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Mission Statement
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The mission of this journal is to publish empirical research that tests, extends or builds business management and economic theory and contributes to business and economic development. All empirical methods including qualitative, quantitative, field, laboratory and combination methods are welcome. In order to be published in IJBED, a manuscript must make strong experiential and theoretical contributions and highlight the significance of those contributions to the business management and economic field. Thus, preference is given to submissions that test, extend or build strong theoretical frameworks while critically examining issues with high importance for business management and economic theory and practice. The IJBED is not tied to any particular discipline, level of analysis or national context. IJBED is committed to working to uphold the highest standards of probity and academic rigor in all that its endeavours.

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The IJBED is a scholarly and refereed journal that provides an authoritative source of information for scholars, academicians, and professionals in the fields of business and economic development. The journal promotes the advancement, understanding, and practice of business & retail management. Manuscripts offering theoretical, conceptual, and practical contributions are encouraged.

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- Publish high quality and scholarly empirical based research papers, case studies, reviews in all aspect of business, management and commerce with theoretical underpinnings.
- Offer academics, practitioners and researchers the possibility of having in depth knowledge and understanding of the nature of business and management practices and.
- Create a forum for the advancement of business and economic development research.

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The readership for this journal includes academics, researchers, professionals, executives engaged in business and economic development, policy makers, government officials, central, private and public banks and financial institutions, NGOs, micro-financial institutions, and any one has interest in business and economic development.

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Editorial Comments

Those who have dedicated their lives to studying the Earth's lithosphere are familiar with the fact that the world's tectonic plates are under various pressures and as a consequence periodically shift. Similarly the global economy is constantly reacting to various pressures, and as a result the tectonic plates of the business world are moving. The ramifications of the recent vote in the United Kingdom to leave the EU illustrates this, as well as warning us to beware of setting too much store by the economic soothsayers and media pundits who seem intent on telling us how we should think and behave.

This edition of the International Journal of Business & Economic Development (IJBED) contains eleven scholarly articles conforming to the principal objective of the journal, namely the dissemination of both applied and theoretical knowledge. The papers provide a stimulating insight into a range of issues, both with local and global significance, and afford us an opportunity to appreciate the way in which various sectors and economies are wrestling with various challenges. The findings of a number of these papers are significant not only for academicians, but also for professionals, policy makers and those responsible for local, regional and national strategy. It is evident that whilst there is clear evidence of mankind's ingenuity in a range of circumstances, there is also a wealth of evidence presented herein of a lack of foresight in a variety of sectors and areas of human endeavour. The Editorial Board is grateful to the contributors for making IJBED the platform by which they have chosen to put their research into the public arena, and trust that they will use their good offices to ensure that others do the same.

The first paper is entitled: IFRS in the BRIC countries revisited: application of the IFRS orientation indexes by David R. Borker. Robust accounting mechanisms have long been seen as a key component when it comes to an economy that values trust both locally and in respect of its international partners and competitors. Even a cursory perusal of the IFRS website (www.ifrs.org) reminds the reader of the centrality of: transparency, accountability and efficiency. Whilst these are laudable aims for individual countries and for financial markets the ability of a country to ensure it has organisations, institutions and individuals who live up and maintain such lofty aspirations is another matter altogether.

The BRIC countries have become something of a self-fulfilling prophecy, certainly in regards to the degree of coverage these four countries have received collectively in the form of this near ubiquitous acronym. By examining the BRIC countries through the prism of IFRS indexes we are provided with fresh perspectives, especially in regard to the degrees of limitations of progress in meeting international standards. The primacy of culture and socio-political factors are clearly articulated here, hence the emphasis placed on making use of the Hofstedean model. The addition of further refinements by S. J. Gary and the author's own emphasis on stewardship contributes significantly to the value of what is presented here. It is of course important to take cognisance of the fact that countries take their own paths and whilst some may be making somewhat tentative progress, even those nations such as the UK, US and Canada cannot afford to be complacent. The Big Four accounting firms (PWC, Deloitte, Ernst & Young and KPMG) have all faced their own difficulties and in some cases scandals and thus we must be mindful of the role of human frailty.

This paper elucidates something of the challenge faced by the BRIC countries and is a useful reminder of their different stages of development. This study has a wider relevance that goes beyond Brazil, Russia, India and China. The centrality of training is an important take

away, as is our own ability to get beyond stereotypes. Borker has provided plenty of food for thought here and as such has done us a service.

National development is heavily dependent upon a nation harnessing the potential of all its citizens. With this thought in mind we move on to the second paper: Fertility and female labor supply in Saudi Arabia: The case of Jeddah Western Region - Halah Essan Alattas. One of the challenges highlighted by this paper concerns the paucity of data at a micro level. This is particularly true of developing countries, all the more so when it comes to data outside of the capital or the main metropolitan cities. Through this research Alattas makes the case for Saudi Arabia to increase its birthdate, whilst also ensuring that more women enter the world of work. Anyone familiar with the Saudi Kingdoms official forward strategy: Vision 2030 (http://vision2030.gov.sa/en) will be aware that there are signs of lip service being paid to such aspirations, but as this paper would appear to confirm progress remains fitful and slow.

A perennial weakness with Saudi Arabia and other Gulf Cooperation Council (GCC) countries is the culture of dependency in regards to employing migrant workers. The figures are staggering, with 55% (2012) being quoted in this research. Demographic concerns are significant and here a number of reasons are given for the declining Saudi birth rate. I note with interest that stress is not mentioned, neither are health related matters that might result in a decline in male fertility. The author makes mention of an "unsuitable environment", it would have been useful to know precisely meant by this. According to the World Bank there were 2.7 births per woman in Saudi Arabia in 2012, where as in 1960 the figure was 7.2 births per woman. There are many who might well take issue with claim that the declining birthrate is caused in part due to religious strictures.

The highly prescriptive nature of Saudi society in regards to the education, roles and freedom of women and girls frames the entire narrative. The following line from the paper; "lack of opportunities for females, intolerant behaviour of males, ineffective political system, and supremacy of males." speaks volumes. Some believe that deep seated misogynistic attitudes are at the root of the problem. There is also the issue of unemployment and under-employment, this being particularly acute across the under-30 demographic. Mention is made of the "rate of idleness", if this is enforced Saudi Arabia has good reason to be alarmed, as within such enforced idleness can well sow seeds of discontent and possible future social unrest. This paper could well stimulate considerable discussion and debate in connection with issues as regards the comments made about women and private transport and contraception. It would be churlish to deny that some progress is being made, but all the indicators are that change in the status of women remains incremental and highly selective. The current regime is disinclined to support any moves that might be deemed to challenge the prevailing orthodoxy.

The trade-off that is said to take place in order for developing countries to attract much needed Foreign Direct Investment (FDI) is embodied in what has become known as the pollution heaven hypothesis. As well as this being about economics it is also an exercise in power, power that in the opinion of many is shown in environmental responsibility and ethical considerations. The third paper in this edition is entitled: The impact of pollution control enforcements on FDI inflow to Thailand - Kathasat Boontem. A wealth of important issues are raised within this paper, not only in respect of the challenge of ensuring that an economy is attractive for foreign investors, but also what it says about regulation and the degree of enforcement and penalties for infringement of legislation. Naturally, all governments are eager to see economic growth stimulated, but surely not at any price. Regulatory bodies often come across as little more than paper tigers. What is more there are currently severe misgivings about the commitment of Thailand's ruling National Council for Peace and Order (NCPO) to environmental safeguards. Herein lies a monumental challenge for Thailand. Successive political

crises have ensured that the desperate need to reassure investors and pull in foreign capital has invariably resulted in environmental considerations being side lined or even ignored. The phrase 'desperate times calls for desperate measures' comes to mind. This paper is all the more relevant as Thailand is ranked 32nd out of 108 according to Numbeo (2016) - the higher the rank position, the worse the pollution. What might be politically expedient for some is likely to have long term effects for the country as a whole, a message that needs to be heeded not only in Thailand, but across the developed and developing world.

The next paper also hails from Thailand, a country hidebound by Buddhist teaching and a deep seated deference to people in positions of authority. Such an outlook frames organisational culture and business attitudes to such a degree that it is essential to take cognisance of these factors when examining business conduct in Thailand. Good practice achievement of the firms within National agro processing industry in Thailand: Impacts on corporate image and stakeholder acceptance – Poonpool et al provides a clear outline of the theoretical ideal, one that is anchored in an extensive literature review. When the authors state; "corporate image has become an essential strategy for many organisations" we would do well to ask ourselves whether at times this results in style over substance. Branding and corporate image has become central to how many firms operate. Face, and the presentation of a positive image may well mask various imperfections. We need to ask how the values espoused as part of good practice work in a society that is not only highly deferential, but is not accepting of scrutiny from those deemed to be in inferior roles. What might be theoretically sound in actuality is difficult to deliver in a meaningful manner. The present cultural norms in business, the media and society at large make tackling malversation in the boardroom and in management almost impossible.

In regards to the specifics of the agro processing sector, it would be useful to have some idea as to the degree of interaction the leadership in this sector has with its equivalents elsewhere. Some insight into the size and nature of the industry would have added additional value.

The next paper is entitled: Developing countries challenges in applying sustainable urban development. An application on Egypt by Sherine El Sakka. Countries across the globe are wrestling with development at both at a local and international levels. Whilst a whole series of environmental summits and conventions have taken place in recent decades, in the majority of these, especially the Rio summit (1992) there has been an extraordinary lack of consensus. The degree of lobbying both from multi- nationals and NGOs has ensured that the water has been muddied so to speak. It is interesting to read the views of Bruegman (2005) who claims that; "advocates of sustainability base their assumptions on a very pessimistic view of the world..." Is this pessimism, or a reasonable assessment in view of the woeful record of sustainability in most countries?

When the challenges faced concerning sustainability are mentioned, the following deserve to be included: poor leadership, corruption, a lack of foresight planning, inadequate prioritisation and insufficient willingness to learn from positive examples from elsewhere. Whilst mention is made of Eco technology, this often comes at a premium, one that many companies and communities are either unwilling or unable to pay.

Films such as A Plastic Ocean (www.plasticoceans.org) have helped raise awareness of pressing issues, whilst companies such as Florida's Saltwater Brewery (www.saltwaterbrewery.com) have proved that where there is a will there is a way. The enormity of some of the problems being experienced cannot be wished away thanks to a collective wringing of hands, rather there needs to be concerted action and enlightened leadership.

Egypt's problems, certainly in regards to population are monumental and throw into even sharper relief the differences between sustainable development in urban and rural settings. There is evidence of some aspirations for the country as a whole, the best example being: http://sdegypt2030.com . There are a number of clear objectives here, which whilst perfectly laudable, are nevertheless lofty peaks that may well prove extremely difficult to climb.

If sustained economic development is to take place the simple truth is that small and micro enterprises need to be nurtured and encouraged. Whilst such businesses make up the lion's share of most economies around the globe, the business media and policy makers invariably seem to spend most of their time focused on the larger corporates. Attuning taxation systems so that they do not disadvantage smaller enterprises is a difficult balancing act that requires the dexterity and purpose of the finest funambulist. The sixth paper elucidates this topic and provides some interesting findings. Does increase in the depreciation expenses allowance spur economic growth? Evidence from the USA - Yuan & Oriaku examines the complexities surrounding the efforts being made to try and engineer targeted assistance. What is encouraging is the fact that the federal revenue authorities recognise that smaller enterprises require additional stimuli, but current efforts according to the authors still largely favour the larger corporations. Herein lies a point of discussion about how businesses are viewed and handled by the taxation system, some might even posit that there is an inbuilt bias that regardless of good intentions will inevitably either penalise small businesses or not enable them to be assisted as effectively as those with a far larger turnover.

Accounting mechanisms, most notably the sums concerned in depreciation are a common means by which revenue authorities try to addresses the particular challenges faced by the legion of smaller businesses. In recent years the Australian Taxation Office (www.ato.gov.au) is just one of a number of authorities that have been striving to simplify depreciation rules for small businesses. Nuanced changes, whilst not without some benefit, are notoriously hit and miss. This study would appear to confirm this and what is more has an important message for those endeavouring to address this issue on Capitol Hill.

The next paper is entitled: How does learning orientation generate product innovativeness and superior firm performance? - Dulger, Alpay et al. There is an English proverb that says that; 'Necessity is the Mother of Invention', similarly it could well be said that; 'Innovation is born out of the desire to survive'. It has long be appreciated that innovation is important to economic well being, and what is more can add significantly to a country's GDP and global competitiveness. Appreciating the value of innovation and creating a culture where innovation is appreciated, encouraged, cherished and celebrated, well that takes time. In making reference to Wang & Ahmed (2004) in regards to the five main areas that help organisations to become innovative it is rather surprising that the questioning mind is overlooked. Education is central, and all the more so if people are to be encouraged to think independently and challenge the existing orthodoxy in a creative and constructive manner.

Taking Turkey as its focus, this research could not have anticipated recent events that are already transforming the landscape with regards to free speech and independent thinking. All the indications are that Turkey's current position of 79th out of 178 on the current Fragile States Index (http://fsi.fundforpeace.org/) is likely to change. Please note that in this particular global index the lower the position, the less fragile a country is. WhilstTurkey has made remarkable progress in certain respects, the world of business has some way to go, a point made abundantly clear by Turkey's ranking in regards to the Ease of Doing Business (http://www.doingbusiness.org/rankings). One of the most striking (if not altogether surprising) facts featured in this research is the fact that the number of male respondents was 87%, whilst no one is claiming that this figure is representative of the country as a whole, it does

raise legitimate questions about gender representation. Gender balance and the opportunities for women, who in many respects are natural innovators, to occupy positions of influence that can help shape corporate culture and thus help organisations be more representative of society as a whole.

At an official level organisations such as The Scientific & Technological Research Council of Turkey are playing an important role in raising awareness of innovation. Anyone who has looked up Turkey on The Innovation Policy Platform (www.innovationpolicyplatform.org) will appreciate that some positive developments are happening. That said, current uncertainties concerning the outlook of the current Turkish political leadership raise more questions than they provide answers, a fact that is certain to impact negatively on the business climate. It is also to be regretted that there are already signs that Turkish academics are going to have fewer opportunities to travel and interact with academics abroad.

The economics of the environment has slowly begun to emerge as an area of consideration that said, there is a growing body of evidence to suggest that this area of research and analysis remains somewhat fragmented. The next paper is entitled: UK company strategies in reducing carbon dioxide emissions - Yongmei Bentley. Carbon emissions first came to prominence with the alarming discovery in the mid-1980s by Joseph Farman, Brian Gardiner & Jonathan Shanklin, three scientists with the British Antarctic Survey. The discovery of a hole in the ozone layer caused widespread concern, to such an extent that there was a concerted effort globally to address the issue of carbon emissions. In subsequent decades we have witnessed the banning of chlorofluorocarbons, the introduction of carbon trading, as well as the development of carbon capture technology and an attempt in some quarters to measure and the reduce personal and corporate carbon footprint.

Considering the years of discussion and growing awareness, what this paper has discovered makes rather depressing reading, especially in regards to the fact that reducing carbon remains a secondary consideration. As the logistical side of commercial operations generates a sizeable percentage of the carbon emissions produced, it does seem extraordinarily irresponsible for businesses to have done so little claiming that this is because logistics is not their core business. These findings, whilst only a snap shot of what might be happening elsewhere have implications for policy, infrastructure development and new statutory requirements. There are also questions that should be being asked about home production. It is worth noting that companies such as the UK food retailer Iceland seem quite content to import produce such as apples and tomatoes from Poland, when the UK is quite capable of producing such produce locally.

What is revealed in this paper raises questions about leadership and management. There might well need to be more of a carrot and stick approach, or some means of assessing and grading businesses with regards to their true green credentials. The logistics and warehousing sector is massive, and yet invariably the structures that are being erected show little evidence of featuring solar panels and utilising grey water systems. The points made about regional and national infrastructure are particularly pertinent, all the more so in the light of the enormous sums being expended on the hugely controversial HS2 rail link. All of which raises a number of questions: Why is there not a more coordinated approach to carbon reduction? Is this an issue that warrants greater attention from business schools? How many businesses in the UK are even aware of the likes of the Centre for Alternative Technology (www.cat.org.uk)?

From the subject of carbon emissions we move neatly on to fuel consumption, an issue that has a direct bearing on pollution and environmental degradation. Determinants of fuel stacking behaviour among households in Bauchi Metropolis - Ahmed, Darazo & Babayo offers an attempt to shed light on the decisions that influence fuel consumption in a city of some half a

million people in Northern Nigeria. Whilst Nigeria is a veritable African powerhouse in many ways, when it comes to energy supply the country has a woeful record, that itself is certain to influence attitudes to energy consumption, and the choices made by consumers. Those familiar with Nigeria will have been rather surprised by a number of negative factors that were omitted from the 2.3.4 Modern Fuels Supply Security, issues such as poor leadership, inadequate training, corruption and the indifference of the wealthy to ensuring ready supplies as the well off can afford fuel and multiple generators.

The role of gender is extremely significant, not only as it is apparent that the heads of households in Nigeria are predominantly men, but the issue of technology adoption and gender is a topic that whilst mentioned, could have done with further elaboration. In additional much of Northern Nigeria's environmental damage is being caused by the demand for fuel sources such as charcoal and this is coming at a significant long term cost. Furthermore, there is the issue of the withdrawal of fuel subsidies, something that has disproportionately hit the poorer sections of society. Fuel is an incendiary issue in more ways than one.

From West Africa we move to the Caucusus, and the challenges faced by farmers endeavouring to make their way in the world in the post-Soviet Union era. As in all research the importance of context can never be under estimated. Countries such as Armenia have been shaped by their complex history, and the fact that this region has been dominated by Russia in so many ways has a considerable impact on policy, outlook and even the ways of doing business. Collective action as a way to develop Organic Farming in Armenia - Armen Ghazaryan offers a fascinating insight into a part of the world that rarely receives much coverage in the mainstream media or amongst academics. It must be stress that the term "collective action" as featured in the title of this research refers to what is generally known as collectives/cooperatives.

Economic readjustment has been a slow and gradual process for the likes of Armenia and even over two decades on from independence there is more than a sense of transition. With agriculture making up a fifth of the economy it soon becomes clear that this is a pivotal sector, one that whilst it can draw upon cheap labour, still has to find a purpose, markets and ensure consistently high products that are reasonably priced.

