugar, are generally low involvement purchases. It is implied that the higher the involvement, the more rational information processing is done by consumers before making a purchase(e.g. Bolfing, 1988; Celsi & Olson, 1988; Kapferer & Laurent, 1985; Sarathy & Patro, 2013), which could have had an impact on the effect of scent. In the present study, website development and hosting can be considered to be a relatively high involvement purchase decision, promoting more rational information processing in turn possibly limiting the effect of scent. Thus fruitful avenues for further research include taking into account the offering or purchase situation in terms of involvement, as well as congruence, and pleasantness or unpleasantness of the scent. Moreover, assessing differences with regard to factors such as gender, age orother nominalaspects in relation to response time is likely both to help elucidate the relationships and have practical value for the direct marketing industry.

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Brand Positioning for Sub-Saharan Africa's Rural Tourism Development

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Abstract: Well-conceived and effectively managed rural tourism brand in sub-Saharan Africa (SSA) can help build favourable reputation which enhances the confidence of tourists. The purpose of this paper is to formulate brand essence (functional and emotional benefits derivable from a brand) and brand position statement, for SSA's rural tourism development. This study conducted descriptive analysis of brand essence for SSA's rural tourism development. It is exploratory, rather than conclusive in nature. Functional benefits of SSA's rural tourism include her diverse natural and cultural attributes, friendliness of population, climatic conditions, and unique rural landscape. Her emotional benefits include the 'feel-good' factor when tourists are offered the 'rural idyll' experience not found in any other continent or sub-continent, or buy local foods and souvenirs. This positive feeling of visiting SSA's rural areas adds richness and depth to the tourists' experience of being involved with her brand. The knowledge of rural tourism brand essence can help SSA's local communities, local governments and national governments to communicate not just the functional values, but also the emotional values of visiting rural areas to tourists. This will lead to particular relationships between local communities and stakeholders to enact these emotional values or rewards. SSA's rural tourism brand positioning statement could read: *"To tourists seeking nostalgic experiences, novelty and escape, rural SSA offers authentic rural landscape, 'rural idyll' experience, and amazing friendly populations"*.

Keywords: *Brand essence, brand positioning, rural tourism, tourism development, sub-Saharan Africa*

1. Introduction

Rural tourism is an international subject. Researchers all over the world (such as Dong, Wang, Morais & Brooks, 2013; Ezeuduji, 2015; Hernández-Maestro & González-Benito, 2013; Fleischer & Felsenstein, 2000; Fleischer & Pizam, 1997; Sharpley, 2002; Wilson, Fesenmaier, Fesenmaier & Van Es, 2001) have documented evidences from different countries that rural tourism is a suitable form of socio-economic development in rural areas and requires collaboration of stakeholders for success. Fleischer and Pizam (1997), in Israel, claimed that rural tourism is in many but not in all aspects, similar throughout the world, as it is generally seen as an alternative means of income. However, Dong et al. (2013), in USA, posited that rural tourism is different in various cultural contexts, due to tourists' broad travel preferences (from outdoor activities to shopping and dining in restaurants). Sharpley (2002), in Cyprus, stated that rural tourism is essential in peripheral rural areas where traditional agrarian industries have declined. Fleischer and Felsenstein (2000), in Israel, and Hernández-Maestro and González-Benito (2013), in Spain, posited that public assistance for rural tourism is able to generate considerable returns. Wilson et al. (2001), in USA, concluded that rural tourism development and entrepreneurship cannot function in the absence of participation and collaboration of businesspersons who are directly or indirectly involved in tourism.

Many studies on rural tourism in sub-Saharan Africa (SSA) have enquired the implications of tourism development on local communities and challenges of development, analysis of the internal and external environment of rural tourism development, factors that are critical for successful community-based tourism, market segmentation of rural tourists, and competitive strategies with which SSA can compete in the global tourism marketplace (such as Akama & Kieti, 2007; Ezeuduji, 2015; Ezeuduji & Rid, 2011; Kibicho, 2008; Manyara & Jones, 2007; Musasa & Mago, 2014; Rid, Ezeuduji & Proebstl, 2014; Sotiriadis & Nduna, 2014).These studies also reached the conclusion that rural tourism has been embraced as a viable form of socio-economic development in rural areas, and also require collaboration of rural tourism stakeholders and capability-building for success. This study however will enquire into SSA's rural tourism brand essence and possible brand position statement which could be incorporated into its integrated marketing communications, as none was available at the time this study was conducted. A clear outline of functional and emotional benefits derivable from visiting SSA's rural areas by tourists will help form basis for focused and consistent integrated marketing communications with tourists and publics.

Integrated marketing communications are defined by Shultz and Kitchen (2000: 65) as "a strategic business process used to plan, develop, execute and evaluate coordinated measurable, persuasive brand communication programmes over time with consumers, customers, prospects, and other targeted, relevant external and internal audiences". The subject matter of the marketing communication is brands, and the intention is persuasion and sometimes reinforcing behaviour. As brands are the organization's repository of core meanings and values, it provides coherence and consistency in how and what the organization communicates (O'Sullivan, 2010). SSA's rural tourism may therefore position its integrated marketing communications, as forces to reinforce behaviour (as in advertising), or as a way of achieving mutual understanding between SSA and her publics (as in public relations) in order to justify and preserve its asset of reputation. This study conducted descriptive analysis of brand essence for SSA's rural tourism development. It is exploratory, rather than conclusive, with concepts that are generality in nature, giving rise to study limitations, but can serve as a guide for future conclusive studies. SSA is chosen for this study as Rogerson (2006) and Spencely (2008) have highlighted the importance of maximising tourism projects and their local development impact in Africa, and Rogerson and Rogerson (2010) called for further research to explore the understanding of local economic development policy and applied practices (rural tourism, for example) across SSA. Rural tourism brand essence formulation will support focused and consistent integrated rural tourism marketing communications in SSA.Rural tourism involves tourists' visits to a rural area to experience the rural landscapes and participate in a rural way of life (Ezeuduji, 2014). African rural tourism comprising visits by tourists to rural Africa to experience the culture and natural environment of the local populations is considered one of the strategies within the management portfolio of sustainable rural development (Ezeuduji & Rid, 2011).

2. Key Assets for Tourism in Sub-Saharan Africa – an Overview

Africa, especially sub-Saharan Africa (SSA), in comparison to other continents is peculiar for the great diversity of her environment Sub-Saharan Africa (SSA). Her people are very diverse, even within a particular country, and this diversity offers a rich mixture of vibrant cultures. Her scenery, sunshine, vegetation, wildlife, hot deserts, mountains, lakes, and beaches create a high diversity in her environment, which cannot be replaced by any other part of the world (Ankomah & Crompton, 1990; Filani, 1975).The varied ecology of SSA as a sub-region has endowed her rural places with much concentrations of wildlife. SSA designates all African countries, excluding northern Africa, found fully or partially situated south of the Sahara, including Sudan and South Sudan (United Nations Statistics Division, 2011).SSA also includes the African island states that are offshore of the eastern and western coasts, namely, the Indian and Atlantic Oceans (Dieke, 2013).People and attractions drive tourism and these attractions represent how unique and diversified the cultures and geographical features are. For SSA, the cultures and geographical resources combine to provide her with significant tourism development opportunities (Ankomah & Crompton, 1990). Countries found in SSA include Uganda, Rwanda, Kenya, situated in the East of Africa; Nigeria, Ghana and The Gambia, situated in the West of Africa; and South Africa, Namibia, Zambia, and Botswana, in the Southern Africa.

Tourists' Motivationsto Visit Rural SSA and Environmental Implications: Rural SSA is endowed with unique natural and cultural attributes with which it can create and position itself favorably in the rural tourism marketplace. These natural attributes include forest types and diverse savannah, wildlife species, and rural landscape. The cultural attributes include the local music, traditional dances, rural way of life with myths and legends, local festivals, traditional rites and local handicrafts. It is therefore common knowledge that mostly Europeans and North Americans perceive rural SSA as having the 'rural idyll' symbols and these stand in huge contrast to their countries of origin (Ezeuduji, 2015). There is dearth of literature on the motivational dimensions of tourists visiting rural SSA. However, Table 1 shows the documented motivational dimensions of rural tourists to SSA. Therefore, some evidence exists that tourists visiting SSA are seeking 'rural idyll' experiences. Ezeuduji (2015), in his analysis of key success factors for rural tourism development in SSA posited tourists' demand to be seeking for 'rural idyll' symbols which are authentic rural lifestyle and rural experience, differentiated and diverse natural and cultural heritage. He further stated that the major dimensions of rural tourism market competition are authenticity of experience, quality of offerings, and marketing communications. Analysis done by Ezeuduji (2015) further suggested that superior competitive position in the global rural tourism marketplace can be achieved through clear value position, operational excellence, and strong customer relations. He further recommended that SSA could have a unique selling

proposition within the international tourism industry by offering unique experience setting schemes through events, planned and organized in rural areas highlighting rural image and cultural attributes within natural space.

Table 1: Motivational dimensions of tourists visiting rural SSA

Motivational variables	Broad category/ Dimensions	Authors and place of study
a. learn about endangered species, learn about animals, learn about plants, for educational reasons	Knowledge seeking	Kruger and Saayman (2010): travel motivations of local tourists to Kruger and Tsitsikamma National Parks in South Africa
b. to attend conferences, to attend events, hiking	Activities	
c. accommodation and facilities, brand of parks, climate of location, hiking trails	Park attributes	
d. family recreation, grew up in park	Nostalgia	
e. explore new destinations, socializing with friends	Novelty	
f. to experience wildlife, experience different species, learn about nature, appreciation of endangered species	Nature experience	
g. photograph animals, photograph plants	Photography	
h. routine vacation, relaxation, get away	Escape and relaxation	
i. natural areas, history, traditions and culture, rural landscape	Heritage and nature	Rid et al. (2014): motivational dimensions of foreign visitors for rural tourism activities in The Gambia, West Africa
j. stay among locals, strong feelings of experience, local food, rural way of life	Authentic rural experience	
k. local languages, traditional dances, myths and legends, local handicrafts	Learning	
l. Sun, sand and sea	Sun-beach experience	

Butler and Hall (1998: 117) suggest four main characteristics of rural imaging processes, namely: (a) the development of a critical mass of facilities and visitor attractions; (b) the hosting of events and festivals; (c) the development of rural tourism strategies and policies which are often associated with new and renewed regional tourism organizations and the related development of regional marketing and promotion campaigns; and (d) the development of leisure and cultural services and projects that support regional marketing and tourism efforts. Hence, rural tourism strategy that focuses on hosting of events and festivals (with associated regional marketing and promotion campaigns) and reflect cultural attributes of a region can become a way of showcasing local community life and its integration with the landscape (forming the critical mass of facilities and visitor attractions). This is often an important part of the rural tourism marketing image and branding of the rural tourism products and services (Roberts & Hall, 2001). It can be done without compromising or damaging the way of life around which the local attraction is derived (Edwards, Fernandes, Fox, & Vaughan, 2000). Events are globally considered important motivator of tourism, essential in the development and marketing plans of most nations or destinations, and becoming increasingly critical for destination competitiveness. The emergence and growth of event tourism sector in the tourism industry has been described as spectacular (Getz, 2008). Tourists do constitute a potential market for planned events and the tourism industry is a definitive stakeholder in their success and attractiveness. However, not all events are tourism oriented and some may fear the potential negative impacts associated with adopting marketing orientation to planning and hosting events. It is nonetheless noted that events (including tourism oriented ones) play roles of fostering national identities, cultural development, community-building, and villageorurban renewal (Getz, 2008). A successful event planning in rural sub-Saharan Africa will need marketing knowledge of the motivational dimensions of visitors, as outlined earlier in this section.

Rural tourism development in developing nations might raise environmental concern. Roberts and Hall (2001) posited that in order to achieve a sustainable tourism growth, regions that are marketing themselves as tourist destinations are advised to monitor how the regional environmental quality may be put at risk by planned processes of tourism development. Strategic environmental assessment (SEA) and Environmental impact assessment (EIA) procedures were put together by the Economic Commission for Africa (ECA) to maintain the desired environmental standards (ECA, 2005). In SSA, all tourism development processes should go through the EIA process. Monitoring and keeping environmental objectives in the long run, however, is quite a challenging task for any developing country, especially in SSA. Spenceley and Meyer (2012) reviewed a research on tourism development assessment of impacts and concluded that one of the major trends is the need to develop new techniques and resources for monitoring and evaluating tourism impacts (Spenceley & Meyer, 2012). Therefore, ensuring sufficient resources and monitoring of environmental standards for rural tourism development as prescribed by EIA in the earlier stages of tourism development will require stakeholders' cooperation based on four pillars: (a) monitoring and evaluation by governmental bodies, e.g. by the National Environmental Agencies in SSA, (2) the programmatic work of not-for-profit organizations in rural areas of SSA, (3) the local communities, e.g. planning and implementing community-based natural resource management (CBNRM), and (4) tour operators' and investors' commitment and thoughtfully negotiated environmental agreement (see Simpson, 2008).

It is vital to note that rural tourism schemes are quite heavily dependent on healthy environmental conditions and local communities. Therefore local communities, with the support of the other rural tourism stakeholders (national governments, not-for-profit organizations, tourism organizations, etc.) will have to decide the limits of acceptable change and the visitor carrying capacity regarding their specific natural environment (Ezeuduji & Rid, 2011). Heeding to this call will help in establishing and fulfilling sustainable and healthy social environment and the requirements of ecotourism products outlined by Wright (1994: 40). One of the examples of successful ecotourism projects in sub-Saharan African region is the Southern African Bird Atlas project (SABAP), Africa's biggest public participation biodiversity database which covers six southern African countries (Botswana, Lesotho, Namibia, South Africa, Swaziland and Zimbabwe) where positive influences were reported on scientific endeavour (in terms of research output) and societal awareness of scientific issues through public participation in research (Harrison, Underhill, & Barnard, 2008).Another example can be found in the sacred Kaya Kinondo forest Ecotourism project of the Digo sub-group of the Mijikenda people situated by the south Kenya coast (East Africa), a biological and cultural significant site, where income (with the locals' high involvement) from the project have provided a huge support to a wide range of community projects, and the project does not transgress local community's cultural rights (Nyamweru & Kameru, 2008). It is noted by Roberts and Hall (2001) that regions marketing themselves as tourist destinations should be able to have a clear understanding of the ecological limits or acceptable range of change from tourism, and also should be able to monitor how the regional environmental quality can be placed at risk by new tourism development. SSA nations have National Environment Agencies charged with environmental impact assessment. These agencies can support local communities willing to be involved in rural tourism to maintain the desired environmental standards (Ezeuduji & Rid, 2011).

However, a study in South Africa (Briedenhann & Wickens, 2004) indicated the challenges to be overcome if rural tourism sector is to achieve its goals. These include a lack of financial capital and capacity at the local government and community level, the difficulties of putting into operations, community-based rural tourism, and the dearth of management and entrepreneurial skills. Ezeuduji (2015) hence emphasized on creating a rural tourism stakeholder network and collaboration in SSA which will help institutional capacity-building (training in product excellence, operational excellence, and customer service). This will subsequently empower the local actors in the long term. He also suggested a creation of balance between implementing bottom-up values (i.e. local values and community ownership) and the accompanying need to utilize top-down resources (i.e. national governments and not-for-profit organizations being partners for business skills training and initial financing). With a cooperative and functional stakeholder network in place, it is easier to effectively develop a vision and strategy emanating from the values of the local community.

3. Functional and Emotional Benefits of SSA's Rural Tourism – Brand Essence

Brand concept is quite complex and in many cases, it is not apparent to managers, however Davidson (1997: 376) developed a tool that can help managers to learn and appreciate brand nature, called 'branding iceberg'. Davidson (1997) noted that branding iceberg has about 15% visible part above the water and about 85% invisible part beneath the water. Managers often discuss the visible part of brands (i.e. the name or logo) seen to the customer, rather than the key assets, competencies, and unseen value-adding processes inside the organization that will give the brand its competitive advantage and ensure reliable quality levels. These brand elements that are below the water encompass not just marketing factors but also company-wide factors such as the values, intellect and culture of the organization. de Chernatony & Harris (2010) therefore posited that it is only by taking a planned perspective that the roles of these diverse domains can be integrated to make sure that the brand is a holistic entity, whereby the claims that are implicit in the visible components are subsequently backed by the invisible systems. As such, brand management needs to be regarded as an integrated business process (Rubinstein, 1996) that is consistently performed across all business functions and areas.

From a consumer's perspective, brands do help to identify the product/producer behind the product and simplify the buying process. According to Berry (2000), knowledge about brands, especially the ones with which the consumer has previous experience, reduces search costs and reduces perceived risk (financial, functional, social, etc.). To develop a brand requires time and money (investment), which if properly managed should yield healthy rewards. To move from a commodity to a brand, the core offering needs to be augmented with added values. These are the extra functional or emotional benefits that differentiate the organization's brand from the core commodity or other competitors' brands (de Chernatony & Harris, 2010). The knowledge of the nature of the brand also known as brand essence (functional and emotional benefits derivable from a brand) can help employees of an organization to communicate not just the functional values, but also the emotional values of the brand to consumers leading to particular relationships between staff and stakeholders to enact these emotional values or rewards (de Chernatony & Harris, 2010). As stated by some authors, consumers do not simply pay for services; they pay for service brands (de Chernatony & Harris, 2010; Ezeuduji, Lete, Correia & Taylor, 2014). As Kapferer (1997) pointed out, the value of a brand emanates from consumers' awareness of it, their trust in it and the image and reputation it has for them. Brands offer consumers various tangible and intangible benefits over unbranded offerings and, through these, the value of the companies owning the brands increases. Successful brands are those that represent valuable marketing assets through the coherent blending of marketing resources. Through well-conceived and effectively managed brands, firms can build favorable reputations which enhance the confidence of buyers and users (de Chernatony & Harris, 2010). deChernatony and McDonald (1998: 20) defined a successful brand as "an identifiable product, service, person or place, augmented in such a way that the customer or consumer perceives relevant, unique, added values which match their needs most closely".

As stated earlier, SSA's rural tourism does have a global reputation of offering tourists the rural idyll experience that is not found in any other continent or sub-continent (Ezeuduji, 2015). This image has complex physical and socio-psychological attributes and beliefs that are attached to it. For example, tourists coming from Europe or Northern America are well aware that the 'rurality' of their homes is quite different from that of SSA. These tourists do largely see SSA rural areas as being more 'rurally' rustic and authentic than their homes' rural areas (Ezeuduji & Rid, 2011).'Rurality' as a concept is used as an expression that different rural areas are not being homogeneously defined. 'Rurality" is defined by Chigbu (2013:815) as "a condition of place-based homeliness shared by people with common ancestry or heritage and who inhabit traditional, culturally defined areas or places statutorily recognized to be rural". It has been pointed out that SSA's rural spaces are richly endowed with physical assets which include natural attributes (such as rich wildlife species, savannah and forest types, rural landscape, etc.) and historical attributes (such as archaeological sites, pre- and post-colonial sites, etc.). Intangible assets in SSA rural places include invaluable cultural attributes (such as local music, traditional dances, local festivals and rites, rural way of life, myths and legends, local handicrafts, etc.). It can then be said that SSA offers her tourists the functional benefits of experiencing her diverse natural and cultural attributes, friendliness of population, climatic conditions, and unique rural landscape. Tourists are also offered the emotional benefits of going home with the 'feel-good' factor after having that particular 'rural idyll' experience not found in any other continent or sub-continent,

or after buying local foods and souvenirs. This positive feeling of visiting SSA's rural areas adds richness and depth to the tourists' experience of being involved with her brand. As Keller (2003) posited, consumers often develop a relationship with brands as they are avenues to express their personality, self-image and beliefs.
In essence, by consuming certain types of products/brands, tourists convey how they would like to be, identifying themselves with their rural origins – where it all began. Functional and emotional benefits derived from consuming a particular product or service, or visiting a particular destination are described as the 'brand essence' of the product, service (de Chernatony & Harris, 2010), or destination. A brand can also be described as a promise of particular benefits and value. Brand essence is the single most compelling thing we can say about the brand that differentiates it from competitor brands as perceived by the consumer. The most powerful brand essences are rooted in a fundamental consumer need. Tourists' need to find their original selves and identify themselves with their rural origins – where it all began, is in line with Kruger and Saayman's (2010) findings of tourists' motivations of knowledge seeking, nostalgia, novelty and escape, and Rid et al. (2014) reported tourists' motivational dimensions of heritage and nature, authentic rural experience, and learning in SSA. Brands, therefore, involve physical and socio-psychological attributes and beliefs. Consumers may refer to the symbolic meanings of products/brands to construe and preserve their identity, for example, consumers may purchase rural tourism products to show they care for the local people. Brands may, therefore, play a role in the construction of consumer identity (Elliot & Wattanasuran, 1998). This behaviour often leads to consumer loyalty allowing for the development of relationships (de Chernatony & Harris, 2010).

Brand Positioning for SSA's Rural Tourism: From the previous discussion, it is evident that SSA's rural tourism has a distinctive offering for tourists. It has been noted that brand essence is the single most compelling thing we can say about the brand that differentiates it from competitor brands as perceived by the consumer. For SSA's rural tourism, this most compelling thing is the 'rural idyll' experience, which manifests itself in the friendliness of the populations, unique and authentic rural landscape, rural way of life, natural and cultural attributes. These can fulfill tourists' functional needs and offer them the 'feel good' factor they so much desire. Communicating the brand essence of SSA's rural tourism to tourists will require a brand positioning statement. Rossiter and Percy's (1996) structuring for a brand positioning statement will be particularly useful for SSA's rural tourists and rural tourism stakeholders to know who the SSA's rural tourism brand is for, what the brand is and what it offers. They (Rossiter & Percy) argued that a good positioning statement should have the structure: 1. To …..(target audience) ….., 2. ….. is the brand of ….. (category) ….., 3. that offers …… (benefit) ……..
This positioning structure is concerned with three linkages: (1) the link between the brand and the user, (2) the link between the brand and the category need, and (3) the link between the brand and the benefits.
SSA's brand essence (the functional and emotional benefits) can thus be linked to its competitive advantages of local populations' friendliness, authentic rural landscape and 'rural idyll' experience. Using Rossiter and Percy's (1996) structuring for a brand position statement, SSA's rural tourism brand position statement could read: *"To tourists seeking nostalgic experiences, novelty and escape, rural SSA offers authentic rural landscape, 'rural idyll' experience, and amazing friendly populations".*

This position statement communicates core functional benefits (friendliness of the populations, authentic rural landscape, rural way of life, natural and cultural attributes.) and emotional benefit ('rural idyll' experience) of SSA's rural tourism brand. Offering 'rural idyll' experience in a destination can be done through building dynamic capabilities with the help of an engaged rural tourism workforce who can in turn engage the tourists. Trainings in best practice service quality showcasing the 'spirit of Africa' or African values are critically important for this development. Hence, focusing on initiatives that communicate and drive the values and behaviors that SSA's rural tourism will like to see reflected in its employees, as they deliver this brand promise to tourists, is vital for success. The trainings should be aimed at assisting operational staff in delivering consistent, quality, memorable service experiences and to enable all functional areas to engage and coach their front line staff. SSA's rural tourism may therefore integrate this brand position statement into its integrated marketing communications to reinforce tourist behavior (e.g., in advertising), and as a way to achieve mutual understanding between SSA's rural tourism and herpublics (e.g., in public relations) in her continual endeavor to justify and preserve her assets of reputation.

4. Conclusion

SSA's rural tourism potential for competitive advantage can be derived through developing dynamic capabilities aligned to tourists' value position. Having identified the rural tourists' value position built around authentic rural experience, SSA rural tourism can then position itself to design and continuously align her internal processes to match tourists' wants and values according to changing environments and markets. SSA could have a unique selling proposition within the international tourism industry by offering unique experience setting schemes through events organized in rural areas incorporating cultural attributes within natural space (Ezeuduji, 2015). If SSA's rural tourism is to strive after new capabilities; a strong brand that addresses tourists' value position (rural tourists seeking nostalgic experiences, novelty and escape) can help attract repeat-visit tourists, while supporting its brand promise of 'rural idyll' experience. Communicating SSA's rural tourism to tourists requires knowledge of changing customer profiles and specific market segments' needs. Adventure tourists, 'slow' tourists and rural events' tourists will visit rural spaces, but are likely to have different wants and needs. The knowledge of rural tourism brand essence can help SSA's local communities, local governments and national governments to communicate not just the functional values, but also the emotional values of visiting rural areas to tourists. This will lead to particular relationships between local communities and stakeholders to enact these emotional values or rewards, and attract repeat-visit tourists.

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Fiscal Policy Shocks and Private Consumption in Nigeria: Blanchard-Perotti (2002) Approach

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Abstract: This paper examines the effects of fiscal policy shocks on private consumption in Nigeria. Albeit, there is a considerable number of works examining the effects of fiscal policy shocks on private consumption globally but in Nigeria, no study has used the structural VAR approach by Blanchard and Perotti (2002) as used in this paper. This approach relies on institutional information about the tax and transfer systems and the timing of tax collection to identify the automatic response of taxes and spending to private consumption as well as to infer fiscal shocks. The key result of this paper is that positive government spending shocks in Nigeria have an instantaneous negative effect on private consumption. The effect becomes significant in the period following the shock. Also, positive tax shocks have a negative effect on private consumption in the period of a shock and the effect becomes statistically insignificant afterwards. On this premises, one-off changes in government spending and taxes in Nigeria are long-lived and short-lived respectively. Thus, the government expenditure changes can be used to support private consumption in the long-run while that of taxes can only be used to support private consumption for a short period.

Keywords: *Fiscal Policy, Government Spending, Net Taxes, Blanchard-Perotti (2002), Structural Vector Autoregressive*

1. Introduction

In most studies on fiscal policy around the world especially in Nigeria, the inability to identify the changes in policy variables that are attributable to actual policies rather than to endogenous responses to economic conditions has been a major debatable issues among the policy makers as well as economic scholars. The delay in legislation, the lags in actual implementation of pronounced policies and the time for policy stabilization are also central problems faced in the empirical analysis of fiscal policy realm. To tackle this issue, studies have examined the responses of government spending shocks and tax revenue shocks on private consumers' behaviour in Nigeria (Onodje, 2009; Sousa, 2009; Favero, Giavazzi & Francesco, 2007; Orisadare, 2012). Apart from the fact that the aforementioned studies have failed to empirically consider the institutional information about the tax and transfer systems as well as the timing of tax collection in their studies, there is no empirical literature in Nigeria that has used the method of Blanchard and Perotti (2002) to examine the relationship between fiscal policy shocks and private consumption. Akins to this, fiscal policy has also been used for several reasons such as raising the output level, protecting the infant industries from unhealthy competition, reduce unemployment by ensuring equitable employment of resources, moderate the rate of inflation, improve balance of payment position, encourage and diversify foreign earning through increased in export activities especially in the non-oil sector in Nigeria before and after independence. However, the emergence of oil boom in 1972 had made the economy to diversify from agricultural proceeds to oil. Thus, the over-reliance on the oil proceeds and neglect of agricultural products have made the economy to suffer deeply from the oil price crises that oil sector has continuously witnessed over the periods in recent time. The adamant of this has resulted in the recent decreased in government revenue in Nigeria. Also, there is a continuous decrease in output level and increase in price of goods and service. To restore the loss in government revenue in Nigeria, government has changed the structure of the tax system and also reviews company tax which may reduce companies' social responsibilities to the community.

This recent development in Nigerian economy has not only affected the growth rate of gross domestic product but also the private consumers. Hence, this study examines the effect of fiscal policy shocks on private consumption in Nigeria using Blanchard-Perotti approach of Structural Vector Autoregressive (SVAR) technique to account for the extent at which the review of the tax structure affects private consumers since this method incorporate different tax structure in its methodology which other SVAR techniques do not have. Previous studies that have attempted to address the above issue only used varieties of Vector Autoregressive (VAR) models such as Vector Error Correction Mechanism (VECM), Narrative, Recursive and Sign Restriction Structural VAR (SVAR). In addition, these models only accounted for either dynamic interactions among the

variables or unanticipated shocks associated with ordering and sign restriction behaviours. However, these methods neglected the institutional information about the fiscal policy variables (most especially the tax system) and how this information affects macroeconomic variables (private consumption) upon implementation (Ramey, 2011).