The final paper is entitled: Motivational factors as determinants of employee commitment and performance enhancement in profit oriented firms: a survey of selected brewery manufacturing companies in Nigeria - Teryima et al. Employee motivation is an especially pertinent area of research, especially in countries that have high unemployment rates. All too often those in leadership and management roles are more interested in cheap level, than they are in recognising, nurturing and seeking to retain staff. For many corporations the prevailing attitude appears to be one of, "well you are lucky to have a job, and if you do not like it, well then you are easily replaced", other employers will perpetually plead poverty, whilst amassing sizeable property portfolios. Flat management structures routinely go through the pretence of listening to some employees whilst routinely behaving in a myopic and often tyrannical manner. There are some employers who do not have bother to pretend to care about their employees, they see a payment no matter how meagre or in arrears as quite sufficient. By highlighting the role of extrinsic and intrinsic motivation we are reminded of the centrality of motivation in all our lives. The levels and natures of organisational commitment as expressed here add to the appreciation of the prevailing dynamic.

The literature survey is significant, especially as local and cultural context is relevant. In that respect, it would have been useful to have a few more African, and specifically West African references. Hofstede's analysis of Power Distance in regards to Nigeria is especially useful; see: https://geert-hofstede.com/nigeria.html Whilst the comparisons between the

different breweries has some value, it would have been useful to have to some insight in respect of management training. Initiatives in regards to Lean Management in a nearby regional economic powerhouse, Ivory Coast, has some useful lessons in this respect, and thus it is worth being aware of organisations that are helping lead the way e.g. Côte d'Ivoire Diaspora Intelligentsia Agency (http://www.cidia.co.uk/contact-us/cidia-cote-divoire/) In some respects HRM remains haphazard and somewhat rudimentary in some sectors in Nigeria, and unfortunately there are some in leadership and management roles who remain decidedly ambivalent to its value. That said, this sector specific research has brought to light some positives, and helped crystallise the need to prioritise better channels of communication and recognition of individual wants that ultimately can help improve productivity and corporate cohesion and purpose.

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Contents

Editorial

IFRS in the BRIC countries revisited: application of the IFRS orientation indexes

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Keywords
IFRS, BRICs, Accounting and culture

Abstract

The author revisits his work on the culturally derived accounting orientations of the BRIC countries, based on Geert Hofstede's work on cultural dimensions (Hofstede, 1980) *and the hypothetical derivation of four related cultural accounting dimensions (professionalism, uniformity, conservatism, and secrecy) by S. J. Gray.* (Gray, 1988) (Borker, 2012a) *The study is updated and re-evaluated through the application of the author's more recently developed tools for quantifying the degree of IFRS orientation -- the Composite IFRS Orientation Index and the Expanded IFRS Orientation Index.* (Borker, 2014b) *The study goes beyond the inputs considered in the previous BRIC analysis to include important socio-cultural factors such as corruption, political risk, educational level and business regulatory climate. These factors are considered as attributes of a new proposed fifth cultural accounting dimension beyond Grey's original four, designated as stewardship.*

Introduction

The emerging economies Brazil, Russia, India and China, first identified as the BRIC countries in 2001 by Goldman Sachs (O'Neill, 2001) were considered as most likely to enjoy sustained high growth and to become the ascendant economies during this century. They were conceptually paired into two groups: (1) Brazil/Russia, identified as large land mass countries with relatively low populations rich in exploitable and exportable natural resources, and (2) India/China, identified as having world's two largest populations with China expected to be ascendant in manufacturing and India expected to grow most in the service sector.

Since 2001 several other configurations of promising emerging economies have been identified, most notably the eleven countries of the 3G Group, identified by Citicorp economists in 2011. (Buiter & Rahbari, 2011) That group, also, includes two members of the BRIC, namely, India and China, while Brazil and Russia, the vast natural resource providers forming the "front half" the BRIC, were, for some reason, omitted in the Citicorp study.

Nonetheless, the BRIC economic label, with and without a later alternative configuration as "BRICS" to add the Republic of South Africa, has maintained a persistent growing presence in academic research publications and conferences to the present time. One need only conduct an advanced Google Scholar search for articles and books containing the words BRICs, BRIC countries or BRIC economies in their title by time period. The graph below summarizes the number of articles and titles containing the words BRICs, BRIC countries or BRIC economies during sequential time blocks within the period from 2001 through 2016.

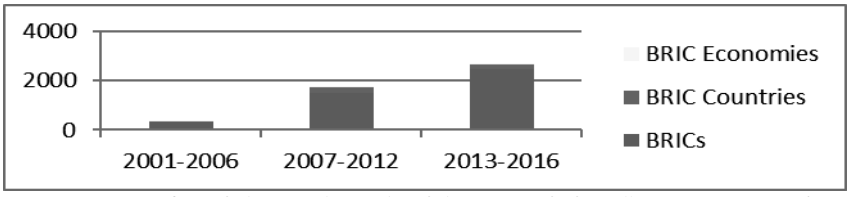

Figure 1: Frequency of Articles and Book Titles containing "BRIC Economies," "BRIC Countries" or "BRICs" by Time Period

Based on this simple measurement, it appears that research on the BRIC countries is not only alive and well, but on the increase. If, however, we narrow our focus to publications with both the words "BRIC" and "IFRS," in their title, we find that since 2001, there has been only one article in English, that one having been published by the current author in 2012 (Borker, 2012a). In addition, there is a Master's Thesis in Portuguese written in 2014 dealing with business mergers in the BRICs relating to IFRS 3 (Bandera, 2014). Given the above, there is justification to revisit the subject of IFRS among the BRIC countries and to apply a more refined research methodology.

As indicated in my first article on IFRS among the BRICs, all the BRIC countries have committed to the adoption of or convergence to some form of IFRS. (Borker, 2012a) Below is a brief update of information on the official status of IFRS in each of the BRIC countries.

Brazil adopted IFRS 2010 as issued by IASB and requires its use for the consolidated financial statements of all listed companies. These companies must simultaneously provide reporting in accordance with CPCs, the new Brazilian GAAP. It is claimed that there are a few differences between CPCs and IFRS. Although consolidated financial statements are prepared in accordance with IFRS, there are some limitations on options and additional disclosures required by Brazilian law, e.g., revaluation of PP&E is not permitted by Brazilian corporate law. CPCs are required for all regulatory filings. Besides company consolidated financial statements, all listed banking and insurance companies need to prepare additional consolidated financial statements in accordance with IFRS as published by the IASB. In as much as CPCs are claimed to show few differences with IFRS, Brazil has no plan or timetable for the convergence of CPCs and IFRS. (PWC, 2015)

Russia chose direct adoption of IFRS as issued by the IASB in 2013 and required its use for the consolidated financial statements of all listed companies as well as for standalone financial statement of all listed companies with no subsidiaries. Subsidiaries of foreign companies (that are legal entities incorporated in accordance with the legislation of the foreign states) listed on Russian stock exchanges are permitted to prepare their financial statements in accordance with other commonly known international standards, e.g. US GAAP. Russian GAAP, which differs *significantly* from IFRS, is required for regulatory filings and financial reporting of entities not covered by specific requirements to use IFRS. (Borker, 2012) The Law on consolidated financial statements, as revised in 2014, requires the use of IFRS financial statements for the regulatory filing of consolidated financial statements of credit institutions, insurance companies, companies whose securities are admitted for organized trading by inclusion in a quotation list, companies which are otherwise obliged by federal laws or constitutive documents to prepare consolidated financial statements, non-state pension funds, managing companies of investment funds, unit investment funds and non-state pension funds, and clearing organizations. In addition, two categories are expected to be added to this list - State Federal Unitary Enterprises determined by the Government of the Russian Federation and Open Joint Stock companies shares of which are held in the federal property, determined by the Government of the Russian Federation. Although Russia chose direct IFRS adoption to jump start reporting by most listed companies, most other companies, which are generally smaller, report in accordance with Russian GAAP. Russia does have a plan for the convergence of Russian GAAP with IFRS with a time table for this accomplishment. The time table called for convergence in 2015. This was not achieved and, presumably, the work goes on. There are still significant differences between Russian GAAP and IFRS and it is uncertain when this will be accomplished. For the time being, this process continues, along with the parallel efforts to train and educate the vast majority of Russian accountants, accustomed to Russian GAAP, to understand and effectively use IFRS. (PWC, 2015)

India has chosen the path of IFRS convergence, not adoption. Although listed companies are permitted to issue financial statements in accordance with IASB issued IFRS, they are required to prepare financial statement in accordance with Indian GAAP. Also, Indian GAAP must be used for all regulatory filings. The Ministry of Corporate Affairs (MCA) announced on February 16, 2015 a revised roadmap for the implementation of "Ind-AS" (Indian Accounting Standards as opposed to traditional Indian GAAP), the convergence of India's accounting standards with IFRS. The roadmap provides a phased approach, primarily based on a company's net worth. For example, entities with at least INR 5000 (USD $77 million) net worth must use Ind-AS by April 1, 2016 This will also require comparative Ind AS information for the period of April 1, 2015 to March 31, 2016. Listed companies (other than those covered in first phase) as well as others having a net worth equal to or exceeding INR 2500 million (USD 38.5 million approximately) will be reporting under Ind AS from April 1, 2017 onwards. The Indian government acknowledges that certain differences have remained between the IFRS as issued by the IASB and the Ind AS in terms of carve-outs. "Carve outs" are incidences of divergence between Ind AS and IFRS. Specifically, a carve-out indicates that certain requirements of an accounting standard under IFRS will not be adopted. Some of these "carve-outs" diminish comparability of Ind AS with the globally accepted IFRS. (Attra, 2012) (PWC, 2015)

China requires that listed companies use Chinese Accounting Standards (CAS) which, the Chinese authorities claim, have substantively converged with IFRS, but are not a direct translation of IFRS, but rather principles of IFRS "re-written into a format that is easily-understandable to the Chinese reader." Furthermore, IFRS, as issued by the IASB, are prohibited for both financial and statutory reporting. The Chinese government has no plans or time table for convergence of CAS with IFRS, in as much as, it claims to have already substantially converged with IFRS and the Ministry of Finance continues to amend CAS so that its principles are in line with the IFRS in effect. Almost everything under CAS is permissible under IFRS, but CAS does not permit the full range of options available under IFRS. Still, most everything in CAS is acceptable under IFRS. At present there are a few significant differences between IFRS and CAS. China requires pooling of interest accounting on the combination of commonly controlled enterprises, which is not permitted under IFRS. IFRS also permits the reversal of certain impairment losses and this is not permitted under CAS. (Gillis, 2015) (PWC, 2015)

Statement of Purpose

This paper examines the relative potential of the BRIC countries, Brazil, Russia, India and China to establish and maintain sufficiently high quality financial reporting based on an evaluation using two quantitative measures: the Composite IFRS Orientation Index, and the Expanded IFRS Orientation Index, developed by the author in a recent study. (Borker, 2014) These measures are determined by a quantitative analysis of each country's culturally derived accounting values as they relate to IFRS. Four of these accounting values are taken from Sidney Gray's accounting value dimensions -- conservatism, uniformity, professionalism, and secrecy. To these, a fifth value dimension, stewardship, is added by the author, based on a set of four selected indexed sociocultural factors. These factors are corruption, political risk, education, and regulatory environment. The ultimate aim of the analysis is to understand the relative cultural ease with which each of the BRIC countries will adapt to IFRS relative to one another and to a selected set of comparison countries outside of BRIC to gain regional and country specific insights into strengths and opportunities for improvement. The non-BRIC countries selected for comparison are three developed countries, Germany, Japan and the United Kingdom and one developing country, Pakistan. The results of this study are compared with those of the author's earlier study of IFRS and the BRIC countries. (Borker, 2012a)

Literature Review

Geert Hofstede published his first book on worldwide cultural value dimensions in 1980. In that book he provided index scores for individual countries across four cultural dimensions: Power Distance (PDI), Individualism (IDV), Masculinity (MAS) and Uncertainty Avoidance (UAI). (Hofstede, 1980) Later, Hofstede developed additional cultural dimensions - Long-Term Orientation (LTO) and Indulgence vs. Restraint (IVR). (Hofstede, 2001) (Hofstede, et al., 2010) These dimensions are fully described in Hofstede's website. (Hofstede, 2013)

In response to Hofstede's first book on his cultural value dimensions, Gray wrote a paper in which he posits a relationship between Hofstede individual country cultural value dimensions and a set of accounting value dimensions. (Gray, 1988) Gray identified four accounting dimensions, conservatism (opposite of optimism), uniformity (opposite flexibility), professionalism (opposite statutory control) and secrecy (opposite transparency). He related these accounting dimensions to Hofstede cultural dimension in four hypotheses:

1. The higher a country ranks in terms of individualism and the lower it ranks in terms of uncertainty avoidance and power distance then the more likely it is to rank highly in terms of professionalism.
2. The higher a country ranks in terms of uncertainty avoidance and power distance and the lower it ranks in terms of individualism then the more likely it is to rank highly in terms of uniformity.
3. The higher a country ranks in terms of uncertainty avoidance and the lower it ranks in terms of individualism and masculinity then the more likely it is to rank highly in terms of conservatism.
4. The higher a country ranks in terms of uncertainty avoidance and power distance and the lower it ranks in terms of individualism and masculinity then the more likely it is to rank highly in terms of secrecy. (Gray, 1988)

Gray qualifies his hypotheses with observations regarding the relative importance of various Hofstede dimensions in relation to his accounting dimensions. For example, in discussing Professionalism, Gray noted that Hofstede's IDV and UAI are strongly linked to his Professionalism value, while PDI is linked, but not as strongly, to the Professionalism value.

In recent years, Braun and Rodriguez quantified each of Gray's four accounting dimensions for individual countries by taking a simple average of scores for the corresponding Hofstede dimensions. (Braun & Rodriguez, 2008) In the case of scores for dimensions that have a negative or inverse relationship to a Gray accounting dimension, the Hofstede score is adjusted in the following manner. The mean score for that dimension for the total countries analyzed is subtracted from the specific country's score. Next, this value is multiplied by -1, and then added to the mean score. By using this conversion of negatively correlating Hofstede scores, they are able to create opposite positive scores for each Hofstede dimensional component of a Gray accounting dimension. By using a simple average in their computation, Braun and Rodriguez assume that all Hofstede dimensions that relate to a given Gray dimension should have an equal weight. This does not take into consideration Gray's observations regarding his hypotheses that certain Hofstede dimensions have a greater or lesser weight than others in relationship to the accounting dimensions. (Gray, 1988)

In a recent conceptual paper, Borker (Borker, 2013a) develops a revised description of the relationship between Gray accounting value dimensions and Hofstede cultural value dimensions that provides relative weightings based on Gray's indications in his original article. He also expands the model to include two Hofstede dimensions identified after Gray's article, specifically Long-term orientation (LTO) and Indulgence versus Restraint (IVR). Table 1 below summarizes the positive and negative relationships between Gray and Hofstede dimensions,

using '+' to represent a lower weight positive correlation, '+ +' to represent a higher weight positive correlation, and '-'and '- -'to represent, respectively, lower versus higher weighted negative correlation relationships. Finally '?' is used to represent no, or an uncertain, relationship between the Gray and Hofstede dimension. The use of these symbols for the first four Hofstede dimensions (see shaded area in table) were intended to reflect Hofstede's own comments in his original article on the greater or lesser importance of certain Hofstede dimensions. The use of these symbols under Hofstede's two later dimensions, LTO and IVR, indicated Borker's assumed relationship between these two dimensions and Gray's four accounting dimensions based on an a common pattern of these value dimensions for the United States, the United Kingdom and five other Commonwealth countries.

	Power Distance : PDI	Individualism : IDV	Masculinity : MAS	Uncertainty Avoidance: UAI	Long-Term Orientation : LTO	Indulgence vs. Restraint: IVR
Conservatism	+	-	-	+ +	+	-
Uniformity	+	- -	?	+ +	+	-
Professionalism	-	+ +	?	- -	-	+
Secrecy	+ +	- -	-	+ +	+	-

Table 1: Expansion of Hofstede-Gray Relationships

Also, Borker proposed an IFRS favorable accounting value profile based on Gray accounting dimensions. This profile assumed that the ideal IFRS accounting value profile for a country was one characterized by a low degree of the dimensions conservatism, uniformity and secrecy, and a high degree of the dimension professionalism. This translates into a profile of optimism, flexibility, professionalism and transparency. (Borker, 2013b) Although only published in 2013, the concept of individual country dimensional profiles and an IFRS favorable profile are applied in several studies before and after publication. These include studies of the emerging economies in Central and Eastern Europe and the 3G economies (Borker, 2012b) (Borker, 2013b)

Research Methodology

In a subsequent study, a methodology was developed for measuring the level of country's cultural IFRS orientation through two indices: the Composite IFRS Orientation Index, and the Expanded IFRS Orientation Index. (Borker, 2013a) The first of these indices quantifies the level of fit between a given country's accounting cultural values and those of IFRS. The procedure involves first establishing a methodology for quantifying each of Gray's four cultural dimensions for a given country and then adjusting and combining these scores to derive a quantitative measure of the overall level of fit with the Gray values favorable to IFRS. In developing the Gray dimensional scores the study employed methods developed by Braun and Rodriguez discussed above. The study developed three alternative versions of Gray value indices, one based on a simple averaging of Hofstede dimensions, a second based on a weighted average of the Hofstede first four cultural dimensions as discussed by Gray and a third that incorporated two later developed Hofstede dimensions, LTO and IVR. Subsequent tests of these methods have led to the conclusion that the second version is most appropriate for scoring countries using the Composite IFRS Orientation Index.

Another index was developed from the IFRS Orientation Index that incorporated various socio-political factors thought to be associated with the accounting value of Stewardship, a value not included in Gray's original dimensions. This second index is the Expanded IFRS Orientation Index. It is determined by taking a weighted average of the Composite IFRS Orientation Index,

weighted at 80% plus scores for four sociocultural indices each weighted 5%. The indices are: (a) The Corruption Perception Index (CPI) provided by Transparency International, (Transparency International, 2013), (b) an adaptation of AON's political risk ratings by which the higher a country's political risk, the lower the score it receives, (AON, 2013), (c) the United Nation's Education Index adjusted for inequalities, (Malik, 2013), and (d) the World Bank's Regulatory Index. (World Bank, 2013) The current study applies this methodology for determining a country's Composite IFRS Orientation Index and Expanded IFRS Orientation Index, discussed above, to each of the countries examined.

Results and Analysis

Hofstede cultural dimension scores are provided for each of the four Central European countries in Table 2, as they were in the earlier IFRS BRIC study. (Borker, 2012a) For comparison purposes, scores are provided for four non-BRIC countries, three developed countries, German, Japan and the United Kingdom and one developing country, Pakistan.

	PDI	IDV	MAS	UAI	LTO	IVR
BRICK countries:						
Brazil	69	38	49	76	44	59
Russia	93	39	36	95	81	20
India	77	48	56	40	61	26
China	80	20	66	40	118	24
Countries for Comparison:						
Germany	35	67	66	65	83	40
Japan	54	46	95	92	88	42
Pakistan	55	14	50	70	50	0
United Kingdom	35	89	66	35	51	69

Table 2: Hofstede Cultural Values by Country

The United Kingdom was selected as the home of International Accounting Standards Board (IASB). Its scores here and throughout the study are representative of the Anglo-American countries (United States, Australia, Canada and New Zealand) all of which share similar cultural dimensions. Gray accounting value dimensions scores are calculated for each country based on weightings that reflect Gray's own discussion of the four Hofstede dimensions. (Gray, 1988) These accounting dimension scores are provided in Table 3.

Gray Dimension Scores Based on Weighted Average of 4 Hofstede Dimensions				
	Conservatism	Uniformity	Professionalism	Secrecy
BRIC Countries:				
Brazil	64	64	50	63
Russia	79	76	38	77
India	48	48	66	51
China	52	59	55	58
Countries for Comparison:				
Germany	44	42	72	39
Japan	57	65	49	54
Pakistan	63	69	45	64
United Kingdom	27	21	93	24

Table 3: Gray Accounting Values by Country

Actual quantitative computations of Gray cultural accounting dimensions were not available in the earlier BRIC study. With regard to Professionalism, a dimension associated with a favorable IFRS dimensional portfolio (Borker, 2012a), Russia scores lowest thus highest for Statutory control, while India scores the highest for Professionalism. In the middle are Brazil and China, with China slightly higher than Brazil. High scores for Conservatism, Uniformity and Secrecy are dimensional values that are opposite to the favorable IFRS portfolio, and thus low scores indicating Optimism, Flexibility and Transparency characterize the IFRS favorable values. For all of these dimensions, India's scores rank most favorable (lowest) and Russia's least favorable (highest), with Brazil and China again in the middle, with China more favorable than Brazil.

The full significance of these observations is revealed quantitatively in scores for the Composite IFRS Orientation Index Scores which are calculated for each country based on the Gray dimension scores above, adjusted for dimensions with a negative relationship to IFRS orientation. The derivation of this index is provided in Table 4 below.

Composite IFRS Orientation Index Derived per Formula					
	Conservatism	**Uniformity**	**Professionalism**	**Secrecy**	**Composite IFRS Orientation Index**
BRIC Countries:					
Brazil	51	49	50	49	50
Russia	36	37	38	35	36
India	67	66	66	61	65
China	63	54	55	53	56
Countries for Comparison:					
Germany	71	72	72	73	72
Japan	58	49	49	58	54
Pakistan	35	29	30	30	31
U.K.	88	92	93	87	90

Table 4: IFRS Composite Index by Country

Here all of the Gray adjusted dimensional components are provided as positive values, where high indicates an IFRS favorable score. The simple average of these components scores represents the score for the Composite IFRS Orientation Index. Among the BRIC countries, India has by far the highest composite score and Russia the lowest, with China and Brazil in the middle, and China above Brazil.

Table 5 presents a ranked list of countries for the Composite IFRS Orientation Index**.**

Rank		**Composite IFRS Orientation Index**
1	United Kingdom	90
2	Germany	72
3	India	65
4	China	56
5	Japan	54
6	Brazil	50
7	Russia	36
8	Pakistan	31

Table 5: Composite IFRS Orientation Index Scores by Magnitude

In this table, BRIC countries are highlighted in white and non-BRIC countries in grey. These scores show that all BRIC countries score well below the developed countries, United States and Germany, and well above Pakistan. The BRIC group is seen to be competitive with developed country Japan on this measure, with India and China both exceeding Japan's Composite IFRS Orientation Index.

The Composite IFRS Index can be combined with four additional sociocultural factors to produce the Expanded IFRS Orientation Index presented in Table 6. These factors are listed under the headings "Corruption," "Political Risk," "Education," and "Regulation Index" with each factor having a 5 percent impact weighting for a total of 20% with the value of the Composite IFRS Index having an 80% weighting. The combined effect of these sociocultural factors on the BRIC countries is, with the exception of Russia, to lower the previously derived Combined IFRS Composite Index. This can be seen in Table 6 below.

Expanded IFRS Orientation Index based on Weighted Average of Composite IFRS Orientation Index and Four Additional Factors						
	Composite IFRS Orientation Index	**Corruption**	**Political Risk**	**Education**	**Regulation Index**	**Expanded IFRS Orientation Index**
Weightings	**80% wgt**	**5% wgt**	**5% wgt**	**5% wgt**	**5% wgt**	**100%**
BRIC Countries:						
Brazil	50	46	70	50	7	48
Russia	36	30	50	78	21	38
India	65	39	70	26	6	59
China	56	42	50	48	36	54
Countries for Comparison:						
Germany	72	85	90	93	89	75
Japan	54	80	90	86	86	60
Pakistan	31	29	-10	22	24	28
U.K.	90	80	90	81	98	90

Table 6: Expanded IFRS Orientation Index by Country/Category

India's score drops the most (6 points), while Brazil and China each drop by 2 points. India's steeper drop is attributable to having the lowest component scores for education and regulation. Russia, on the other hand, has a 2 point increase, due primarily to its high score for education. Of the comparison countries, the three developed countries, Germany, Japan and the United Kingdom, all maintain or improve their scores due to high component scores for all sociocultural factors. In contrast, Pakistan, a developing country with least favorable scores for corruption, political risk and education of all the countries observed, shows a decline of 3 points.

Table 7 provides a ranked list of countries for the Expanded IFRS Orientation Index. BRIC countries are highlighted in white and non-BRIC countries in grey.

Rank	**Country**	**Expanded Composite IFRS Index**
1	United Kingdom	90
3	Germany	75
4	Japan	60
5	India	59

6	China	54
7	Brazil	48
8	Russia	38
9	Pakistan	28

Table 7: Expanded IFRS Orientation Index Scores by Magnitude

The score rankings in Table 7 reflect the similar ranking pattern to Table 6, except that Japan now joins its fellow developed countries United States and Germany as exceeding BRIC country scores for this measure. The reason for this is that Japan earns superior scores on all socio-cultural categories to those of the BRIC countries. Pakistan, in contrast, has lower scores than the BRIC countries on all socio-cultural categories with the exception of regulation. The relative ranking of the BRIC countries among themselves is the same for the Expanded IFRS Orientation Index as for the Composite IFRS Orientation Index. This is because all of the BRIC countries have relatively low (unfavorable) scores on corruption, political risk, education, and regulation. All the BRIC country scores on the Expanded IFRS Orientation Index, therefore, show a 2 to 6 point decline from the respective scores for the Composite IFRS Orientation Index. India, which remains the highest scoring BRIC country, shows the greatest decline, i.e., 6 points.

Discussion

In the earlier study of IFRS in the BRIC countries (Borker, 2012a), it is noted that Russia and Brazil exhibit cultural values associated with the development of accounting systems characterized by statutory control, uniformity, conservatism, and secrecy that are roughly opposite to the accounting values associated with IFRS, namely, professionalism, flexibility, optimism and transparency. It is further noted that India and China reflect values closer to IFRS values, although neither are entirely consistent with IFRS values, and that India has the strongest value of professionalism of the BRIC countries. The study contrasts the cultural accounting values of all four of the BRIC countries to those of more advanced developed countries and concludes that Russia and Brazil, and, to a lesser extent, India and China have a specific cultural obstacles to overcome in their implementation of IFRS.

Composite IFRS Orientation Index (CIOI) – the Four Gray Accounting Dimensions

The current study has revisited these issues by applying a methodology that provides quantitatively measurable results. The quantitative scores on the Composite IFRS Orientation Index show that, based on Grey's four cultural accounting dimensions, Brazil and Russia share a lower level of IFRS orientation than India and China. However, with these new measures, it can be seen that Brazil, at 50, is noticeably higher than Russia at 36 for IFRS orientation. Similarly, we can see that India, at 65, is higher than China, at 56. Examining the measures for the four adjusted Grey accounting dimension components of these scores provides insights into the reasons for these differences. For example, while Brazil and Russia both have lower scores for each of the Grey dimension components, Brazil's scores on all four dimensions are noticeably higher than those for Russia. In fact, Brazil's composite and individual component scores are actually closer to those of China than those of Russia. Looking at India and China, we see that China's overall ranking and three of its dimensional component scores are really closer to Brazil than they are to highest ranking India. The only exception is for the conservatism, where China adjusted score, at 63 (tending toward optimism), is closer to India, at 67, than to Brazil, at 51.

Given this information, one might revise one's view of the BRIC groupings to a first tier of India as the most oriented to toward IFRS values, followed by China and Brazil as a second tier and finally by Russia as a third and bottom tier. If we include the comparative non-BRIC country data, we see that the United Kingdom and Germany are clearly above all of the BRIC countries for Composite IFRS Orientation. Although, India, the first tier country is, at 65, within 7 points of Germany (closer than it is to China). On the other hand, Japan, the third of the

developed economies, with a score of 54, falls right in the middle of the BRIC second tier grouping of China (56) and Brazil (50). Pakistan, which, at 31, is the lowest ranking of all the countries for Composite IFRS Orientation, can be seen as occupying the third tier with Russia (36).

Expanded IFRS Orientation Index (EIOI) – Adding a Fifth Stewardship Dimension

The EIOI adds a fifth dimension to the evaluation of IFRS orientation called *stewardship,* which is averaged with the EIOI at a 20% weighting. Numerically, the score for stewardship is derived from the simple average of three sociocultural indices, corruption, political risk, education, and regulatory environment. High scores are designed to represent favorable scores. For example, higher scores for corruption and political risk indicate lower corruption and political risk, respectively, while higher scores for education and regulatory environment indicate higher level education and a more favorable regulatory environment, respectively. Since the combined value of stewardship dimension is not explicitly shown anywhere in the results tables, it is represented below in Column F of Table 8 below:

Revised Table 6
Expanded IFRS Orientation Index
Including Explicit Column for Stewardship

	Composite IFRS Orientation Index Col A	Corruption Col B	Political Risk Col C	Education Col D	Regulation Index Col E	Stewardship Index √ Col F (Avg of B, C, D, and E)	Expanded IFRS Orientation Index Col C (.8*A+.2*F)
Weightings	**80% wgt**	**5% wgt**	**5% wgt**	**5% wgt**	**5% wgt**	**20%**	**100%**
BRIC Countries:							
Brazil	50	46	70	50	7	43	48
Russia	36	30	50	78	21	45	38
India	65	39	70	26	6	35	59
China	56	42	50	48	36	44	54
Countries for Comparison:							
Germany	72	85	90	93	89	89	75
Japan	54	80	90	86	86	86	60
Pakistan	31	29	-10	22	24	16	28
U.K.	90	80	90	81	98	87	90

Table 8: Revised Table 6 including Stewardship

In this table, the columns highlighted in white are Column A, the CIOI scores, Column F, the Stewardship dimension score derived from columns B-E, and column c, the EIOI scores. The columns breaking out the four individual sociocultural index components of Stewardship are highlighted in grey. An examination of this new data indicates that there is a great divide between the stewardship index scores for the developed countries and the BRIC countries. The developed country scores cluster in a narrow range of 87 to 89 points, while the BRIC countries range from 35 to 45 points with a median of 44.5. Finally, developing Pakistan, at 16, occupies a position well below the BRIC countries. This indicates that, in addition to adjusting to the IFRS favorable Gray accounting values of optimism, flexibility, professionalism and transparency, the BRIC countries have a long road ahead of them to rise to a level of stewardship through political stability, reduced corruption and improvements in education and regulatory policies that will facilitate culturally meaningful implementation of IFRS.

Is this Information Actionable?

The information provided in the above analysis can lead to actions that can improve over time the adoption/convergence and successful implementation of IFRS. The analysis of

individual country scores for each of the four Gray cultural accounting dimensions and of the Composite IFRS Orientation Index allows us to pinpoint areas where there is a relative need for improvement. For example, in a statutory control country with a low value for professionalism, like Russia, it is important to continue to develop professional education and training programs to expand this IFRS favorable value of professional accountants over bookkeepers beyond the Big 4 and a few large accounting firms to the rank and file accountants and auditors in the country. Generally, the types of actions that need to be taken for challenges in the area of IFRS favorable Gray accounting values were enumerated in the previous IFRS paper:

- Establish culturally sensitive education and professional training programs
- Establish culturally focused upgrade programs for existing accounting professionals
- Empower national accounting standard setting bodies to integrate the values of professionalism, flexibility, optimism and transparency into their professional activities
- Set realistic timeframes and deadlines for the transition to IFRS to allow the local accounting culture to catch up with new IFRS reforms
- Establish a comprehensive change management program for accounting professionals, businesses, government and the public with the necessary change management tools to make a successful transition.
- Create robust support infrastructures for IFRS implementation. (Borker, 2012a)

The analysis of the scores for the four sociocultural components of stewardship in the discussion of Table 8 above offers an opportunity to address important areas of social, business and political reform that need to be address in developing/emerging economies like the BRIC countries. Reforms in the areas of political and social corruption, efforts to achieve stable government policies that reduce a country's perceived and real political risk, educational reforms aimed at broadening, deepening and democratizing national educational programs and efforts to reform the regulation of business in a manner that facilitates fairness and efficiency are all areas of action that can contribute to improving the sociocultural infrastructure of stewardship that provides the soil in which responsible IFRS based financial reporting can grow.

Conclusion

Revisiting the issue of cultural accounting values in the BRIC countries through the application of analytical tools not available at the time of the author's original IFRS BRIC paper (Borker, 2012a) has resulted in an analysis that at once confirms and expands our understanding of the relative cultural priorities of improving IFRS implementation among the BRIC countries. Quantitative measurement of the four Gray cultural accounting dimensions in terms of their contribution to a favorable orientation to IFRS accounting values has been achieved by application of the Composite IFRS Orientation Index.

This paper focuses on a comprehensive diagnostic methodology for identifying the relative cultural preparedness of each of the BRIC countries for successful implementation of IFRS. The same methodology can and has been applied to other countries for the same purpose. (Borker, 2014b) (Borker, 2014a) (Borker, 2015)

This analysis has been further enhanced through the inclusion of the four sociocultural factors of corruption, political risk, education and regulatory environment forming fifth accounting dimension designated as stewardship. The results of this analysis shows that beyond Grays four accounting dimensions, a country's sociocultural environmental infrastructure plays an important role in achieving meaningful improvements in the success of IFRS implementation. Thus, for the BRIC countries, progress involves identifying and resolving challenges in the professional culture of accounting and financial reporting and must be accompanied by efforts to achieve national reforms of the problems of corruption, political instability, deficient education and economically crippling regulation.

Research Limitations and Direction for Further Research

This research is limited by the assumptions made by the author as to reliability of the methodology to produce meaningful measures of the relative cultural advantages of the individual countries to successfully implement IFRS using data from Hofstede, Gray, and other sociocultural sources. Furthermore, full country Hofstede world value dimension data is limited to a set of seventy-two countries that does not include the Union of South Africa, later proposed as a member of BRICS.

Further research should focus on opportunities for additional world comparative cultural value data that will confirm, refute or expand this methodology. Also, IFRS development in each of the BRIC countries should be continuously be monitored for insights into the relevance of the culturally based expectations set in this paper.

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Fertility and female labour supply in Saudi Arabia: The case of Jeddah Western Region

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Keywords
Labour Supply, Labor Force, Fertility, Logistic regression

Abstract

Objective: *Over a period of fifty years, the ratio of female participation in the labour force of Saudi Arabia has remained extremely low. This exposition is an effort to examine the affiliation among female fertility and labour supply in the Kingdom of Saudi Arabia.* ***Methods:*** *The data for this research was gathered through a questionnaire circulated between the employed and unemployed females in Jeddah; situated in the western region.* ***Results:*** *By implementing the binary logistic deterioration, factors which were related to fertility did not illustrate numerical implication on the likelihood of females taking part in the labor market. However, factors which were associated with, education, husbands' income, age and family income had major considerable impact on female taking part in the Saudi labor market.* ***Conclusion:*** *It has been concluded that there is higher affiliation present between fertility and female labor supply.*

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1. Introduction

Female participation in the labour market plays a key role in economic development. The Kingdom of Saudi Arabia (SA), as a developing economy, relies mainly on men rather than women to achieve its development objectives. In fact, Saudi females represent only 20% of the total workforce (Survey, 2012). The Kingdom of Saudi Arabia usually plays an important role at the global level because of having the largest oil reserves in the world. Oil revenues and petrochemical exports are the dominant part of the economy. However, Saudi Arabia does not have sufficient micro level data that is capable to reveal microeconomic reality. For instance, this study has been faced with number of limitations in the data needed such as; number of children per woman, children ages, children gender, cost of baby-sitting and cost of nursery. Accordingly, the main contribution of this study is the survey conducted by the author to ask specific questions to employed and unemployed female who are married, divorced or widower. The survey covers questions related to personal characteristics, income questions, and fertility (children) questions. The study has employed the logistic regression model, in which the dependent variable is the female labor supply in the labor market. The results have shown that factors related to fertility do not show statistical significance on the odds of females participating in the labour market (Al Omran, 2010).

It is also a fact that the participation of females in labour market is a significant indicator of female empowerment and status in Arab society. It is imperative that female representation in the workforce should be increased in Saudi Arabia for better economic future. It has been observed over the last few decades that Saudi Arabia along with other Middle Eastern countries have focused on female education in order to reduce illiteracy across the Arab World (Patterson, K., 2013). On the contrary, previous data from different surveys concerning female

employment in Saudi Arab illustrated that the rate of women workers was lesser than male labour due to ignorance of women in employment quota (Qureshi, R., 2014, pp. 144-155). Lack of female education is not the only barrier for low extent of women labor in Saudi market, but also there are some other factors that influence women's economic participation such as huge segmentation and discrepancy in labour markets, and traditional or cultural values of the people of Saudi Arabia. So, it is needed to review policies and strategies regarding female participation in labour market of Saudi Arabia.

There are many reasons for low fertility rate of women in Saudi Arabia such as late marriages, increased rate of abortion, and higher cost of living. These factors affect negatively on the fertility rate of women. Apart from that, some complications have been found in Saudi women concerning infertility. These complications include unhealthy food, high blood pressure, unsuitable environment, obesity and smoking (Alfarraj, D.A., Somily, A.M., Alssum, R.M., et al, 2015). As a result, infertility rates amongst Saudi women gradually increases the adverse impact on the Saudi population.