Furthermore, studies that have used Blanchard and Perotti (2002) SVAR approach in developed countries noted that the inability to provide full institutional information on the structure of the tax system and government spending was one of the major reasons for slow recovery from the 2001 recession in the U.S. (House and Shapiro, 2006; Yang & Shu-Chun, 2005). Also, the responses of unanticipated fiscal policy shock from private consumption using Blanchard and Perotti (2002) SVAR approach has not been fully explored among the previous studies most especially in developing countries (House and Shapiro, 2006; Yang & Shu-Chun, 2005; and Den-Haan, & Georg, 2006). In addition, the relationship between fiscal shocks and private consumption in Nigeria using Blanchard and Perrotti (2002) approach of SVAR has not been explored in the literature. Meanwhile, this SVAR approach on like other approaches relies on institutional information about the tax and transfer systems as well as the timing of tax collection to identify the automatic response of taxes and spending to private consumption as well as to infer fiscal shocks (Blanchard & Perrotti, 2002). Whereas, this approach will enhance the Nigerian policy makers on the timing of tax collection and also provide institutional information to the tax collector in order to boost the means of generating revenue; now that the country is looking for alternative means of raising funds to finance her expenditure while there is fall in the revenue from the country major revenue source i.e. oil proceeds. This paper therefore intends to explore this method by examining the relationship between fiscal policy shocks and private consumption in Nigeria between 1981 and 2014. Following the introductory aspect, section 2.0 contains literature review; section 3.0 entails methodology; section 4.0 presents results and discussion while section 5.0 encompasses conclusion and recommendations.

2. Literature Review

Large studies have examined the relationship between fiscal policy shocks and economic activities around the world using different techniques. However, the few studies that have used the method propounded by Blanchard and Perotti (2002) are mainly from developed countries while most studies in Nigeria used other methods of SVAR. Based on this assertion, the following brief literatures are therefore reviewed. Cavallo (2005) investigated the relationship between government employment expenditure and the effects of fiscal policy shocks using VAR technique. The study distinguished between the goods and the employment expenditure components of government consumption in assessing the impact of fiscal shocks on the macro economy. He further identified exogenous fiscal shocks with the onset of military build-ups and showed that these led to a substantial increase in both the number of hours worked and output for the government and showed that allowing for the distinction between the two main components of government consumption improves the quantitative performance of the neoclassical growth model. In doing so, the neoclassical model economy with government employment did a good job of accounting for the dynamic response of private consumption to a fiscal policy shock. While government employment expenditure acted as a transfer payment for households, thereby dampening substantially the wealth effect on consumption and labor supply in association with fiscal shocks.

Heppke-Falk, Tenhofen and Wolf (2006) examined the short-term effects of fiscal policy shocks on the German economy following the SVAR approach by Blanchard and Perotti (2002). They found that direct government expenditure shocks increased output and private consumption on impact with low statistical significance while there was decrease private investment but insignificant. The study also found positive effect between government investment and output and this was equally significant until 12 quarters ahead. Further, the study found not change in the in the sign of the positive consumption response when accounted for anticipated effects of fiscal policy while anticipated expenditure shocks had significant effects on output when shock is realized but not in the period of anticipation. Finally, effects of expenditure shocks were only short-lived while tax revenue shocks did not affect output. Kumar et al. (2007) declared that while fiscal consolidations tend to have short-run contractionary effects, it can be expansionary in the long-run. The study also examined the impact of the size of government on growth (where the size of the government is defined as the general government spending in proportion to GDP). They showed that an uncontrolled public

spending could negatively affect growth and fiscal imbalances would lead to high levels of taxation and borrowing. As a result, investors will not have any incentive to invest or to innovate. Uncontrolled public spending is an attraction for corrupted bureaucrats and free riders.

Burriel, de Castro, Garrote, Gordo, Paredes and Pérez (2009) examined the effect of fiscal policy shocks among the euro area and US using structural VAR technique based on quarterly dataset of fiscal variables between 1981 and 2007. The study explored the impact of aggregated and disaggregated government expenditure and net tax shocks. In addition, the study included the variables of measuring financial stress (increases in risk) and fiscal stress (sustainability concerns). The result of the study found that GDP and inflation increase in responded to government spending shocks. Meanwhile, government expenditure shocks showed a higher degree of persistence in the US, which appeared to be explained by the persistence of military spending. In turn, net-tax increases the weight on economic activity, with the negative response being shorter-lived in the euro area. Private consumption displayed similar pattern responses to GDP in both the euro area and the US. Private investment responses were not so homogeneous though: it declined in response to higher government spending or net taxes in the US, whereas in the EMU only tax increases appeared to have a negative reaction of private investment. The controlling of stress situations did not change the pattern of impulse responses but affected output multipliers. The financial stress did not significant and in fiscal stress, spending and tax multipliers became higher and more persistent more in the EMU. 1

Shaheen and Turner (2009) characterized the dynamic effect of fiscal policy shock in Pakistan for the period 1973:1-2008:4 by employing a five variable SVAR model and using Blanchard and Perotti (2002) and the Recursive approaches to identify exogenous fiscal shocks. They found that government expenditure increases output in the short run and decreases it in the medium term. Interest rate and inflation increases following government spending shock. Revenue shocks also increase output, inflation and interest rate. While output decreases in the long run as in the case of government spending shock, interest rate increases at a higher level in the medium and long term. They concluded that in Pakistan, increases in government spending and tax can be used to expand output in the short run at the expense of higher output and inflation and SVAR models are rarely used to study fiscal policy in Africa. Abderrahim et al. (2010) studied macroeconomic effects of fiscal shocks in a five variables SVAR mode for Algeria. They found that positive structural shock in government spending has positive effect on output in the short term with very small multiplier. This turns into negative effect in the medium term and in the long run through crowding-out of private investment thereby increasing the average interest rate in the economy. Prices increase persistently following this shock. Public revenue shocks, on the other hand, result in positive impact on government spending in the short term through which the effect on output is channeled i.e., output responds in similar pattern as in the case of government spending shock. The effect on prices and interest rate is persistent and negative in the medium and long term. They used, however, annual data that makes identification of truly exogenous shock rather less reliable.

Mancellari (2011) studied the dynamic effects of change in spending and net revenue on macroeconomic variables in Albania. He used SVAR model and the Blanchard and Perotti identification approach. He estimated multipliers from the model. Accordingly, he found that reduction in tax has the highest impact on output reaching a multiplier of 1.65 after five quarters. Between the two spending components, capital spending has higher role in stimulating the economy than current spending. While interest rate is not responsive for change in any of the spending components, it decreases following a tax cut. Prices; slightly increase following positive shock in current spending, do not respond for a change in capital spending and fall with respect to a cut in taxes. Orisadare (2012) examined the effect of fiscal policy shocks on economic activities in Nigeria from 1970 to 2009 using Recursive SVAR approach. The study found that fiscal policy shock indicated a positive and relatively low significant relationship between government revenue shock and economic activities while a negative significant relationship between government spending shocks and economic activities in Nigeria. Nazir et al. (2013) investigated the long and short run effect of fiscal policy on GDP growth of Pakistan. Government consumption expenditure and per capita real revenues are used as fiscal variables while discount rate, trade openness and gross fixed capital formation are treated as control variables to analyze their impact on GDP growth for the economy of Pakistan for the period of 1980-2012. Johansen co-integration and vector error correction model are applied to know the effects of fiscal variables on GDP growth in short and long run. The findings show that fiscal policy has vital role for meaningful

economic progress. This study pointed out that government consumption expenditure has negative relation with GDP growth and public revenues have a progressive impact on economic activity of Pakistan. Less consumption expenditure and effective revenue structure is advocated to boost the economic growth of Pakistan. In summary, only few of the studies reviewed that used Structural VAR technique propounded by Blanchard and Perotti (2002) are either from developed nations or developing nations excluding Nigeria. In Nigeria, this study therefore fills this gap by using Blanchard and Perotti (2002) approach of SVAR to examining the relationship between fiscal policy shocks and private consumption.

3. Methodology

In order to estimate the empirical relationship between fiscal policy shock and private consumption in Nigeria, the paper employed Blanchard and Perotti (2002) SVAR model. Thus, the paper considered the reduced form of VAR model that has 5 variables embedded in vector matrix (X_t) that consists of two policy variables (government expenditure $(g\exp_t)$ and tax revenue (tr_t)) and three non-policy variables (private consumption (pc_t), government debt (b_t) and interest rate (ir_t)) as follows:

$$X_t = \Psi(L)X_{t-1} + U_t \qquad 1$$

Where $X_t = [g\exp_t \quad tr_t \quad pc_t \quad b_t \quad ir_t]'$ and all the variables are in log-transformed. $\Psi(L)$ is an autoregressive lag polynomial and ($U_t = [u_t^{g\exp} u_t^{tr} u_t^{pc} u_t^{b} u_t^{ir}]$) is the vector of reduced form errors. Since this paper used quarterly data, as a result, a lag length of four is supposed to be chosen as suggested by various lag length identifiers ranging from the Akaike information criterion (AIC) to Hannan-Quinn information criterion.

However, incorporate column matrices ***X*** and ***U*** in equation 1, the model can therefore be written in conventional form as follows:

$$\begin{bmatrix} g\exp_t \\ tr_t \\ pc_t \\ b_t \\ ir_t \end{bmatrix} = \psi(L) \begin{bmatrix} g\exp_{t-1} \\ tr_{t-1} \\ pc_{t-1} \\ b_{t-1} \\ ir_{t-1} \end{bmatrix} + \begin{bmatrix} u^{g\exp} \\ u^{tr} \\ u^{pc} \\ u^{b} \\ u^{ir} \end{bmatrix} \qquad 2$$

Following the work of Blanchard and Perotti (2002), equation 2 above can be expressed in matrices A and B. From these matrices, the coefficients needed to construct their estimates in order to compute the impulse responses to fiscal shocks can be expressed as follows:

$$A_t U_t = Be_t \qquad 3$$

Such that $U_t = A^{-1}Be_t$

$$e_t = \begin{Bmatrix} Vector\ \ of \quad Structural \quad policy\ \ shocks\ (e_t^{g\exp}, e_t^{tr}); \quad and \\ non-policy \quad shocks\ (e_t^{pc}, e_t^{b}, e_t^{ir}). \end{Bmatrix}$$

Thus, matrices A and B are as follows:

$$\begin{bmatrix} 1 & 0 & -\alpha_{pc}^{g\exp} & -\alpha_{b}^{g\exp} & -\alpha_{ir}^{g\exp} \\ 0 & 1 & -\alpha_{pc}^{tr} & -\alpha_{b}^{tr} & -\alpha_{ir}^{tr} \\ -\alpha_{31} & -\alpha_{32} & 1 & 0 & 0 \\ -\alpha_{41} & -\alpha_{42} & -\alpha_{43} & 1 & 0 \\ -\alpha_{51} & -\alpha_{52} & -\alpha_{53} & -\alpha_{54} & 1 \end{bmatrix} \begin{bmatrix} u_t^{g\exp} \\ u_t^{tr} \\ u_t^{pc} \\ u_t^{b} \\ u_t^{ir} \end{bmatrix} = \begin{bmatrix} b_{11} & b_{12} & 0 & 0 & 0 \\ b_{21} & b_{22} & 0 & 0 & 0 \\ 0 & 0 & b_{33} & 0 & 0 \\ 0 & 0 & 0 & b_{44} & 0 \\ 0 & 0 & 0 & 0 & b_{55} \end{bmatrix} \begin{bmatrix} e_t^{g\exp} \\ e_t^{tr} \\ e_t^{pc} \\ e_t^{b} \\ e_t^{ir} \end{bmatrix} \quad (4)$$

To justify the system, the paper used $2k^2 - \frac{k(k+1)}{2}$ (k is the number of endogenous variables) to impose constraints on both matrices i.e. 35 constraints. Hence, there are 18 constraints in matrix B while the leading diagonal of matrix A has 5 restrictions. All the constraints in matrix B are zero (0). The restrictions imposed on the matrices are obtained based on the structure of the Nigerian economy. These are further calculated using exogenous elasticities as presented in tables 1 and 2 below. Following the work of Lozano and Rodriquez (2008), and Ravnik and Zilic (2011), the exogenous elasticities of government revenue to private consumption and government debt are obtained by estimating equations 5 and 6 with Ordinary Least Square (OLS) techniques respectively using available data from Nigeria such as Oil Revenue, Non-Oil Revenue and Excise duty, income taxes and social contributions (such as grants, stabilization receipt and others) which are mainly obtained from Central Bank statistical bulletin, 2014. The private consumption elasticity of government revenues is calculated using the following formula:

$$\alpha_{pc}^{tr} = \sum_{i=1}^{n} \varepsilon_{tb_i}^{tr_i} \times \varepsilon_{pc}^{tb_i} \times \frac{W_i}{W} \quad (5)$$

where $\varepsilon_{tb_i}^{tr_i}$ is the elasticity of each tax category to its tax base, $\varepsilon_{pc}^{tb_i}$ is the elasticity of each tax base to GDP, while $\frac{W_i}{W}$ is the weight of type i tax in the sum of taxes, $W = \sum_{i=1}^{n} W_i$. Similarly, the equation (6) is used to calculate the required elasticity of government revenue to government debt using the same categories of tax revenue and tax base as shown below:

$$\alpha_{b}^{tr} = \sum_{i=1}^{n} \varepsilon_{tb_i}^{tr_i} \times \varepsilon_{b}^{tb_i} \times \frac{W_i}{W} \quad (6)$$

where $\varepsilon_{tb_i}^{tr_i}$ is the elasticity of each tax category to its tax base, $\varepsilon_{b}^{tb_i}$ is the elasticity of each tax base to GDP. The corresponding results of the elasticity generated are presented in table 1 and 2 below.

Table 1: Construction of Elasticity of Government Revenue to Private Consumption

Revenue	$\varepsilon_{tb_i}^{tr_i}$	$\varepsilon_{pc}^{tb_i}$	$\varepsilon_{pc}^{tr} = \varepsilon_{tb_i}^{tr_i} \times \varepsilon_{pc}^{tb_i}$	$\frac{W_i}{W}$	$\varepsilon_{tb_i}^{tr_i} \times \varepsilon_{pc}^{tb_i} \times \frac{W_i}{W}$
Oil Revenue	0.94	0.99	0.93	0.99	0.92
Non-Oil Revenue	1.01	0.99	0.99	0.26	0.25
Income Tax	0.76	0.50	0.38	0.06	0.02
Excise Duty	1.34	1.01	1.35	0.09	0.12
Social Contribution	0.43	0.89	0.38	0.09	0.04

$$\alpha_{pc}^{tr} = \sum_{i=1}^{n} \varepsilon_{tb_i}^{tr_i} \times \varepsilon_{pc}^{tb_i} \times \frac{W_i}{W} = 1.35$$

Source: Author, 2015

Table 2: Construction of Elasticity of Government Revenue to Government Debt

Revenue	$\varepsilon_{tb_i}^{tr_i}$	$\varepsilon_b^{tb_i}$	$\varepsilon_b^{tr} = \varepsilon_{tb_i}^{tr_i} \times \varepsilon_b^{tb_i}$	$\frac{W_i}{W}$	$\varepsilon_{tb_i}^{tr_i} \times \varepsilon_b^{tb_i} \times \frac{W_i}{W}$
Oil Revenue	0.94	0.70	0.66	0.99	0.65
Non-Oil Revenue	1.01	0.70	0.71	0.26	0.18
Income Tax	0.76	0.52	0.40	0.06	0.02
Excise Duty	1.34	0.69	0.92	0.09	0.08
Social Contribution	0.43	0.52	0.22	0.092	0.02

$$\alpha_b^{tr} = \sum_{i=1}^{n} \varepsilon_{tb_i}^{tr_i} \times \varepsilon_b^{tb_i} \times \frac{W_i}{W} = 0.95$$

Source: Author, 2015

However, the impact of reduced innovation of private consumption on reduced innovations of tax revenue is 1.35 (that is, exogenous elasticity 1.35) and impact of reduced innovation of government debt on reduced innovations of taxes is 0.95 (that is, exogenous elasticity 0.95) using exogenous elasticity in line with the works of Caldara and Kamps (2008) and Ravnik and Zilic (2011). Therefore, by incorporating the values of the calculated elasticities and all the assumptions stated earlier into the SVAR matrices A and B described above, the estimated matrices A and B becomes:

$$\begin{bmatrix} 1 & 0 & 0 & 0.5 & 0 \\ 0 & 1 & -1.35 & -0.95 & 0 \\ -\alpha_{31} & -\alpha_{32} & 1 & 0 & 0 \\ -\alpha_{41} & -\alpha_{42} & -\alpha_{43} & 1 & 0 \\ -\alpha_{51} & -\alpha_{52} & -\alpha_{53} & -\alpha_{54} & 1 \end{bmatrix} \begin{bmatrix} u_t^{g\exp} \\ u_t^{tr} \\ u_t^{pc} \\ u_t^{b} \\ u_t^{ir} \end{bmatrix} = \begin{bmatrix} b_{11} & b_{12} & 0 & 0 & 0 \\ b_{21} & b_{22} & 0 & 0 & 0 \\ 0 & 0 & b_{33} & 0 & 0 \\ 0 & 0 & 0 & b_{44} & 0 \\ 0 & 0 & 0 & 0 & b_{55} \end{bmatrix} \begin{bmatrix} e_t^{g\exp} \\ e_t^{tr} \\ e_t^{pc} \\ e_t^{b} \\ e_t^{ir} \end{bmatrix} \quad 7$$

Thus, the estimated elements in matrix A are nine (9) while the estimated elements in matrix B are seven (7). In total, there are sixteen elements to be estimated from matrices A and B.

Scope, Data Sources and Measurement: The study examined the relationship between fiscal policy shocks and private consumption in Nigeria between 1981:1 and 2014: 4 and this covered a period of 34 years and 4 quarters which sum-up to 136 observations. The study used a quarterly secondary data on private consumption (final household consumption expenditure), government expenditure (total current expenditures of the public sector less net investment to which we subtract net interest payments), government revenue (total current receipt of the public sector), government debt (total sum of holdings federal government's domestic debt outstanding and the total Nigeria's external debt outstanding in billions of naira) and interest rate (minimum rediscount rate) from 1981:1 to 2014:4 and the data were sourced from World development Indicator (WDI), World Bank database, 2015 and Central Bank Statistical bulletin, 2014.

4. Results and Discussion

Time Series Properties of the Variables Employed: Testing for non-stationarity in the form of unit roots has become a clip of time series econometrics (Engle and Granger, 1987). The reason for this stalk from the challenges that non-stationary data confront for inference using standard statistical techniques such as Ordinary Least Square Method (OLS). It is well established, for instance, that OLS produces spurious results when applied to data with unit roots. What OLS is really estimating in such situations are common trends and not the underlying relationships between two or more variables. Inadequately accounting for unit roots can lead to estimates that appear to be significant and meaningful but in reality are meaningless and insignificant (Hamilton, 1994). If data are non-stationary, transformations such as differencing are often employed to induce stationarity. While differencing a data series, is common in ARIMA modeling, it is less common in VARs and is usually discouraged because such transformations discard long-run information. On the other

hand, if testing reveals the likely presence of unit roots and the absence of error correction, then the standard statistical tests used for conducting Granger tests will still be valid when applied to differenced data (Brandt and Williams, 2007). Therefore, this study employs Augmented Dickey Fuller (ADF) of unit root test with Constant, without trend and Constant, Linear Trend using automatic lag length selection based on Akaike Information Criterion (AIC) and Schwarz Information Criterion (SIC). The results of the unit roots are presented in table 3.

Table 3: Unit Root Test using Augmented Dickey Fuller (ADF) Technique

	Level		First Difference		
Variables	Constant	Constant, Linear Trend	Constant	Constant, Linear Trend	Order of Integration
lnPC	-0.7821	-1.1029	-4.5665*	-4.5995*	I(1)
lnB	-1.9877	-1.7138	-4.1899*	-4.4055*	I(1)
lnGEXP	-1.3317	-0.7381	-7.2304*	-4.3478*	I(1)
IR	-2.9006	-2.8509	-6.0496*	-6.1677*	I(1)
lnTR	-0.4402	-2.6686	-6.2488*	-4.7880*	I(1)
Critical Values: 1%					
5%	-3.6793	-4.2967	-3.6793	-4.3098	
10%	-2.9678	-3.5684	-2.9678	-3.5742	
	-2.6230	-3.2184	-2.6230	-3.2217	

Note: *(**) implies 1% (5%) significance level.
Source: Author, 2015

The results in table 3 showed that all the variables were non-stationary at level without a trend term. However, the results of the unit root test with a trend term indicated that all the variables were stationary at first difference and non-stationary at 5% level; that is I(0). Thus, the study concluded that all the variables were integral order of one, I (1) series by considering a unit root test with a constant, linear trend.

Co-integration Test and Vector Error Correction Model: Having established the order of integration of our series, the study determined the number of long-run equilibrium relationships or Co-integrating vectors between the variables. Since the variables are found to be integrated of the same order, such as I(1) as shown above using Augmented Dickey-Fuller test results, it implies that an equilibrium relationship exists among the variables. Therefore, since the main focus of the study is to examine the effect of fiscal policy shocks on private consumption in Nigeria, we conduct a Co-integration test in line with Johansen test taking into consideration all the variables that were integrated of order one I(1) using the decision of ADF.

Table 4: Johansen Maximum likelihood test for Co-integration (PC, B, GEXP, IR, TR)

Hypotheses	Trace Test	5% Critical values	Max-Eigen Statistic	5% Critical values
R = 0	477.75	159.53	192.42	52.36
R ≤ 1	285.33	125.62	107.16	46.23
R ≤ 2	178.17	95.75	60.11	40.08
R ≤ 3	28.40	29.80	17.71	21.13
R ≤ 4	10.69	15.49	10.67	14.26
R ≤ 5	0.02	3.48	0.02	3.84

Source: Author, 2015

Thus, the result of the co-integration test revealed that there were three co-integrating vectors based on Trace statistic and Eigen values since the hypotheses of no co-integration were rejected at 5% level for both test using Mackinnon-Haug Michelis (1999) p-values as shown in table 4. In addition, after establishing the long-run relationship among the variables, the study investigated the short-run dynamics of the model using Error Correction Mechanism (ECM). This shows the speed of convergence towards equilibrium among the variables. The empirical result in table 5 was analyzed with the use of the two-step Engle and Granger (1987)

model which suggests that any set of Co-integrated time series has an error-correction representation, which reflects the short-run adjustment mechanism. The motive of the analysis is to discover whether the short-run dynamics are influenced by the estimated long-run equilibrium condition that is, the Co-integrating vectors. A crucial parameter in the estimation of the short-run dynamic model is the coefficient of the error-correction term which measures the speed of adjustment between fiscal policy shocks and private consumption in Nigeria to equilibrium level.

Table 5: Error Correction Mechanism Results

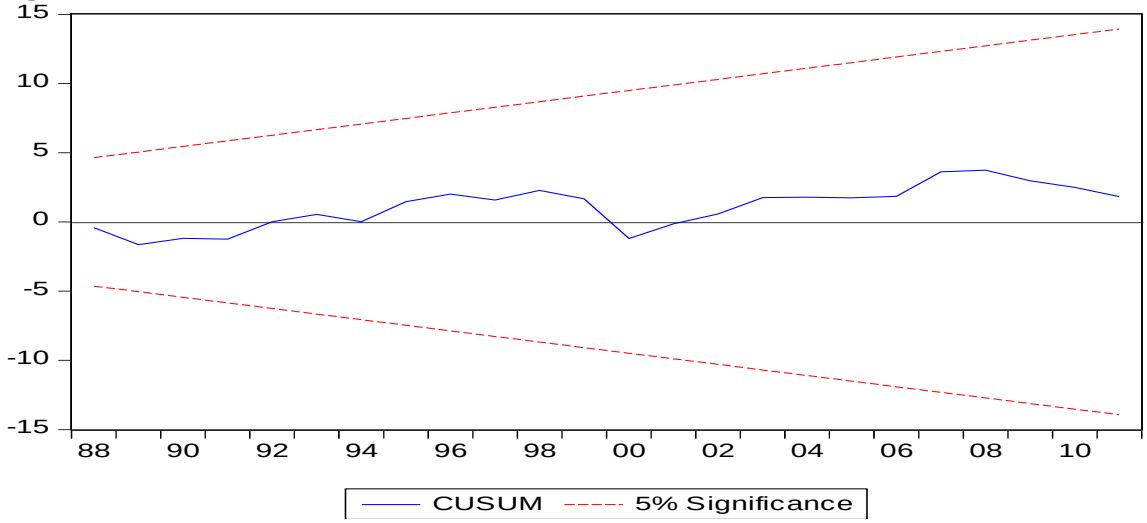
Variables	Coefficients	Standard Error	t-Statistic
ECM(-1)	-0.67	0.31	-2.17**
ΔlnPC(-1)	0.40	0.15	2.63**
ΔIR	0.47	0.70	0.67
ΔlnGEXP	-0.07	0.03	-2.47**
ΔlnB	0.57	0.20	2.93*
Adjusted R-square:	0.66		
Durbin-Watson stat:	1.95		
F-statistic:	10.09		

Note: *(**) *** implies 1% (5%) 10% significance level. **ΔPC** is the dependent variable
Source: Author, 2015

The results show that the parameter of the error-correction terms in the model is statistically significant and correctly signed. This confirmed that the relationship between fiscal policy shocks and private consumption in Nigeria has automatic adjustment mechanism and the economy responds to deviations from equilibrium in a balancing manner. The value of -0.67 for the coefficient of error correction term suggested that the fiscal policy shocks and private consumption will converge towards its long-run equilibrium level in a moderate speed after the fluctuation in fiscal policy shocks and private consumption. Eliminating for instance, 95% of a fluctuation in fiscal policy shock variables and private consumption would take a little more than 8 years or precisely 32.16 quarters to converge to long-run equilibrium level.

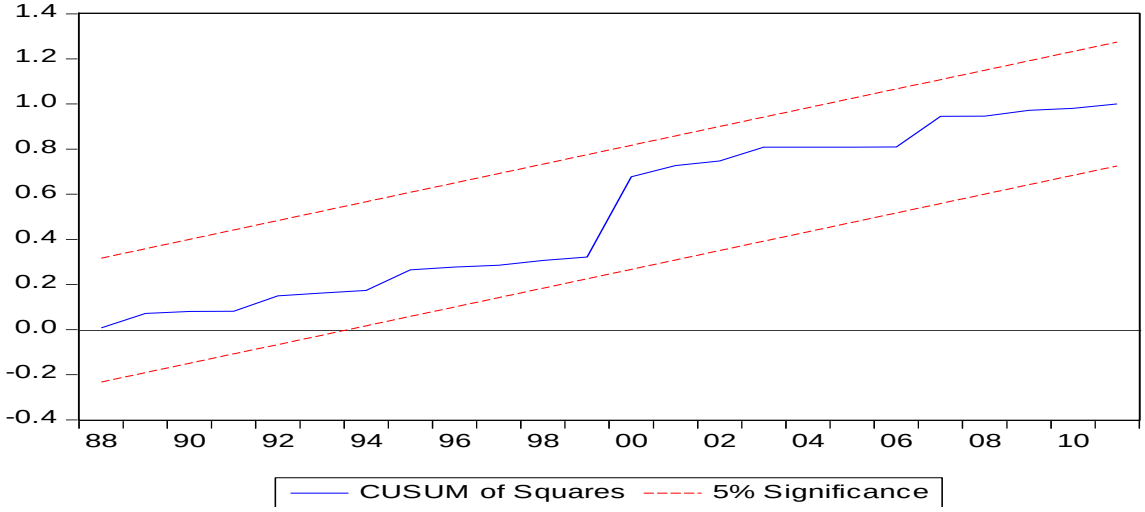
Results of Structural Break Test: Since the study used quarterly data, the study therefore test for structural breaks in line with the work of Brown et al. (1975) that proposed two tests Cumulative Sum and cumulative Sum of Square to check the structural stability of the data used for analysis. Thus, CUSUM test captured the systematic changes in regression coefficients while CUSUMSQ detained the departure of parameters from constancy.

Figure 1: Cumulative Sum of Recursive Residual



Source: Author, 2015

Figure 2: Cumulative Sum of Square Recursive Residual



Source: Author, 2015

Hence the CUSUM test results indicated that there is no break since the straight line is within the 5% critical band of the CUSUM test while the result of the CUSUMSQ test revealed that the detain of the departure of the parameters from the constancy is within the straight line that represents critical bond at 5% significant level as shown in figures 1 and 2 above.