2. Saudi Labor Market Characteristics

The major uniqueness of market in Saudi labour is that the level of youth participation is very high and their age ranges between 25 to 29 and 30 to34 years old as it is illustrated in Figure 1.

Figure 1: Saudi labor force by age groups
* Source: (survey, 2012) Cdi1s.gov.sa

Secondly, the number of emigrant workers in Saudi labour especially in the private sector is very high; however in private sectors, 90% of workers are non Saudis. The rationale behind this aspect is that Saudi government permits low-priced employment visas, which lead to a great flood of overseas workers. Figure 2 depicts emigrant workers, who were symbolized for approximately 55% of the total labour market in 2012 year. This condition has led to a general diminution in the standard level of earnings and efficiency.

Thirdly, the rate of idleness in Saudi Arabia is being increased among the youngsters of age (15-29 years) within the population, which has a considerable effect on the economic and social well-being of the country..

Figure 2: Distribution of Saudis and non-Saudis population in labor force by sex

* Source: (survey, 2012) Cdi1s.gov.sa

Fakeeh (2009) and Al Omran (2010) shared the identical analysis regarding the market of Saudi labour. It has been evaluated by both studies that a significant ratio of unemployed population is related to the age group of 20-25 years among male population and 25-29 years among female population (Figure 3). Furthermore, new job seekers are more likely to find slow skilled and low waged jobs. Such jobs are usually filled by foreigners, who are mostly hired on lower salaries. This strong rivalry between foreigners and local is not sheltered by the policies of the government yet.

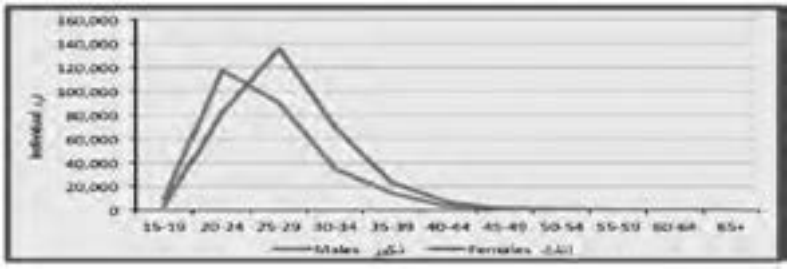

Figure 3: Saudis unemployed by age groups
*Source: (survey, 2012) cdis.gov.sa

Another major exceptional feature, related to the market of Saudi labour, are the low levels of female participation in the labour force. It has been evaluated that there is only 12% rate of female involvement within a labour force. This rate, in contrast extremely unfavourably with other OECD countries (Figure 4). This local aspect the labour force impacts on the economy as a whole (Ministry of Labour of the Kingdom of Saudi Arabia, 2009).

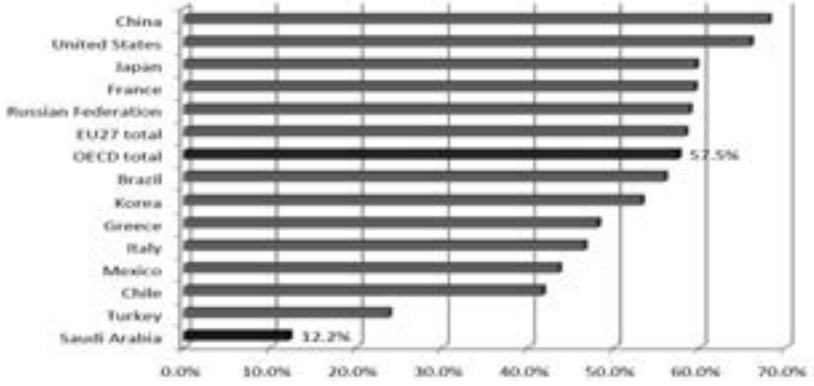

Figure 4: Percentage of Female participation rate in the Saudi labour market
*Source: Alomran, 2010

2.1 Female Employment and Unemployment in the Labor Market

According to the survey of Saudi labour force, unemployment is considered as "The share of the labour force that is without work, but available for and seeking employment". Similarly, the contribution rate is usually identified as "The proportion of the population aged 15 and older that is economically active: all people who supply labour for the production of goods and services during a specified period"

It has been further evaluated that the population of Saudi Arabia is comprised of 45% of the female individuals with the literacy rate of 79%. However, female population represents a mere 12% of the labour force during 2006 and 2009, whilst the representation of male individuals accounts for 61% of the total labor force. As it is reflected in Figure 5, the standard rate of unemployment continued to be steady during 2000 to 2009; rate of female unemployment

improved from about 28% in 2000 to 18% in 2009. However, these figures involved a decreased percentage of employment to inhabitants.

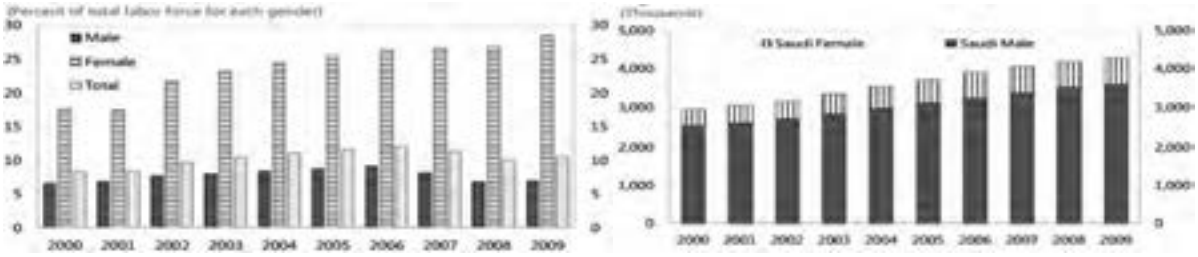

Figure 5: Unemployment Rates for Saudi Nationals Aged 15+ by Gender, 2000–09
* Source: (Ghada Fayad, 2012)

It is an alarming situation for the Government of Saudi Arabia. The significance of women is crucial for every walk of life. Specifically in Arab world including Saudi Arabia, it is necessary for the Ministry of Labour to make their efforts in order to minimize the huge difference between male and female labour participation.

2.2 Obstacles Faced by Females in the Labor Market

Females in Saudi Arabia have been facing obstacles in labor market for many years. These issues are related to lack of opportunities for females, intolerant behaviour of males, ineffective political system, and supremacy of males. On the other hand, business women of Saudi Arabia are more educated and competent as compared to men. In addition, they are playing a vibrant role in the development of economy (Welsh, D.H., et al. 2014, pp. 758-762). Al-Dehailan (2007) has mentioned about the aspects that lead to be deficient in the contribution of Saudi women in the work force along with their consequences on the economic and social factors. The study proved that the shortage of female involvement is one of the major distinctiveness in Saudi labour market that critically influences the structure of labour market. In order to conduct this study, questionnaires were circulated among unemployed and employed women in Saudi during the era of Feb-Jun 2004. The study recommends that peoples' approach in the direction of working women should alter since the religion of Islam never barred women from taking part in the work force. Furthermore, the policies of government should be concentrated on obstacle reduction by giving facilities that help women to be engaged more in the labour market (Figure 6).

In a review conducted by Porteous *et al* (2010), it has been evaluated that the complications tackled by the females of Saudi Arabia from the perspective of employer, can be put into a form of group in regards of three dissimilar types. First, complexities tackled by women during the course of job/work. Second, complexities faced because of the social outlook. Thirdly, difficulties faced by female work force because of their physical status.

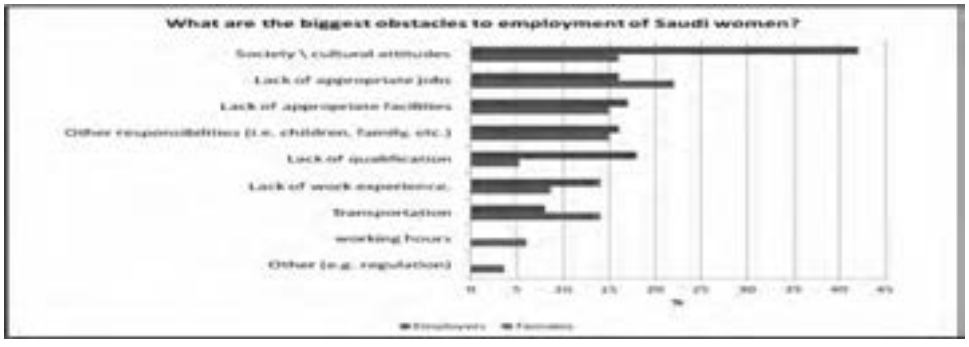

Figure 6: What are the biggest obstacles to employment of Saudi women?
*Source: (Scott-Jackson et al., 2010)

According to 42% of employers, societal or cultural attributes form the major obstacles that are faced by female individuals; however, 22% of females identified the "lack of appropriate job" as the most significant factor. Additional findings of the study indicated that a large number of female individuals (around 73%) preferred to work in a "female only place of work" rather than to work in mixed environment. The majority of females showed their wish to work flexitime or part-time employee in order to create a balance between work life and family (Khraif, 2001).

2.3 Female Work and Fertility

It is obvious that pregnant women face difficulties while working in organization. These women are concerned with their occupation in order to get money and support family. There is a strong relationship between female worker and fertility rate particularly in case of Jeddah, Saudi Arab (Upadhyay, U.D., Gipson, J.D., Withers, M., et al, 2014, pp.111-120). It has been evaluated that there is a decline in female fertility rate from 3.46 during the year 2006 to 3.03 during 2012 (table 1). Involvement of females in the work force is has grown from 12.7 to 14.6 during the similar years. Khraif (2001) has observed the most significant features are the productivity and fertility level among Saudi women. As a whole, the study has found an overall decrease in the productivity and fertility rate in women of Saudi Arabia. This is because of the Islamic religion that it does not permit sexual relationships before getting married. The level of education is considered to be the second most significant factor that has a strong impact on fertility, in which the rise in educational level relatively leads to a considerable decrease in the rate of fertility, considerably. Surprisingly, the study has revealed no major consequence of fertility on female work force contribution. For instance, a female is usually allowed to take 2 months complete salaried maternity leave when she gives birth and also the accessibility of concern to child by either comprehensive family or a nanny.

Year	**Female participation in the labor force**	**Total Fertility Rate**	**Mean age of child bearing**
2006	12.7	3.46	29.5
2007	14.0	3.39	29.4
2008	12.8	3.31	29.3
2009	11.8	3.24	29.2
2010	12.2	3.17	29.2
2011	12.8	3.1	29.1
2012	14.6	3.03	29

Table 1: Fertility and female participation rates in the Saudi labor force
*Source: compiled by the author from different surveys in cdic.gov.sa

Factors related to culture play a vital role in increasing the participation rate during the year of 2006. It has been evaluated that the rate was increased from 12% to 16% during 2012 (Cornelius Fleischhaker, 2013). Majority of factors have been witnessed as the associated factor with the decline rate of fertility. However, participation in labour workforce in Saudi Arabia stayed at a lower rate when they were compared with emerging groups in different countries (Figure 7).

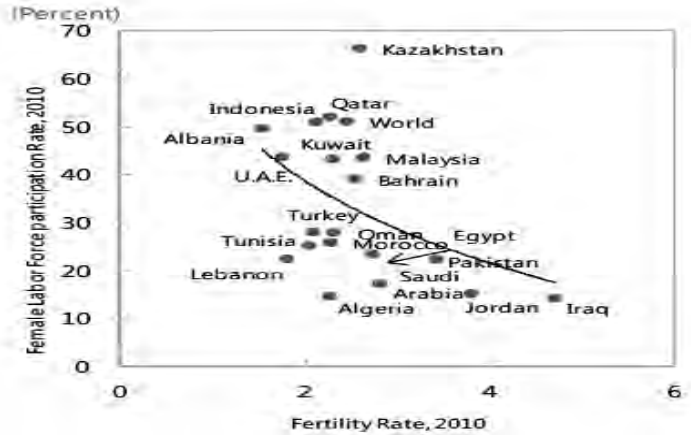

Figure 7: Fertility rates and female labor force participation among emerging countries
*IMF report, 2013

2.4 Females and Education

Saudi Arabia has introduced plans to improve the access towards advance education for the females. Evidence for this includes the setting up by the Saudi Government of The Princess Noura bint Abdul Rahman University for Women, which is planned to develop into the world's biggest center of advanced education for females (Ministry of Higher Education, 2010)

Furthermore, a scholarship program for women was also introduced, which is known as the King Abdullah Foreign scholarship program. This scholarship program allows Saudi students to go abroad for studies in the world's best universities for attaining Bachelors, Master, and Doctorate degrees along with medical fellowship. These educational disciplines have been selected in order to meet the economic necessities of private and government sector. Moreover, this program is also maintained to execute the labour needs of the market within regions of Saudi Arabia as well as industrial cities. The objective of the program is to target competent Saudi youngsters to take play vital role in all developmental fields of the country.

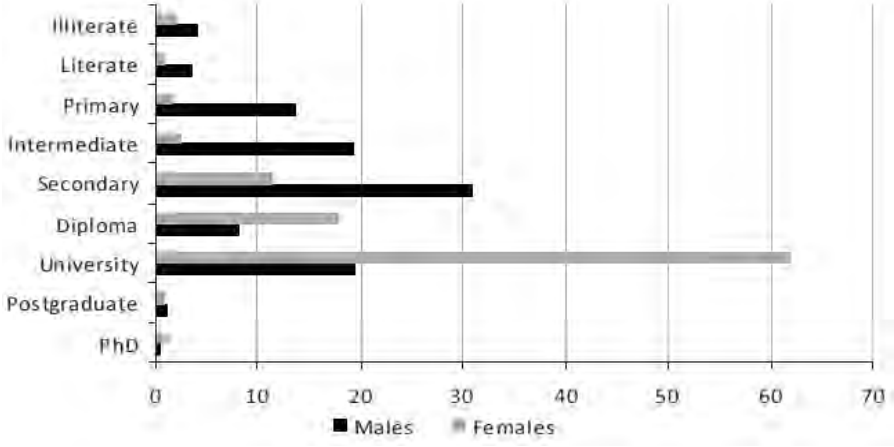

Figure 8: Distribution of Saudi labor force by education level in 2008 (%)
*Source: (Al-masah, 2010)

Regardless of various initiatives aimed at assisting women, the participatory contribution of female labour in Saudi Arabia is extremely low. This is in marked contrast to the progression of females in obtaining higher degrees in education, which is currently greater than males. This difference can be seen clearly in the above Figure 8. Females who are employed; 93% of them have university degree or a secondary extent in contrast to 60% of men who are working. However, high level learning of females is not finely depicted on the economic

activities of Saudi Arabia. The primarily reason behind this aspect is that the Saudi female individuals are restricted in their role within the economy and those that do work are concentrated (85.8%) in the segment of education specifically administration and training (Al-masah, 2010).

3. Methodology and survey design

This research has been done through the questionnaires, which were distributed among the participants in order to obtain the primary data. This questionnaire has been re-evaluated and revised by different experts, and then converted it into Arabic for the ease of the local population. Both type of questions were included in the questionnaire, close ended as well as the open ended. Open ended questions were included to give participants a free hand in expressing their thoughts.

The target audience for this questionnaire were both employed and unemployed females. There were 37 different sections, which covered three dissimilar primary sections. These sections were marital status, educational qualification, status of employment and age. Unemployed females were asked questions related to the reasons for unemployment. The second section consisted of the questions related to the income of the husband (if married), and some questions related to the measurement of life style such as: cars, drivers and housekeepers. Third and the last section consisted of a set of questions, which were asked about the fertility troubles. There were few more questions which asked about the children under the age of 3 and their nursery costs as well.

3.1 Sample Size and Location

The sample of this study covered the jobless females who were divorced, married, or widowed within the circumstances of Mecca specifically in the Jeddah city situated in the western part of Saudi Arabia. It can be understood that the sample was a true representation of the Saudi population as a whole, since Saudi Arabia is moderately homogenous in terms of religion, language, ethnicity and societal affiliation (Al-Dehailan, 2007). Consequently, the segment of the population relativity symbolized the population as a whole. The survey has been carried out at private and public institutions, such as: Labour Office, Etisal International Co., the Faculty of Economics and Administration plus the Science Faculty at King Abdul-Aziz University in Jeddah, The survey has been dispersed mutually in private and public institutions, such as: the Labor Office, Alahli Bank and Etisal International Co. Questionnaire was also posted on Twitter and Facebook pages with some strict requirements which had to be followed in order to fill the questionnaire.

3.2 Model specification

The study has employed a model of binary choice in which two values of variables exist. One is for the female unemployment and other is for the female employment. The most popular tool to measure the relationship between the categorical independent and dependent variable was Logistic Regression. This model can be characterized in two different sets: multinomial or binominal logistic regression. This study follows logit model because the dependent variable takes two values either 0 or 1(employment status).

3.3 Data analysis

This study has implemented SPSS software in order to analyze the data, which was collected through the questionnaires. The most significant relationship between variables has been presented by using two approaches that is, chi square and cross-tabulation. As it is mentioned in the table 2 below, the total number of respondents was 768, out of which 402 females are unemployed and remaining 366 are employed.

	Frequency	Percent	Valid Percent	Cumulative Percent
Employed	366	47.5	47.7	47.7
Valid not employed	402	52.2	52.3	100.0
Total Missing System Total	768 2 770	99.7 .3 100.0	100.0	

Table 2: Frequency of Employment Status

3. Results

According to the analysis of data, three variables were responsible to increase the factor of unemployment in Saudi females, these included having young children, the income of husband, and marital status. Now these three variables reflected that divorced or widowed females, who have a less chance to be employed, are less likely to be employed. Moreover, those females, who have effective salary, are less likely to be employed as well. Females who have child of less than three of age have lesser chance of being gainfully employed.

	B	S.E.	Wald	Df	Sig.	Exp(B)
Step1[a] Age*	-.223	.078	8.160	1	.004	.800
Marital	.134	.264	.257	1	.612	1.143
Education	-.463	.112	17.121	1	.000	.629
qualification*	-.019	.129	.022	1	.883	.981
No of cars car	-.241	.269	.797	1	.372	.786
driver(1)	-.553	.252	4.823	1	.028	.575
housekeepers(1)	.584	.097	36.294	1	.000	1.793
Husband	-.624	.069	82.190	1	.000	.536
income* Family	-.560	.242	5.358	1	.021	.571
income*	-.084	.369	.051	1	.821	.920
Resident status	-.507	.245	4.264	1	.039	.603
Infertility	-.211	.238	.786	1	.375	.810
problems(1) Birth	-.094	.346	.075	1	.785	.910
control live with	.073	.276	.069	1	.793	1.075
parents(1)	6.408	1.131	32.109	1	.000	606.657
children(1)						
children						
below3years						
Constant						

Table 3: Variables in the Equation

This can be written as:

Logit (P) = 6.4 -.223Age+.134Marital-.46edu-.019nocar - .241cardriver-.553h.k+.584 H.income-.624 F.income - .560R.type - .084I.problem -.507 B.C - .211livpar- .094children + .073 childrenbelow3.

This analysis needs to be contextualized in terms of the form the data was coded. The dependent variable was coded as 1: employed; 2: not employed. According to the results, older women have a greater chance to be employed as compared to young women. For each added year, the probability of unemployment among female is 0.8, and as a result of that probability of grown-up women to employed increases. Related outcomes are acquired for the education of the person. Seven different degrees were used to code this variable. According to the results of this variable women who are educated more are less likely to be unwaged. The coefficient proposes that the alteration of women being unwaged with an added degree is 60% of the possibility of being jobless with the preceding degree.

Access to transportation, specifically family cars, which were mentioned by the individuals, also caused a negative impact on the possibility of unemployment. Each additional car, which is owned by the female, decreased the unemployment rate around 1.9%. This variable not only illustrated a minor impact on the chance unemployment; but, it is also not statistically significant. Women who have housekeepers also cause a negative impact on probability of unemployment and it is as lower as 55.3%.

On the other hand, females who have husbands with a higher salary are less likely to be employed. According to the results, addition of every unit in the husband's salary chances of not participating in the labour force increases around 1.8 units. However, the income of the family has a contrary impact on the contribution in the work force for each added financial element in the wages of the family decreases the chance of employment around 62%. Residential status also causes an impact on the unemployment of females. Those females who live in rented houses have a greater chance of employment.

The primary objective of this research is to assess the problems related to fertility, which becomes a barrier to the labour market participation. According to the results, females with infertility problems have a less probability to be unemployed and their probability of being unwaged is 0.92 greater as compared to those whose are employed. In a comparable approach the utilization of methods related birth control also appears to have an effect on the lessening of the odds of being unwaged. Those females who are using the methods of birth control has a minimum chance to be engaged in any sort of work, i.e. such females have 0.603 times fewer chance to be employed.

Women who live with their parents are 0.81 times less possible to be employed. This proved that females, who are with their families, are more jobless than employed but no statistical implication has been identified. Women, who do not have any children, have 0.91 times less chance to be employed. However, this variable displayed no implication statistically. Similarly, those women who have child whose age is less than 3 years are 1.075 times more unemployed than other women.

In spite of the outcomes illustrated in Table 9, few variables unable to show their importance significantly on the probability of participation of females in a labor market. This case is related to the number of cars; marital status; the presence of infertility troubles; the actuality that the women have a driver; the actuality that the female has children of less than 3 years; if the women is living with her parents live with the parents.

4.1 Presentation and Interpretation of Empirical Results

Logistic regression model made it possible to understand the involvement of several variables to one dichotomous dependent variable. Dependent variable in this case was women involvement in labor market.

Model Summary	-2Loglikelihood	Cox&SnellRSquare	Nagelkerke R Square
Model Summary	565.346[a]	.354	.473

Table 4: Model Summary

* Source: logistic regression output from SPSS

With respect to clarification supremacy of the selected model, some vital information has been displayed by the Table 5. Information related to R2 analysis has been supplied by the table. According to this table 35.4% of the difference in the participation in labour market by females has been clarified. Moreover, the statistics provided by the Nagelkerke R Square proved that there is an existence of relationship between the prediction and the predictors of around 47.3%.

Step	Chi-square	Df	Sig.
1	13.898	8	.084

Table 5: Hosmer and Lemeshow Test
* Source: logistic regression output from SPSS

Hosmer and Lemeshow Test (HL) also proved that this model is perfect for this study. Significance of 8.4% was shown by this test as it is mentioned in Table 11. This information proves that there is no statistical importance. However, it is imperfect but still comes out to be fine fit.

5. Discussion

Findings, which are related to the problems of infertility in women, does not illustrated any statistical significance between the variables such as having children who are below 3 years of age and fertility in female. Khraif (2001) has also identified a major impact of fertility on the supply of labor. This might be credited to numerous features. First, housekeepers are appointed by the females of Saudi Arabia to help them in the execution of their routine tasks related to home. Furthermore, the facilitation of female works in several factors by Saudi labour law. For example, according to Labour Regulation, Royal Decree No. M/51 (2005), "A female worker shall be entitled to a maternity leave for the four weeks immediately preceding the expected date of delivery and the subsequent six weeks"; also, "When a female worker returns to work following a maternity leave, she shall be entitled, in addition to the rest periods granted to all workers, to a rest period or periods not exceeding in aggregate one hour a day for nursing her infant". Entire these aspects would assist work of female work if they do not have children.

6. Conclusion

This study has investigated the connection between female labour supply in Saudi Arabia and fertility within a region of Jeddah. This has been done to go after the review of the literature among delegated countries. There was a lack of data from the perspective of Saudi workforce; therefore, the questionnaire was made and spread among the participants to collect the data which is required. Binary Logistic Regression model has been applied; in which supply of female labor in the market has been selected as the dependent variable. Hence, the value of dependent variable has been divided into employed and unemployed population. The outcomes, yet, point out that aspects connected to fertility, such as: troubles connected to fertility, to have children of fewer than 3 years age and to have children simply. There was no numerical significance on the probability of participation in regards of females in the labour market. On the side, factors which were associated to education requirement, husband's income and family income age have the major impact on the participation of female labor market. After analyzing the causes of infertility and low female participation in labor market of Saudi Arabia, it has concluded that women should play their part in building economy. The significance of women in the labour market of Saudi Arabia is justified by the advancement in traditional norms and values. Moreover, the Government of Saudi Arabia should consider this challenge as issue of paramount importance and work accordingly. The consequences of this research will be that it helps draw attention to some barriers and factors that influence the participation of female in the labour market. The understanding of these determinations will certainly assist the women and policy makers to simplify and direct matters accordingly. However, this idea of investigation can be explained as the first program to examine, in detail the problems of micro economic factors that can influence the engagement of female in the labour force. Therefore, it is

hoped that this study will encourage further studies to be undertaken on this and similar topics appertaining to women's employment in Saudi Arabia.

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The impact of pollution control enforcements on FDI inflow to Thailand

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Keywords
Pollution Heaven Hypothesis, Foreign Direct Investment (FDI), environment, pollution control enforcement, laxity.

Abstract

This article reexamines the pollution heaven hypothesis, using measureable environmental indicators to quantify the laxity of pollution control enforcements. The article examines the impact of pollution control enforcements on FDI inflow in industries across the spectrum as well as individual industries. The study was done on a global platform with separate groups of ASEAN countries and domestically within Thailand. Data from the World Bank, UNCTAD and Thailand's Board of Investment between years 2008 to 2013 were used with panel data regression. Mixed results were obtained; low levels of pollution control enforcements significantly attract FDI inflow to ASEAN countries and East Asia Pacific Region, while in the cases of Europe, Central Asia and Latin America no significant result was found. For Thailand, as a host country, firm-level evaluation procedures using pollution intensity value together with laxity of pollution control enforcements were evaluated. Foreign investors from various countries consider that low levels of pollution control enforcements in Thailand reflected significantly and attracted their investment decisions.

Introduction

Foreign Direct Investment (FDI) inflows benefit each host country's economy but at the same time increases pollution caused by industrial activities. Economists have been discussing the pollution heaven hypothesis since 1970s. It appears that poorer countries needing FDI inflows from richer countries will relax their environmental regulations. Since environmental protection and increasing quality of life and wellbeing has become more and more of a global concern, the argument of the pollution heaven has been challenged.

Many empirical studies found evidence in certain countries at certain periods which was consistent with the pollution heaven hypothesis however, some of them found different results. Smarzynska and Wei (2001) from NBER used firm-level data from multinational firms which invested in 24 countries and found supportive evidence that there was lower FDI inflow in countries with higher environmental standard. Dean, Lovely and Wang (2009) found different results in their study of FDI inflows to China during 1993 – 1996 with provincial - level data. The results suggest that investors from developed counties (implying higher environment standard countries) were not attracted by weak environmental regulation provinces; contrasting with investors from weaker environmental standard countries, such as Taiwan and Hong Kong. Sunhoon Chung (2014) from the Korea Development Institute examined patterns of South Korea's FDI outflows during year 2000 – 2007, using industrial – level data. He found significant evidence that Korea investors, especially those from the high polluting industries, tend to invest in the countries having laxer environmental regulations.

Quantity and level of enforcement of environmental laws and regulations that the countries promulgated and participated in would had a direct effect on pollution levels and consequently impacted their FDI. The number of regulations alone however, could not forecast

how stringent the environmental body of that country focused on their implementation. The argument then came to the forefront about what would or should be changed if countries had weak enforcements on their environmental regulations. Low levels of pollution control enforcements could be investigated from the measured pollution indicators like dust content in ambient, carbon dioxide (CO2) emission and Biological Oxygen Demand (BOD) in water. Foreign investors can use such data to anticipate how the host countries pay attention to and evaluate the pollution control in future and their behavior following the pollution heaven hypothesis. Enforcements on promulgated environment regulations require serious effort from government institutions and cost of implementation would be one of the barriers, moreover high pollution control enforcements would cost the investors as well. Either stringent or lax enforcement, both pose challenges to government policy, therefore the impact of pollution control enforcements on FDI inflows is the first economic problem to be solved. Because Thailand is one of developing country that confronts with aforementioned problem and has no previous specific studies about the impact of pollution control enforcement and FDI inflows, therefore this study will provide initial policy recommendations to the Thai government on the subject of environmental standards and FDI.

2. FDI and the Environment

2.1 FDI inflow and Pollution Indicators

The amount of FDI inflow to countries would be affected by two distinct fundamentals, 'Horizontal' and 'Vertical' motivations. The horizontal FDI model introduced by Markusen (1984) described investments by multinational enterprises in host countries (other countries) as a way to serve the local market. Therefore, factors affecting horizontal FDI would consist of local market size, industrial network, similarity between home and host countries, plant or industrial level scale of economies and host country tariffs.

The vertical FDI model initiated by Helpman (1984) argued that multinational enterprises invested in host countries because of their business fragmentation to produce in the lower cost locations. Therefore, factors that affect vertical FDI would consist of the abundance of labor, labor price, capital abundance, capital price, and pollution abatement costs related to environmental laxity in host countries.

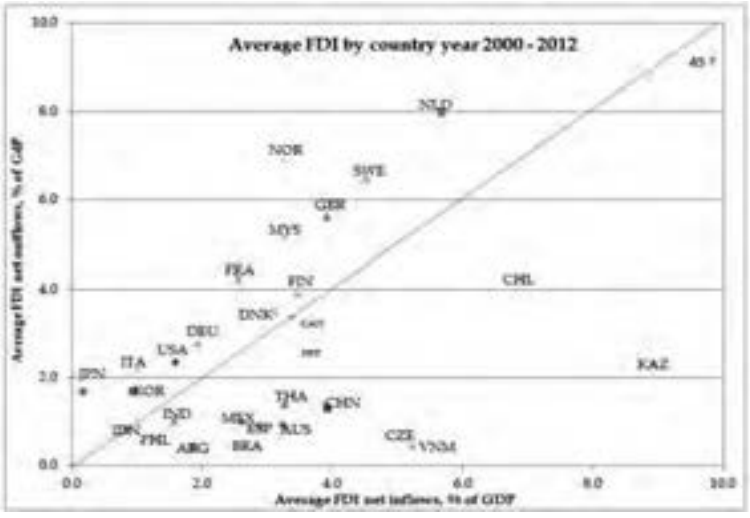

Figure.1. Comparison FDI inflow versus Outflow

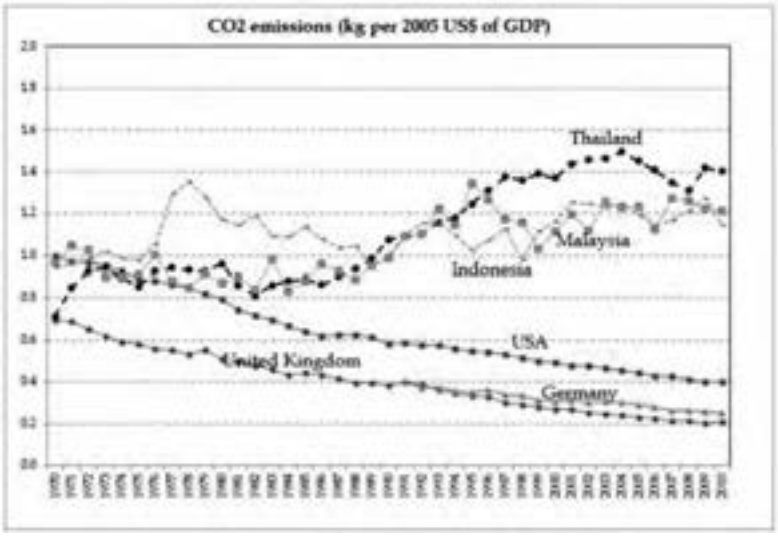

Fig.2. Comparison of CO2 emission between some of developed and developing countries

Following vertical FDI; when host countries enforce their pollution control it would result in a higher cost of production and reduce investment attractiveness.

This vertical concept probably has a right prediction for countries that need foreign investments to grow their economy, e.g. emerging or developing countries. However, statistical data depicts that developed countries in Europe and North America have high amount of FDI inflow. Even considering the percentage of FDI inflow of the GDP, as shown in Figure.1, some developed countries such as United Kingdom, Canada; have a higher average value than developing countries. One example to indicate level of pollution control enforcement is a change of CO2 over time. As shown in Figure.2, developing countries in ASEAN like Thailand, Malaysia and Indonesia have increasing CO2 emissions while developed countries like the U.S., United Kingdom and Germany shows a decreasing trend.

Different trends in pollution but similar increasing trends for FDI inflows to the host country motivates this study to find out whether the pollution heaven hypothesis still exist and in what country groups. More detail for Thailand, the impact of stringent pollution control enforcements on FDI inflow will be analyzed in overall industries and individual industries. The empirical model with econometric analysis of pollution control enforcement and FDI inflow will be presented in the next sections.

2.2 Theoretical Framework

Following the theory by Copeland and Taylor (2003) and similar to Chung (2014), we use the concept of gravity model and consider that FDI has an exponential function form.

$$FDI_{it} = \exp(\beta Vertical_{it} + \emptyset Horizontal_{it}) \quad (1)$$

Where horizontal and vertical are two distinct fundamentals of FDI motivation to host country i in year t. Assume that there is small open economy and an industry that jointly produces two outputs; good of industry, X and pollution, Z . Firm allocates an endogenous fraction, θ of its inputs to environmental abatement activities, K is capital and L is labor. To produce one unit of good X we deploy the production function in equation (2). When X is produced, one unit of pollution Z is also produced as per equation (3), where function $\varphi(\theta)$ imply efficiency of fraction θ, higher θ cause lower pollution Z, and $0 \leq \theta \leq 1$; $\varphi(0) = 1$ and $\varphi(1) = 0$, $\frac{\partial \varphi}{\partial \theta} < 0$.

$$x = (1-\theta) \cdot F(K_X, L_X) \quad (2)$$

$$z = \varphi(\theta) \cdot F(K_X, L_X) \quad (3)$$

From those two equation, if $\theta = 0$, there is no pollution abatement activity, each unit of output x generates one unit of pollution z, such that $x = F(K_X, L_X)$ and $z = x$. Let functional form of abatement be $\varphi(\theta) = (1-\theta)^{1/\alpha}$, where $0 < \alpha < 1$, x and z will be combined in a single Cobb-Douglas function form in equation (4). This equation shows that pollution z in equation (3) is a joint output; therefore we can equivalently treat it as an input of production x.

$$x = z^{\alpha} \cdot [F(K_X, L_X)]^{1-\alpha} \quad (4)$$

Together with pollution input z, to produce x we need F, the product from K and L, as another input. When considering production for one unit of F, we can write unit cost function as $c^F(w,r) = \min_{k,l}\{rk + wl\}$ w.r.t. $F(k,l) = 1$; where r is capital price and w is labor price. Therefore to produce one unit of X, it has unit cost function $c^x(w,r,\tau) = \min_{z,F}\{\tau z + c^F(w,r) \cdot F\}$ w.r.t. $z^{\alpha}F^{1-\alpha} = 1$; where τ is the price of pollution and z is pollution input used in x production. By first order condition we have cost function in equation (5) which is the heart of vertical FDI and play the most important role in this study.

$$c^F = \left(\frac{1-\alpha}{\alpha}\right) \cdot \frac{z}{F} \cdot \tau \quad (5)$$

Horizontal FDI is assumed to play a less important role in this study because of the indirect relationship with pollution and environment when compared to the cost function in equation (5). Horizontal variables in this study adopted Heckscher – Ohlin model, using factor intensity of infrastructure such as energy and water produced; and other factor prices such as cost of business setup in each country, cost of import and export.

Thailand's Environment Regulation and FDI inflow

Thailand's environmental regulations related to air and water pollution from 1970 until 2012 is shown in Figure 3. From the total of 85 regulations, they can consider two regimes for issuing environmental regulations; the first regime during 1970 – 1991 had issued only 10 regulations while the second regime stated since 1992 with 17 regulations issuing in that single year. Those regulations are categorized for three groups consisting of 24 regulations for water pollution, 27 regulations for air pollution and 34 regulations for both air & water pollution. All of the three categories have small but different proportions which would imply that the Thai government took a similar approach for air and water pollution.

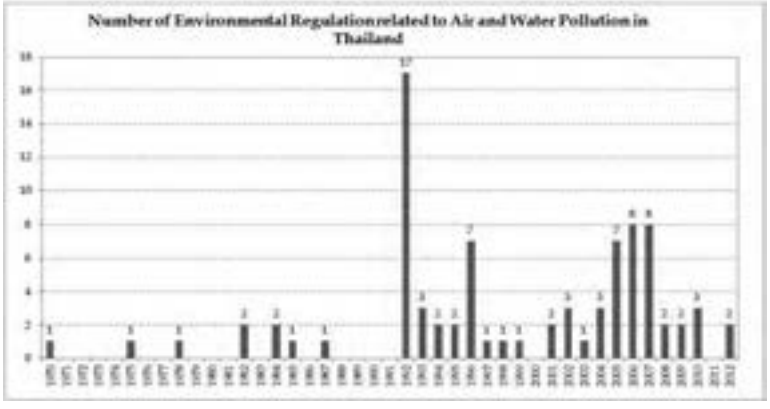

Figure.3. Environmental Regulation related to Air and Water Pollution in Thailand 1970 -2012

Consolidation of FDI inflow data and pollution indicators, as shown in Figure 4, depicts the same increasing trend overtime, especially for CO2 emission. Despite the lack of other

continuous pollutant data a question about pollution heaven regarding this scheme remains for Thailand. There are facts that the Thai government was concerned for its environmental position because they issued a lot of regulations in 1992 and rapid FDI growth also occurred in that same period, but it seems that the quantity of regulations had very little effect on pollutant emissions.