Estimation of Lag Length of the SVAR Model: To avoid spurious results in the SVAR model is by adding a sufficient number of autoregressive lags. Therefore, the process of determining the number of lagged values needed to be included in the SVAR model is an integral part of specifying a stable SVAR model. However, incorrect specification of the lag length of a SVAR model can lead to inconsistent impulse responses and variance decompositions (Braun & Mittink, 1993). Also, over-fitting the model may result to inefficiency while under-fitting may cause some dynamics in the system to be unrealized. Several methods and tests were used to identify the true lag length of the unrestricted VAR model with constant and trend. Therefore, the paper used various lag length identifiers such as Akaike information criterion (AIC), Schwarz's information criterion (SIC) and so on from VAR system to identify the appropriate lag length. The results of the lag length selection are shown in the table 3 with orders of m = 1,..., 8 with constant and linear deterministic terms.

Table 6: Estimated Results of VAR Lag Length Selection Criteria

Lag	LogL	LR	FPE	AIC	SIC	HQ
0	509.8923	NA	1.14e-10	-8.705039	-8.586350	-8.656858
1	1088.988	1098.285	8.10e-15	-18.25842	-17.54628	-17.96933
2	1159.107	126.9385	3.73e-15	-19.03632	-17.73074*	-18.50633
3	1170.266	19.24074	4.76e-15	-18.79769	-16.89867	-18.02680
4	1219.006	79.83193	3.20e-15	-19.20699	-16.71452	-18.19519
5	1303.488	131.0925	1.17e-15	-20.23254	-17.14662	-18.97984*
6	1338.106	50.73469*	1.02e-15*	-20.39839*	-16.71902	-18.90478
7	1345.707	10.48367	1.43e-15	-20.09840	-15.82559	-18.36388
8	1356.985	14.58385	1.91e-15	-19.86182	-14.99556	-17.88639

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Source: Author, 2015

The information criterion presented in table 6 offers mixed results. Based on LR, FPE, AIS, HQ indicating the choice of 6-lag, whereas the SIC suggests an order of 2-lag length. Thus, this result showed that four out of five criteria indicated an optimal lag order 6, while only SIC supported an order of 2. To test the validity of the result, a lag exclusion Wald test was conducted to verify whether six lags was suitable for the unrestricted VAR model or not.

Table 7: VAR Lag Exclusion Wald Test

	GEXP	TR	PC	B	IR	Joint
Lag 1	35.53214	115.2057	21.19538	125.0730	307.3088	852.1816
	[1.18e-06]	[0.000000]	[0.000744]	[0.000000]	[0.000000]	[0.000000]*
Lag 2	24.31813	34.58084	37.41361	15.43155	44.89521	158.4691
	[0.000189]	[1.82e-06]	[4.95e-07]	[0.008669]	[1.52e-08]	[0.000000]*

Note: Numbers in [ ] are p-values. * indicates statistical significant at 5% level
Source: Author, 2015

The results of the X^2 statistic in table 7 above for the joint significance of all endogenous variables in the VAR at two lag lengths was jointly significant at the 5% level of significance, indicating that 2-lag lengths is the optimal. Thus this paper used 2-lag lengths for the analysis of the fiscal policy shocks.

Discussion of the Results of the Effect of Fiscal Policy Shocks on Private Consumption: Using the Structural Vector Autoregressive (SVAR) approach proposed by Blanchard and Perotti (2002) and Perotti (2004) to examine the impact of fiscal policy shocks on private consumption, the paper arranged the variables in the following order- government expenditure, tax revenue, private consumption government debt and interest rate. Thus, this ordering is based on the following assumptions and justifications: (a) government spending was placed first because it does not react contemporaneously to shocks to other variables in the system and was not affected by business cycle fluctuation; (b) tax revenue was ordered second, which implied that it does not react contemporaneously to private consumption, tax revenue and interest rate shocks but was affected by government spending shocks; (c) private consumption was ordered third meaning that it was contemporaneously affected by government spending, government debt and tax revenue shocks; (d) Government debt was ordered as fourth, meaning that it was not affected contemporaneously by private consumption and interest rate shocks but it reacted to government spending shocks; (e) interest rate was placed last, because it was affected by all shocks from the system since interest are not payable on fiscal variables and therefore not sensitive to interest rate changes. This could be taken as the justification for the placement of the interest rate among the variables. This method was also used by Caldara and Kamps (2008), Ravnik and Žilić (2011) who investigated fiscal policy shocks for Croatia. The basic point in this approach was that identification of fiscal policy shocks was achieved by exploiting decision lags in policy making and information about the elasticity of fiscal variables to private consumption.

Empirical Analysis of Fiscal Policy Shocks - Blanchard and Perotti (2002) Approach: The SVAR results of fiscal policy shocks on private consumption in line with Blanchard and Perotti (2002) approach was presented in table 8.

Table 8: Empirical Analysis of Fiscal Policy Shocks - Blanchard and Perotti (2002) Approach

	$\beta_{pc,ir}$	$\beta_{pc,B}$	$\beta_{pc,tr}$	$\beta_{pc,gexp}$	$\beta_{gexp,ir}$	$\beta_{gexp,B}$	$\beta_{gexp,tr}$	$\beta_{tr,ir}$	$\beta_{tr,B}$	$\beta_{B,ir}$
Coefficients	-0.73*	0.38	-0.97*	-0.36*	-0.98*	0.19	0.07	-0.63	0.59	-0.67*
z-value	-2.85	1.16	-13.99	-3.20	-2.54	0.35	0.63	-1.03	0.67	-16.98

Note: *(**) *** implies 1% (5%) 10% significance level.
Source: Author, 2015

The estimated result showed that the estimated coefficient of government debt shock to private consumption was positively signed but statistically non-significant**.** It suggested that a positive one percent shock in government debt increased the private consumption by 38 percent. This finding supported the Keynesian proposition that says an expansionary fiscal policy through government debt would enhance income and aggregate demand and thus foster private consumption. This was in conformity with the study conducted by

Ravnik and Žilić (2011) on Croatia's economy. The coefficient of government spending shocks was negatively signed and statistically significance at 1 percent level. Thus, a shock in government spending hit private consumption negatively in Nigeria. This showed that a negative one percent shock in government expenditure decreased private consumption by 36 percent. Hence, the result indicated that government spending shock crowded-in private consumption in Nigeria. This finding was in conformity with non-Keynesian proposition which states that an expansionary fiscal policy in terms of increase in government expenditure would result to a contractionary effect on private consumption. This result supports the view of Giavazzi and Pagano (1996), Giavazzi, Jappelli and Pagano (2000) and Onodje, (2009).

The negative coefficient of $\beta_{pc,tr}$ showed that a negative shock in tax revenue contributed to a change in private consumption and statistically significant. This showed that a unit negative shock in government revenue would reduce private consumption by 97 percent and hence, crowded-in private consumption. This might arise as a result of increase in tax revenue through increase in tax rate by the government in order to finance her excess spending or to pay back the debt incurred through increase in government expenditure on infrastructural facilities; such as provision of tidy road, hospitals and building of more schools as well as increase in transfer payment like bursary, pension and so on. A positive and non-significant value of $\beta_{gexp,B}$ indicated that increase in government debt would lead to increase in government expenditure. The negative and statistically significant value of $\beta_{pc,ir}$ showed that decrease in interest rates would increase aggregate demand and thus, private consumption. A negative one percent shock in interest rates thus increased private consumption by 0.73 percent. This was in conformity with the result of Perotti (2008). A negative value of $\beta_{B,ir}$ suggested an inverse relationship between lending rate and government debt. This relationship was statistically significant and showed that a positive shock in interest rate contributed to decrease in lending rate and this would foster aggregate demand and private consumption in the country. Hence, as interest rates charges on debt reduce, government intends to borrow more at highly reduced interest rates in order to enhance aggregate demand and private consumption. A positive value of $\beta_{tr,B}$ implies that an increase in government debt would result in an increase in government revenue and this estimate was theoretically consistent. The estimated coefficient of $\beta_{gexp,tr}$ suggested a direct relationship between tax revenue shocks and government expenditure. Thus, since tax revenue was an income to the government, it would enhance both private and public consumption. This was in conformity with the result of Alfred et al. (2013).

Variance Decomposition of Fiscal Policy Shocks: The decomposition of forecast variance was used to examine how much the fitted SVAR deviates from the actual values of the vector of endogenous variables. What percentage of a variable's deviation from its forecasted value was attributable to another variable provided additional insight into historical relationships. Evidence for contemporaneous correlation exists when one variable begins to explain the forecast variance in the other with a time lag. This occurs because the correlation takes time to work through the lags in the system. Table 6 to 9 reported the results of the forecast error variance decomposition for the SVAR model of the relationship between fiscal policy variables shocks (government expenditure, tax revenue and government debt) and private consumption in Nigeria. When interpreting the results, the ordering of the variables was important because the decomposition assumed that all the variances in the initial period were entirely due to the first variable in the ordering. As the forecast horizon expanded, the other variables in the system began to exert their influence. In Table 9, for example, if interest rates variable was first in the ordering, this means that it explained all of its forecast variance in the initial period. It was possible that results might be sensitive to potentially arbitrary variable orderings. Without strong theoretical guidance, a common recommendation was to switch the variable orderings in order to check for robustness.

The first column in Table 9 listed the steps in the forecast with each step corresponding to one quarter. Thus, the first step represented the first quarter of the forecast while the tenth step represented the tenth lag. The total forecast horizon covered one hundred and thirty-two quarters (thirty-three years). The next four columns in the table reported the percentage of forecast variance in the government debt explained by government debt, tax revenue, government expenditure and private consumption, respectively. The response of government debt to shocks in tax revenue was zero in the first period and negative in the second period. These shocks continued to increase till the fifth period and decrease in the sixth period. The shocks continued to be volatile from the sixth periods to the tenth period. The response of government debt to shocks in government expenditure also recorded zero in the first period and continued to be volatile till the ninth years

and negative in the tenth year. The negative shock that emanated from government expenditure to government debt indicated that discretionary government policy in terms of change in government expenditure reacted inversely to change in government debt. Furthermore, the response of government debt to shocks in private consumption was negative for all the periods except the ninth and tenth period. Thus, this indicated that changed in government debt in Nigeria responded to negative shocks from private consumption. Hence, increase in government debt deterred private consumption in Nigeria.

Table 9: Variance Decomposition of Response of Government Debt

Period	S.E.	GEXP	TR	PC	B	IR
1	0.019234	2.258749	12.81888	8.602370	76.32000	0.000000
2	0.027323	1.119267	6.360055	4.272048	87.84194	0.406691
3	0.033852	1.486670	4.575711	3.044395	90.39388	0.499340
4	0.038433	1.456325	3.631697	2.363880	91.87754	0.670558
5	0.042037	1.963050	3.157141	2.028735	92.13075	0.720323
6	0.044849	2.327449	3.436122	1.793452	91.69494	0.748035
7	0.047177	2.900975	4.065909	1.638131	90.66855	0.726439
8	0.049170	3.423743	5.290725	1.508867	89.08932	0.687342
9	0.050945	4.016909	6.836295	1.406879	87.09841	0.641508
10	0.052589	4.579016	8.751514	1.342282	84.72279	0.604400

Note: *Shocks are estimated using Factorization: Structural Standard Errors: Analytic*
Standard errors are in parenthesis
Source: Author, 2015

Table 10: Variance Decomposition of Response of Tax Revenue

Period	S.E.	GEXP	TR	PC	B	IR
1	0.012079	6.774290	93.22571	0.000000	0.000000	0.000000
2	0.016000	3.871441	80.79960	15.00261	0.023530	0.302824
3	0.020790	3.148402	81.89483	14.06098	0.633807	0.261974
4	0.024051	2.382366	80.39761	15.49161	1.244021	0.484391
5	0.027017	2.053899	81.24575	13.97844	1.967759	0.754158
6	0.029227	1.774554	81.55340	12.78575	2.608956	1.277342
7	0.031164	1.597994	81.91831	11.40117	3.198061	1.884460
8	0.032739	1.454068	81.90669	10.34459	3.711382	2.583263
9	0.034125	1.343774	81.71952	9.540064	4.166493	3.230144
10	0.035302	1.255853	81.38775	8.986464	4.573213	3.796718

Note: *Shocks are estimated using Factorization: Structural Standard Errors: Analytic*
Standard errors are in parenthesis
Source: Author, 2015

The response of tax revenue to shocks in interest rates, government debt, government expenditure and private consumption was presented in the table 10. The response of tax revenue to shock in interest rate showed that 87 percent changed in interest rate responded to a change in tax revenue and 10.6 percent change in government debt also responded to change in tax revenue in the first period. In the third period, tax revenue responded to negative shocks from all the variables in the system. The negative shocks are 10.2%, 17.6% and 5.8% from government debt, government expenditure and private consumption respectively. In addition, the response of tax revenue to shocks in both government expenditure and private consumption decreased as the periods increased until the ninth period and tenth period for government expenditure and private consumption respectively. Thus, this response indicated that the effect of fiscal policy shock on private consumption has non-Keynesian effect; this was in conformity with the work of Giavazzi and Pagano, (1996) and Giavazzi, Jappelli and Pagano, (2000).

Table 11: Variance Decomposition of Response of Government Expenditure

Period	S.E.	GEXP	TR	PC	B	IR
1	0.021852	100.0000	0.000000	0.000000	0.000000	0.000000
2	0.024483	93.39942	2.525189	1.759918	0.003548	2.311922
3	0.028446	91.43210	2.348816	3.283824	0.067942	2.867318
4	0.031167	85.97437	3.126064	7.357862	0.179891	3.361809
5	0.033874	82.45655	3.076577	10.86279	0.411889	3.192197
6	0.036269	78.25839	3.264394	14.87968	0.665353	2.932185
7	0.038475	75.09137	3.287553	18.03089	0.948764	2.641424
8	0.040454	72.17557	3.442434	20.77248	1.208420	2.401092
9	0.042222	69.92746	3.608660	22.80984	1.446266	2.207771
10	0.043799	68.02281	3.879517	24.39691	1.645818	2.054938

Note: *Shocks are estimated using Factorization: Structural Standard Errors: Analytic*
Standard errors are in parenthesis
Source: Author, 2015

The response of government expenditure to shocks in government debt, tax revenue and private consumption as presented in table 8 showed that government expenditure responded to positive shocks in all the variables in the system but in different categories. The shock in government debt accounted for a maximum of 12.6% response to government expenditure. This showed that a unit percent shock in government debt would response to 12.6% changed in government expenditure. Shock in tax revenue accounted for approximately 30% changed in government expenditure. This showed that the Nigerian government financed larger part of her expenditure with the tax revenue generated either from oil or non-oil export. The shock in private consumption accounted for approximately 6% changed in government expenditure.

Table 12: Variance Decomposition of Response of Private Consumption

Period	S.E.	GEXP	TR	PC	B	IR
1	0.011995	11.24425	40.43348	48.32227	0.000000	0.000000
2	0.012789	10.00800	35.76793	51.74420	0.829643	1.650232
3	0.014439	9.069016	34.07171	54.00278	0.854806	2.001686
4	0.014831	8.677438	33.15220	54.38960	1.035550	2.745212
5	0.015294	8.220840	34.25510	53.70218	1.001781	2.820093
6	0.015485	8.107072	35.15658	52.89592	0.980786	2.859642
7	0.015725	7.874888	36.77847	51.59977	0.965988	2.780881
8	0.015912	7.797348	38.05971	50.44187	0.984804	2.716263
9	0.016119	7.669264	39.44033	49.19979	1.043357	2.647255
10	0.016304	7.616353	40.55086	48.11917	1.125469	2.588152

Note: *Shocks are estimated using Factorization: Structural Standard Errors: Analytic*
Standard errors are in parenthesis
Source: Author, 2015

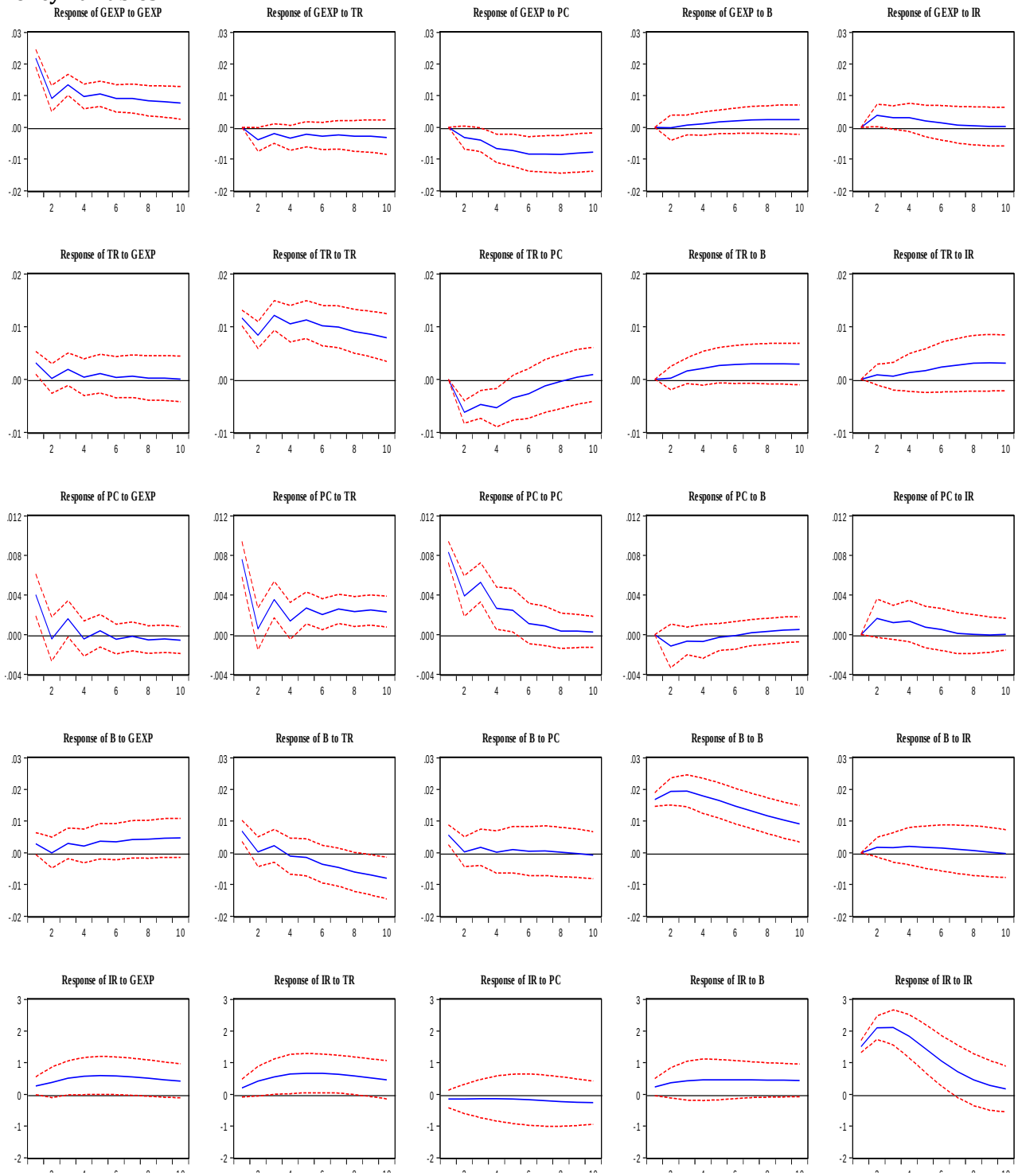
The response of private consumption to shocks in government debt, tax revenue and government expenditure was presented in table 12. It showed that in the second period, the private consumption responded to negative shocks from all the variables in the system. Subsequently, government debt shock maintained a positive shocks for the rest of the periods likewise the tax revenue shock. This indicated that shocks from both government debt and tax revenue enhanced the change in private consumption positively. This was in conformity with the Keynesian effect of fiscal policy as indicated in the works of Schclarek, (2003) and; Medee and Nembee, (2011). However, private consumption responded to negative shock from government expenditure in the fourth period. This shock was more than 50%, indicating that changed in government expenditure would result in decrease in private consumption. Hence, this was in conformity with the non-Keynesian effect of fiscal policy on private consumption (Giavazzi & Pagano, 1996). Finally, at an average, private consumption responded to positive shocks in government debt, tax revenue and government spending. This showed a mixed results between Keynesian and non-Keynesian effect on private consumption in Nigeria.

Impulse Response Function of Structural VAR Result: The impulse response function (IRF) enables one to analyze the response of one variable to a random shock in another variable while maintaining the original units of the data as well as providing an estimate of uncertainty. The results presented here were based on a Structural decomposition of the estimated residual covariance matrix of the estimated SVAR. Substantively, the IRF is useful because it provides a more statistically principle means of measuring a variable's response to changes in another variable. In the present context, the IRF helped in determining how quickly private consumption (fiscal policy variables) adjusted after being shocked by an unanticipated change in fiscal policy variables (private consumption). Such test provided support for substantive hypothesis test with respect to variable dynamics over time. If, for example, theory suggests that a change in fiscal policy variables should enhance private consumption over time, this expectation can be tested using the IRF. It is important to remember, however, that the results presented here were purely exploratory and were intended to assist with theoretical development by giving an account of the dynamic behaviour of fiscal policy variables and private consumption. Theory and evidence regarding the way an increase in government debts, government spending or a tax shock affect private consumption were not conclusive. In particular, neoclassical models predicted a negative response of this variable (Baxter & King, 1993) while the opposite was found in Keynesian and neo-Keynesian models. On empirical grounds, Fatas and Mihov (2001), Blanchard and Perotti (2002) and Gali, Valles and Lopez-Salido (2007) found that the reaction of private consumption to an unexpected government spending shock was positive and persistent. On the contrary, Mountford and Uhlig (2009) found that the response of private consumption was statistically non-significant, while Ramey (2007) provided evidence of a negative reaction of private consumption. As for taxes, Romer and Romer (2007) found that tax increase had a large negative effect on private consumption.

The Effects of Shocks on Private Consumption: Figure 3 column 3 showed the impulse responses to one standard error shock to the private consumption equation at time *t* on expected values of the endogenous variables in the SVAR at time *t + n*. In response to a shock to private consumption, government expenditure declined by -0.03% at second quarter and this continued thereafter to -0.08% at the end of the two years six months horizon. The response of government expenditure was larger on impact when compared to the response of taxes to innovations to private consumption. On the other hand, the response of taxes to private consumption declined by -0.06% on impact but rose to a -0.05% point increase in the fourth quarter. Taxes then rose in the eighth quarter by 0.001%. Thereafter, taxes rose to 0.01% over the next two years. Thus, the impulse response of government spending and taxes to a shock to private consumption were both negative. This was in conformity with the result of Onodje (2009).

The Effects of Shocks on Government Expenditure: Under the assumption of perfect foresight, an unanticipated generalized one standard deviation innovation to government expenditure caused private consumption to rise to 0.04% in the first quarter which declined sharply to -0.04% in the second quarter. In the third quarter, shocks in government expenditure resulted in 0.016% increase in private consumption. In the fourth quarter, private consumption declined to 0.004% and thereafter continued to remain unstable till the tenth quarter when private consumption declined to -0.006%. These findings indicated a mixed result. Hence, it lied between Keynesian and Neo-classical proposition. Thus, this was in conformity with non-Keynesian proposition and similar to the result of Alfonso and Sousa (2009). The shocks in government expenditure caused 0.03% increase in tax revenue in the first quarter and decrease in tax revenue by 0.001% in the second quarter. Hence, this continued to be unstable till eighth quarter and remained steady from the ninth quarter at zero percent till tenth quarter. Thus, the shocks on government expenditure crowded-out private consumption as argued in the Keynesian theory that increase in government expenditure would cause increase in private consumption through increase in income. This result was in conformity with the earlier studies (Onodje, 2009; Sousa, 2009; Mancellari, 2011).

Figure 3: Responses to Structural One S.D. Innovations in Private Consumption to Shocks in Fiscal Policy Variables



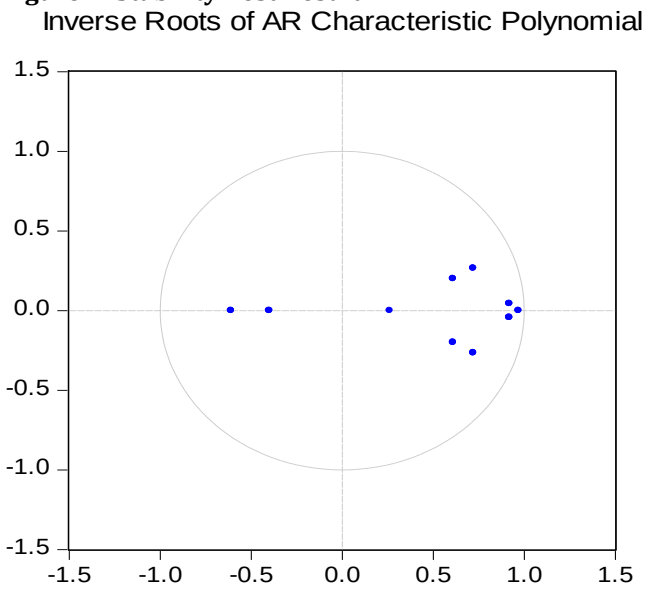
Source: Author, 2015

The Effects of Shocks on Tax Revenue: An unanticipated one standard deviation innovation to taxes caused private consumption to rise by 0.076% in the first quarter. The shock in taxes to private consumption declined to 0.006% in the second quarter. However, there was an unstable changed in the private consumption between third quarter and eighth quarter as a result of shocks in taxes. Meanwhile, in the tenth

quarter the shock in taxes resulted to 0.023% stable in private consumption. Hence, these findings were against the Keynesian proposition that increase in tax revenue due to increase in tax rate would result to fiscal contraction. A positive shock to taxes had a significant negative effect on government spending since the one standard deviation bands included negative values for the entire horizon as shown in figure 5.3, column 2. This might be explained by a deficit-reducing tax increase behaviour that aimed at stabilizing or reducing government debt (Caldara & Kampus, 2008). More specifically, the Nigerian government tends to raise taxes to ameliorate budget deficits and pay down debt incurred in previous periods (deficit-driven tax changes), rather than to raise taxes to increase public investment expenditure in future periods to enhance private consumption (spending-driven tax changes). Thus, a positive shock to taxes as a result of increase in government expenditure in the short-run resulted to an increase in government savings in other to reduce public debt accumulated in previous periods. In summary, figure 3 displayed the responses of private consumption to government debts, government spending and net-tax shocks. The responses of private consumption in the baseline SVAR notably decreased after a positive government spending shock, in line with non-Keynesian models, although such positive response phased out rather quickly. In the same vein, increase in net taxes brought private consumption upwards in quarters following the shocks and the response became significant after the fourth year. Also, the response of private consumption in the baseline SVAR showed an increasing response from a government debt shock in line with Keynesian models. This positive response did not phase out quickly.

Robustness Check of Structural VAR Results: The study employed various measures to test the stability and robustness of the SVAR results. First, in testing the stability condition of the model, the study employed h the graphical root characteristic polynomial. The results of this technique indicated that all the roots of the characteristic polynomial were inside the unit circle signifying that the defined SVAR model was stable as shown in figure 4.

Figure 4: Stability Test Result



Source: Author, 2015

Furthermore, in addition to stability and robustness check the study estimated the matrices A and B to obtain the coefficients of structural shocks based on the earlier stated assumptions. The results of the short-run response pattern of the matrices A and B were presented in tables 13 and 14 respectively.

Table 13: Estimated Coefficients of Matrices A and B using Blanchard-Perotti Method given that $\beta_{tr}^{g\exp}=0$ (Short-run Response Pattern)

$$\hat{A}=\begin{bmatrix} 1 & 0 & 0 & 0.5 & 0 \\ 0 & 1 & -1.35 & -0.95 & 0 \\ 3.400 & 80.272 & 1 & 0 & 0 \\ -11.742 & 82.233 & -106.512 & 1 & 0 \\ -6.692 & -27.360 & 16.182 & -6.482 & 1 \end{bmatrix} \qquad \hat{B}=\begin{bmatrix} 0 & 0.022 & 0 & 0 & 0 \\ 0.012 & 0.003 & 0 & 0 & 0 \\ 0 & 0 & 0.012 & 0 & 0 \\ 0 & 0 & 0 & 0.019 & 0 \\ 0 & 0 & 0 & 0 & 1.571 \end{bmatrix}$$

Source: Author, 2015

(i) when $\beta_{tr}^{g\exp}=0$, the coefficient of government expenditure shock was positively signed and statistically significant at 5% level. This finding indicated that a positive government shock would result to increase in private consumption by 2.2%. This result was in conformity with the Keynesian proposition that stated that increase in government spending would result in increased private consumption through increase in disposable income. Also, the coefficient of tax revenue shock was positively signed and statistically significant at 5% level. The positive tax revenue shock showed that increase in tax revenue through increase in tax rate would result in 1.5% increase in private consumption. Thus, this result was in conformity with non-Keynesian proposition which stated that contractionary fiscal policy would have expansionary effect on macroeconomic variables.

Table 14: Estimated Coefficients of Matrices A and B using Blanchard-Perotti Method given that $\beta_{g\exp}^{tr}=0$ (Short-run Response Pattern)

$$\hat{A}=\begin{bmatrix} 1 & 0 & 0 & 0.5 & 0 \\ 0 & 1 & -1.35 & -0.95 & 0 \\ 3.400 & 80.272 & 1 & 0 & 0 \\ -11.742 & 82.233 & -106.512 & 1 & 0 \\ -6.692 & -27.360 & 16.182 & -6.482 & 1 \end{bmatrix} \qquad \hat{B}=\begin{bmatrix} 0.006 & 0.021 & 0 & 0 & 0 \\ 0.012 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0.012 & 0 & 0 \\ 0 & 0 & 0 & 0.019 & 0 \\ 0 & 0 & 0 & 0 & 1.571 \end{bmatrix}$$

Source: Author, 2015

(ii) when $\beta_{g\exp}^{tr}=0$, a similar result was shown but their magnitudes vary. The coefficient of government spending shock was 2.7% while the coefficient of tax revenue shock was 1.2%. Both coefficients were statistically significant at 5% level. The positive government spending shock was in conformity with Keynesian proposition while the positive tax revenue shock was in conformity with non-Keynesian proposition. In addition, the long-run response pattern of the SVAR result was equally presented as shown in table 15.

Table 15: Estimated Structural VAR Result for Long-run Response Pattern

$$\hat{A}=\begin{bmatrix} 1 & 0 & 0 & 0.5 & 0 \\ 0 & 1 & -1.35 & -0.95 & 0 \\ -1.3218 & -0.7296 & 1 & 0 & 0 \\ 1.1783 & -0.4587 & 0.5593 & 1 & 0 \\ 1.4915 & -3.5937 & 4.1248 & 2.2652 & 1 \end{bmatrix} \qquad \begin{bmatrix} \hat{e}_t^{g\exp} \\ \hat{e}_t^{tr} \\ \hat{e}_t^{pc} \\ \hat{e}_t^{b} \\ \hat{e}_t^{ir} \end{bmatrix} = \begin{bmatrix} 1.1605 \\ -1.8942 \\ -1.8023 \\ 0.0397 \\ 14.0527 \end{bmatrix}$$

Source: Author, 2015

The long-run response pattern of the SVAR result showed that the coefficient of government spending shock was positive while the coefficient of tax revenue shock was negative. The positive government expenditure shock indicated that a unit unexpected increase in government spending would result to 1.2 unexpected increase in private consumption. This was however similar to short-run response pattern. Hence, it was in conformity with the Keynesian proposition. At a final note, a negative tax revenue shock showed that a unit unexpected increase in tax rate would lead to 1.9 unexpected decrease in private consumption. This result was in conformity with the Keynesian proposition that stated that a contractionary fiscal policy in term of increase in tax rate would lead to decrease in consumer's income and this would result to decrease in private consumption in the long-run. This result was in conformity with the earlier studies by Onodje (2009) and Sousa (2009).

5. Conclusion and Recommendations

The paper concluded that a shock in government spending hit private consumption negatively while a positive shock in tax revenue contributed to a change in private consumption. This showed that a unit positive shock in government revenue reduced private consumption by 97 percent and this crowded-in private consumption in Nigeria. Also, the negative shock emanated from government expenditure to government debt indicated that discretionary government policy in terms of change in government expenditure reacted inversely to change in government debt. The response of tax revenue to shocks in both government expenditure and private consumption decreased, indicating that the effect of fiscal policy shock on private consumption has non-Keynesian effect in Nigeria. Furthermore, the private consumption responded to positive shocks in government debt, tax revenue and government spending. This showed a mixed results between Keynesian and non-Keynesian effect on private consumption in Nigeria and the response of private consumption in the baseline SVAR showed an increasing response from a government debt shock in line with Keynesian models. Hence, the results of the paper confirmed the existence of both the Keynesian and non-Keynesian effect of fiscal policy. In line with this, this paper recommended that government should exercise fiscal discipline; this can be achieved through reduction of wasteful spending. With this step, it will be relatively easy to determine the expenditure growth pattern in Nigeria.

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Contribution of Financial Literacy to Behavior

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Abstract: Almost all the people around the world behave with money in daily lives whereas understanding how they behave is important. It is obvious that the education, which can not affect behavior of people, is worthless. Financial literacy also is believed to change financial behavior of individuals. Financial literacy implies two sides, i.e. concept and application of personal finance. The concept consists financial knowledge and basic skill of numeracy and financial decisions; the application consists the financial behavior. The focus of the article is to discuss how the financial literacy contributes financial behavior and thereby financial well-being of individuals. For this, the article presents a transmission mechanism of financial knowledge and skill to the financial behavior through a framework. However, there are some contexts, conditions and criterions to transmit the financial knowledge and skill into financial behavior and well-being. Moreover, categorizing the financial behavior of individuals is a significant issue in study of financial literacy. Particularly for the survey research, a new categorization and degree of the financial behavior is presented, which is ranked as good, moderate and weak financial behavior in comparative ways. The study establishes the relevancy of the evaluation criteria of financial behavior and also presents a framework on how the financial educations work/contribute in financial behavior.

Keywords: *Financial literacy, financial behavior, financial well-being, transmission mechanism, personal finance*

1. Introduction

Sometimes, financial education and financial literacy are interchangeably used though these are neither same nor isolated concepts. This section deals with some background and concepts on financial literacy. Understanding the financial literacy has two facets: conceptual and operational (Remund, 2010).The first one is about understanding the common and basic aspects of financial matters such as income, financial planning, budgeting, saving, borrowing, spending, and investing, whereas the second is about how the individuals behave with money and personal financial resources in their daily lives. The operational part of the financial literacy is more contextual in terms of person, time, and place. Personal financial resources are income and borrowing, other things remaining the same. Fraczek and Klimontowicz (2015) present another facet of financial literacy and education as financial capability. Financial capability is expressed synonymously as financial skill. It is about how rationally one can take financial decision and how efficiently allocate available limited financial resources, i.e. income and borrowing to achieve several life-needs. Financial literacy is the ability to understand finance (Ansong and Gyensare, 2012, p126). Typically, financial literacy considers the matter of personal finance rather than 'finance' as a whole. Similarly, merely understanding of the personal financial matter is only a part of financial literacy. The application of financial resources efficiently is a subsequent part of financial literacy. Ravikumar (2013) opines financial literacy as personal financial skill that affects financial well-being of individuals. However, he has left to mention how the well-being is achieved without any behavioral bridge between the literacy and well-being. Buckland (2010) defines financial literacy in both narrow and broader sense. In narrow sense, the individuals behave in normal, linear and normative way what they have learned regarding the financial matters. In broader sense, the individuals behave beyond the normality, be critical to the system about what is going on in financial market and what should be there, and about their rights from financial system, consider the socio-economic aspects of personal financial matters, be more active in increasing financial gains, take some financial risk for further benefit in some innovative ways, develop skill of negotiation in financial market and thereby optimize their economic welfare ultimately.

Huston (2010) opines that financial literacy, financial education and financial knowledge are similar concepts. But, I argue that the financial education, knowledge and literacy are not the same concepts as he claims. However, the financial education is the source of financial literacy (Sucuahi, 2013) and the financial knowledge is one of the dimensions of financial literacy. Moreover, Scheresberg (2013) presents financial

literacy beyond the financial education. But he is unable to present the evidence and argument behind this. I argue that financial literacy is an intermediate target of financial education, whereas the education is more than the literacy as well. The literacy is basic knowledge and skill that helps to achieve more scope of learning and increases the employability. Several studies and literature explain financial knowledge, skill, attitude, behavior and well-being within a circle. However, I argue that the financial education provides a set of financial knowledge and skill, which is expressed as financial literacy. In the next phase the literacy contributes to its application, i.e. how persons apply their knowledge and skill into practice, other things remaining the same. There is a wide gap between behavior and well-being. Hence the behavior is about how rationally the individuals behave as their knowledge, skill and other circumstances. The well-being is the destination of the behavior. In other words, financial literacy is an important predictor of financial behavior (Scheresberg, 2013, p1). Moreover, Buckland (2010) believes on a functional version of financial literacy, i.e. financial knowledge and skill have a functional relationship with financial position or well-being. However, without proper financial behavior, the well-beings are not achieved that directly. Shortly, Most of the previous works on financial literacy conclude on positive association of financial literacy of individuals with their financial behavior. But non-of the available studies are able to present a clear mechanism or path about how the financial literacy really works? Additionally, most of the studies talk and mention about measuring and explain financial behavior this and that way; however there is gap of proper, empirical and data based categories and evaluation of financial behavior about how to understand what the people do with their money and financial literacy.

2. Dimensions of Financial Literacy

Commonly, there are four dimensions of financial literacy, i.e. financial knowledge, skill, attitude and behavior. However, the first two are basic and the latter two are gradual dimensions. This section discusses about dimensions of financial literacy. Additionally, financial well-being is understood as the destination of financial behavior. Financial knowledge is about the information, awareness and understanding of financial matters. Financial skill is about how the individuals take financial decision, how they take a purchase decision, how they negotiate for the purchasing and consuming financial services, how they calculate interest, charges, taxes, discounts and penalties on saving and borrowing. Conceptually, the financial knowledge and skill make financial literacy in primary level. Moreover, financial attitude is psychological judgment of individuals about financial services and service providers. The judgments are positive, negative, passive and/or indifferent towards the financial matters, service providers and financial behavior as well. The next dimension is about how the individuals behave with money in their regular lives, i.e. financial behavior. However, financial well-being is also considered as a new dimension of financial literacy.

Australian Securities and Investments Commission (2014), Organization for Economic Cooperation and Development (2005), Carpena, Cole, Shapiro and Zia (2011) and Atkinson and Messy (2012) present four dimensions of financial literacy, i.e. financial knowledge, financial skill, financial attitude and financial behavior of individuals. Lusardi and Mitchell (2014) have mentioned financial knowledge, numeracy and planning skill and financial behavior as the financial literacy dimensions. She has left the role of attitude formation in financial literacy; however attitude and intention are linked with financial behavior. According to the behavioral theories, the behavior of individuals is more or less subject to change with psychological function of individuals towards any activities. Numeracy and financial planning, she has mentioned, are also the parts of financial skill. However, Program for International Student Assessment (2012) has added financial well-being as a new dimension of financial literacy. Xu and Zia (2012) mention financial literacy and behavior as two major dimensions. They have further explained financial knowledge and skill are integrated as financial literacy and financial behavior as the impact of financial literacy. Financial awareness itself is not a different dimension; it is a part of financial knowledge. Additionally, some studies express financial awareness, financial understanding, and financial consciousness as the financial knowledge. Synonymously, financial ability, confidence, capability, decision making are similar to financial skill. Financial skill is a personal capability in financial matters and calculations as well. Next is about financial attitude, which is about how the peoples are psychologically guided. Financial literacy, i.e. knowledge and skill sometimes can affect the financial attitude of individuals and sometimes not. The financial behavior is a financial practice that is guided by financial culture and several other variables as well, not only by financial literacy and attitude. Very few authors have argued about financial well-being as a different dimension of financial

literacy, hence it is a long term effect of financial literacy, behavior and other situational factors. However, all of the available studies are unable to show a linear path how the dimensions are interrelated to each other and/or how one dimension contributes another. Similarly, it is also practical that stepping from one dimension to another is only possible with some assumptions and time lags as well. Such assumptions and time lags are time, context and priority specific of the individuals.

Indicators of Financial Behavior: Understanding, measuring, and evaluating financial behavior of individuals is important but a difficult task. There are three basic difficulties in this: *first*, usually the people desire to make secret of their financial activities; *second*, there is scaling limitation about the financial behavior of individuals whether their financial behavior is right/wrong and/or good/bad; and *third* is about lack of unanimous measuring and categorizing tools of behavior as well. This section deals with some of the indicators to explore and explain the financial behavior of the individuals. These indicators show and indicate how the individuals are using their money and personal financial resources. The indicators presented here are supposed to be useful in both qualitative and quantitative studies. The section also presents a category of scaling the financial behavior of individuals that helps the researchers to reflect the behavior in comparative and calculative ways.

Lyons (2005) mentions saving, credit, wealth accumulation, investment, negotiation in shopping, making household budget, periodic review of saving/credit report, home ownership and making financial plan are some of indicators of financial behavior of persons. Dew and Xiao (2011) have presented cash flow management, saving and investments, credit and insurance as the indictors of financial behavior. Hastings, Madrian and Skimmyhorn (2013) have presented retirement planning, saving, investing and wealth accumulation as indicators of financial behavior. The indicators of financial behaviors: saving; planning for retirement; absence of debt; stock ownership and investment decisions; cash flow management; activity in retirement plans; and financial inertia such as choice of default options and payment of unnecessary fees (Fernandes, Lynch and Netemeyer, 2014, p6). Robb and Woodyard (2011) opine that cash/credit management, emergency savings, retirement plan, risk management and state planning are indicators of financial behavior of persons. Xu and Zia (2012) have mentioned financial record keeping, borrowing and investing, improve in business practice, asset accumulation, revenue mobilization through tax collection are some of the financial behavioral indicators. All the references per se present similar activities as the indicators of financial behavior that have more similarities in showing how the individuals behave with money and personal financial resources. Normally, income and borrowings from other sources are treated as personal financial resources that are expected to be utilized in productive sector, i.e. income generating activities. Common indicators of financial behavior are saving, borrowing, investing, budgeting, planning, financial record keeping, identifying and managing financial risk, purchasing and selling financial instruments and making purchasing decisions in regular lives etc. Still the question remains important of how financial behavior is to categorize for comparing, evaluating and calculating the financial activities of individuals. Most of the literature and studies mention that financial behavior is important to measure but there is a gap to explain what categories of those activities represent clear, flexible and comparable categories.

Xiao, Chen and Chen (2013) and Agarwalla, Barua, Jacob and Varma (2012) have presented two scales to indicate the financial behavior of individuals, i.e. negative or undesirable and positive or desirable. They further argue that the positive behavior contributes to better financial well-being and satisfaction and vice-versa. However, they are unable to categorize the in-between nature of financial behavior which seems difficult to say neither positive nor negative in particular period of time. And also to understand the negative behavior is quite difficult in their studies, however they have fail to mention what financial behaviors are either positive or negative. Similarly, such extreme judgment of financial behavior of others as positive and/or negative can create a confusion sometimes. Some examples of positive and desirable financial behavior of individuals are: spending in consumption below personal income, promoting regular saving, wise use of credit, regular assessment of credit utilization, making budget (a projection of personal income and expenditure for the future), seeking and following financial advices and counseling, wise investment decision, family discussion and decision in financial matters, paying the utility bills timely, serving the credit properly, portfolio diversification for minimizing financial risk, timely reviewing the financial position of individuals etc.

Some of indicators of financial behavior according to Hogarth, Beverly and Hilgert (2003) are cash flow management, regular saving, investment activities, proper credit utilization, account ownership, asset accumulation etc. They have further categorized the financial behavior of individuals into high, medium and low. They have scaled 25 percent and below financial behavior score as low, 25-70 percent as medium and above 70 percent score as high financial behavior. Still, they are unable to explain how to understand the 'high' financial behavior whether as good, very good, or best or anything else. Actually, high and low seems unconformable evaluation of financial behavior of people. Such scoring practice of financial behavior in percentage basis is also criticized as *ad hoc* practice in measurement. Additionally, Atkinson and Messy (2012) and Organization for Economic Cooperation and Development, International Network of Financial Education (2012) have categorized the financial behavior tying with financial literacy. According to them, those are financially literate who keep the financial records properly, check the personal financial records actively and regularly, pay the bill timely, and use credit cards etc. Here the new problem may arise with this analysis when the researcher desires to see the causal relationship of financial literacy with financial behavior. Another, some behaviors are not so good, and not so weak, that is not mentioned in the categorization per se. If the behavior is not classified with some basis and categories, the relationship seems difficult to establish. Therefore, I argue that the categorization of financial behavior of the individuals is better to categorize into good or satisfactory, weak or very less satisfactory and moderate.

3. Theoretical Lens in Financial Behavior

Human behavior is influenced by several factors and situation. Behavior explains about how the individuals act and behave within a certain circumstances in particular time. This section discusses some theoretical lens to see what are the factors that are affecting the human behavior and then link it with how one behave with money and personal financial resources. Two approaches, basically, are considered in this study to discuss; one is social learning theory propounded by Albert Bandura and another one is the theory of planned behavior developed by Icek Ajzen. Ajzen (1991) has discussed that person's intention (motivation), ability, attitude, subjective norms, self-regulation, resources, opportunities, personality traits and perceived behavioral control factors are major determinants of behavior. Australian Securities and Investment Commission (2011) has mentioned that the knowledge merely is not enough to affect one's financial behavior.

Shim, Barber, Card, Xiaoand Serido (2009) have mentioned about consumer financial socialization according to which, the financial knowledge, skill, attitude and behavior of individuals or adolescence are influenced by parents, school and working place. They further mentions that the financial behavior of individuals is affected with three attitudinal factors, i.e. attitude towards financial matters and behavior, subjective financial norms and perceived financial control behavior. Moreover, financial behavior of individuals is also influenced by mass media, economic condition of country and level of financial need of them as well. Behavior is affected by how individuals think and evaluate about financial matters, i.e. how individuals make priority of their behavior. For example, if someone is financially aware about default of loan that may result the loose of collateral property according to the law, s/he tries to pay the installment of borrowing timely and properly. Additionally, Shim, Barber, Card, Xiao and Serido (2009) advocate theory of planned behavior, the psychological and/or attitudinal factors are major contributors in human financial behaviors. Here, the attitude is a psychological factor about thinking and evaluating the financial matters and system as a whole by each financial consumer. The attitude is affected by one's financial knowledge, while other things remain the same. Attitude is understanding, perception and mind make up of something that affect one's activities and behavior. For e.g. if I am satisfied with the future usefulness of saving, I start to save and make it continue and vice-versa. In short, theory of planned behavior links how financial literacy contributes the financial behavior. Similarly, perceived behavioral control is related to normative limitation of understanding of individuals. Individuals understand and perceive some financial activities from their parents, schools and others in society and they behave accordingly. They sometimes control and sometimes promote their behavior with their perceived knowledge and subjective understanding rather objective knowledge as well.

Behavior of individuals, according to social learning theory of Bandura (1971) is mainly affected by experience, knowledge, observation, demonstration effects, fear and safety consciousness, greed and future expectation, motivation towards financial benefits, awareness and consciousness on particular matters, attraction/promotion of behavior etc. Financial experience of past, may affect financial behavior of today

because the individuals usually tries to follow what they have done before which is also depends on financial culture. Financial culture is how the individuals are living in financial circumstances for a long. Financial knowledge on financial matters and system, observation and demonstration effects are some of important variables to affect one's financial behavior. People follow or copy what others do is a normal phenomenon in financial activities too. Similarly, Fear and safety consciousness, greed and future expectation, motivation towards financial benefits, awareness and consciousness on particular matters, attraction/promotion are some other variables to affect one's financial behavior. For e.g. if I think that my financial future is safe with my saving, then I start/continue to save and vice-versa. Similarly, if I think that the future rate of rerun will be high in saving or investing, I will save or invest with its future expectation. Motivation is also important in financial behavior. Motivation has two facets, positive motivation for expectation, gain and attraction whereas negative motivation for fear of loss, damage, downsize etc. Likewise, awareness and consciousness of someone towards financial matters and system make more intimate in financial behavior. Awareness and consciousness is also close to knowledge and understanding. If someone is aware of financial risk/return, cost/benefits and opportunity cost of financial gain, his/her financial behavior differs. Risk is about doubtful situation of saving/investment in one financial institution and the benefit is the assurance and consistency of the interest rate provided by the financial institutions. It is obvious that, no one is motivated to save/invest their life-earning in doubtful and unsecured financial institutions. Normally, people follow lower risky, higher returning, low cost and higher benefit financial matters in their lives, comparatively. Correspondingly, attraction and promotional activities are also the factor affecting one's financial behavior. If the people are made aware of financial benefits from financial investment, they will be motivated towards it and vice-versa. In short, financial behavior is primarily affected by psychological factors such as attitude, perception, financial norms, and situational factors as well. According to the theories, behavior is not an absolute and isolated matter, it is contextual as well.

Contribution of Financial Literacy to Behavior: Does financial literacy make a difference, if yes, how? According to the findings of several previous studies, the financial literacy contributes financial behavior of individuals. Similarly, what makes or produces financial literacy in practice and how the financial literacy transmits to financial behavior are interrelated concerns each other. To show a path or channel between financial literacy and behavior, a transmission mechanism is appropriate to demonstrate. Transmission mechanism is about how an intervention helps to achieve the aim of intervention and/or a structure to present how financial literacy contributes financial behavior. This section discusses and demonstrates how the financial literacy contributes financial behavior. Proposed model or a graphical presentation that has five gradual phases: education (as input), financial literacy that consists of knowledge and skill (as output), financial attitude and behavior (as outcome), and financial well-being (as impact). How the financial literacy (a combination of financial knowledge and skill) contributes financial behavior is demonstrated through the following conceptual framework. The proposed framework also requires 3 Cs; i.e. context, conditions/assumptions and criterions to satisfy the achievement or target. The framework is a consolidated idea of previous studies containing education, literacy, behavior and well-being.

There are three different findings and claims of previous research and studies that financial literacy contributes financial behavior significantly, financial literacy contributes financial behavior moderately and financial literacy does not contribute financial behavior at all. Lusardi, Mitchell and Curto (2010) and Scheresberg (2013) argue that financial literacy is a strong predictor and contributor of financial behavior of individuals. However, Mandell and Klein (2009), Tisdell, Taylor and Forte (2013), Carpena, Cole, Shapiro and Zia (2011) and Forte (2012) have found a poor contribution of financial literacy on financial behavior. But, they do not diagnose the reason of the poor effects further. All of these findings show that peoples do not always necessarily behave according to their financial awareness, skill and attitude. However, it is also not necessary that all the studies find the positive contribution of financial knowledge and skill in financial behavior. Some measuring styles, level of participants and also may vary the findings. Several studies provided evidence of a link between knowledge and behavior, though they vary in how knowledge is measured and what behaviors are addressed (Robb and Woodyard, 2011, p61). Moreover, Monticone (2010) has double barrel opinion about the relationship between financial literacy and behavior that the financial literacy contributes financial behavior and also sometimes the financial behavior affects financial literacy; however the double barrel argument is required to be justified further how the behavior affects financial literacy. He has further argued that the past financial behavior teaches the knowledge to the individuals and

again that affects to the future behavior, but he has left to mention what factors affect the past financial behavior actually. I argue that the past behavior are affected by family, peers, schools, Medias and community etc. However he has also left to mention that the financial education does not merely contributes to gain financial knowledge; it also provides financial skill as well. Similarly, the knowledge has the effects in financial attitude of individuals and thereby the behavior, according to the theory of planned behavior.

Financial education can help individuals gain financial knowledge and that financial knowledge is linked to financial behavior (Collins, 2010, p13). It shows that the financial education is one of sources of financial literacy. Fatoki and Oni (2014) argue that the financial literacy contributes financial behavior of individuals through saving, borrowing, investment, and retirement planning and portfolio choices. Here they have connected financial behavior through particular financial indicators; however there are other several indicators as well. Fernandes, Lynch and Netemeyer (2014), Robb and Woodyard (2011) also believe in stronger association between financial literacy and behavior. They have ignored the contribution of financial attitude in financial behavior; however, the financial literacy includes financial knowledge and skill. According to Agarwalla, Barua, Jacob and Varma (2015), attitude towards money and finance, and financial knowledge affect financial behavior of individuals; however they have also left the contribution of financial skill in financial behavior. They show a contribution of financial attitude in financial behavior. Further, there is a positive association between financial attitude and behavior (Atkinson and Messy, 2012). Selcuk (2015) has also found a positive contribution of financial knowledge and attitude in the financial behavior of participants where they have mentioned timely payment of bill, making personal financial budget and saving activities as the financial behavior. However, they have also left the contribution of financial skill in the financial behavior of individuals. Moreover, Willis (2013) presents a correlation between financial education and financial knowledge, between financial and financial behavior but weak relationship between financial education and financial well-being. There are two parts of this argument: the education itself is necessary but not sufficient to influence one's financial well-being. Next, education does not mean only the formal education what we have conceptualized. Professor Parajuli (2013) challenges to traditional understanding of merely the formal source of education is sufficient and further opine to accept and prioritize multiple forms of learning and knowledge gain that comes from the experience, culture and tradition too.

Consumer Financial Protection Bureau (2015) also mentions that the financial literacy has direct role in financial well-being of individuals where the well-being is defined as control over the regular personal financial activities, self-confidence or self-efficacy, financial capacity to cope the financial shock, following right path of obtaining financial goal, and enjoying financial security and autonomy. Similarly, the bureau has also presented that a hierarchy of financial education contributes financial knowledge and skill that contribute financial behavior and thereby financial well-being. Here the financial attitude and financial intention to bridge the financial knowledge and skill with financial behavior are missing. However, the ways of achieving financial well-being through financial literacy is not clearly mentioned. The traditional beliefs on financial well-being about measurable financial wellness of individuals has been changed these days. The present wellbeing concept has changed to material and non-material aspects of a person's perception from their financial status, improving their living standards and includes perceptions such as: ability to meet the needs, feeling safe, feeling comfortable and satisfied with the income and the award distribution system (Taft, Hosein, Mehrizi, and Roshan, 2013, p65). Financial behavior has the effects to financial well-being of individuals (Dew and Xiao, 2011, p44).

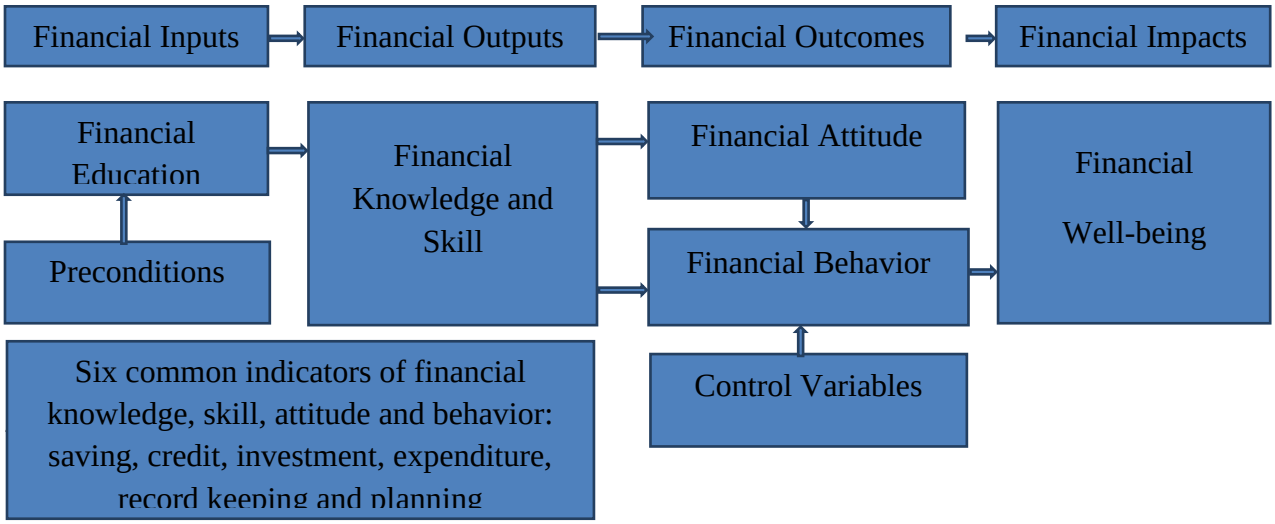
Almost the literature and previous studies have three major claims on financial literacy and its effects: *first,* the financial education contributes financial literacy that includes financial knowledge and skill; *second,* financial literacy contributes financial attitude and behavior; *third*, financial attitude and behavior contributes financial well-being. However, some studies claim that the financial literacy contributes financial well-being also. Furthermore, financial education is one of the major sources of financial literacy that again contributes financial attitude and behavior and thereby financial well-being. In practice, all the claims made per se are based on some assumptions and conditions to fulfill. But, none of the available studies have clearly explained how the financial literacy transmits to financial behavior and thereby financial well-being in a single demonstration. Financial education has a primary target to improve financial knowledge and skill, improve in financial behavior as a gradual target and improve in financial well-being as an ultimate target. On the basis of above mentioned literature and studies, I have presented a framework of transmission mechanism of

financial literacy to financial behavior and thereby the financial well-being. In the beginning part of the framework/model, financial education is input to make the individuals financially knowledgeable and skilled. Here, the financial knowledge and skill that the people gain from several possible educational sources is the desirable situation and alternatively said financial outputs. Financial education is not an absolute concept and is also affected by several other contexts and preconditions. Some of the preconditions are political/legal, technological, rival situation of education providers, financial resource limitations, policy constraints and sociological aspects. Here, the financial knowledge and skill are the output variables that are under control of education providers. Some of the sources of such education are mass Medias, formal education, family, peer, neighbors, observation visits and audio-visual aids etc.