Figure.4. FDI versus Pollution Indicators in Thailand

3. The Data

3.1 Data Arrangement

Data arrangement is one of the crucial parts in this study because of its complexity. Net FDI inflow data, reported by UNCTAD valued in millions of US dollars is used for the analysis globally and in ASEAN countries levels. In an analysis of Thailand (country level), the data was reported by Thailand's Board on Investment Promotion (BOI) valued at millions of Thai Baht however, currency unit does not affect the result of the study since the impacts are considered in percentage. Environmental indicators, reported in World Development Index (WDI) by the World Bank, are used to calculate the pollution control enforcement variable. Data from WDI is used for all other control variables except wage rate which is reported by the International Labor Organization (ILO). Pollution intensity is calculated from production data of the US Census of Manufacturing.

With regard to data from WDI, countries are grouped into two categories; by region and by income level. This study has a completed FDI data but not for some other variables in some years. Therefore, to increase completeness of data set, the missing data will be unsteadily used from other years and from the average value of the country group.

3.2 Measuring Pollution Control Enforcements

The critical questions in this kind of study relates to quantifying environmental variables. Smarzynska and Wei (2001) set their own environmental enforcement indices; number of international environmental treaties the countries had endorsed, number of countries' environmental standards and number of environmental NGO were used in calculation. Dean, Lovely and Wang (2009) calculated environmental variables by using data from industrial pollution intensity such as actual water pollution and levy charge per pollution. Chung (2014) used survey information from the Global Competitiveness Report, indicating the countries' environmental laxity score rated by businessmen across the world. Together with pollution intensity measured by energy intensity of each industry, he quantified environmental variable and then used it in his regression equations.

Measuring pollution control enforcements in this study deploys methodology from Dean, Lovely and Wang (2009), using quantitative environmental indicators from the World

Development Index to calculate the degree of laxity on pollution control. Applying pollution intensity from Chung (2014) into environmental laxity to indicate the level of pollution control enforcements for each industry group, this method will only apply for Thailand level because of its availability in the industrial level's FDI data. Notations of all variables are described in Table 1.

Three environmental indicators are used in calculating the laxity on pollution control. These consist of LAX1 which is notation for CO2 emissions (kg per 2005 US$ of GDP); LAX2 which is notation for Organic water pollutant (BOD) emissions (kg per day per worker); and LAX3 which is notation for PM2.5 pollution, the dust content in ambient, measured by mean annual exposure (micrograms per cubic meter). There are three kinds of quantified environmental laxity variables; each is calculated in relative number to the benchmarked country. All of them are weighted at an average by pollution price, the U.S. pollution abatement cost in the year 2005 from PACE (Pollution Abatement Operating Cost) was calculated as shown in Table 2, and therefore environmental variables are finally quantified to indexed numbers.

First, ILAX is an index of laxity in environmental control of individual country used in the analysis for global level. Second, RLAX is a relative laxity in environmental control of host country used in the analysis for individual countries at the ASEAN level. Third, RLAXPI is a combination between pollution intensity of specific industry and relative laxity in environmental control of host country, used for firm level data in the analysis of Thailand level. ILAX and RLAX variables refer to α in equation (5) while RLAXPI refer to combination of α term with z, where z is considered as a proxy of pollution intensity. Using the concept of pollution heaven hypothesis, the higher α value the lower unit cost (c^F) and the higher z value the higher unit cost.

Although there is evidence that the environmental indicator in the U.S. is weaker than many of its developed counterparts in Europe, the U.S. still has more complete data for both environment and other control variables. Therefore, the U.S. would be the best benchmarked country in the calculation of relative number of the three environmental indicators; hence ILAX of the U.S. is set equal to 1. Countries which have ILAX value greater than 1 means those countries have weaker pollution control than the U.S. Higher values indicate the larger degree for countries to be considered as pollution heaven. For example, in the cases of Malaysia in year 2009, Malaysia has value of LAX1 = 1.2258, LAX2 = 0.1227 and LAX3 = 13.0863; while the U.S. has value of LAX1 = 0.4005, LAX2 =0.1425 and LAX3 = 13.7376. Then ILAX of Malaysia is calculated by weighted average as (1.2258/0.4005)*0.281 + (0.1227/0.1425)*0.438 + (13.0863/13.7376)*0.281 = 1.505.

RLAX is calculated from ILAX. It is measured relatively between host and home country, to show how the home country considers the host in terms of laxity in pollution control enforcement when compared to their own level. For example Thailand, as a host country, compared with Malaysia in year 2009, Thailand had ILAX = 1.8909, Malaysia = 1.505, Therefore, Thailand had a weaker pollution control enforcement than Malaysia. RLAX of Thailand is set as 1.8909/1.8909 = 1, RLAX of Malaysia = 1.8909/1.505 = 1.2564 means that Malaysia (the home) considers Thailand (the host) to be weaker in pollution control enforcements than they are by about 1.2563 times. The higher the RLAX number of the host country, the home country will consider the host as being weaker in pollution controls.

RLAXPI is calculated by multiplying pollution intensity (PI) with RLAX value. Similar to Chung (2014), only relative laxity in pollution control enforcement has less effect when deep considerations are given to industrial level; including PI into relative laxity which distinguishes high pollution industries from low ones. Pollution intensity (PI) value is calculated by using data from the 2011 Annual Survey of Manufactures by US Census of Manufacturing. 'Energy

spending ratio as per value of product shipment' of each industry is used as a proxy of such PI. The industry code number in that survey follows the North America Industry Classification System (NAICS). Using this code matching with Thailand BOI's action code we will then have pollution intensity (PI) value of each BOI's approved project. Similar to RLAX, the higher RLAXPI number, the higher level that home country considers the host country as weaker in pollution control in specific industries.

Two other important variables related to the environment are IENVITAX and RENVITAX, with reference to τ in equation (5). Both variables are proxies of the pollution price of each country, the higher the value the higher product unit cost (c^F). There are similar calculation methodologies to ILAX and RLAX, where IENVITAX is the variable notation for global level and RENVITAX is for individual country in ASEAN and Thailand level. The weighted average by pollution abatement cost from PACE is also applied as shown in Table 2.

Notation	Type	Description in relative term	Refer to variable in theory	Measurement	Source of Data
FDI		Net FDI inflow		In million US Dollars at current prices and current exchange rates for Global and ASEAN level In million Thai Baht for the study in Thailand level	UNCTAD and BOI of Thailand
LAX	Vertical	Laxity of country's pollution control	α	Average of CO2, BOD, PM2.5 emission	World Bank
ENVITAX,	Vertical	Environmental tax	τ	Average of adjusted saving for energy depletion, natural resources depletion and particulate emission damage	World Bank
r	Vertical	Capital price	F	Government bond or Lending Rate or Treasury rate 2012	World Bank
w	Vertical	Labor wage	F	Average Monthly wage, in million US dollar at Y2005 price	ILO
TARIFF	Horizontal	Import tariff		Tariff rate, applied, simple mean, manufactured products (%)	World Bank
BUSET	Horizontal	Cost of business set up		Cost of business start-up procedures (% of GNI per capita)	World Bank
EXCOST	Horizontal	Cost of export good		Cost to export and import (US$ per container)	World Bank
MCOST	Horizontal	Cost of import good		Cost to import (US$ per container)	World Bank
ROAD	Horizontal	Road intensity		Road density (km of road per 100 sq. km of land area)	World Bank
ENERGY	Horizontal	Energy abundant		Energy production (kt of oil equivalent)	World Bank
WATER	Horizontal	Water abundant		Annual freshwater withdrawals, total (billion cubic meters)	World Bank
GDP				In US Dollars at Year 2005 prices	World Bank

Table 1: Notation of variables used in this study

ILAX , RLAX	Description	Abatement Cost (million USD)	Weighted
LAX1	CO2 emissions (kg per 2005 US$ of GDP)	4,314.6	0.2810
LAX2	Organic water pollutant (BOD) emissions (kg per day per worker)	6,725.2	0.4380
LAX3	PM2.5 pollution, mean annual exposure (micrograms per cubic meter)	4,314.6	0.2810
	Total	15,354.3	1.0000
IENVITAX, RENVITAX	Description	Abatement Cost (million USD)	Weighted
ENVT1	Adjusted savings: energy depletion (% of GNI)	5,712.3	0.2763

ENVT2	Adjusted savings: natural resources depletion (% of GNI)	5,709.7	0.2761
ENVT3	Adjusted savings: particulate emission damage (% of GNI)	9,255.48	0.4476
	Total	20,677.5	1.0000

Table 2: Example of calculation of environmental laxity

4. The Model

From equation (1), the model includes environmental laxity (or degree of pollution control enforcements) and other economics variables which is written in function form as

$$FDI_{it} = f(LAXITY_{it}, Set\ of\ Economic\ Variables_{it})$$

Where, host country i, time t; and null hypothesis is pollution control enforcements, does not affect the FDI inflow. Panel data analysis is used in this study. The panel in the global level and cross-sectional countries data is balanced. The data spans from the year 2008 – 2013 including 202 countries in the study of global levels which can be divided to seven groups of countries considered by region and five groups if divide by income level. For individual countries in ASEAN, the panel is unbalanced because of missing data for some home countries. The firm level in Thailand' consists of a pooled data observed during year 2009 – 2013.

Regarding the analysis technic, I initially used time dummy variables in modeling the difference in intercept term between periods. Interaction term between time dummy and environmental variables, ILAX, RLAX and RLAXPI, are further analyzed to determine differences of slope coefficients. Other dummy variables including country dummy, regional dummy and income level dummy are also analyzed, but when these dummies enter the global level model, it leads to a heteroscedasticity problem. Therefore, time fixed effects is a major technic used in this study. Exponential function in equation (1) is transformed to log-linear models which can be written in general form as shown in equation (6), (7) and (8) for global level while equation (9) is country fixed effect model using in comparison between time fixed effect and unit fixed effect method.

$$logFDI_{it} = c + \alpha_1 ILAX_{it} + \sum_{t=2}^{T=6} \lambda_t YEAR_t + \sum_{t=2}^{T=6} \alpha_t ILAX_{it} \cdot YEAR_t + \boldsymbol{\beta_k}(\boldsymbol{IX_{k,it}}) + \varepsilon_{it} \quad (6)$$

$$logFDI_{it} = c + \alpha_1 ILAX_{it} + \sum_{s=2}^{S=7} \gamma_s REGIONID_s + \sum_{s=2}^{S=7} \gamma_s ILAX_{it} \cdot REGIONID_s + \boldsymbol{\beta_k}(\boldsymbol{IX_{k,it}} + \varepsilon_{it} \quad (7)$$

$$logFDI_{it} = c + \alpha_1 ILAX_{it} + \sum_{s=2}^{S=5} \gamma_s INCOMEID_s + \sum_{s=2}^{S=5} \gamma_s ILAX_{it} \cdot INCOMEID_s + \boldsymbol{\beta_k}(\boldsymbol{IX_{k,it}}) + \varepsilon_{it} \quad (8)$$

$$logFDI_{it} = c_1 + \alpha_1 ILAX_{it} + \sum_{j=2}^{J=202} c_j CONID_{ji} + \boldsymbol{\beta_k}(\boldsymbol{IX_{k,it}}) + \varepsilon_{it} \quad (9)$$

Equation (10) is the general form used for individual countries in ASEAN; it is focused on the time fixed effect method because the empirical study which will be described in section 5 shows better result than the country fixed effect.

$$logFDI_{it} = c + \alpha_1 RLAX_{it} + \sum_{t=2}^{T=6} \lambda_t YEAR_t + \sum_{t=2}^{T=6} \alpha_t RLAX_{it} \cdot YEAR_t + \boldsymbol{\beta_k}(\boldsymbol{IX_{k,it}}) + \varepsilon_{it} \quad (10)$$

In the case of firm level in Thailand, because of another new data set from BOI, country dummy is introduced again to compare with fixed time effect. Equation (11) and (12) are year fixed effect models while equation (13) and (14) are country fixed effect, all of them will be compared using the regression result in next section.

$$logFDI_{it} = c + \alpha_1 RLAXPI_{it} + \sum_{t=2}^{T=5} \lambda_t YEAR_t + \boldsymbol{\beta_k}(\boldsymbol{RX_{k,it}}) + \varepsilon_{it} \quad (11)$$

$$logFDI_{it} = c + \alpha_1 RLAXPI_{it} + \sum_{t=2}^{T=5} \lambda_t YEAR_t + \sum_{s=2}^{S=6} \gamma_s RLAXPI_{it} \cdot IND_s + \boldsymbol{\beta_k}(\boldsymbol{RX}_{k,it}) + \varepsilon_{it} \quad (12)$$

$$logFDI_{it} = c_1 + \alpha_{it} RLAXPI_{it} + \sum_{j=2}^{J=202} c_j CONID_{ji} + \boldsymbol{\beta_k}(\boldsymbol{RX}_{k,it}) + \varepsilon_{it} \quad (13)$$

$$logFDI_{it} = c_1 + \alpha_{it} RLAXPI_{it} + \sum_{j=2}^{J=202} c_j CONID_{ji} + \sum_{s=2}^{S=6} \gamma_s RLAXPI_{it} \cdot IND_s + \boldsymbol{\beta_k}(\boldsymbol{RX}_{k,it}) + \varepsilon_{it} \quad (14)$$

Where, c is constant term, $YEAR_t$ is year dummy; $REGIONID$ is regional dummy in which the countries is located and $INCOMEID$ is country's income level dummy, $CONID$ is country dummy and IND is industry dummy. $\boldsymbol{\beta_k}$ is coefficient vector of control variables beside environmental control laxity. $\boldsymbol{IX}_{k,it}$ is vector of control variables, as described in section 3.2, for the global level study .The control variables are measured in index numbers, because the study of global level doesn't consider bilateral relation. $\boldsymbol{RX}_{k,it}$ is vector of control variables for the study in individual country in ASEAN and Thailand. This is measured in relative number because it is a bilateral consideration between Thailand as a host country and investors as a home country.

Omitting some terms in the models for difference analysis can be applied, for example of equation (6), omit $\sum_{t=2}^{6} \lambda_t \cdot YEAR_t$ term if we would like to consider only difference of slope coefficients without different in year intercept, or omit the interaction term $\sum_{t=2}^{6} \alpha_t \cdot ILAX_{it} \cdot YEAR_t$ to consider only different in year intercept.

5. Estimation Results

5.1 Global level

Comparison between time fixed effect and unit fixed effect models is shown in Table 3. Because of the different kinds of fixed effects, regression analysis of each model is tested for heteroscedasticity problem, which will lead to inefficient model, by using Breusch-Pagan / Cook-Weisberg test. To find out which modes are suitable for next analysis, equation (6), (7) to (8) are analyzed for sub models.

Staring from equation (6) for time fixed effect model, there are three other sub models to be examined. Omit all YEAR dummy variables; I got equation (6.1) the model without time fixed effect. Omit interaction term; I got equation (6.2) the time fixed effect model with different in year intercept. Omit YEAR dummy term but keep interaction term; I got equation (6.3) the time fixed effect model with same year intercept for all years but difference slope coefficient.

$$logFDI_{it} = c + \alpha_1 ILAX_{it} + \boldsymbol{\beta_k}(\boldsymbol{IX}_{k,it}) + \varepsilon_{it} \quad (6.1)$$

$$logFDI_{it} = c + \alpha_1 ILAX_{it} + \sum_{t=2}^{T=6} \lambda_t YEAR_t + \boldsymbol{\beta_k}(\boldsymbol{IX}_{k,it}) + \varepsilon_{it} \quad (6.2)$$

$$logFDI_{it} = c + \alpha_1 ILAX_{it} + \sum_{t=2}^{T=6} \alpha_t ILAX_{it} \cdot YEAR_t + \boldsymbol{\beta_k}(\boldsymbol{IX}_{k,it}) + \varepsilon_{it} \quad (6.3)$$

Lastly, equation (6) itself is the time fixed effect model with different in year intercept and slope coefficient. From low chi square value, with null hypothesis for constant variance, the test results suggest not to reject the null hypothesis, implying that all equation (6) series have no heteroscedasticity problem.

Breusch-Pagan / Cook-Weisberg test	Equation										
	(6.1)	(6.2)	(6.3)	(6)	(7.1)	(7.2)	(7)	(8.1)	(8.2)	(8)	(9)
Chi Square	1.36	0.99	0.59	1.16	6.01	3.04	6.23	5.34	5	4.25	49.22
Ho: Constant variance	Do not Reject	Do not Reject	Do not Reject	Do not Reject	Reject	Reject	Reject	Reject	Reject	Reject	Reject

Table 3: Heteroskedasticity test, comparison between time fixed effect and unit fixed effect models

Equation (7) models unit fixed effect by regions. Following to WDI report, there are seven regions which consist of East Asia Pacific, Europe and Central Asia, Latin America, Middle East and North Africa, North America, South Asia and Sub-Sahara Africa. Beside equation (7) itself which is considered different in both regional intercept and slope coefficient, there are two sub models to consider for the difference in regional intercept (7.1), and the difference in slope coefficient but having the same regional intercept (7.2). From low high square value, the test results suggest rejecting null hypothesis for constant variance, such that all equation (7) series have heteroscedasticity problems.

$$logFDI_{it} = c + \alpha_1 ILAX_{it} + \sum_{s=2}^{S=7} \gamma_s REGIONID_s + \boldsymbol{\beta_k}(\boldsymbol{RX}_{k,it}) + \varepsilon_{it} \quad (7.1)$$

$$logFDI_{it} = c + \alpha_1 ILAX_{it} + \sum_{s=2}^{S=7} \gamma_s ILAX_{it} \cdot REGIONID_s + \boldsymbol{\beta_k}(\boldsymbol{RX}_{k,it}) + \varepsilon_{it} \quad (7.2)$$

Equation (8) models for unit fixed effect by country income level. Also following WDI report, there are five income levels consisting of High Income OECD country, High Income non OECD country, Upper Middle Income, Lower Middle Income and Low Income. Besides equation (8) itself, (8.1) which considers difference in income intercept and (8.2) which considers difference in slope coefficient but same income intercept. Again for high chi square value, all equation (8) series have heteroscedasticity problems. Equation (9) models for unit fixed effect by country, similar to other unit fixed effect models, there exists heteroscedasticity problems.

$$logFDI_{it} = c + \alpha_1 ILAX_{it} + \sum_{s=2}^{S=5} \gamma_s INCOMEID_s + \boldsymbol{\beta_k}(\boldsymbol{RX}_{k,it}) + \varepsilon_{it} \quad (8.1)$$

$$logFDI_{it} = c + \alpha_1 ILAX_{it} + \sum_{s=2}^{S=5} \gamma_s ILAX_{it} \cdot INCOMEID_s + \boldsymbol{\beta_k}(\boldsymbol{RX}_{k,it}) + \varepsilon_{it} \quad (8.2)$$

As per the result of the above analysis, the unit fixed effect model is not appropriate; therefore the next analysis in global level and ASEAN level will focus only for time fixed effect model. Table 4 shows coefficient values of all terms in equation (6). The model according to (6.2) is selected for global level analysis, because every different in year intercept (6.2) has a significant result. By such model, between year 2008 to 2013, there were significant evidence that the countries that had higher laxity in environmental control (or weaker in environmental control) enforcements will attract more FDI inflow. Individual country whose laxity index, increase for 1 point, FDI inflow to that country will increase by 53.5%. In conclusion, pollution heaven existed during that period.