In the next stage, the knowledge and skill on financial matters and financial market in total, make individuals financially literate, thereby it contributes financial attitude and thereby financial behavior. Financial attitude and behavior are attributed as outcome variables which are expected or desired situation of intervention in terms of financial literacy. I argue that the output variables convert into financial outcome variables subject to positive effort of individuals. In the gradual stage, the financial literacy (knowledge and skill) contributes financial behavior via financial attitude and sometimes directly. This outcome situation is not fully under direct control of intervention or financial education, however the intervention can only to expect the desired situation. Outcomes from the particular outputs are achieved when the people themselves act accordingly. Dahal and Uprety (2015) describe output as expected results or deliverables, outcome as only accountability of intervention and impact as effect in people's well-being. They have also described these three variables, i.e. output, outcome and impact as a hierarchy of change that comes from particular interventions with some conditions and assumptions. They have further argued that these variables are linear but not necessarily the proportional due to unequal time lag between one to another phase. Normally, the situation or the outcome is out of accountability of intervention. Final stage of this model says that when the behavior contributes the well-being of individuals, the impact or the well-being is expected to be sustainable for the long-run.

The proposed model/frame does not only explain how the output (financial knowledge and skill) contributes outcome (financial attitude and behavior) but also the outcomes are affected by other factors as control variables. The control variables to work in this model may be several, some of them are; income of people, availability of proper financial services, propensity to consume and save, inflation, market interest rate, financial culture, economic situation and demographic variables etc. Affecting the financial outputs is an intermediate target of financial interventions and change in financial outcomes or behavior positively is the ultimate targets. The major argument of the model is if a person is financially educated, his/her stock of financial knowledge and skill is expected to increase. Secondarily, if the person behave according to the knowledge and skill, his/her financial well-being is expected to be better-off, other things remaining the same.

Figure 1: Transmission Mechanism of Financial Literacy to Behavior



Financial literacy is a contemporary personal financial issue that concerns how the persons understand and behave with money, income and personal finance. There are four common financial literacy dimensions, i.e. financial knowledge, skill, attitude and behavior, however financial well-being is an ultimate destination of the financial understanding and behavior. Financial literacy is not same for all. It is different for male/female, rich/poor, educated and uneducated, different age group, employed and unemployed, rural urban people and also country to country. The conceptual understanding on financial literacy in one economy may not exactly the same with another economy. Lusardi and Mitchell (2014) and Hogarth, Beverly and Hilgert(2003) deny the *one-size-fits-all* approach of financial education to achieve expected behavioral change in financial matters, it is because the priority, demand, context, gender, age, education, background and socio-economic status of individuals are different. So, there is required a right financial literacy for right persons in right manner in right place in right way. As a significant dimension of financial literacy, it is quite difficult task for the researchers to understand and measure the financial behavior. Additionally, understanding the financial matters and skill is required to convert into behavior. People are doing their financial activities knowingly and unknowingly and sometimes partially knowingly as well. It is therefore, not all the financial behavior is guided by knowledge and kill, sometimes with experience, expectations and motivations as well. According to the behavior theories, most of the financial behavior depends on the situation, terms and conditions of institutions, need and priority of the individuals and several other factors as well. Similarly, the financial behavior of individuals can be seen with how they earn, spend, save, invest, borrow and utilize their financial resources in daily lives. I conclude my study to discuss with some of findings, raising some of issues related to the financial literacy and providing some implications.

The several studies have directed towards justifying that the financial literacy contributes financial behavior. I find that financial literacy is basically a behavioral issue in financial matters. Financial matters are based on how the individuals understand and behave with money and personal financial resources. Personal financial resources are, basically the personal income and borrowings from the others. Understanding and application of money and finance is major concern of the study. Similarly, the financial behavior of the individuals are affected by several psychological and situational factors according to the theories and practices as well. I find that, people does not necessarily always behave as they know and as they are confident about. There are several barriers in financial behavior in practice. However, Australian Securities and Investment Commission (2011) has mentioned that information and choice overload, complexity and uncertainty, time factors and pressures, over (and under) confidence, self-control and framing (i.e. how information is presented) are some of barriers of financial behavior of individuals. My study finds that financial literacy has short and long term effects.

I find that available categorizations of financial behavior have some practical limitations. I argue that categorizing the financial behavior of individuals right/wrong or best/worst are based on extreme evaluation of the phenomenon. Similarly, percentage scoring seems ad hoc that may not represent the practical classification of the financial behavior as well. It is also not that practicable to categorize the literacy on the basis of behavior, because the financial behaviors are affected by other factors as well, not only by the financial literacy. To overcome these limitations, I propose three comparative categories, i.e. good, moderate and weak financial behavior of individuals. I argue that financial behavior is person, context, time and place specific. However, my classification of behavior as good, moderate and weak rejects the extreme evaluation and tries to cover three possibilities of behavior, relatively. For example: if the researcher ask the participants about application of his/her borrowing with three possible answers, i.e. using credit in income generating business, using credit to maintain regular house expenditure and using the credit in marriage ceremony of daughter/son. The first option exhibits a good behavior, the second is moderate behavior and the third as a weak behavior. It is because the second answer is not so good but for low income people, maintaining the regular expenditure with their regular/limited income is challenging. In such, to spend in daily expenses than in marriage or any other family ceremony is moderate behavior. The last one is weak behavior, although it is also difficult to evaluate as bad or worst. From the income generating point of view, it is a weak behavior that may cause the person indebted in future. This is the case and compulsion of rural areas of poor economies like in Nepal.

Next of my finding is financial education ultimately affects financial well-being of the individuals through a normal path, other things remaining the same. It means that if some assumptions and conditions are satisfied,

financial education contributes financial literacy (financial knowledge and skill), thereby financial attitude and behavior and ultimately the financial well-being of the individuals. However, I am conscious about time lags, systemic barriers and the context where the individuals behave financially. So I argue that not always the behavior are affected by the knowledge and skill, neither it is a panacea of every financial problems of individuals. There are some arguments that the behavior also affects the financial literacy of individuals. The financial experience and practice also affect financial literacy.

In recent period, the financial literacy and behavior has emerging focus rather conventional wisdom. In conventional wisdom, the financial literacy is limited on financial understanding, doing regular saving, credit and investing function and prioritizing on inflation, compound interest and money matters. Buckland (2010) has opined that the financial literacy is required to understand in broader sense that the people are required to think some active, critical to the ongoing financial system, make some negotiation in financial market and engage some financial innovation as well. Search of financial alternatives, increasing negotiation skill to establish financial rights of financial consumers, making comparison on cost and return between and among service providers are some of new paradigm to develop as emerging concept on financial literacy. Similarly, Tisdell, Taylor and Forte (2013) have raised an agenda of financial (in)equity within the society as a new paradigm of discussion within financial literacy. Financial literacy is more relevant for low income, marginalized and minority people in society to uplift their financial position. Most of the previous studies are based on individual's agenda of using money in financial literacy is in positivistic manner. However, the studies have sidelined the issues of social aspects such as who controls the financial educational patterns in society, how to provide financial education to minimize social discrimination, how to include all the segments of people in societies into the financial mainstream for their financial empowerment etc. Forte (2012) argues that the financial education should also be understood with sociological perspective where the researchers can share their financial experiences with others so that the others also be benefitted. The development implication of financial literacy is also a contemporary issue.

My study has basic two side implications: for the policy makers and for the researchers. My study finds that the financial well-being of the people depends on improvement in financial behavior, whereas the behavior is contributed by financial literacy, other things remaining the same. Therefore, the financial literacy of people is important to improve. For this, developing formal educational curriculum from the schools is useful. For the other age group of people, the mass media, financial campaigns, informal training and financial counseling are useful. Moreover, in the financial market; financial fraudulence, financial misguidance, and monopolistic practices of financial intermediations are increasing. For this, consumer protection strategy through financial literacy is necessary to develop by policy makers. The future research is important to focus on how far the transmission mechanism works. There are more than three causal relationships demonstrated in the mechanism. The future studies are useful to test the relationship between and among the dimensions. For testing the relationships, the survey tools are better to develop by categorizing the financial behavior of individuals as good, moderate and weak ranking. The categorization also helps to design the survey tools, data collection and analysis.

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Do parents Influence the Choice of Tertiary Institutions for their Children? Some Statistical Analyses

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Abstract: The paper investigates whether or not parents influence their children's choice for tertiary institution to attend. Education has increasingly become more important in this present age to the extent that, without higher qualifications, employment and success become very difficult to achieve. Parents are trying to send their children to tertiary institutions so that these children will be employable. But the question is: Do parents choose the tertiary institutions for their children? The paper wants to find out whether or not parents have a say in their children's choice for tertiary institution; and if so, look at factors that could play in the choice. A survey was conducted at the University of Venda from February 2015 to June 2015 and 500 students were conveniently sampled and interviewed. Using some statistical analyses, including Generalized Linear Modelling (GLM), the study concludes that age and the campus environment are the only factors that determine parents' influence on their children's choice for higher education. The study further shows that female students are more influenced by their parents than males in the choice of higher institution.

Keywords: *Choice, tertiary institutions, multiple logistic regressions*

1. Introduction

The post-apartheid era in South Africa, (i.e. after democracy in 1994), has been characterised by major restructuring of the higher education landscape in the country. Higher education institutions are faced with, among other things, globalisation, broadened access to higher education, changes in language policies, changes in government funding, increased emphasis on technology, transformation policies, mergers, HIV/AIDS, changing student profiles and increased competition (Fataar, 2003; Jansen, 2003; Van Niekerk, 2004; Akoojee & Nkomo, 2007). There has been a growing need for higher education in order to find employment; and this makes it crucial for the choice of institution to go for further studies. Tertiary education is vital in sustaining a good career for oneself, because, nowadays, future employers place greater importance and preference when employing candidates based on their qualifications; and where they obtained such qualifications. This has placed an even greater pressure on students when selecting an institution to continue further studies. This research has been prompted to investigate if parents influence their children's choice for tertiary institutions, using students from the University of Venda as a case study. The study wants to see which of the independent variables, age, distance from home to the institution, gender, family background, reputation of the institution, etc., would be the most influential factors when parents choose or not where their children go to do their tertiary education.

2. Literature Review

There are quite a number of studies that have been carried out to identify factors that affect student's decision in choosing a Higher Education destination. Basically the factors can be classified into two, i.e. the 'pull factor' and the 'push factor'. The pull factors relate to the issues associated with the benefits or advantages offered by the institutions; for example fees charged, reputation of the institutions, social, culture and values, facilities, etc. On the other hand, the push factors are those associated directly with the home situation such as the level of wealth of the family, the priority of education for the family, the health of the family economy and the educational opportunities available at home. Both factors, i.e. the pull and the push are in fact important factors in determining the local mobility of students in searching for better education. But nevertheless, it is interesting to note that the pull factors are the factors which the Higher Education institutions have control. Thus, it is crucial to identify what are the pull-push factors which really affect the students' decision in choosing their higher education destination. Sevier (1994) stated that research has consistently shown that location of a university is an important factor for potential students when considering where to apply to/enrol. Some students may be looking for a place closer to their hometown if not in their hometown itself, since it is cheaper, more convenient and more easily accessible (Sevier, 1994; Absher and Crawford, 1996). Some parents prefer their children to go to a Higher Education Institution which

is closer to home so that the children stay at home, and the parents get chance to monitor them; that also reduces costs. When they are far away from home, some students are playful and they end up failing, wasting money and time for a whole year. The failure eventually adversely affects the parents financially.

Institutional image and reputation has a tremendous effect on university's choice. It is a powerful influence on potential students and university reputation is extremely persuasive when looking for an institution to develop ones' education. Keling et al. (2007) stated that the most influential factor that students evaluate in selecting their choice of institution was reputation of the institution. Joseph and Joseph (2000) have advanced that cost-related issues seem to have more importance in determining where a child should go to study. The opinions of family members may exert different types of influence on one's behaviour (Bearden and Etzel, 1982). Family recommendations and opinions influence students' options of their host institutions (Morgan, Baron and Harris, 1999; Bourke, 2000). This is largely because parents have to fund the education hence both the cost and psychological separation play an important role. Absher and Crawford (1996) stated that educational facilities such as classrooms, laboratories and libraries are important in a student's selection of a college or university. It has been observed lately that, since the world is becoming more and more technological dependent, it is imperative to get into an institution where all the necessary and quality technological facilities are available.

3. Methodology

Material/Data: Data were collected from the students of University of Venda between February 2015 and June 2015. About 500 students were conveniently sampled and interviewed. A convenience sampling method was used because sampling frame was not easily available. Besides, not all of the students were willing to take part in the survey; this method enabled accessible and "kind-hearted" students to join in the exercise voluntarily. There is no need for call-back and/or re-visitation for convenience sampling. A five level Likert scale was used with some of the questions in the questionnaire being; *strongly disagree (SD), Disagree (D)*, *Uncertain (U)*, *Agree (A)* and *strongly agree (SA)* as options in the scale. Face to face interviews were used for sampled participants (Denzin & Lincoln, 2000). A pilot survey was first conducted to allow the researchers to obtain basic data and trends regarding the study.

Methods/Analysis: Generalized Linear Models (GLM), Multiple Logistic regression and Discriminant function analysis (DA) were used. Generalized linear models are a broad class of statistical models that relate the mean of the response variable to a combination of linear predictors. These Models can handle more complicated situation such as analysing simultaneously the effects of several explanatory variables. The structure of the model describes patterns of association and interaction. The size of the parameters determines the strength and importance of effects. GLM's encompass ordinary regression and ANOVA models for continuous responses and also models for discrete responses. GLM predicts an outcome variable that is categorical from predictor variables that are continuous or categorical (Hair Jr et al. 1995; Agresti, 1996). These models comprise three components: random component identifies the response variable and selects a probability distribution for it; the systematic component specifies the explanatory variables as a linear combination; and the link function connects the expected value of random component and systematic component. The random component can assume any distribution in the exponential family of distributions. Distributions belong to the exponential family of distributions if their probability mass (or density) functions can be expressed in the form:

$$f(y; \theta, \varphi) = \exp\left\{\frac{y_i\theta_i - b(\theta_i)}{a_i(\phi)} + c(y_i, \phi)\right\}$$

where,
y = random component
a, b and c = arbitrary functions
φ = dispersion parameter
θ = canonical parameter

Logistic regression refers to methods for describing the relationship between a categorical response variable and a set of predictor variables. The Logistic regression assumes that the relationship between the predictor and the response variable is nonlinear. Its model assumption is different from that of linear regression. Since

the response of logistic regression is dichotomous, the errors can take only one of two possible forms: (Y = 0 or Y = 1), with their probabilities [1 - π(x) and π(x)] for absence and presence respectively. The variance of the error term, ε, is π(x) [1 – π(x)] which is the variance for a binomial distribution. The response variable in logistic regression, Y = π(x) + ε, is assumed to follow a binomial distribution with probability of success, (Larose, 2006: 155 – 166).

Multiple Logistic regression is logistic regression in which more than one predictor variable is used to classify the binary response, (Larose, 2006: 178 – 183). DA undertakes the same task as multiple linear regressions by predicting an outcome (Fielding & Gilbert, 2006). It is used to determine which continuous variables discriminate between two or more naturally occurring groups. The independent variables are the predictors and the dependent variables are groups. However, multiple linear regression is limited to cases where dependent variables on the y-axis is an interval variable so that the combination of predictors will, through the regression equation, produce estimated mean population numerical y values for given values of weighted combinations of x values (Hair Jr. et al., 1995, Agresti, 1996). The discriminant analysis involves the determination of a linear equation like regression that will predict which group the case belongs to. The function is:

$$D=V_1X_1+V_2X_2+V_3X_3=\ldots\ldots\ldots V_iX_i+a$$

Where, D = discriminant function
V = the discriminant coefficient/ weight for that variable
X = respondent's' score for that variable
a = a constant
i = the number of predictor variables

The discriminant analysis creates an equation which will minimize the possibility of misclassifying cases into their respective groups or categories. Cases are classified as predicted (Hair Jr. et al., 1995).

4. Results

Table 1: Categorical Variable Information

			N	Percent
Dependent Variable	Did your parents influence your decision on which tertiary institute to attend?	Yes	255	51.1%
		No	244	48.9%
		Total	499	100.0%
Factor	Gender	male	288	57.7%
		female	211	42.3%
		Total	499	100.0%
	If Univen was situated in a more urban area would you have given it a first choice preference?	Yes	364	72.9%
		No	135	27.1%
		Total	499	100.0%
	Would you refer other people to come and further their education at Univen?	Yes	377	75.6%
		No	122	24.4%
		Total	499	100.0%
	University students prefer to stay on campus	SD	221	44.3%
		D	79	15.8%
		U	9	1.8%
		A	41	8.2%
		SA	149	29.9%
		Total	499	100.0%
	University environment / residence, makes it hard to study (section 2.4)	SD	44	8.8%
		D	27	5.4%
		U	103	20.6%
		A	95	19.0%
		SA	230	46.1%
		Total	499	100.0%
	Was Univen your first choice?	Yes	280	56.1%
		No	219	43.9%

	Total	499	100.0%
you can afford to go study elsewhere	SD	204	40.9%
	D	99	19.8%
	U	72	14.4%
	A	51	10.2%
	SA	73	14.6%
	Total	499	100.0%

The exploratory data analysis reveals that the youngest respondent was *17 years old* and the oldest was *37 years*. The mean *age* of the respondents (students) was *21.20 years*. From the 500 respondents, the majority of 282 students were Venda speaking, (i.e. *56.4%); and* were followed by *Tsonga* speaking people who accounted for 15.8%. These figures did not come as a surprise to the researchers because the University of Venda is situated in Venda so it is bound to have a higher percentage of Venda speaking students.

Table 2: Crosstab

			Gender male	Female	Total
Did your parents influenceyes your decision on which tertiary institute to attend?		Count	141	114	255
		% within Did your parents influence your decision on which tertiary institute to attend?	55.3%	44.7%	100.0%
		% within gender	49.0%	54.0%	51.1%
	no	Count	147	97	244
		% within Did your parents influence your decision on which tertiary institute to attend?	60.2%	39.8%	100.0%
		% within gender	51.0%	46.0%	48.9%
Total		Count	288	211	499
		% within Did your parents influence your decision on which tertiary institute to attend?	57.7%	42.3%	100.0%
		% within gender	100.0%	100.0%	100.0%

From Table 1 we see that the majority of the respondents were *males, 288 (57.7%)* and *211 (42.3%) females*. About *51.1%*of the respondents said *yes* (to the question whether) their parents influenced their decision on which tertiary institution to attend. In Table 2, it can be seen that 49% of the male respondents and 54% of the females were influenced by their parents. This came as no surprise to the researchers because parents tend to influence their daughters more easily since they are less rebellious, more considerate and are willing to compromise. In the same Table 1.1, *56.0%* responded positively (i.e. *yes)* to whether they considered Univen as their first choice. This information was insightful in helping to get a clearer view of students' or people's views with regard to Univen as an institution. This figure shows that Univen attracts quite a sizeable number of students despite its location. The figure was further confirmed by the fact that*72.9%* said they would give Univen a first choice preference, if it were situated in a more urban area. This bodes well for the University of Venda in the sense that it is still attractive, especially to local people and can attract future prospective students.

Multiple Logistic Regression Model

Table 3: Goodness of fit (Omnibus Test)

Likelihood Ratio Chi-Square	Df	Sig.
23.299	12	.025

We observed in the Goodness of Fit table, Table 3 and Table A3 (in appendix) that the overall regression is significant as shown by the *p-value* of 0.025. That is all the independent variables are collectively significant when we compare the fitted model against the intercept-only model. However we need to test whether all the

variables are relevant in the model. Table 4 tells us that age (with *p-value of* 0.012) and university environment (with *p-value* of 0.026) are the variables that contribute to the model.

Table 4: Tests of Model Effects

Source	Type III Wald Chi-Square	Df	Sig.
(Intercept)	5.106	1	.024
Gender	1.453	1	.228
Q7	.037	1	.847
Q9	.012	1	.914
section2.1	1.748	4	.782
University Environ	11.084	4	.026
Age	6.344	1	.012

Dependent Variable: Did your parents influence your decision on which tertiary institute to attend?
Model: (Intercept), gender, Q7 (Univen first choice), Q9 (refer others), section2.4,(= Campus environment), age

In Table 4, we find out that the factors which determine parents' influence on the choice of their children's Higher Education Institution are age and campus environment (i.e. Q in section 2.4). The mean age is*21.20 years*, this indicates the fact that our respondents are not quite old, still fairly young (in African context) and can still be manipulated by parents who pay for their education.

GLM Results

Table 3: Parameter Estimates

Parameter	B	Std. Error	95% Wald Confidence Interval Lower	Upper	Hypothesis Test Wald Chi-Square	df	Sig.
(Intercept)	1.882	.7401	.432	3.333	6.468	1	.011
Age	-.089	.0332	-.154	-.024	7.192	1	.007
[gender=1]	-.227	.1869	-.603	.130	1.600	1	.206
[gender=2]	0[a]	.	.	.	.	.	.
[C. E. 2.4=1]	.103	.3352	-.554	.760	.094	1	.759
[Campus environ, CE=2]	-.952	.4650	-1.863	-.040	4.189	1	.054
[CE=3]	.396	.2454	-.085	.877	2.608	1	.106
[CE =4]	.485	.2515	-.008	.978	3.715	1	.041
[CE=5]	0[a]	.	.	.	.	.	.
[Q7=1]	.4	.2087	-.370	.448	.035	1	.851
[Q7=2]	0[a]	.	.	.	.	.	.
[Q9=1]	.029	.2175	-.397	.455	.018	1	.895
[Q9=2]	0[a]	.	.	.	.	.	.
(Scale)	1[b]						

Dependent Variable: Did your parents influence your decision on which tertiary institute to attend?
Model: (Intercept), age, gender, section2.4, Q7, Q9
Set to zero because this parameter is redundant.
b. Fixed at the displayed value.

Table 3 tells us again that age and Campus Environment (CE) are the only variables that are important in the analysis of whether parents influence or not their children on the choice of tertiary institution. The same table (Table 3) further tells us that if *female* was taken as our base for gender, the *male* has a negative value (-0.227) which interprets to 20% lower. This supports the earlier statement that parents have a higher influence on female children than they have on male children (i.e. 20% less). When we look at the case whether respondents would give Univen first choice preference (Question 7) if it were situated in a more

urban area, we see a high score for yes (0.4) which translates to 49% higher. This confirms the earlier statement that more people said *yes*; i.e.72.8% responded that they would give Univen a first choice.

Discussion: Both the GLM and the Multiple Logistic regression methods from Tables 2.1, 2.2, 3; as well as Tables A1, A2 and A3, in the appendix, tell us that the variables that are useful in the model are age and campus environment. This means that these two variables are useful in classifying influence of parents on their children's choice for tertiary institutions. The negative sign for age means that when children are growing, parents are no longer able to influence them. On the other hand, the positive sign for the campus environment means that if Univen or for that matter, any campus being considered, is in more urbanised area with good infrastructure, more students will be attracted to it so parents can influence their children to choose such campus.
Mathematically, the model equation is given by

$$\text{Logit } [\theta(x)] = \log\left[\frac{\theta(x)}{1-\theta(x)}\right] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_i x_i$$

Logit [θ (x)] = β_0 + β_1 (age) + β_2 (campus environment).
Log odd = 1.882 - .227age+ .485campus environment.
This implies that
Odd ratio =6.57 + 0.797age + 1.62campus environment.

We now look at the discriminant procedure. The results seen in Table 4a, that is, the Box's M tests results, show that the covariance matrices do not differ between groups formed by the dependent. The value of 25.33 with F =25.294 is significant at p-value< 0.000. This means one can proceed with the analysis.

Table 4a: Test Results

Box's M		25.344
F	Approx.	25.294
	df1	1
	df2	740059.474
	Sig.	.000

Again as seen from Table 4b, the results from this method also confirm that only one variable which is *age* can predict parents' influence on their children's choice. The following equation is derived from Table 4b:
D = (0.340 x age) – 7.206 ----------4.1

Table 4b: Canonical Discriminant Function Coefficients

	Function 1
Age	.340
(Constant)	-7.206

The stepwise statistics in Table 4c shows that only one variable (one step) added to the intercept only. Wilks' Lambda in Table 4d indicates the significance of the discriminant function. The table further indicates a highly significant function *(p-value <0.005)* and provides the proportion of total variability not explained.

Table 4c: Variables in the Analysis

Tep		Tolerance	F to Remove
1	Age	1.000	8.032

Table 4d: Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	Df	Sig.
1	.984	7.960	1	.005

A Lambda of *1.00* occurs when observed group means are equal (all the variance is explained by factors other than difference between those means), while a small Lambda occurs when within-groups variability is small

compared to the total variability. Here, the *Lambda of 0.984* has *significant value (sig = 0.005)*, thus the group means appear to differ. Table A4 - standardized canonical discriminant function coefficients, (in appendix), gives age (.842) and campus environment (-.439); showing that the coefficients of these two factors are significant. This confirms that age and campus environment are the only important factors from the discriminant analysis. In short all the three methods affirm that the factors that are useful in predicting that parents' influence on the choice of tertiary institutions for their children are age and campus environment. One expected that the reputation of the institution, financial position of the family and even distance from home to the institution, just to cite a few, could be useful predictors, but the results here have proved otherwise (Soutar & Turner, 2002).

Limitation of the study: The sample size used could have been increased were it not time constraint. There is a probability that some of the respondents were not honest or truthful with their answers. The Convenience sample which is Non-Probability sampling method used is limited and therefore we cannot make an inference from the results.

5. Conclusion

The study set out to investigate whether or not parents influence their children's choice for tertiary institution using a case study of the University of Venda. The analysis was based on three statistical methods, Generalized Linear Models, Multiple Logistic Regression and Discriminant analysis. The results from the analyses revealed that only two variable, ages, and campus environment contributed significantly to the question whether parents have any influence on their children's choice for tertiary institution. In step-wise discriminant analysis only one step was taken meaning that there were no other variables added in the analysis; this further supported the results we found in the generalized linear model and the multiple logistic regression analyses. In conclusion, this study has shown that the most predictive factor which has been confirmed by the Discriminant Analysis as well as the GLM is *Age*. Campus environment is also useful in the model. The other independent variables considered in the research are non-significant and not useful.

Recommendation: The paper recommends that parents should start dialogue with their children from a young age regarding their future; in so doing they are imparting precious knowledge to the children and enabling them to make their own decisions when the time comes for them to make choices.

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Appendix

Table A1: Logistic Regression Analysis- Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Age	-.226	.033	7.192	1	.007	1.093
	gender(1)	.236	.187	1.600	1	.206	1.267
	Q9(1)	-.029	.217	.018	1	.895	.972
	Q7(1)	-.039	.209	.035	1	.851	.962
	section2.4 (CE)			11.293	4	.023	
	section2.4(1)	-.103	.335	.094	1	.759	.902
	section2.4(2)	.952	.465	4.189	1	.041	2.590
	section2.4(3)	-.396	.245	2.608	1	.106	.673
	section2.4(4)	-.485	.251	3.715	1	.054	.616
	Constant	-1.882	.740	6.468	1	.011	.152

a. Variable(s) entered on step 1: age, gender, Q9, Q7, section2.4.

Table A2: Logistics Regression- Likelihood Ratio Tests

	Model Fitting Criteria		Likelihood Ratio Tests			
Effect	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	380.714	418.627	362.714[a]	.000	0	.
age	386.417	420.118	370.417	7.703	1	.006
gender	380.318	414.019	364.318	1.605	1	.205
Q7	378.749	412.450	362.749	.035	1	.851
Q9	378.731	412.432	362.731	.018	1	.895
CE(Q2.4)	384.918	405.981	374.918	12.204	4	.016

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

Table A3: Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	182.336	181	.458
Deviance	231.735	181	.006

Table A4: Standardized Canonical Discriminant Function Coefficients

	Function

	1
age	.842
If Univen was situated in a more urban area would you have given it a first choice preference?	-.012
Would you refer other people to come and further their education at Univen?	.098
gender	-.284
Campus environment - university residence is an advantage to academics	-.439

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To Vote or Not To Vote: Marketing Factors Influencing the Voting Intention of University Students in Johannesburg

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Abstract: Voting intention has become an issue of concern worldwide with regard to successful political elections. With only 6% of South Africa's youth having registered to vote in the 2014 elections, it is of vital importance to get a better understanding of the main reasons behind these statistics and factors that have influenced voting intentions. Although several studies have explored this area of research, it remains a topic of interest. This research paper aims to examine the factors behind voting intention of the youth in South Africa, as most are in their first or second democratic election. This study adds to existing literature on political parties as brands and factors influencing the youth's intention to vote. These factors include advertising mediums, convenience factors of location and registration, and social pressures from peers or family on voting intention. By means of quantitative research, two hundred and fifty questionnaires were distributed amongst students from the University of Witwatersrand. The findings indicate that five of the six hypotheses are insignificant with the exception of radio advertising. The results of this study provide political parties with a better understanding of the factors that prove to be ineffective when targeting Generation Y consumers in South Africa. It further provides political parties with an opportunity to more successfully reach such individuals through other media platforms.

Keywords: *Voting intention, advertising, convenience, social pressure, youth culture, South Africa*

1. Introduction

Over the past decade, political parties have significantly increased the amount resources that they invest in political campaigns (Durante & Gutierrez, 2014). Considering this statement, it is believed that by capitalizing on media expenditure, political parties can influence voting behaviour among people. However, empirical evidence is mixed in this respect (Durante & Gutierrez, 2014). In light of this, political parties often underestimate the influence of other factors, such as candidate appeal (Ben-Ur & Newman, 2002), registration convenience (Anderson & Heath, 2003; Schulz, Zeh & Quiring, 2005) and social pressures (Anderson & Heath, 2003) on voting intention. This is especially relevant in a country like South Africa that has a controversial political history and where democracy is a relatively new phenomenon. Although a number of studies have been done on this topic, few have focussed on South Africa, which as an emerging economy, is often overlooked. For example, Han (2008) investigated the influence of media usage and socio-demographic factors in voting intention, and results indicated a significant relationship. Another study that focussed on media and its' influence on voting intention was conducted by Schulz, Zeh and Quiring (2005) and found that certain media does influence people's intention to vote. Furthermore, Ben-Ur and Newman (2002) investigated the impact that candidate or party morality has on voting intention and the findings revealed a significant relationship between these variables. Another variable that has been explored is the influence of convenience as a predicting variable on voting intention (Schulz, Zeh & Quiring, 2005); however it primarily focussed on weather as an influencing factor. Schulz et al. (2005) broadened the scope on this topic by considering the impact of voter mobilisation on voting intention. And lastly, the influence of social group identities was investigated in a study by Anderson and Heath (2003).

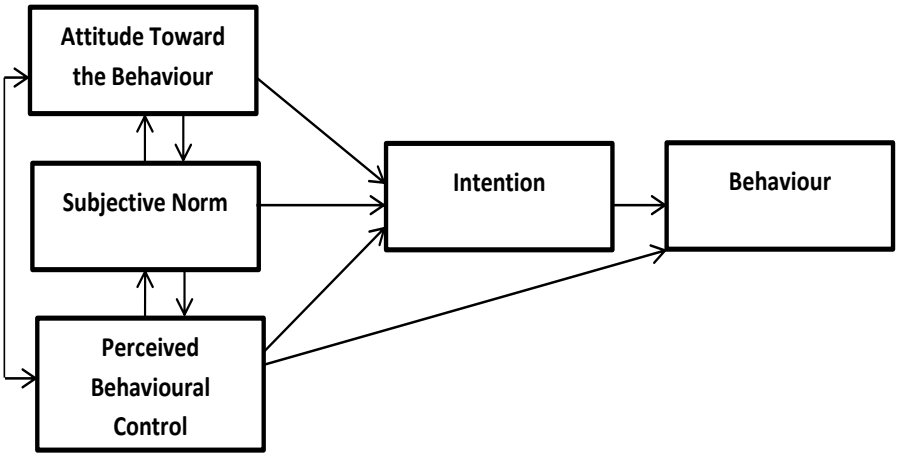
Derived from the conceptions considered above, it is evident that little research has been conducted on this topic in a South African context. Therefore, by means of a proposed conceptual model, the present study explores the influence of advertising mediums, convenience factors and social pressures on voting intention. Although a number of factors that influence voting intention have been explored in other studies, the present study fills the gap in literature by providing political parties in South Africa with insight into the factors that influence people's voting intention. By getting a better understanding of such factors, political parties can utilise their resources and more accurately select their media channels for advertising. This will results in a higher return on investment, an increase in votes, and more profitable political parties. The present paper consists of sections presenting the literature review; research methodology, which includes the measurement

instrument development and data collection procedure; the data analysis and results; discussion and implications of the study; a conclusion; limitations of the study; and suggestions for future research.

2. Literature Review

Theoretical Groundings: The present paper is grounded in Ajzen's (2002, 2011) theory of planned behavior (TPB) (Figure 1). The underlying conceptual foundation of this theory is that intention is the immediate antecedent of behavior, with attitude towards behavior, subjective norm and perceived behavior control acting as determinants of behavior intention.

Figure 1: Theory of Planned Behaviour



Source: Ajzen (1991)

The TPB is a commonly used theory that predicts behavioural intention and behavior. It shares the constructs of the theory of reasoned action (TRA), namely attitude and subjective norm, however it includes a third variable that accounts for perceived behavioural control. The latter variable is defined as the difficulty or ease of performing a particular behavior (Celuch and Dill, 2011) and can be closely linked to Bandura's (1998) concept of perceived self efficacy, which is the judgement of how well a person can perform a series of actions in order to handle a particular situation or address a particular behavior (Ajzen, 1991). The following section discusses the main components of the Theory of Planned Behaviour.

Attitude towards behaviour: Vaughan and Hogg (2005) define attitudes towards behaviour as a moderately enduring organization of beliefs, emotional state, and behavioral tendencies towards socially significant objects, groups, measures or symbols. More specifically, it refers to the degree to which an individual portrays a favourable to unfavourable evaluation of their intended behaviour. They will therefore consider the outcomes of performing the behaviour (Ajzen, 2011).

Subjective norm: Subjective norm is defined by Schepers and Wetzels (2007) as an individual's perception that most people who are of importance to that individual should or should not perform a particular behaviour in question. Subjective norm also refers to the normative views from the social setting that the individual is exposed to when performing a particular behaviour (Wolf, Weißenberger, Wehner and Kabst 2015). Numerous authors posited that and individual's attitude captures that individual's beliefs about outcomes and qualities of a certain behaviour (Montano, Kasprzyk, Glanz, Rimer and Viswanath, 2008; Wolf et al, 2015). The concept of the subjective norm particularly applies to the perceived social pressure that originates from people important to the individual (Montano et al, 2008).

Perceived behavioural control: Perceived behavioural control is the independently perceived simplicity or difficulty of performing a particular behaviour Ajzen (2002). Perceived behavioural control refers to how simple or complex an individual thinks it is to perform behaviour (Lam and Hsu, 2006). This construct of the

theory was added later, and distinguishes the Theory of Reasoned Action from the Theory of Planned Behavior.

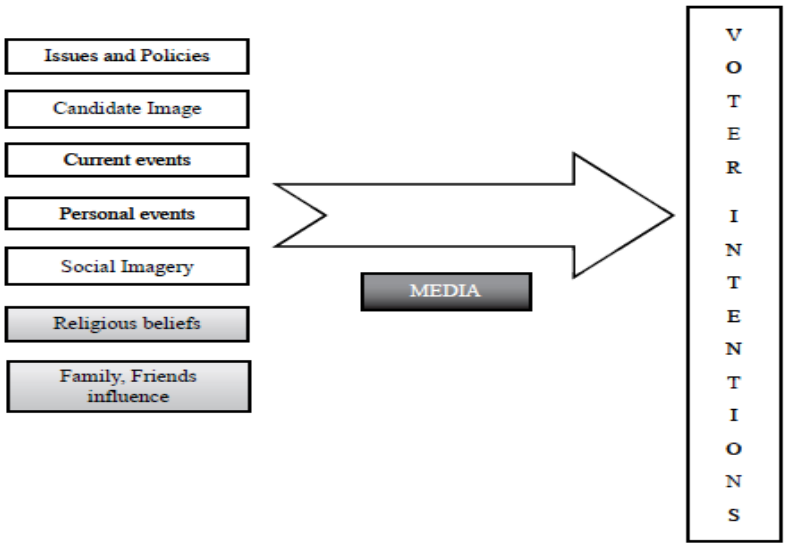
Behaviour Intention: An individual's behavioral intention is defined as their planned or anticipated future behavior (Lam and Hsu, 2006). The relationship between perceived behavioral control and behavioral intention is based on the assumption that if perceived behavioral control increases, behavioral intention increases and that perceived behavioral control will affect behaviour directly to the degree that perceived control reflects actual control (Lam and Hsu, 2006).

Empirical Literature

Voting Intention: Intention refers to an individual's anticipated or premeditated future behavior Lam and Hsu (2006) and in the context of the present study, will refer to an individual's intention to vote at some future date. Newman (1999) developed a model for voter behaviour which the main purpose of analysing a voter motives, beliefs, attitudes and intentions (Ben-Ur & Newman, 2002).It primarily aids in understanding how the state of a potential voters' mind influences the outcome of a political election. This is examined using "situational contingency" as the variable that denotes 'voters' thinking (Newman, 1999).

Factors influencing Voting Intention: Newman & Sheth (1985) proposed a model with seven factors that potentially influence voters' choice behaviour (Figure 1). These are issues and policies; social imagery; emotional feelings; candidate image; current events; personal events; and epistemic issues. This model has, however, has received criticism due to the lack of including factors such as media and election Polls (Farrag & Shamma, 2013). As a result, Farrag and Shamma (2013) proposed a revised model added the following factors as drivers of voting intention: family and friends influence, religious beliefs and media influence (Figure 2).

Figure 2: Factors Influencing Voter Intentions



Source: Adopted from Newman and Sheth (1985, p. 179)

For the purpose of the present study, the following influential factors are used to measure voting intention: advertising mediums, convenience factors and social pressures.

Advertising mediums: In practice, the concept of advertising is hard to define as it encompasses a broad range of viewpoints and philosophies. However, generally it is defined as any paid message or sponsor that is designed to promote an idea, goods or services for exchange Moriarty, Mitchell, Wells, Crawford, Brennan & Spence-Stone, 2014). Furthermore, it involves either mass communication via newspapers, magazines, radio,

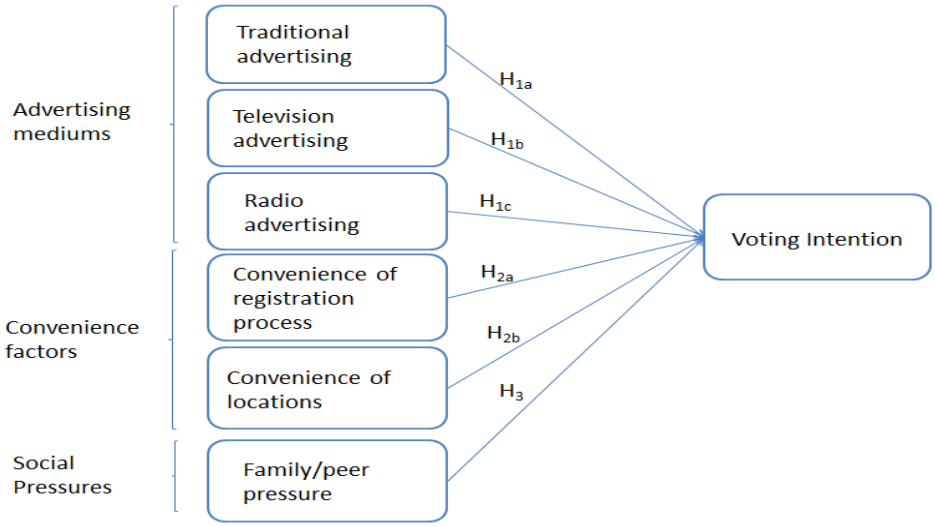
television, and other media (e.g., billboards, bus stop signage) or direct-to-consumer communication via direct mail" (Richards & Curran, 2002). Cwalina Falkowski & Kaid (2005) highlighted that political advertising has an effect on voters' behaviour in a number of different ways. For instance, an advertisement may strengthen an individual's existing voting preference. It could also weaken an already existing voting preference. More importantly, an advertisement will neither weaken nor strengthen political voting behaviour, but may result in an individual's re-assessment of the candidate's image (Farrag & Shamma, 2013). Franz et al., (2008) is of the opinion that the use television as a tool for political advertising has declined in recent years, and as a result, internet advertising is taking preference. Although, in South Africa, political parties remain to invest in mass media such as bill boards and television.

Convenience factors: Convenience is defined by Farquhar & Rowley (2009) as the savings in time and effort by consumers in when purchasing products or goods. Considering that the present study focuses on location convenience, the following definition applies: providing a service to a customer at a place that minimizes the travel cost to the consumer (Jones et al., 2003). Jones et al. (2003) elaborates by explaining that travel cost refers to a fixed cost and entails the distance that the consumer must travel between his/her point of origin and the service provider. Location convenience also refers to a customer's perception of the effort and time needed to reach their service provider (Wu, 2011). Political parties have considered location convenience and its' impact on voting intention, and as a result, have invested in more convenience for voters by providing services such as electronic voting, voting by fax and absentee voting (Gronke et al., 2008). However, such convenience factors have not been fully utilized in South Africa. In a recent article by Presse (2014), statistics indicate that one in five South Africans were registered to vote for the 2014 elections. The present study aims to determine the relevance of location convenience on voting intention.

Social pressures: The issue of social pressure on the decision making of youth is something of significant interest. Social pressures refer to the motivation to blend in with a group's norms, characteristics and attributes (Huang, Phau & Lin, 2008).According to Belanger and Eagles (2007), individuals exposed to contrasting views in their interpersonal relationships are likely to find themselves accountable to different constituencies, and therefore making it socially awkward for them to maintain strong views. Furthermore, the presence of a perceived threat from a source is likely to increase commonality and cohesion from the "threatened" group (Huang, Phau, & Lin, 2008). Therefore, youth are most likely influenced by those with whom they interact with the most, and they could be either discouraged against voting or influenced on their decision when voting.

Conceptual Model and Hypotheses Development: By means of a comprehensive conceptual model, the present study aims to fill the gap in literature on factors influencing voting intention among Generation Y consumers in Johannesburg. The model proposes that advertising mediums (traditional, television and radio –advertising), convenience factors (convenience of registration process and location) and social pressures are the predictor variables, while voting intention is the outcome variable. Figure 3 presents the proposed conceptual model.

Figure 3: Proposed Conceptual Model



Note: TA=Traditional Advertising, TEA=Television Advertising, RA=Radio Advertising, RC=Registration Convenience, LC=Locational Convenience, SP=Social Pressures, VI=Voting Intention

Hypotheses Development

Advertising Mediums and Voting Intention: Although several facets of advertising influence voting intention (Ridout & Franklin, 2012), the type of advertisement have a significant impact on voting behaviour (Cwalina et al., 2005). Farrag and Shamma (2013) state that political advertising may strengthen, weaken, voting intention, or have no influence on voter's behaviour. Furthermore, it is believed that the advertising source plays a prominent role in voter intention, and could also increase the effectiveness of the political advertisement (Yoon et al., 2005).Other studies have revealed that different forms of communication influence voting behaviour (Pfau et al., 2005). More specifically, the use of radio and television advertising is associated with greater political interest among voters and results in greater interest of presidential campaigns (Pfau et al., 2005). Although there has been a declined in televised political advertising campaigns, with a shift towards online advertising (Franz et al., 2008), traditional advertising is still used in South Africa. The present study therefore proposes the following:

H_{1a}: Traditional advertising has a positive influence on voting intention
H_{1b}: Television advertising has a positive influence on voting intention
H_{1c}: Radio advertising has a positive influence on voting intention

Convenience Factors and Voting Intention: Several studies on convenience factors and its' impact on consumer behaviour have been conducted, however, in contexts other than political advertising. For example, in a study conducted by Wu (2011) and Jones et al (2003), location convenience was found to have a significant impact of loyalty. Similary, it was found that location inconvenience of a service provider may lead to customer-switching behaviour (Wu, 2011; Lee & Cunningham, 2001). Although voting may be regarded as a high involvement decision, Jones et al. (2003) state that location convenience is of more significant importance among low-involvement and routine services (Wu, 2011). Furthermore, the convenience of voting location outweighs the emotional attitude towards the service provider with regards to voting *intention* (Wu, 2011). In the context of this study, issues such as convenience of the actual registration process and the locations of registration venues and voting venues, could all have a significant impact on voting intention (Schulz, Zeh & Quiring, 2005). Derived from the conceptions considered above, the present study therefore proposed the following hypotheses:

H_{2a}: Convenience of registration process has a positive influence on voting intention
H_{2b}: Convenience of locations has a positive influence on voting intention

Social Pressures and Voting Intention: Social pressures are a large part to the choice of any consumer when making a decision to buy a product, and the same would go for the motives behind voters' behaviours, attitudes and intentions (Andersen & Heath, 2003). Young adults are seen to negotiate social situations with "two competing goals in mind: preservation of a sense of independence while also operating safely within group norms in an attempt to maintain social bonds" (Glynn et al., 2009), and that their voting intentions would most definitely be influenced by "expectations and importance" of voting of primary groups such as family and close friends (Glynn et al., 2009).That is individuals are socially pressured on what their views are in politics, and supporter "cross-pressures is likely to discourage political participation" (Belanger & Eagles, 2007).

H_3 : Social pressures have a positive influence on voting intention

3. Research Design and Methodology

A conclusive research approach was applied in which 250 self-administered surveys were distributed among a sample of university students. By means of a descriptive research method, the data gathering was pre-planned and conducted using a quantitative research technique.

Sample and Data Collection: The target population for the study was students from the University of the Witwatersrand. The sample was drawn from the university campus by randomly selecting potential participants. Sample selection was conducted on both East and West campus in order to ensure the inclusion of a variety of students from different schools and faculties. The reason for having selected this target profile was that the Generation Y individual is regarded as the future consumer and more importantly, their voting behaviour will shape and predict the political future of this country.

Measurement Instrument and Questionnaire Design: A self-administered questionnaire was used for data gathering and existing scales were modified for the purpose of the present study. Five-point Likert scales were used for testing all the variables (1 – Completely Disagree; 2 – Disagree; 3 – Neutral; 4 – Agree; 5 – Completely Agree).The questionnaire was first be preceded by a consent form and three screening questions to confirm participation of the target group. The questionnaire asked respondent's questions based on voting intention, with regard to the different predictor variables, that is traditional (print/billboard) advertising, television advertising, radio advertising, registration convenience, locational convenience, social pressures and voting intention. The first variable, namely advertising, was measured using a scale adapted from Saadeghvaziri, Dehdashti, & Askarabad (2013) on web advertising. It consisted of questions relating to print, television and radio advertisements. The second variable, convenience, was measured using a scale adapted from Wu (2011) and Collier & Sherrell (2010). The items were adapted to measure both locational convenience and the convenience of the registration process. The third variable, social pressures was measured using a scale adapted from a number of studies that include Huang, Ohau & Lin's (2008) 'susceptibility to normative influence', which originates from an 8-item scale by Bearden et al. (1989). The scale used to measure voting intention was adapted from Levy & Gendel-Guterman's (2012) 5-item purchase intention scale, as well as Glynn, Huge, & Lunney's (2009) 2-item voting intention scale.

4. Results

The data analysis was done using SPSS 22 for the descriptive statistics, while the model fit and path modelling was conducted using AMOS 22.

Descriptive Statistics: Table 1 presents the respondent profile.

Table 1: Respondent Profile

Descriptive Statistics	Percentages
Gender	
Male	43.6%
Female	56.4%
Total	100%
Age Category	
18-24	96%
25-30	3.2%
31-35	0.8%
Total	100%
Home Language	
English	44%
Afrikaans	1.6%
Zulu	16.4%
Tswana	7.2%
Other (Majority Sotho & Venda)	30.8%
Total	100%

The majority of the respondents (96%) were between the ages of 18 and 24, with approximately half of them being females (56%), and the rest males (44%). The most common home language was English (44%), followed by a number of African languages such as Sotho, Zulu and Xhosa.

Scale Accuracy Statistics: The results of scale reliability tests are shown in Table 2. As can be seen in table 3 above, the majority of the item-to-total values are above 0.6, while Cronbach's alpha coefficients (α), and composite reliability (C.R.) indexes ranged from 0.658 to 0.882 and 0.666 to 1.090 respectively. These values exceeded the estimate criteria suggested in prior literature. All average variance explained (AVE) values were above 0.4 and most approached 0.6, thus being acceptable according to the literature (Fraering & Minor, 2006). These results reveal evidence of marginal to acceptable levels of research scale reliability.

Structural Equation Modeling: Structural equation modeling (SEM) is engaged in the current study for the purpose of analysing data. In recent times SEM has been established as a revered statistical technique to test theory in several fields of knowledge (Schumacker & Lomax, 2004; Nusair & Hua, 2010). Structural Equation Modeling (SEM) is applied to investigate on the hypothesised relationship in the research model (Liao & Hsieh, 2013). Qureshi & Kang (2015) defined Structural equation modeling as a multivariate statistical technique fundamentally engaged for analysing relationships between latent variables (or constructs) and observed variables that constitute a research model.

Table 2: Accuracy Statistical Analysis

Research Construct		Descriptive Statistics			Cronbach's Test					
		Mean Value		Standard Deviation	Item-total	□ value	C.R. Value	AVE Value	Highest Shared Variance	Factor Loading
P	P2	2,216	2,544	0,949	0,450	0,658	0,666	0,441	0,198	0,638
	P3	2,692		0,947	0,573					0,747
	P4	2,776		0,993	0,374					0,466
	P5	2,492		0,966	0,370					0,439
TV	TV2	2,608	2,939	1,071	0,484	0,692	0,713	0,636	0,144	0,624
	TV3	2,964		1,043	0,584					0,832
	TV4	3,244		1,144	0,459					0,548
RC	RC2	3,028	2,939	1,139	0,455	0,762	0,764	0,483	0,616	0,492
	RC3	2,456		1,235	0,513					0,569
	RC4	3,008		1,400	0,680					0,810
	RC5	3,264		1,354	0,605					0,780
LC	LC2	3,116	3,109	1,225	0,641	0,804	0,787	0,618	0,616	0,754
	LC3	2,536		1,216	0,547					0,677
	LC4	3,484		1,259	0,662					0,663
	LC5	3,300		1,300	0,628					0,674
SP	SP2	2,772	2,423	1,242	0,413	0,714	0,740	0,478	0,048	0,495
	SP3	2,268		1,128	0,644					0,830
	SP4	2,228		1,141	0,561					0,748
VI	VI1	2,932	3,072	1,219	0,791	0,882	1,090	0,649	0,077	0,551
	VI2	3,212		1,144	0,791					1,420
RD	RD2	2,440	2,485	0,969	0,600	0,779	0,769	0,486	0,144	0,736
	RD3	2,536		0,949	0,626					0,790
	RD4	2,576		1,020	0,563					0,577
	RD5	2,388		0,899	0,551					0,583

Note: TA=Traditional Advertising, TEA=Television Advertising, RA=Radio Advertising, RC=Registration Convenience, LC=Locational Convenience, SP=Social Pressures, VI=Voting Intention

Model Fit: The assessment of the proposed conceptual model proceeded utilising the unchanged data set. The ratio of chi-square over degree-of-freedom was 1,247. This value is less than the recommended thresshold of less than 3.0 and therefore, confirms the model fit (Chinomona & Pretorius, 2011). Table 3 presents the model fit indices for the data.

Table 3: Model Fit Indices

Model fit criteria	Chi-square (χ^2 /DF)	GFI	CFI	TLI	IFI	RFI	NFI	RMSEA
Indicator value	1,247	0,925	0,980	0,972	0,980	0,873	0,907	0,031

CMIN/DF[3]=2.47 which is less than recommended 3, RMR=0.086which is above the recommended 0.9, GFI=0925which when rounded is equal to 0.9, AGFI=0.88 which is slightly less than 0.9 but greater than 0.8, all suggest that there is model fit. Looking at the baseline comparisons, NFI=0.907, RFI=0.873, IFI=0.980, TLI=0.972 and CFI=0.980, which suggests that model fit is permissible. RMSEA is 0.031 which is a moderate fit and is marginally acceptable. CMIN/DF, RMR, GFI, and AGFI all suggest that there is not a good model fit. Looking at the baseline comparisons, NFI, RFI, IFI, TLI and CFI were all above 0.9, and, which also suggests that the model fit is not very good.

Inter-construct Correlation Matrix: The inter-construct correlation matrix was utilized to check discriminant validity of the research constructs. Correlations among latent constructs were evaluated in order to observe if they were lower than 1.0. As indicated in table 2below, the inter-correlation values for all paired latent variables are less than 1.0, therefore, indicating the existence of discriminant validity (Chinomona, Lin, Wang & Cheng, 2010). Nunnally & Bernstein (1994) recommended correlation values between constructs to be less than 0.7 in confirming the existence of discriminant validity. In Table 4 the inter-construct correlation matrix results is presented.

Table 4: Inter-Construct Correlation matrix

	P	TV	RC	LC	SP	VI	RD
P	1						
TV	0,445	1					
RC	0,049	0,222	1				
LC	0,021	0,206	0,785	1			
SP	0,202	0,177	0,200	0,214	1		
VI	0,227	0,178	-0,137	-0,135	0,056	1	
RD	0,350	0,379	-0,048	-0,009	0,220	0,277	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Path Modelling& Hypotheses Testing: The path modeling and hypotheses results are presented in Table 5.

Table 5: Hypotheses Results

Proposed Hypothesis Relationship	Hypothesis	Path Coefficients	P Value	Rejected/Supported
Traditional Advertising (P) → Voting Intention (VI)	H1a	0.06	0.07	Supported but insignificant
Television Advertising (TV) → Voting Intention (VI)	H1b	0.09	0.06	Supported but insignificant
Radio Advertising (RAD) → Voting Intention (VI)	H1c	0.17	0.05	Supported and significant
Registration Convenience (RC) → Voting Intention (VI)	H2a	-0.05	0.96	Unsupported but insignificant
Locational Convenience (LC) → Voting Intention (VI)	H2b	0.04	0.37	Supported but insignificant
Social pressures (SP) → Voting Intention (VI)	H3	0.10	0.07	Supported but insignificant

Structural model fits: χ^2/df= 1,247; GFI= 0,925; CFI= 0,980; TLI= 0,972; IFI= 0,980; RFI= 0,873; NFI=0,907; RMSEA= 0,031; [a] significance level p<0.05; [b] significance level <0.01; [c] significance level <0.001

[3]Note: Chi-square test (CMIN/DF), Root Mean Square Residual (RMR), Goodness of fit index (GFI), Adjusted Goodness of Fit Index (AGFI), Normed fit index (NFI), Relative Fit Index (RFI), Incremental fit index (IFI), Tucker Lewis index (TLI), Comparative fit index (CFI) and Random Measure of Standard Error Approximation (RMSEA).