Using the same model (6.2) for different in year intercept to separately examine the regional group, report in Table 5, with no heteroscedasticity problem, the model can be used for East Asia & Pacific region, Europe & Central Asia region and Latin America . Only East Asia & Pacific region have significant evidence that higher laxity in environmental enforcements will attract more FDI inflow. This is quite interesting since ASEAN countries are located in this region. When considerations relate to income groups, with no heteroscedasticity problem, the model is suitable only for Lower Middle Income groups, where significant result of higher laxity in environmental enforcements will attract more FDI inflow.

5.2 ASEAN level

As consequences of global level analysis, time fixed effect model regarding equation (6) is also used at ASEAN level. Using the same data set from global level but separately considering the ten ASEAN countries which includes Thailand, Indonesia, Malaysia, Philippines, Singapore, Vietnam, Brunei, Cambodia, Laos and Myanmar; regression results are shown in Table 4. Two of four sub models have no heterscedasticity problem; the model with different in year intercept but constant ILAX slope coefficient (6.2) and the model that have both different in year intercept and ILAX slope coefficient (6) which is selected for ASEAN countries analysis by reason of better significant result. In overview of ASEAN between years 2008 to

2013, there was significant evidence that higher laxity in environmental control enforcements will attract more FDI inflow. However, the impact of weak environmental control enforcements to FDI inflow had decreasing trend; in year 2008, if laxity index increase for 1 point then FDI inflow to ASEAN will increase by 378.8%, but reduce to 221 % in year 2013.

Not only was the pollution heaven hypothesis tested for the entire ASEAN region, but each country in the group will be examined according to equation (10). Results shown in Table 6 demonstrate a heteroscredasticity problem only for Malaysia, while Myanmar has no GDP data which will be omitted in regression analysis. There are different impacts for weak environmental control enforcements to FDI inflow for each country, significant results appear for Singapore, Vietnam and Laos and have negative signs which mean weaker environmental control enforcements will detract FDI inflow to those countries. Surprisingly for Vietnam and Laos, who are in the Lower Middle Income country group, the signs differ from the entire group. But not for Singapore because it is a high income country, if we revert back to the global analysis by income group there are also negative signs of ILAX coefficient for all high income group countries even if results are insignificant. There are insignificant impacts on weak environmental control enforcements in countries like Thailand, Indonesia, Malaysia and Philippines who compete with each other to attracting FDI inflow to their respective host country.

5.3 Thailand level

Thailand is a country within ASEAN and also in the Asia & Pacific region. The regression analysis using data from Thailand shows significant results of the impact of pollution control enforcements on FDI inflow. However, there are inconsistencies as what was described in section 5.2 which shows Thailand has insignificant result. This inconsistency motivates me to re test the same hypothesis with other data set. I used firm level data of FDI inflow reported by Thailand's BOI during year 2009 to 2013 to reexamine the pollution heaven hypothesis. To distinguish from previous examination, six industry types are divided for the analysis of different impact of pollution control enforcement on FDI inflow. Because there are different pollution intensity for each industry, Pollution Intensity (PI) was induced to create a new pollution control enforcements variable called RLAXPI as described in section 3.2.

Following the equation (11) and (12) for year effect model, regression analysis shows significant result of RLAXPI coefficient. However, the model in equation (12) which test for both different in year intercept and different in slope coefficient among industries has heteroscedasticity problems. Both of equation (13) and (14), for country fixed effect, have significant results and without the problem. As shown in Table 7, when using time fixed effect model, in overview of Thailand during year 2009 to 2013 for similar kind of specific industry, if Thailand has relative weaker pollution control enforcements in relation to home country of more than 1 time, it will attract more investment by 3.84%. Once considered by industry group by using country fixed effect as per equation (14), if Thailand has relatively weaker pollution control enforcements in relation to the home country of more than 1 time, it will increase investment by 11.3% for Agricultural Industry, no impact for Mineral & Ceramic industry, increase investment by 1.78% for Light Industries & Textiles, increase investment by 0.7% for Metal Products and Machinery, detractive Electric & Electronics industry and decrease investment by 4.1% and still attract for Chemical & Paper industry by 1.67% increasing in investment.

6. Conclusion

To analyze whether pollution control enforcements have significant impact to the host country FDI inflow, the level of pollution control enforcements is quantified by using three measurable environment parameters and convert into index and relative number because this

method reflects on how strong the host country pays intention to pollution control. Other control variables were included in the model according to the theory by Copeland and Taylor (2003), and regression of panel data used to reexamine this pollution heaven hypothesis.

Results of this study are consistent with many previous researches; even though our world became more concerned with environmental impact for past decades, as a consequence of international trade and investment, yet evidence of a pollution heaven still exist. The reexamination by using global FDI inflow data during year 2008 to 2013 demonstrated that, in overview, weak pollution control enforcements still attract FDI inflow to the host country. Group of country in Asia & Pacific region include ASEAN have a significant impact of pollution control enforcements on FDI inflow, which should be taken into consideration because these country groups also have high FDI growth rate as well. In Thailand, there are four industry groups that pollution heaven has significantly impacted with FDI inflow. These industries consist of Agricultural, Light industries & Textiles, Metal Products & Machinery, and Chemicals & Papers. However the Electrical & Electronics industry has a significant but decreasing impact on FDI inflow and Mineral & Ceramics industry has no significant impact.

7. Direction for Future research

Future research may find other important results for a country's welfare and overall wellbeing either as a participant on the global platform or within the ASEAN regional structure. Such forecasting and findings has not been answered in this study. The methodology such as the Computable General Equilibrium (CGE) may be applied to the welfare investigation according to important questions like: 'What about the impact to a country's welfare if the host country relaxes or continue to show a weak pollution control enforcement to attract FDI inflow?' The answers from future research can be used for debating the opportunities costs and tradeoffs between environmental impact in terms of social cost and a country's benefit from foreign direct investment which is essential for policy makers and overall economic understanding.

VARIABLES	Global				for ASEAN countries			
	Equation (6)				Equation (6)			
	(6.1) log FDI	(6.2) log FDI	(6.3) log FDI	(6) log FDI	(6.1) log FDI	(6.2) log FDI	(6.3) log FDI	(6) log FDI
ILAX	0.558***	0.535***	0.764***	0.496**	1.197**	2.584***	1.920***	3.788***
	(0.105)	(0.105)	(0.130)	(0.213)	(0.591)	(0.655)	(0.602)	(0.710)
YEAR 2009		-0.468**		-0.468		-0.0865		2.833**
		(0.209)		(0.484)		(0.325)		(1.037)
YEAR 2010		-0.701***		-0.688		0.526		2.463**
		(0.210)		(0.486)		(0.351)		(0.941)
YEAR 2011		-0.367*		-0.384		0.637		3.044***
		(0.209)		(0.491)		(0.379)		(0.865)
YEAR 2012		-0.586***		-0.766		0.883**		3.054***
		(0.209)		(0.485)		(0.378)		(0.878)
YEAR 2013		-0.507**		-0.680		0.920**		3.059***
		(0.213)		(0.490)		(0.345)		(0.878)
ILAX x YEAR 2008			0	0			0	0
			(0)	(0)			(0)	(0)
ILAX x YEAR 2009			-0.254**	-0.00121			-0.293	-2.110***
			(0.127)	(0.294)			(0.229)	(0.685)
ILAX x YEAR 2010			-0.380***	-0.00821			0.104	-1.424**
			(0.127)	(0.294)			(0.252)	(0.635)
ILAX x YEAR 2011			-0.191	0.0106			0.0924	-1.824***
			(0.128)	(0.300)			(0.277)	(0.612)
ILAX x YEAR 2012			-0.296**	0.120			0.292	-1.627**
			(0.127)	(0.294)			(0.276)	(0.612)
ILAX x YEAR 2013			-0.251*	0.115			0.390	-1.578**
			(0.128)	(0.295)			(0.252)	(0.615)
IENVITAX	0.0514***	0.0571***	0.0567***	0.0571***	-0.0814*	-0.0558	-0.0546	-0.0898*
	(0.00964)	(0.00976)	(0.00979)	(0.00980)	(0.0411)	(0.0430)	(0.0414)	(0.0465)

Ir	-0.0149	0.0108	0.00699	0.0114	0.0104	-0.115	0.0180	-0.166
	(0.0340)	(0.0350)	(0.0349)	(0.0351)	(0.141)	(0.162)	(0.161)	(0.152)
Iw	1.828***	1.861***	1.858***	1.861***	0.638	-1.079	-0.129	-0.398
	(0.162)	(0.162)	(0.162)	(0.163)	(1.319)	(1.368)	(1.348)	(1.378)
ITAFF	-0.116***	-0.111***	-0.112***	-0.112***	0.281	-0.245	-0.00635	-0.0782
	(0.0374)	(0.0374)	(0.0374)	(0.0375)	(0.293)	(0.333)	(0.333)	(0.315)
IBUSET	-0.007***	-0.008***	-0.007***	-0.008***	-0.0069**	0.000667	-0.00223	-0.00113
	(0.00095)	(0.00101)	(0.00100)	(0.00101)	(0.00295)	(0.00330)	(0.00335)	(0.00307)
IEXCOST	0.106	0.0639	0.0798	0.0623	-1.525	-0.678	0.204	-0.461
	(0.204)	(0.207)	(0.207)	(0.208)	(2.320)	(2.768)	(2.866)	(2.525)
IIMCOST	-0.211	-0.179	-0.195	-0.179	-1.166	-1.219	-2.591	-1.800
	(0.192)	(0.197)	(0.196)	(0.197)	(2.546)	(3.139)	(3.241)	(2.862)
IROAD	-0.0245	-0.0268	-0.0264	-0.0269	0.545***	0.731***	0.593***	0.713***
	(0.0285)	(0.0284)	(0.0284)	(0.0285)	(0.176)	(0.175)	(0.178)	(0.162)
IENERGY	-1.958***	-1.960***	-1.941***	-1.967***	10.64	8.418	5.575	13.09*
	(0.530)	(0.528)	(0.529)	(0.530)	(6.944)	(7.319)	(7.225)	(7.382)
IWATER	1.771***	1.796***	1.789***	1.799***	0.775	-0.401	0.626	-0.0335
	(0.486)	(0.484)	(0.485)	(0.485)	(2.272)	(2.243)	(2.299)	(2.086)
IGDP	7.183***	7.227***	7.211***	7.229***	-32.24	-45.10	-14.57	-78.54
	(0.859)	(0.856)	(0.857)	(0.858)	(48.88)	(54.66)	(53.58)	(55.16)
Constant	5.724***	6.088***	5.660***	6.148***	7.411***	6.183***	6.491***	4.796***
	(0.256)	(0.280)	(0.257)	(0.397)	(1.121)	(1.035)	(1.090)	(1.055)
Observations	1,021	1,021	1,021	1,021	54	54	54	54
R-squared	0.399	0.407	0.405	0.407	0.914	0.944	0.939	0.961
Breusch-Pagan / Cook-Weisberg test for heteroscedasticity test.								
Chi Square	0.2432	0.3188	0.4417	0.282	0.0397	0.2857	0.0775	0.9099
Ho: Constant variance	Do not Reject	Do not Reject	Do not Reject	Do not Reject	Reject	Do not Reject	Reject	Do not Reject
AIC	4160.547	4157.376	4160.422	4166.948	97.41266	83.67131	88.55893	74.75621

Table 4: Effect of pollution control enforcements on FDI inflow for Global and ASEAN level

	Country group by Region					Country group by Income Level				
VARIABLES	East Asia & Pacific	Europe & Central Asia	Latin America	Middle East & North Africa	Sub Sahara Africa	High Income OECD	High Income nonOECD	Upper Middle Income	Lower Middle Income	Low Income
	log FDI	log FDI	log FDI	log FDI	log FDI	log FDI	log FDI	log FDI	log FDI	log FDI
ILAX	2.610***	0.101	-0.603	-0.0784	0.522*	-1.025	-0.0185	0.283*	0.768***	0.494
	(0.502)	(0.146)	(0.394)	(0.269)	(0.271)	(0.713)	(0.175)	(0.159)	(0.149)	(0.445)
YEAR 2009	-0.940	-0.101	-0.455	-0.273	-0.603*	-0.280	-0.567	-0.509*	-0.511	-0.640
	(0.718)	(0.260)	(0.309)	(0.319)	(0.334)	(0.319)	(0.356)	(0.293)	(0.325)	(0.408)
YEAR 2010	-1.114	-0.445*	-0.634**	-0.514	-1.068***	-0.625*	-0.295	-0.485*	-0.879**	-0.843*
	(0.738)	(0.261)	(0.301)	(0.323)	(0.357)	(0.329)	(0.334)	(0.293)	(0.344)	(0.450)
YEAR 2011	-0.999	0.00349	-0.488*	-0.388	-0.652*	-0.0115	-0.0411	-0.275	-0.744**	-0.316
	(0.747)	(0.258)	(0.288)	(0.314)	(0.360)	(0.322)	(0.328)	(0.288)	(0.345)	(0.445)
YEAR 2012	-1.170	-0.349	-0.389	-0.86***	-0.895**	-0.361	-0.369	-0.355	-0.844**	-0.529
	(0.710)	(0.262)	(0.297)	(0.305)	(0.364)	(0.327)	(0.322)	(0.293)	(0.334)	(0.456)
YEAR 2013	-1.057	-0.376	-0.203	-0.578*	-0.913**	-0.203	-0.123	-0.241	-0.929***	-0.610
	(0.724)	(0.290)	(0.310)	(0.319)	(0.369)	(0.379)	(0.330)	(0.304)	(0.334)	(0.459)
IENVITAX	0.121***	0.050**	0.122***	0.00353	0.0791***	0.230***	0.0228*	0.0283	0.0550***	0.091**
	(0.0421)	(0.021)	(0.0339)	(0.0177)	(0.0147)	(0.0698)	(0.013)	(0.017)	(0.0172)	(0.043)
Ir	0.0729	-0.19***	-0.17***	-0.47***	0.0865*	-0.474***	-0.0236	0.0268	-0.0787	0.19***
	(0.223)	(0.064)	(0.0509)	(0.139)	(0.0479)	(0.129)	(0.167)	(0.055)	(0.0679)	(0.052)
Iw	4.182***	0.63***	6.826***	-1.141**	-2.753	-0.191	0.806*	-0.661	-4.814**	1.581
	(0.715)	(0.154)	(1.751)	(0.472)	(1.676)	(0.246)	(0.420)	(1.028)	(2.073)	(4.437)
ITAFF	0.621**	-0.306*	0.0259	-0.18***	0.0327	0.848***	0.15***	-0.0607	0.0880	0.0555
	(0.254)	(0.169)	(0.0523)	(0.0499)	(0.103)	(0.241)	(0.055)	(0.051)	(0.0726)	(0.120)
IBUSET	-0.0104	-0.017*	-0.01***	-0.004**	-0.007***	-0.00283	0.016**	-0.003	-0.009***	-0.003*
	(0.0065)	(0.01)	(0.0019)	(0.0017)	(0.00125)	(0.0197)	(0.008)	(0.003)	(0.00234)	(0.001)
IEXCOST	-1.747	-0.0210	2.561***	-0.261	0.335	1.975	0.626	0.888**	-0.794**	0.232
	(3.024)	(0.530)	(0.549)	(0.484)	(0.253)	(1.609)	(0.682)	(0.418)	(0.359)	(0.267)
IIMCOST	-0.682	0.0105	-1.281**	0.522	-0.256	-1.200	-2.27***	-1.18**	0.423	-0.326
	(3.734)	(0.552)	(0.550)	(0.630)	(0.224)	(1.909)	(0.768)	(0.462)	(0.315)	(0.253)
IROAD	0.0840	0.33***	-0.65***	-0.18***	0.679*	0.419***	-0.0256	-0.72***	-0.561**	-4.46***

	(0.0550)	(0.069)	(0.170)	(0.0283)	(0.404)	(0.0825)	(0.020)	(0.155)	(0.238)	(0.779)
IENERGY	-4.614**	3.64***	-42.5***	-11.4***	-11.46	6.229***	-14.9***	-6.86***	-23.45***	-172***
	(1.824)	(0.824)	(6.297)	(3.907)	(8.305)	(1.929)	(2.823)	(1.050)	(2.823)	(51.04)
IWATER	0.310	9.32***	4.819	7.082***	-2.346	-8.925***	11.6***	-4.06***	-11.22***	6.405
	(2.327)	(2.523)	(3.839)	(2.448)	(4.159)	(2.407)	(2.831)	(1.541)	(1.248)	(5.368)
IGDP	11.19***	6.86***	102.8***	163.1***	293.4***	6.280***	2267***	61.2***	324.6***	2,41***
	(3.777)	(1.804)	(13.30)	(34.99)	(64.86)	(1.945)	(19.74)	(3.897)	(23.83)	(343.7)
Constant	2.400**	7.36***	6.377***	9.625***	4.756***	8.404***	7.25***	7.93***	7.122***	3.87***
	(1.059)	(0.367)	(0.847)	(0.780)	(0.612)	(1.006)	(0.643)	(0.490)	(0.493)	(0.870)
Observations	164	267	167	105	254	169	139	277	256	180
R-squared	0.516	0.601	0.757	0.755	0.395	0.517	0.772	0.650	0.639	0.380
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity test.										
Chi Square	1.38	0.00	1.35	27.37	7.08	13.52	10.57	4.84	0.03	6.71
Ho: Constant variance	Do not Reject	Do not Reject	Do not Reject	Reject	Reject	Reject	Reject	Reject	Do not Reject	Reject