Upon examining H1a (the influence of traditional advertising on voting intention) andH1b (the influence of television advertising on voting intention), the results for both reveal positive relationships implying that these relationships are supported. Therefore we fail to reject the hypotheses. However, the p-values are greater than 0.05 indicating that these relationships are not significant. Thus we can observe, from the results of H1a and H1b, (0.06) and (0.09) respectively that traditional advertising (billboards and posters) and television advertising do not influence voting intention. On the other hand, H1c (the influence of radio advertising on voting intention), indicate that the hypothesis is supported and significant (the p-value is 0.05 and path coefficient 0.17). Thus, radio advertising has a significant influence on voting intention. The results of the second hypothesis (H2a), which tested the influence of registration convenience on voting intention, indicated a path coefficient of -0.05.Therefore, registration convenience is inversely related to voting intention. This relationship is not supported and we to fail to reject the null hypothesis. In other words, although the registration process is convenient, this does not influence the youth to vote. The path coefficient for H2b (the influence of locational convenience on voting intention) is 0.04, which indicates that locational convenience is positively related to voting intention. This relationship is supported therefore we to fail to reject the hypothesis. In other words, even though the access to the location is convenient, this does not influence whether the young will vote or not. Lastly, hypothesis 3 (H3), which tested the influence of social pressures on voting intention, has a path coefficient of 0.10. This relationship is supported therefore we to fail to reject the hypothesis. This means that social pressures do not influence voting intention.

5. Conclusion and Discussion

The purpose of this study was to investigate the influence of advertising mediums, convenience of registration and location, as well as social pressures on voting intention among the youth in South Africa. In particular, six hypotheses were postulated and data was collected from University of Witwatersrand in the Gauteng province of South Africa. Five of the six hypotheses yielded significant relationships. Firstly, the findings indicate that traditional advertising mediums such as billboards and posters as well as television advertising do not influence voting intention. The only advertising medium that has significant influence on voting intention is radio advertising. These results are partly consistent with previous studies on advertising mediums and voting attitudes. For example, Franz et al. (2008) stated that political advertising is shifting from the traditional mediums to internet advertising. It is therefore vital in future to find more specific ways of grasping the attention of the youth. The second factor, namely registration convenience, was supported, however with an inverse relationship. Therefore, the convenience of the registration process has shown that it impacts voting intention of youth, but in an inverse relationship. Therefore indicates that registration convenience will not lead to voting intention. Further, it is evident that location convenience does not influence voting intention. On other words, even if marketers provide convenience in terms of the registration process and access to the location, voters are unlikely to consider voting. This is inconsistent with previous studies which indicate that the more convenience locations are, the more likely that individuals will intend to vote (Schulz, Zeh & Quiring, 2005; Wu, 2011).Likewise, social pressures do not influence voting intentions. Therefore, by targeting family and friends of the potential voters, it is unlikely that the youth's voting intention will increase. This is inconsistent with previous studies that found a significant relationship between social pressures and voting intention (Belanger & Eagles, 2007; Glynn et al., 2009).

Managerial Implications of the Study: The results of this study offer significant implications for marketing managers of political campaigns in South Africa. According to the findings, most of the efforts by marketing managers should be geared towards radio advertising as this was seen to have the strongest influence on youth's intention to vote. Campaign managers can achieve this by purchasing air time on radio stations that are tailored for the youth and partnering with educational institutions that have radio stations in order to broadcast their political messages. With the exception of radio advertising, it was seen that other forms of traditional advertising do not have a significant impact on the youth's voting. This implies that managers of political campaigns may achieve better election turnouts if they consider modern advertising such as mobile or internet advising to reach the younger audience. Through providing convenience to voters, political managers and marketers are unlikely to achieve high voter outcomes. Likewise, it may not be feasible to invest in methods that will target the peers of the voters.

Limitations & Future Research: Although this study contributes to literature in a number of ways, there are potential limitations. Firstly, only a few advertising mediums were focused on, specific political parties could not be used to specifically distinguish the general success of marketing campaigns, and most of the respondents fell between the age-group 18-24 due to the target population. From this study, many insights can be taken out, such as the fact that youth in South Africa are not impacted by these traditional means of advertising. Therefore, for further research, other means of advertising should be taken into consideration, such as online channels (which are currently being used by certain parties in South Africa), as most youth are exposed to online platforms, as seen from studies done overseas. A more in-depth look can be taken on campaign strategies, specifically for the political parties that are of prominence in the country. Convenience of registration process was seen to impact voter intention negatively, therefore should be excluded in further studies. Convenience of locations on the other hand influenced voting intention; therefore an in-depth look can be done on convenience, such as a convenience voting study, as done in other countries, in order to determine the exact influencers with regard to convenience. Social pressures have been seen to influence voting intention of youth negatively; therefore it is a vital variable to be considered, especially within a South African perspective, and possibly a wider range of questions could be used in order to specifically determine who influences youth more, in a negative capacity and also what the reasons may be behind that.

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Does Culture Matter to Pro-Social Behavior? Evidence from a Cross-Ethnic Lab Experiment

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Abstract: Recent investigations have uncovered large, consistent deviations from the predictions of Homo economics that individuals are entirely self-regarding. Our study undertook a cross-cultural study of behavior search for the evidences of other-regarding behaviors and its ethnic difference, and accounted for by anatomy of culture. This study recruited 90 subjects of three ethnic groups from market trade-based (ethnic Han), nomadism-based (ethnic Zang) and agriculture-based (ethnic Bouyei) areas in China and conducted public good provision experiment with stranger-treatment design. Under the assumption of self-regarding preferences, the Nash equilibrium is zero contribution by all in public account using backward induction. However, we found contributions did not reduce to zero over all three sessions. Besides, the differences in contributions between ethnicities strongly depended on the degree of ethnic dominance, and Zang harbored the strongest reciprocal preference generally over all group structures. A particular set of measurable factors was identified as proxies for cultural influences on behavioral differences observed in experiments between ethnicities. The results showed all of the cultural factors accounted for the behavioral differences between the ethnic Han and the other two minor ethnicities. However, behavioral difference between minor ethnicities was attributed to group structure only. (1) People may harbor various forms of prosocial emotions in economic affairs, and especially exhibit stronger at the initial phase rather than what canonical model assumes. (2) Behavioral differences between ethnicities are prominent and can be explained by differences in cultural influence.

Keywords: *Prosocial behavior, Public good provision game, Culture, Ethnicity, Group structure*

1. Introduction

A number of recent contributions have shown the consistent deviations from the predictions of orthodox economics of *Homo economics* by detecting the other-regarding behaviors, i.e., prosocial behavior, in economic affairs (Andreoni, 1990; Camerer, 1997; Henrich, 2000; Glaeser et al., 2000). According to cultural psychological theories, fundamental differences in how culture affects people's perception of the world might predict differences in how people make economic decisions (Miller, 1984; Shweder, 1990; Triandis, 1995). In recent years, much experimental work has focused on cultural effects on prosocial behaviors (e.g., Burlando and Hey, 1997; Ockenfels and Weimann, 1999; Henrich, 2000; Glaeser et al., 2000; Fershtman, Gneezy, 2014; Castro, 2008). However, these studies merely report the differences in prosocial behavior between ethnic groups and naturally attribute the effects culture has on behavior to the individual level. Culture is difficult to univocally define, although most commonly this term is used for tribes or ethnic groups (in anthropology) or for nations (in political science, sociology and management) (Hofstede, 2011). Until recently, economists have been reluctant to rely on culture as a possible determinant of economic phenomena. Much of this reluctance stems from the very notion of culture: it is so broad and the channels through which it can enter the economic discourse is so ubiquitous (and vague) that it is difficult to design testable (i.e., refutable) hypotheses (Guiso et al., 2006). A very small amount of research has conducted analysis of the economic anatomy of culture. The work of Chuah, Hoffmann and Williams (2009) examines bargaining behavior in an experimental ultimatum game with Malaysian and UK subjects and assesses to what extent attitudes in terms of culture may be responsible for the prosocial behavioral differences using a number of comprehensive attitudinal surveys of individuals sourced from the fourth wave (1999-2000) of the World Values Survey (*WVS*, see Inglehart, 1997). Other research has mainly focused on the effects of religions (Sosis and Ruffle, 2004; Benjamin et al., 2013).

In this study, we defined culture in a sufficiently narrow manner (i.e., the culture of a particular people is a shared set of beliefs, values, conventions, ethnic affiliations and way of economic life) to make it easier to identify the causal links from culture to prosocial behavior. This study proceeded as follows: (1) We framed the standard linear public good provision games and conducted three treatments based on the games by manipulating the ethnic composition of the experimental groups, and then, detected the prosocial behavioral

differences between ethnicities. (2) We next assess whether, and if so, in what ways, our subjects' different cultural backgrounds generated any observed behavioral differences between ethnicities. Based on our definition of culture, we collected a number of survey questions, including questions sourced from *WVS* and regarding family status information, to combine with our own questions (Prosocial Preference Survey, *PPS.* See *Table 7*). All the questions were grouped into five independent sections that can provide measurements of dimensions of culture in terms of prosocial preferences[4]: people's attitudes toward participation, out-group rejection (desirability as neighbors), religion, market interaction, and centralization of power of a family. After the completion of the experimental game, we distributed the questionnaire to collect the survey data from every subject during an interval of 30 to 40 min. Then, we assess whether the differences in various corresponding dimensions of culture exist between ethnicity. This study is intended to account for the ethnic behavioral difference by more enriched anatomy of culture (including both potential cultural dimensions-attitude and objective way of economic life- according to the results of related studies) in order to reveal the pattern of cultural influence on the ethnic behavioral difference more completely. This paper is structured as follows: Section 2 introduces our experimental design. Section 3 first provides the results of investigations into behavioral differences in public good provision games and then identifies to what extent dimensions of culture may be responsible for the behavioral differences in contributions observed in experiments associated with different ethnicities. Finally, we present the conclusions and discussion in Section 4.

2. Experimental Design

The experiment was conducted at the Southwest University for Nationalities, China. A total of 90 subjects were equally divided between three ethnicities. Our sampling has the following considerations. First, we selected subjects from the ethnic Han group, which is the majority, and from two ethnic minority groups, the ethnic Zang, which is the largest minority group, and the ethnic Bouyei, which is a relatively small minority group in China, to make a greater variation in ethnic population scales[5]. Second, these ethnicities exhibit different economic conditions. The ethnic Zang and Bouyei practice nomadism and agriculture respectively, while the ethnic Han live in a commercial economic society. Third, the participants are almost entirely freshmen who have entered into college for less than three months and grew up in the original regions of the ethnicities[6]. This is expected to reduce the influences from other cultures and customs. Fourth, our recruitment proceeded in the following manner: after obtaining the subject's file from the dean's office, we contacted their counselors to inform the subjects to take part in the experiment rather than put up advertisements, which would likely have induced sample selection bias; i.e., those who came to the game could have had stronger cooperative tendencies. Additionally, we recruited from a wide range of fields such as Economics, Ethnology, Sociology, Chemistry, Biology, Psychology, Physics, Linguistics and Business.

The whole experiment was divided into two phases with 45 participants in each phase. In the first phase, we conducted 3 consecutive treatment sessions, each composed of 10 decision-making rounds. In other words, participants played 30 rounds of public good provision games in total. In the first treatment session, all the subjects were randomly divided into 9 groups, and every group had 5 subjects who were aware that they played in a group comprised of different ethnicities (labeled 'diverse group'). In the second treatment session, the subjects were randomly divided within a sample of their own ethnicity (labeled 'homogeneous group'). In the third treatment session, we firstly randomly selected 9 subjects equally from three ethnicities and then matched every subject with 4 other subjects different from his/her ethnic affiliation from the rest of the subjects (labeled 'one ethnicity dominant group'). To avoid the order effect, in the second phase, we conducted the treatment sessions in the following order: the 'homogeneous group,' the 'one ethnicity dominant group' and then the 'diverse group'. Most experiments usually provide predictions of behavior by playing repeated games with subjects as many one-shot games. However, the results from Botelho, Harrison, Pinto Costa and Rutström (2009) argue that there is some chance that subjects will meet in multiple rounds,

[4] *WVS* includes a broad scope and wide-ranging poll of socio-economic and political values and consists of more than 200 individual questions.
[5] The population proportion in China of Han, Zang and Bouyei are 91.6%, 0.47% and 0.22%, respectively (National Bureau of Statistics of China. China Statistical Yearbook. http://www.stats.gov.cn/tjsj/pcsj/rkpc/6rp/indexch.htm).
[6] Five participants quit the experiment for personal emergencies and another five subjects who shared their same ethnicities, but study in higher grade were instead.

and the assumption that subjects treat random strangers designs as if they were one-shot experiments is false; thus, a reputation effect may develop. Therefore, the group structures were public information over all sessions, although the subjects were not allowed to obtain the information on recruitment numbers of any ethnicity and types of ethnicities to make them feel there was no chance that they would meet the same person in any other round to rule out reputation effects as well as effects of ethnic stereotype, and thus develop an instinct towards prosocial behavior (Fershtman and Gneezy, 2014).

All sessions used the standard linear public good provision game including both neutrally worded and written instructions (See *Appendix B*). Five subjects in a group were endowed with 50 tokens each at the beginning of each round and each token was converted into money using an exchange rate of 1RMB (0.16US$)[7] at the end of the experiment. They decided on the allocation of their endowment between a private and public good. Each token held in private earned one token for the participant only whereas each token placed in the public good earned 0.5 times the token for each member of group. Let $g_i (0 \le g_i \le 50)$ be the subject $i^{'}$ contribution to the group account and let π_i be the payoff given by

$$\pi_i = 50 - g_i + 0.5\sum_{i=1}^{5} g_i \quad (1)$$

We followed the experimental design of Neugebauer, Perote, Schmidt and Malte (2009) and asked subjects to report the guess values of the mean group contribution after the decision-making in each round, and they received information feedback about the actual mean group contribution at the end of each round. Note that by requiring the reporting of the expected mean contributions, we might be forcing subjects to think more carefully about his/her economic decision than they otherwise would have. The total payoffs of a subject in each round included the payoffs from the group project as well as from guessing (*Appendix B* provides the computational formula of the payoffs). At the end of the experiment, the final payoff each subject received was his/her average payoff over 30 rounds[8].

3. Results

In this section, we provide detailed descriptions and statistical tests of the results. We focused on the behavioral differences from the experiment in Section 3.1. In section 3.2, we assessed to what extent the corresponding indicators from *PPS* were responsible for the behavioral differences associated with ethnicity observed in the experiment. A description of the variables is presented in *Table 1*.

Results from experiment on behavioral differences

A. Are there any differences in the trends of the contributions over time between ethnicities?
Result A: The results from the ethnic Bouyei and Han are supportive of declining trends of contributions, whereas the results from ethnic Zang show a roughly increasing trend. Moreover, the guess values gradually decrease over time for all ethnicities.

The three ethnicities exhibited distributions with no contributions at full-riding and full cooperation. The results from the total sample did not strongly support the declining trend of contributions, and trends were prominently different between ethnicities. Interestingly, the contributions in the first round over all three sessions were very close among ethnicities and are approximately 1/3 of the endowments (17RMB (2.8US$)), which demonstrated an imprinted tendency to cooperate. Afterwards, the ethnic Bouyei and Han exhibited a declining trend with strong regularity, as observed in previous studies. We believed that this less cooperative

[7] 'RMB' is the Chinese currency, and the exchange rate was 6.1 RMB per dollar in November, 2014. Herein, we provide both values as RMB (US$).
[8] The final payoff each subject received was determined by the total payoff of the whole game (e.g., Putterman L and Anderson, 2006; Neugebauer, Perote, Schmidt and Malte, 2009) rather than in a random manner (e.g., Anderson, Mellor and Milyo, 2008) because in each round, participants may believe that there is a low possibility (1/30) that this round will be selected and hence do not treat it carefully. Hence, the final payoff is determined by the average payoff of 30 rounds in our experiment.

behavior arose from the gradual mistrust in others over time rather than out of punishment of others[9]. The mistrust led to the instinctive human desire for self-preservation which is the fundamental behavioral principle of humanity under 'Hobbes Jungle' that approximates our design with absence of formal social norm (such as no design of punishment rules) argued by Hobbes T and Jean-Jacques Rousseau (this argument is cited from Meng Li, 2013). However, even under the mechanism of information feedback, the cooperation level of the ethnic Zang roughly showed a rising trend. Additionally, in contrast to the ex ante unknown number of periods (Fehr and Gächter, 2000), we deliberately designed the experiment with ex ante known and found that the most generous cooperation occurred at the final round for the ethnic Zang and Bouyei. Some other studies have also detected the same phenomenon in experiments and explained that many subjects are willing to have a final attempt (Zhou and Song, 2008). Nevertheless, we provided a plausible reason, on the basis of our informal return visit, that some subjects who contributed less over time would feel guilt that they had reduced the group's payoff once. This may led to the highest contributions of them out of the intention of compensation at the final round.

B. Do behavioral differences between group structures exist? And ethnic difference in contribution depends on group structure?

Result B: Ethnic diversity did not necessarily reduce the level of cooperation, and ethnic dominance may pose a greater barrier to cooperation. However, ethnic dominance merely had an overall effect; i.e., it decreased contributions of all subjects in GS3 and did not change the subjects' relative contribution between the group structures in which his/her ethnicity was designed as dominant and minor ones. There were remarkable ethnic differences in contributions in most situations, and the two largest differentiations both appeared in the GS3 (between the Zang and other two ethnicities). However, when subjects acted as minor ethnicities in GS3, the differences between ethnicities vanished.

A few studies have shown that ethnic diversity frequently reduces team performance in both public and private sectors (Watson, Kumar and Michaelsen, 1993; Pelled, Eisenhardt and Xin, 1999; Pitts and Jarry, 2007; Castro, 2008; Hur, 2013), whereas the conservative estimates of the experimental study by Waring and Bell (2013) indicates that ethnic dominance has a much larger negative effect on contributions in the public goods experiment than does caste diversity in India. We found multi-faceted results for different ethnicities in our study. Statistical power analysis of the non-parametric Mann-Whitney U*(MWU)* test cannot reject the null hypothesis that contributions of the ethnic Zang between group structures come from the same distribution, which means ethnic diversity has no significant effect on the level of cooperation of ethnic Zang (the mean contributions in *GS1*, *GS2* and *GS3* were 16.7RMB (2.74US$), 17.4RMB (2.85US$) and 16.9RMB (2.77US$), respectively). However, we found that contributions were significantly different between all group structures for ethnic Bouyei, which confirms group structure-bias (the mean contributions in *GS1*, *GS2* and *GS3* were 15.0RMB (2.46US$), 18.5RMB (3.03US$) and 13.2RMB (2.16US$), respectively). The mean level of contribution in *GS2* was the statistically highest, which suggests that the ethnic Bouyei regard a group structure composed of their own ethnicity members more favorably than the other two group structures. By contrast, ethnic diversity promoted the cooperation of ethnic Han (the mean contributions in *GS1*, *GS2* and *GS3* were 17.5RMB (2.87US$), 15.8RMB (2.59US$) and 13.6RMB (2.23US$), respectively). We may thus conclude that the ethnic interactions entail additional complexities rather than one single law. The statistical results from the ethnic Han conflict with the conjecture that the lowest level of cooperation would appear in *GS1*: *GS1* had the highest degree of diversity but prior researchers have suggested that humans cooperate more with in-group members (de Cremer and Vugt, 1999; Goette et al., 2006).

In contrast, ethnic dominance may pose a greater barrier to cooperation than ethnic diversity, and cooperation is much more likely to be determined by interactions at a finer scale (Posner, 2004; Waring and Bell, 2013); we found that mean contributions in *GS3* were lower than the other two group structures for the

[9] However, another possible reason to explain the reduction in contribution over time is that subjects are willing to punish free-riders. The less contribution he/she makes to the group account, the less payoff is received by the free-riders from free-riding. This is a potential way to punish free-riders in public good experiments without a punishment mechanism design, and humans reciprocate wrongs by harming the offender, even at a cost to themselves (Fehr and Gächter, 2000; de Quervain, Fischbacher, Treyer, Schellhammer, Schnyder, Buck, Fehr, 2004). However, we believe subjects' motivation to reduce contributions is out of gradual mistrust in others rather than punishment of free-riders, according to our informal callback survey that inquired about the motivation of subjects to reduce contributions.

ethnic Bouyei and Han. We further computed *P-values* from *MWU* to compare the contributions of subjects when acting as a dominant and as a minor affiliation in *GS3*. We found an interesting result: although ethnic dominance decreased cooperation, contributions under the two situations were not significantly different (p=0.14, 0.56 for the ethnic Bouyei and Han, respectively). This result revealed that the only overall effects of ethnic dominance were that selfish-bias was more likely to be elicited by all members and the reduction in contributions affects all members rather than only the subjects from minor affiliations. This leaves open the possibility that people may be sensitive to the terms of the group structure (in terms of being a 'diverse group', 'homogeneous group' or 'one ethnic affiliation dominant group') rather than his/her ethnic affiliation status in terms of the composition of ethnic population.

We also found the evidence that group structure played an important role in determining the ethnic difference in contribution. The two greatest contribution gaps appeared in *GS3* (between the ethnic Zang and Bouyei, differences in mean contributions in *GS1*, *GS2* and *GS3* were 1.7RMB (0.28US$), -1.1RMB (-0.18US$) and 3.7 RMB (0.61US$), respectively) and between the ethnic Zang and Han, and the greater contribution gaps appear in *GS2* than *GS1* (differences in average contributions in *GS1*, *GS2* and *GS3* were -0.8RMB (-0.13US$), 1.6RMB (0.26US$) and 3.3RMB (0.54US$), respectively). Besides, we found an interesting result that acting as the minor ethnicity in *GS3*, there were insignificant differences in contribution between ethnicities, i.e., the behaviors of all ethnicities exhibited consistency (p=0.19 between Zang and Bouyei, and p=0.64 between Bouyei and Han). The evidence from our experiment confirmed the importance of degree of ethnic diversity (or ethnic dominance) in determining ethnic differences on cooperative behavior.

C. What forms of prosocial preferences are elicited in the experiment and was there any difference in their intensity between ethnicities?

Result C: Reciprocity preference was generally observed over all group structures for all ethnicities, and it appeared to be stronger in GS1 than in GS2. The ethnic Zang generally showed larger coefficient of Guess than the other two ethnicities, which indicated their stronger reciprocity preference. Moreover, the results showed that subjects may harbor other forms of prosocial preferences besides reciprocity as the significant coefficients of $AVReal_{it-1}$, and a comparison of coefficients' size indicated that ethnic Bouyei and Zang reacted more intensively than the ethnic Han.

We divided the panel data by ethnic affiliation and estimated the following *Eq.(2)*, which captured the panel data dynamics for the contributions. *Eq.(2)* explained subject's contributions in terms of their own past contributions, their guesses about average contributions and the lagged average contribution of group members. We used generalized method of moments (*GMM*) to ensure the consistency of the parameter estimates of the corresponding dynamic panel data structures.

$$CB_{i,t} = \alpha + \beta_1 CB_{i,t-1} + \beta_2 Guess_{i,t} + \beta_3 AVReal_{i,t-1} + \varphi_i + \varepsilon_{i,t} \quad (2)$$

Ashraf, Bohnet and Piankov (2006) decompose prosocial preferences in dictator and trust games by phase-sequence design and define trustor's expected value of the fraction returned by trustee as an independent variable of trust, which we infer may explain the conditional preference, i.e., reciprocity. Similarly, the guess value was regarded as a proxy indicator measuring the intensity of reciprocal preference in our experiment. More contributions would be made as a result of more expected contributions from others. The results showed that reciprocal preference was observed over nearly all group structures and was strongest in *GS1* for all ethnicities, which remarkably indicated that subjects reciprocated more in ethnically diverse than in ethnically homogeneous groups (*See Table 4*). This result contradicted our expectation that the strongest reciprocity would occur in *GS2*. Although acting as minor affiliations in *GS3,* the ethnic Bouyei and Han also exhibited strong reciprocal preferences. By contrast, for the ethnic Zang, the contributions were uncorrelated with the guesses, which demonstrated the constant intensity of this preference: no matter how much the dominant ethnicity contributed to the group account, the contributions elicited by reciprocity preferences remained unchanged (p=0.28). On the whole, the ethnic Zang may have a stronger reciprocal preference because the coefficients of '*Guess*' were generally larger in magnitude than other two over all group structures.

We were able to trace unconditional prosocial preferences by specifying lagged $AVReal_{it-1}$ in regression models. The lagged $AVReal_{it-1}$ was expected to be uncorrelated with *CB* because the groups were randomly

assigned in each round. However, the result conflicted with our expectation in *GS2*. The negative sign of the coefficients of lagged $AVReal_{it-1}$ demonstrate that the lower average contribution to the group account in the last round increased one's contribution in the following round even if the group had been randomly reassigned. The subjects may harbor unconditional emotions such as earning inequality aversion, hoping that earning was fairly assigned to the members of his/her own ethnicity when they lie in a homogeneous group, and this allowed us to conjecture that a shared ethnic affiliation may serve as coordination devices for shared expectations, namely the pursuit of earning equality. A comparison of the size of the coefficients between the ethnicities suggests that the ethnic Bouyei and Zang reacted more intensively than the ethnic Han.

The Results of Assessing the Explanatory Power of Culture: After discussing the differences in prosocial behavior between ethnicities based on the public good provision experiment, next we identified the cultural explanatory variables for the behavioral differences, and we conducted our analysis as follows: (1) First we examined whether the ethnic affiliation itself predicted the observed behavioral difference. To accomplish this task, we regressed the contribution to the group account exclusively on subject ethnic affiliation and other variables controlling for individual characteristics because ethnic affiliation is considered to be aggregative predictor for culture and is normally characterized in terms of culture (Betancourt and Lopez, 1993) (See results of *Model 1* in Table 6). Regressing the contribution on a dummy variable for subject ethnic affiliation resulted in coefficients with strong explanatory power (the ethnic affiliation predicted differences in contributions between the ethnic Zang and Bouyei at 1% significance and between the ethnic Zang and Han at 5% significance). Additionally, we also found that two variables of individual characteristics, major and gender, were responsible for the cooperative behavior.

(2) Although ethnic affiliation per se provided strong explanatory power, our task was to investigate how culture operated. We decomposed the conception of culture into five dimensions grouped by measurable variables and then measured their ability to explain behavioral differences (*'Participation', 'Outgroup Rejection', 'Religion', 'Market Interaction' and 'Centralization of Power'*). Before carrying out this measurement, we assessed to what extent cultural differences exist between ethnicities in terms of their responses to these cultural questions. We subjected each group of items to separate factor analysis and used the Varimax rotation method to obtain parsimonious factor solutions and retained only those with eigenvalues greater than 1.5 (these factors and the individual items that constitute them are outlined in *Appendix A*). Afterwards, a series of Mann-Whitney tests were conducted on differences in scores between ethnicities (See *Table 5*). The results showed that there was no significant difference in terms of *PC* ('*Participation'*) in a range of voluntary associations (p= 0.26 for Zang vs. Bouyei; p= 0.13 for Bouyei vs. Han; p=0.71 for Han vs. Zang) as well as *OR* ('*outgroup rejection'*) in a range of living environments with different types of neighbors (p=0.86 for Zang vs. Bouyei; p=0.18 for Bouyei vs. Han; p=0.28 for Han vs. Zang) between all ethnicities. Moreover, we found the ethnic Zang and Han were statistically the most and least religious respectively based on the comparison of *RL* ('*Religion'*). We also found that the ethnic Han showed the highest level of involvement in market economies ('*Market Interaction'*) , but there was no evidence of differences between the ethnic Bouyei and Zang (p= 0.9 for Zang vs. Bouyei; p=0.10 for Bouyei vs. Han; p=0.09 for Han vs. Zang). Finally, the ethnic Zang also exhibited a higher degree of centralization of power of family ('*Centralization of Power'*, p= 0.04 for Zang vs. Bouyei; p= 0.57 for Bouyei vs. Han; p<0.01 for Han vs. Zang). We dropped the insignificant cultural factors, *PC* and *OR*, and then regressed the contribution on the remaining ones and their interaction terms with ethnic affiliation, while still keep ethnic affiliation and other variables controlling for individual characteristics in the regression model (see the results of Model 2 in *Table 6*),

$$CB_i = \alpha + \beta_1 RL_i + \beta_2 MI_i + \beta_3 CP_i + \beta_4 EA_i \times RL_i + \beta_5 EA_i \times MI_i$$
$$= \beta_6 EA_i \times CP_i + \beta_7 EA_i + \beta_8 MJ_i + \beta_9 GD_i + \beta_{10} EP_i + \beta_{11} EY_i + \beta_{12} GS + \varepsilon_i \quad (3)$$

By decomposing culture, The results showed that the cultural factors also provided powerful predictors, based on the observed significant values of interaction terms (cultural factors interacted with ethnic affiliation); however, once they are specified in the regression model, the values of the coefficients of *EA* (ethnic affiliation) varied significantly, but the *adjusted* R^2 varied relatively little (the *adjusted* R^2 of *Model 1* and *Model 2* were 0.29 and 0.35, respectively, and the coefficients of individual characteristic variables were not sensitive to this change). This may imply multicollinearity, and therefore we next regressed *EA* on all cultural factors and found all of them were significantly correlated to *EA*. This result may suggest that a particular set of measurable variables identified in our survey is capable of serving as proxies for the cultural

influences on economic behavior[10]. Interestingly, we found the differences in the three dimensions of culture, *RL*, *MI* and *CP* may not give rise to the behavioral differences between the two minor ethnicities (the ethnic Zang and Bouyei (all the coefficients of the three dimensions interacted with ethnic affiliation were insignificant at 10%)), whereas the impacts of cultural differences on behavioral differences are generally strong between the two minor ethnicities and the ethnic Han (the coefficients of *EA*×*RL* and *EA*×*MI* are significant at 1%, and the coefficients of *EA*×*CP* is significant at 10% between the ethnic Zang and Han). The negative effect of its interaction with ethnic affiliation indicates that religious attitudes of the minor ethnicity may influence economic prosocial behavior more strongly than among the ethnic Han. Although the role of a religion might depend highly upon ethnic affiliation, it operates in different ways.

Ethnic Zang believe in Mahayana Buddhism that people pray for delivering all living creatures from torment as the highest priority of spiritual practice rather than for themselves (which is the practice of ethnic Han) (Hua, 2013) that may induce stronger economic prosociality. Ethnic Bouyi practice polytheistic worship (State Nationalities Affairs Commission, 2008) and we conjecture this religious sentiment that reveres the nature influences the prosocial disposition. The result from the negative sign and strong significance of the coefficients for *MI* deviates from the finding of Henrich et al (2001) and suggests that more self-regarding preferences may be elicited by higher level of market interactions. Nevertheless, a self-regarding preference is elicited less for the two minor ethnicities compared to the ethnic Han by market interaction because only the interaction effect between EA^3 and *MI* is significant and has a positive coefficient. The same is true for centralization of power of a family. The larger magnitude of *CP* indicates that the subjects who suffer more from tyranny in family relations may behave in a more other-regarding manner because we found the sign of *CP* was positive and significant at 1%, and the effect of *CP* on prosocial behavior differed weakly depending on the subject's ethnic affiliation. The negative sign of the interaction effect between ethnic affiliation and centralization of power of a family (EA^3×*CP*) means *CP* had less impact on the two minor ethnicities compared to the ethnic Han.

(3) Actually, we had not addressed *GS* (group structure), which we viewed as a very important implicit cultural factor for measuring ethnic identity (ethnic prejudice). We generated various composition of groups in terms of ethnic proportions to determine indirectly how ethnic identity (or prejudice) as an additional cultural factor accounts for behavioral differences. To accomplish this task, we ran another regression model including group structure as a dummy variable (See results of *Model 3* in Table 6). We noticed that the results of *Model 2* and *Model 3* were robust in terms of sign, magnitude and statistical significance of coefficients for the previous five cultural factors and their interactions with ethnic affiliation and variables of individual characteristics as well. However, the values of the coefficients of *EA* (ethnic affiliation) varied significantly accordingly, whereas the *adjusted* R^2 of the model varied only slightly (the *adjusted* R^2 of *Model 2* and *Model 3* were 0.35 and 0.42, respectively). We then regressed *EA* on all the cultural factors as well as *GS* and found that *EA* had a significant correlation with *GS.* This also suggests that *GS* is capable of accounting for *EA.* These results of analysis from *Model 3* confirmed what we detected from the economic experiment in a statistical manner that group structure was responsible for the behavioral differences on the basis of the significant coefficients of the interaction term *(EA×GS)*. For example, the statistical results showed that as the differences in contributions in *GS1* between the ethnic Zang and other two ethnicities are defined as reference points (EA^2×GS^1, EA^3×GS^1), the switch of group structure from *GS1* to *GS2* induced an increase in contribution differences between the ethnic Zang and Bouyei (the coefficient is 3.16 significance at 5%) and a decrease in contribution differences between the ethnic Zang and Han (the coefficient is -2.62 significance at 10%). The plausible reason was the sentiment towards ethnic composition varies in ethnic affiliation that leads to behavioral difference. As a whole, all cultural factors were responsible for behavioral differences between the ethnic Han and the two minor ethnicities (the interaction effect between any of the cultural factors was significant at 10% at least), and it was interesting that the behavioral difference was attributed to the group structure between the two minor ethnicities only.

[10] The adjusted R^2 of the regression model is far below 1 also indicated there were still other potential variables accounting for culture that we did not identify.

3. Conclusion and Discussion

A number of public good provision experiments confirm the existence of prosocial behavior because the contribution proportions are more than nothing, but interestingly, it declines with repetition and converges to lower levels (Isaac, Walker and Thomas, 1984; Andreoni, 1988; Andreoni, 1995; Sonnemans, Schram and Offerman, 1999; Fischbacher, Gächter and Fehr, 2001). Other mechanisms need to be developed to prevent the reduction of public good provisions in the game, such as voluntary punishment (Forsythe, Horowitz, Savin and Sefton, 1994; Fehr and Gächter, 2002; Andreoni and Miller, 2002; Falk, Fehr and Fischbacher, 2005; Bochet, Page and Putterman, 2006; Carpenter, Bowles, Gintis and Hwang, 2009; Choi and Ahn,2003) and full refund rules (Isaac, Schmidtz, Walker, 1989; Bagnoli and McKee, 1991). However, we found evidence of a roughly increasing trend over time for ethnic Zang in a game without any anti-declining mechanism[11], even if they expected self-regarding behavior in strangers. In contrast, the other two ethnicities presented clearly declining trends of contributions, which exhibited the more self-regarding preference over time in comparison. Group structure varying in ethnic composition strengthens the fascination regarding human nature. It appears, based on our data, that three distinct degrees of ethnic diversity (or ethnic dominance), i.e., compositions of groups in terms of ethnic proportions, influence cooperative behavior in different ways, and we found diverse results. Evolutionary theory suggests that humans have evolved to create ethnic groups for stabilized cooperation and solving collective action problems related to adaptive challenges (Wilson and Wilson, 2007; Waring and Bell, 2013). However, ethnic dominance posed a remarkably greater barrier to cooperation than ethnic divisions between group structures for the ethnic Bouyei and Han. Reduction in ethnic diversity to homogeneous groups (from *GS1* to *GS2*) did not increase contributions for the ethnic Zang and Han compared to the increase for the ethnic Bouyei.

Moreover, it was noteworthy that the term of ethnic composition ('diverse', 'homogeneous' or 'dominant' which can be collectively termed as 'group structure-bias') may play a more important role in determining behavioral patterns than 'individual-bias'(due to identity or prejudice to individuals out of his/her ethnic affiliation as some studies claim (Becker, 1957, 1993; Fershtman and Gneezy, 2014)) because we found that subjects of the two minor ethnicities acting as the dominant ethnicity in *GS3* contributed much less than they did in *GS1.* Meanwhile, we also found that the ethnic Han contributed more in *GS1* than in *GS2*, in contrast to the argument that ethnic identity is a means to create boundaries that enable a group to distance themselves from one another (Barth, 1969). Additionally, by using guess values as an independent variable to isolate reciprocity preferences from other possible forms of prosocial preference using model regression, we found clear evidence that the reciprocity norm was behaviorally relevant. The reciprocity preference exists in all ethnicities across all group structures because marginal effects of $Guess_{it}$ were generally over 0.5; overall, the ethnic Zang exhibited the strongest reciprocity preference. Moreover, there was clear evidence in our data that were other forms of prosocial preference besides reciprocity, as demonstrated by the negative correlation between CB_{it} and *lagged* $AVReal_{it-1}$ in *GS2*. In general, we have shown based on the results of the experiments that people may harbor various forms of prosocial emotions in economic affairs, and especially exhibit stronger at the initial phase rather than what the textbook representation of Homo economics predicts.

Culture is a useful variable to uncover economic behavior, and a stream of studies is in favor of this viewpoint (e.g., Chuah, Hoffmann, Jonesb and Williams, 2009). We found supportive evidence from our empirical results that a particular set of measurable factors identified as proxies for cultural influence statistically accounted for ethnic differences in prosocial behavior. A wave of recent studies confirm the impact of religion on prosociality; religious people demonstrate highly prosocial behavior (Georgianna, 1984; Darley and Batson, 1973, Bushman et al., 2007; Saroglou et al., 2009). However, it facilitates in different manners as the differences in doctrine and variability in concerned deities and this may also influence prosociality.

Our results on the market interaction from the whole sample contradicted the findings of Henrich et al. (2001), which found strong evidence that prosocial norms increase with greater market integration and other

[11] Actually, we designed an aid-declining mechanism in the game, namely an information feedback mechanism, in which subjects received information about payoffs and partners' contributions until the end of the experiment, and the evidence from Neugebauer T, Perote J, Schmidt U and Malte L (2009) suggest that this mechanism is destructive to efficiency.

studies also confirm the positive impact of market-based elements, such as competitiveness and market-centric language, on prosocial preferences (Chen, 2010; Al-Ubaydli et al., 2013). However, when we regressed the three ethnic affiliation samples separately, the results were multi-faceted. The results showed that the coefficients of *MI* are negative (-1.54 ($p<0.01$) for the ethnic Zang and -0.65 ($p=0.09$) for the ethnic Bouyei), whereas it is positive for the ethnic Han (1.33 ($p<0.01$)). We made an informal return visit to subjects to inquire about their views on this. Interestingly, we received the unanimous response of two minor ethnicities that they did not have faith in the power of the market economy to develop prosocial norms. They considered the market economy to be filled with deception, mistrust and mutual hurt, and expect it to induce indifference, callousness and the moral decline of human nature. However, the ethnic Han stated that the market economy achieves reciprocity. As the ethnic Han are more involved in the market economy, based on the larger magnitude of *MI*, we believed it may give rise to stronger reciprocal preferences. Few studies have addressed the impact of centralization of family authority with reference to the impact of democracy and freedom on individual prosocial preference, as we have learned. Weber, Unterrainer and Schmid (2009) investigate whether organizational democracy influences the development of a social-moral climate and prosocial behavioral orientation, and the findings suggest that as the level of participation in decision-making processes increase, higher levels of prosocial and community-related behavioral orientations (characterized by behaviors such as mutual help and solidarity) are exhibited. By contrast, other research on children's prosocial behavior claims that the degree of democracy in the family is irrelevant to prosociality (Li, 2000). However, our results from this economic experimental study suggest on the contrary that lower participation in decision-making of significant family affairs induced by centralized authority was associated with higher levels of economic prosociality and may impact minor ethnicities more because the results showed a positive sign of coefficient of *CP* and a negative sign of coefficient of the interaction term, $EA^3 \times CP$, although it is relatively weak. These findings from the economic anatomy of culture support the contention that some dimensions of culture play an important role in affecting the cooperative behavior, and more crucially, they may have different marginal effects in magnitude between ethnicities and may even affect in opposite ways as what we have detected from the results of *MI*. It shows the diverse ways of cultural influence in shaping prosocial behaviors between ethnicities.

The research limitations of our study lie particularly in the design of the questions on religion, market interaction and centralization power of family, which were relatively crude and therefore may have impacted or influenced the interpretation of the findings. The definition of the word 'god' varies throughout the various religious traditions of China; for example, the ethnic Zang believe in the Indian Mahayana form of Buddhism, whereas the ethnic Bouyei believes in many gods (e.g., River, Lake or Pond). There are probably different affect and comprehension of gods across ethnicities; further work is necessary to make distinguishing questionnaires on the basis of notions of god. We merely selected necessary questions to measure market interaction and ignored other economic variables such as capital loans. The centralized authority of family may take the form of imposing values on family members, and it should also be considered. Additionally, we only addressed some dimensions of culture in terms of prosociality by measurable variables; more complete approach is required to explore the missing dimensions of culture.

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Table 1: Descriptions of variables

Variable		Description
CB Contribution to group account	*Z-CB*	Mean contribution to group account of all ethnic Zang subjects over 10 rounds in all sessions
	By-CB	Mean contribution to group account of all ethnic Bouyei subjects over 10 rounds in all sessions
	H-CB	Mean contribution to group account of all ethnic Han subjects over 10 rounds in all sessions
	Total-CB	Mean contribution to group account of all subjects over 10 rounds in all sessions
Guess Guess value of mean group contribution	*Z-Guess*	Mean guess value of all ethnic Zang subjects over 10 rounds in all sessions
	By-Guess	Mean guess value of all ethnic Bouyei subjects over 10 rounds in all sessions
	H-Guess	Mean guess value of all ethnic Han subjects of over 10 rounds in all sessions
	Total-Guess	Mean guess value of all subjects over 10 rounds in all sessions
AVReal		Mean contribution to group account of five subjects in a group
GS Group Structure		*GS1*='diverse group'; *GS2*='homogeneous group'; *GS3*='one ethnic affiliation dominant group'
EA		Ethnic affiliation
PC		Cooperation
OR		Outgroup Rejection
RL		Religion
MI		Market interaction
CP		Centralization of power of a family
MJ		Major
GD		Gender
EP		Expenditure monthly
EY		Average years of education of family members
t, t-1		The *t* period, one period lagged

Table 2: Test on differences in contributions between three group structures.

Group Structures	**GS1 VS. GS2**			**GS2 VS. GS3**			**GS3 VS. GS1**		
Ethnicity	**Zang**	**Bouyei**	**Han**	**Zang**	**Bouyei**	**Han**	**Zang**	**Bouyei**	**Han**
Mann-Whitney Test	-0.37 (0.70)	-3.70 (0.00) ***	1.36 (0.17)	0.36 (0.71)	6.16 (0.00) ***	3.01 (0.00) ***	-0.02 (0.98)	1.91 (0.05)**	3.94 (0.000) ***

[a] Z-values in parentheses. * coefficient is significantly different from zero at 0.10 level. ** coefficient is significantly different from zero at 0.05 level. *** coefficient is significantly different from zero at 0.01 level.

Table 3: Test on differences in contributions between ethnicities in various group structures.

Ethnicity	Zang vs. Bouyei			Bouyei vs. Han			Han vs. Zang		
Group Structure	**GS1**	**GS2**	**GS3**	**GS1**	**GS2**	**GS3**	**GS1**	**GS2**	**GS3**
Mann-Whitney Test	2.03 (0.04) **	-1.186 (0.235)	3.89 (0.00) ***	-1.78 (0.07) *	3.82 (0.00) ***	0.14 (0.88)	0.27 (0.78)	1.78 (0.07) *	4.21 (0.00) ***

[a] P-values in parentheses. *coefficient is significantly different from zero at 0.10 level. **coefficient is significantly different from zero at 0.05 level. ***coefficient is significantly different from zero at 0.01 level.

Table 4: Results of panel data regression

Ethnicity	**Zang**			**Bouyei**			**Han**		
Dependent variable CB_{it}	**GS1**	**GS2**	**GS3 Minor**	**GS1**	**GS2**	**GS3 Minor**	**GS1**	**GS2**	**GS3 Minor**
Independent Variable									
CB_{it-1}	0.18 (0.00) ***	0.17 (0.00) ***	-0.17 (0.13)	-0.08 (0.12)	0.39 (0.00) ***	-0.28 (0.00) ***	0.35 (0.00) ***	0.16 (0.01) ***	0.24 (0.10)*
$Guess_{it}$	0.95 (0.00) ***	0.82 (0.00) ***	0.16 (0.28)	0.77 (0.00) ***	0.63 (0.00) ***	0.76 (0.00) ***	1.10 (0.00) ***	0.60 (0.00) ***	0.54 (0.00) ***
$AVReal_{it-1}$	-0.10 (0.27)	-0.23 (0.05)**	0.09 (0.59)	-0.20 (0.33)	-0.29 (0.04)**	-0.33 (0.01) ***	-0.33 (0.23)	-0.19 (0.07)*	-0.08 (0.67)
Intercept	0.04 (0.98)	3.93 (0.07)*	13.94 (0.00)	9.04 (0.00) ***	6.30 (0.02)**	11.36 (0.00) ***	-1.04 (0.62)	4.87 (0.00) ***	4.57 (0.24)

[a] '*GS3 Minor*' refers to samples that consist of subjects as minor ethnicities in *GS3*.
[b] P-values in parentheses. *coefficient is significantly different from zero at 0.10 level. **coefficient is significantly different from zero at 0.05 level. ***coefficient is significantly different from zero at 0.01 level.

Table 5: Results of the factor analysis of social survey

Factor	**Eigenvalue of Factor1**	**Mean Score of Factor 1**		
		Zang	**Bouyei**	**Han**
PC	2.06	0.07	-0.22	0.14
OR	1.84	-0.06	-0.11	0.17
RL	4.68	0.84	-0.25	-0.59
MI	1.51	-0.17	-0.13	0.27
CP	2.32	0.46	-0.11	-0.30

Table 6: Ordinary least squares regression result for contribution.

Independent Variable	**Dependent Variable: Contribution Regression Models**			
		Model 1 (Ethnic affiliation only)	**Model 2 (Ethnic affiliation + Culture)**	**Model 3 (Ethnic affiliation + Culture + Group structure)**
EA×RL	EA^2×RL		-0.41 (0.65)	-0.41 (0.64)
	EA^3×RL		-2.86 (0.00)***	-2.86 (0.00) ***
EA×MI	EA^2×MI		0.09 (0.87)	0.09 (0.87)
	EA^3×MI		2.07 (0.00) ***	2.07 (0.00) ***

EA×CP	EA^2×CP		0.15 (0.80)	0.15 (0.80)
	EA^3×CP		-0.77 (0.06)*	-0.77 (0.06)*
RL			1.52 (0.00)***	1.52 (0.00)***
MI			-0.93 (0.04)**	-0.93 (0.04)**
CP			1.28 (0.00)***	1.28 (0.00)***
EA	EA^2	-1.16 (0.00)***	-0.42 (0.00)***	1.04 (0.00)***
	EA^3	-1.10 (0.02)**	-0.35 (0.04)**	0.77 (0.07)*
MJ		-3.57 (0.00)***	-2.37 (0.00)***	-2.37 (0.00)***
GD		1.97 (0.00)***	2.38 (0.00)***	2.38 (0.00)***
EP		0.0004 (0.46)	-0.00005 (0.93)	-0.00005 (0.93)
EY		-0.08 (0.23)	-0.05 (0.48)	-0.05 (0.48)
GS	GS^2			0.41 (0.69)
	GS^3			0.31 (0.76)
EA× GS	EA^2×GS^2			3.16 (0.02)**
	EA^3×GS^2			-2.62 (0.06)*
	EA^2×GS^3			-1.60 (0.26)
	EA^3×GS^3			-3.69 (0.00)***
Constant		17.26 (0.00)***	15.16 (0.00)***	14.92 (0.00)***

[a] '*EA*' is a dummy variable and ethnic Zang is defined as a reference, 'EA^2' and 'EA^3' refer to the ethnic Bouyei and Han, respectively.
[b] '*GS*' is a dummy variable and the group structure *GS1* are defined as a reference, 'GS^2' and 'GS^3' refer to the group structures, *GS2* and *GS3*.
[c] we classify all the majors as two categories, art and science. Thus, '*MJ*' is a dummy variable and the majors belonging to art are defined as the reference.
[d] '*GD*' is a dummy variable and male is defined as the reference.
[e] P-values in parentheses. *the coefficient is significantly different from zero at the 0.10 level. **the coefficient is significantly different from zero at the 0.05 level. ***the coefficient is significantly different from zero at the 0.01 level.

Fig 1: Trends of contributions to group account over 10 rounds

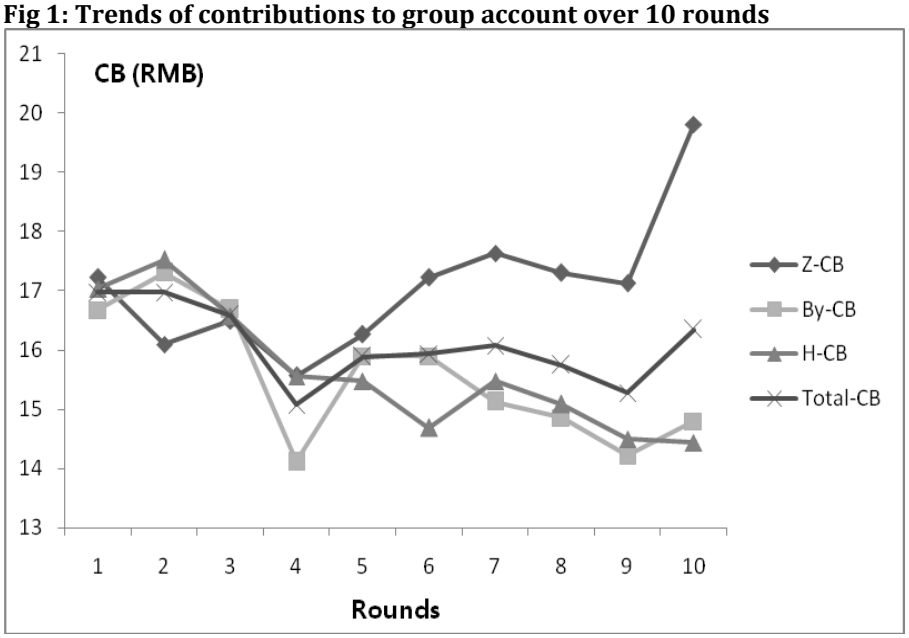
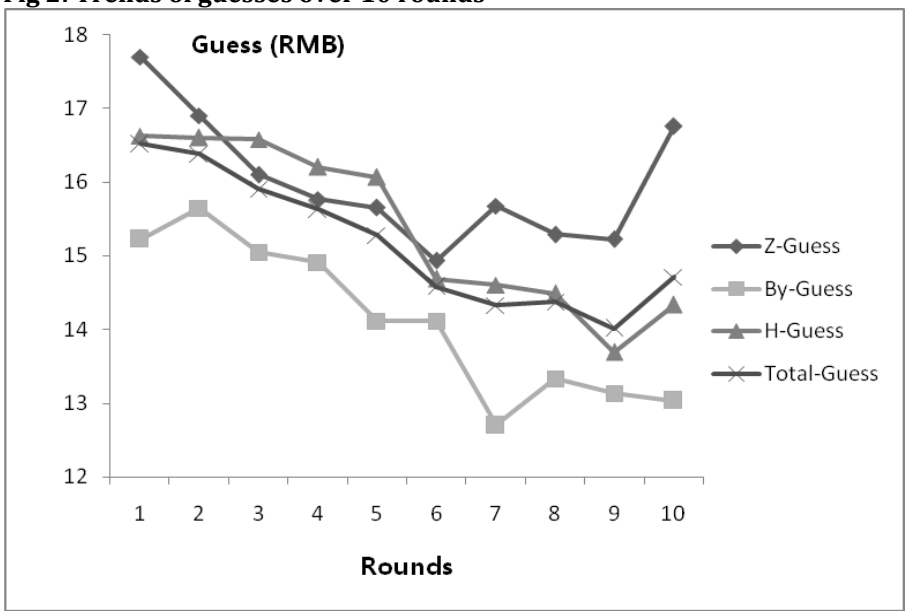


Fig 2: Trends of guesses over 10 rounds



Appendix A

Prosocial Preference Survey

Part A	***Participation***	
	Answer for each organization and each activity (1=Active; 2=Inactive; 3=No):	(a1) Church or religious organization: (a2) Sport or recreational organization: (a3) Art, music or educational organization: (a4) Environmental organization: (a5) Petition signing: (a6) Boycotts:
Part B	***Outgroup Rejection***	
	Do you mind if you have these types of people as neighbors? (1=I don't mind; 2= I don't know; 3=Prefer not)	(b1) Criminals: (b2) Heavy drinkers: (b3) Immigrants/foreign workers: (b4) People who have AIDS: (b5) Drug addicts: (b6) Homosexuals: (b7) People significantly different in social status: (b8) People significantly different in wealth:
Part C	***Religion***	
	Extent of agreement on these conceptions: (1=Strongly disagree; 2= Disagree; 3=Neutral; 4=Agree; 5=Strongly agree)	(c1) Belief in absoluteness of good and evil: (c2) Belief in necessity of religious upbringing: (c3) Belong to a religious denomination: (c4) Belief in god: (c5) Belief in life after death: (c6) Belief in soul: (c7) Belief in heaven and hell: (c8) Belief in importance of religion in life: (c9) Belief in necessity of religion for human: (c10) Deriving comfort and strength from

		religion:
Part D	***Market Interaction***	
	What proportions of these necessities are purchased from markets (0% indicates the necessity is self-sufficient, while 100% is totally purchased from market)	(d1) Clothing; (d2) Food (Rice/noodle); (d3) Vegetables
Part E	***Centralization of Power***	
	Has some family member who makes decisions of these home affairs alone according to his/her family status (1= has; 0=has not)	(e1) Significant economic affairs: (e2) Children's education: (e3) Children's marriage:

Appendix B

Experimental Instruction

The instructions were read aloud by an experimenter as the students followed along on their computer screens.

This is an experiment, funded by a research foundation to study decision making. The instructions are simple. If you follow them carefully, you may earn a considerable amount of money which will be paid to you in cash at the end of experiment and the amount you earn will depend on you and other's decisions. Please make sure you understand the decision process and remember any communication is forbidden.

Group

You are about to participate experiment of a group decision-making that consists of three sessions, and every session includes 10 rounds, in other words, you will complete 30 rounds. During each round, you will be placed in a group with other four participants (a group of five). You will not know the identities of the other four members of your group in any given decision round, nor will you be told their identities after the experiment is over. At the beginning of each round, groups will be randomly assigned that you have no chance to meet the same person in any other round, i.e., group composition will be randomly changed from round to round. Moreover, you will not know additional information that we will not provide during the whole process.

Earnings

You will receive an initial endowment of 50 token (1 token= 1RMB (0.16US$)) in each round and have to decide on the allocation of your endowment between a private and public good. Each token placed in private one earns one token back while each token placed to public good earn 0.5 times token to each member of group. Your payoff will be determined as:

$$(amount\ in\ personal\ account) + (0.5)(total\ in\ group\ account)$$

In addition to, you will be asked to guess the mean group contribution after decision-making in allocation in each round. Your payoff from guessing will be determined as follows (in RMB):

$$\left(\frac{1}{400}\right) \times (100 - |your\ guess - the\ actual\ average\ group\ contribution|)^2$$

However, the calculation may be kind of complicated, note that the closer your guess is to the average group contribution, the higher is your payoff. Your total payoff in each round includes the payoff from the group decision as well as from guessing. At the end of the experiment, your earning is the average total payoff in 30 rounds. In each round, you will allowed to have 2 minutes to make decision, and if it is not enough, please let us know and more minutes will be allowed.

Scenarios

You belong to a different ethnicity. The experiment includes three sessions and each session

corresponds to a single scenario. The scenario in the first session is that all of you are randomly divided into several groups and have to be aware that you play in a group probably with participants from different ethnicities. In the second session, you play in a group in which all the other participants belong to the ethnicity of your own. At the beginning of each round in third session, we will randomly select several participants. If you are selected, you will play in a group with other four participants belong to an ethnicity different from yours, and if not, you will play in a group with four other participants, only one of whom belongs to a different ethnicity from yours.

There will be some key questions which test whether you are familiar with the experiment institution. Our experimenters will check your answers and rectify the wrong ones with explanation, and if you have any more questions, please ask them before the experiment begins.

GOOD LUCK!