Table 5: Effect of pollution control enforcements on FDI inflow for Global level by region and income level group of country

VARIABLES	By individual country in ASEAN									
	Thailand log FDI	Indonesia log FDI	Malaysia log FDI	Philippines log FDI	Singapore log FDI	Vietnam log FDI	Brunei log FDI	Cambodia log FDI	Laos log FDI	Myanmar log FDI
RLAX	0.838	-1.027	2.950	-0.557	-2.964*	-2.95***	16.45	0.253	-8.211*	-1.885
	(0.684)	(0.945)	(1.910)	(1.879)	(1.658)	(0.727)	(8.960)	(1.024)	(4.240)	(3.282)
YEAR 2009	0.783	1.330	2.842	-2.316	-0.215			0.122	-1.056	-2.327
	(1.409)	(1.804)	(2.257)	(2.169)	(1.400)			(1.049)	(2.125)	(3.096)
YEAR 2010	1.073	1.485	4.483**	0.202	0.655		13.69**	-0.235	-0.241	-1.484
	(1.537)	(1.777)	(1.871)	(2.101)	(1.368)		(4.444)	(1.060)	(2.071)	(4.043)
YEAR 2011	0.785	1.412	1.172	1.383	1.160		14.92**	0.330	0.803	-6.903**
	(1.458)	(1.763)	(1.838)	(2.123)	(1.407)		(4.523)	(1.067)	(2.152)	(3.273)
YEAR 2012	1.668	1.443	2.384	0.915		-1.455		0.920	2.066	0.648
	(1.407)	(1.730)	(1.801)	(2.432)		(1.181)		(1.096)	(2.271)	(3.600)
YEAR 2013										
RLAX x YEAR 2008	0	0	0	0	0		0	0	0	0
	(0)	(0)	(0)	(0)	(0)		(0)	(0)	(0)	(0)
RLAX x YEAR 2009	-0.590	-1.274	-1.918	2.516	1.431			-0.760	-0.734	-0.246
	(0.807)	(1.110)	(1.473)	(2.135)	(1.961)			(1.020)	(2.704)	(3.751)
RLAX x YEAR 2010	-0.470	-0.827	-2.704**	1.034	0.554		-11.64**	-0.0820	-3.062	-1.913
	(0.862)	(1.102)	(1.202)	(1.886)	(1.953)		(4.373)	(1.029)	(2.742)	(3.757)
RLAX x YEAR 2011	-0.276	-0.967	-0.529	-0.00078	0.171	0	-12.12**	-0.614	-2.969	3.455
	(0.814)	(1.079)	(1.188)	(1.925)	(1.951)	(0)		(1.022)	(2.938)	(2.986)
RLAX x YEAR 2012	-0.798	-0.785	-1.744	0.581		0.441		-0.739	-4.004	-4.184
	(0.821)	(1.064)	(1.128)	(2.218)		(0.728)		(1.037)	(3.085)	(4.459)
RLAX x YEAR 2013										
RENVITAX	0.141	-0.0040	-0.0838	0.132	0.0107	0.279***	-0.0012	0.00929	0.393	-0.0426
	(0.0862)	(0.0484)	(0.0563)	(0.144)	(0.025)	(0.0694)	(0.0922)	(0.0447)	(0.327)	(0.185)
Rr	0.187	0.182***	0.311***	0.253	0.185	0.0639	0.501	0.0387	-0.110	0.136
	(0.121)	(0.0455)	(0.106)	(0.160)	(0.116)	(0.0393)	(0.277)	(0.0234)	(0.338)	(0.108)
Rw	-0.62***	-3.94***	-1.216*	-6.013**	-0.06***	-2.62***	-0.115	0.327	-2.492	0.706

	(0.206)	(0.805)	(0.615)	(2.356)	(0.023)	(0.746)	(0.284)	(0.799)	(2.202)	(3.644)
RTAFF	0.0203*	0.116***	0.0294	-0.00032	4.443	0.063***	0.170	-0.0085	0.555	0.0120
	(0.0120)	(0.0275)	(0.0397)	(0.0299)	(17.61)	(0.0194)	(1.114)	(0.0065)	(0.436)	(0.0929)
RBUSET	-0.0394	-0.0074	-0.035**	0.00202	-0.0542	-0.0088	-0.152	-0.0004	-0.455	-0.0012
	(0.0266)	(0.0047)	(0.0146)	(0.0180)	(0.240)	(0.0229)	(0.186)	(0.0013)	(0.332)	(0.0064)
REXCOST	-2.388	6.478*	13.42*	13.96***	1.150	3.936	2.947	3.355*	-3.210*	-5.253
	(2.173)	(3.723)	(6.942)	(4.189)	(4.618)	(2.544)	(20.10)	(1.786)	(1.633)	(4.399)
RIMCOST	3.165*	-6.395*	-13.71*	-11.7***	-1.414	-0.386	-15.11	-0.763	2.579**	5.643
	(1.734)	(3.684)	(7.165)	(3.598)	(4.604)	(2.538)	(14.30)	(1.471)	(1.208)	(4.237)
RROAD	-0.0979	0.613	0.00828	-0.0843	0.00412	0.135	-0.681	0.266*	6.330**	-1.593
	(0.119)	(0.374)	(0.165)	(0.103)	(0.021)	(0.129)	(0.689)	(0.147)	(2.687)	(2.364)
RENERGY	0.00070	0.0005*	-0.0004	0.00380	0.0809	0.005***	0.00752	0.00624	0.0267	0.0104
	(0.0010)	(0.0002)	(0.0017)	(0.0039)	(0.115)	(0.001)	(0.206)	(0.0114)	(0.0219)	(0.0099)
RWATER	-0.0014	0.00027	0.00172	0.00418	0.679	-0.0003		-0.0077	-2.030	-0.0056
	(0.0013)	(0.0007)	(0.0094)	(0.0032)	(0.513)	(0.0002)		(0.0084)	(2.108)	(0.0085)
RGDP	0.00337	0.00389	-0.0112	0.00599	-0.27**	0.024***	288.9*	-0.18***	96.20	
	(0.0029)	(0.0144)	(0.0206)	(0.0481)	(0.102)	(0.0079)	(153.9)	(0.0625)	(71.66)	
Constant	0.841	4.811***	1.446	0.440	7.39***	3.986***	-8.692	0.0773	9.152*	8.141**
	(1.308)	(1.714)	(3.657)	(2.527)	(1.717)	(1.307)	(7.054)	(1.402)	(4.617)	(3.267)
Observations	168	111	66	75	87	70	25	111	36	40
R-squared	0.288	0.497	0.625	0.482	0.453	0.641	0.924	0.440	0.772	0.601
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity test.										
Chi Square	2.07	0.01	4.76	0.07	1.8	1.75	0.01	0.16	0.22	1.78
Ho: Constant variance	Do not Reject	Do not Reject	Reject	Do not Reject	Do not Reject	Do not Reject	Do not Reject	Do not Reject	o not Reject	Do not Reject

Table 6: Effect of pollution control enforcements on FDI inflow for countries in ASEAN

VARIABLES	Time Fixed Effect		Country Fixed Effect	
	Equation (11) log FDI	Equation (12) log FDI	Equation (13) log FDI	Equation (14) log FDI
RLAXPI	0.0384***	0.0878***	0.0424***	0.113***
	(0.0109)	(0.0323)	(0.0108)	(0.0323)
YEAR 2010	0.315***	0.326***		
	(0.105)	(0.105)		
YEAR 2011	0.0324	0.0551		
	(0.114)	(0.113)		
YEAR 2012	0.560***	0.571***		
	(0.101)	(0.101)		
YEAR 2013	0.516***	0.532***		
	(0.103)	(0.103)		
RLAXPI x IND1 (Agricultural)		0		0
		(0)		(0)
RLAXPI x IND2 (Minerals and Ceramics)		-0.00278		-0.0228
		(0.0356)		(0.0355)
RLAXPI x IND3 (Light Industries/Textiles)		-0.0747*		-0.0952**
		(0.0404)		(0.0403)
RLAXPI x IND4 (Metal Products and Machinery)		-0.0859**		-0.106***
		(0.0346)		(0.0345)
RLAXPI x IND5 (Electric and Electronic Products)		-0.172***		-0.154***
		(0.0427)		(0.0425)
RLAXPI x IND6 (Chemicals and Paper)		-0.0753**		-0.0963***
		(0.0324)		(0.0324)
RENVITAX	0.0362**	0.0380**	-0.00570	-0.00448
	(0.0163)	(0.0164)	(0.0765)	(0.0763)
Rr	0.0285	0.0295	0.313***	0.317***
	(0.0193)	(0.0192)	(0.0662)	(0.0660)
Rw	-0.187***	-0.204***	-0.326	-0.319
	(0.0678)	(0.0677)	(0.550)	(0.548)
RTAFF	0.0109***	0.0116***	-0.142*	-0.135
	(0.00173)	(0.00173)	(0.0829)	(0.0827)
RBUSET	-0.0354***	-0.0344***	-0.00134	-0.00666
	(0.00687)	(0.00686)	(0.0366)	(0.0365)
REXCOST	5.668***	5.561***	-0.837	-0.800

	(0.767)	(0.769)	(1.130)	(1.127)
RIMCOST	-4.352***	-4.315***	0.186	0.132
	(0.624)	(0.625)	(1.229)	(1.225)
RROAD	-0.0630	-0.0733	-0.201	-0.253
	(0.0456)	(0.0455)	(1.804)	(1.798)
RENERGY	0.000349**	0.000439***	0.00354	0.00259
	(0.000166)	(0.000169)	(0.00671)	(0.00670)
RWATER	-0.000248	-0.000257	-0.000321	-0.00231
	(0.000196)	(0.000195)	(0.0301)	(0.0300)
RGDP	-0.000464	-0.000296	0.0166	0.0199
	(0.000992)	(0.000992)	(0.0353)	(0.0353)
Constant	3.316***	3.425***	5.317	5.822
	(0.193)	(0.196)	(13.35)	(13.31)
Observations	3,285	3,285	3,285	3,285
R-squared	0.121	0.128	0.181	0.187
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity test.				
Chi Square	1.64	3.03	2.44	1.72
Ho: Constant variance	Do not Reject	Reject	Do not Reject	Do not Reject

Table 7: Effect of pollution control enforcements on FDI inflow in Thailand

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Good practice achievement of the firms within National agro processing industry of Thailand: Impacts on corporate image and stakeholder acceptance

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Keywords:
Good practice achievement; Corporate image; Stakeholder acceptance

Abstract

This article is about the effects of good practice achievement on stakeholder acceptance. The study examines the relationship between good practice achievement and stakeholder acceptance, where corporate image is taken as a mediator. The samples were 486 chief executive officers (CEO) who participated in the national agro processing industry of Thailand. The ordinary least squares (OLS) regression analysis was employed for data analysis. The findings show that good practice achievement, in which consists of fairness, transparency, accountability, responsibility, consistency, and independent, have the positive effect on corporate image significantly ($p<0.1$). Interestingly, corporate image mediates the relationship between good practice achievement and stakeholder acceptance significantly ($p<0.05$). Therefore, a key decision for managers in all levels and functions is to focus on good practice achievement that improves and develops corporate image and boost stakeholder acceptance.

1. Introduction

Good practice consists of the various duties, obligations, and rights that control and direct a corporation (Chu, et al., 2016). The purpose of this good practice is to properly distribute the responsibilities that those such as the managers, stakeholders, creditors, regulators, and the board of directors who participate in the corporation have, (Jo, et al., 2016). Good practice as an achievement allows the corporation to work smoothly due to the existence of a clear level of accountability and communication amongst the organization as well as people understanding what their roles and responsibilities are (Martin, et al., 2016). Good practice can lead to the reduction of corruption by addressing both the principle-agent problem and the problem of the coordination game.

Good practice achievement refers to the quality, transparency, and dependability of the relationships between the shareholders, board of directors, management, and employees that define the authority and responsibility of each in delivering sustainable value to all the stakeholders (Xue, et al., 2016). In order to attract financial and human capital to the corporation and to ensure sustainability of value creation, the governance mechanisms should ensure to gain the trust of all stakeholders (Black, et al., 2014). Good practice achievement includes consistency, responsibility, accountability, fairness, transparency, and independence that are deployed throughout the organization (Cristan, et al., 2016).

Good practice achievement is important to ensure availability of monitoring for working transparency of the business with corporate image. Good practice achievement is required on corporate image when there is a plan to expand or grow firm's business or a new venture as culture strategies (Vicente-Oliva, et al., 2015). However, corporate image has become an essential strategy for many organizations such low employee turnover, the appearance of major

customers, raise in stock value, and good relationships with vendors or government officials are deployed. Corporate image is affected by better economic growth to enhance firm corporate image and increase stakeholder acceptance (Rahman, et al., 2015). The general principles of all forms of good practice achievement are generally relate to shareholders, and board members. In addition, good practice achievement also places a strong emphasis on the corporation's behavior and how much the corporation discloses to public (Fernandes, et al., 2015).

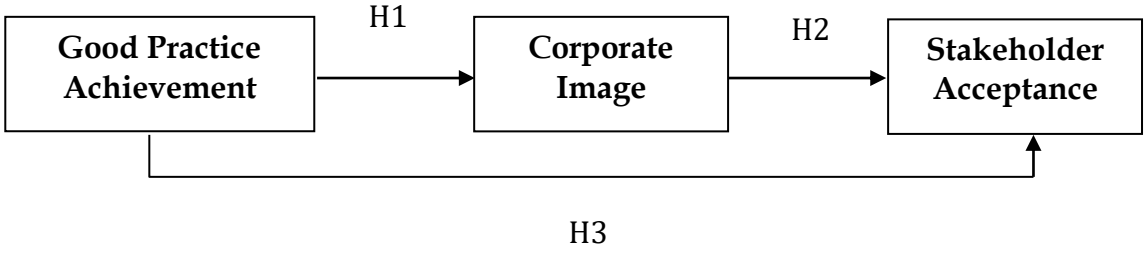
Developing models for the effects of good practice achievement on stakeholder acceptance using corporate image as a mediator is a challenge as the literature on good practice achievement is vast, varied, and evolving. Yet, there was not any systematic testing about effects of good practice achievement on stakeholder acceptance via corporate image as mediator within Thailand and abroad. These have motivated researches to continue to develop improved models with research question.

This research will offer useful guidance for measuring and implementing good practice achievement and facilitate further research in this area. The research question of this work is how does the good practice achievement affect Stakeholder acceptance using corporate image as mediator?

The purpose of this study is to test the effects of good practice achievement on stakeholder acceptance via corporate image as a mediator. Moreover, this research tests the positive relationship between good practice achievement and corporate image.

2. Relevant literature review

Figure1
The effects of good practice achievement on stakeholder acceptance of the firms within National agro processing industry of Thailand



The research model of this study is illustrated in figure 1. It shows the effects of good practice achievement including fairness, transparency, accountability, responsibility, consistency, and independent on stakeholder acceptance. Moreover, corporate image mediates the relationship between good practice achievement and stakeholder acceptance.

2.1 Effects of good practice achievement

Good practice achievement refers to the quality, transparency, and dependability of the relationships between the shareholders, board of directors, management, and employees that define the authority and responsibility of each in delivering sustainable value to all the stakeholders (Khan, et al., 2015). In order to attract financial and human capital to the corporation and to ensure sustainability of value creation, the governance mechanisms should seek to gain the trust of all stakeholders (Fernandes, et al., 2015).

Good practice achievement includes consistency, responsibility, accountability, fairness, transparency, and independence that are deployed throughout the organization (Cristan, et al., 2016). Good practice achievement is vital that managers recognize the importance of creating and maintaining a strong image, and that they also make employees aware of it (Xue and Hong,

2016). Large firms use variously use corporate advertising techniques to enhance their image in order to improve their desirability by focus on the firm's long-term reputation; base actions on substantive policies; insist on candor in all organization dealings; and uphold the stakeholders' right to know (Fernandes, et al., 2015).

Thus, good practice achievement seems to have a positive relationship with corporate image. Therefore, the following hypothesis is posited:

H1: The higher the good practice achievement, the more likely that the firm will achieve greater corporate image.

2.2 Consequences of corporate image

Corporate image describes the manner in which an organization's activities and products or services are perceived by outsiders. Corporate image building can only take place in the mind of each individual prospective client (Wilkins, et al., 2014). Corporate image takes on a greater importance because managers are essentially the organization's raw material, machinery, inventory and product all rolled into one. Therefore managers, employees, customers, shareholders, the financial community, and the general public comprise corporate image (Osman, et al., 2015).

Corporate image has become an essential strategy for many organizations. Strategies that are usually deployed are low employee turnover, the appearance of major customers, and raise in stock value, and good relationships with vendors or government officials (Kim, et al., 2016). Corporate image ensures availability to expand or grow firm's business or to plan a new venture which creates and communicates a positive image to firm's customers, shareholders, the financial community, and the general public (Shnayder, et al., 2016).

Thus, this research implies that a firm with high corporate image will gain high stakeholder acceptance. Hence, the following hypothesis is proposed:

H2 : The corporate image will have a positive relationship with stakeholder acceptance.

2.3 Effects of good practice achievement

Implementation of good practice achievement will ensure transparency, accountability, business ethics and commitment to protect all stakeholders. Good practice achievement involves the responsibility of ensuring that business operations are efficient such as using as few resources as needed, and effective in terms of meeting stakeholder requirement (Chu, et al., 2016). Good practice achievement will also ensure that all corporate business activities will benefit not only the shareholders, but also other stakeholders including the communities living. Implementation of good practice achievement will also guarantee the company's compliance in conducting good and sustainable management of the environment. It is concerned with managing the process that converts raw materials, labor, and energy into goods and services as stakeholder acceptance (Black, et al., 2014).

Implementation of good practice achievement according to principles that are in line with the organization's vision and mission has become a joint responsibility of all the organization departments and the entire workforce of the organization. Hence, practicing good practice achievement will guarantee the continuity of the organization's business (Khan and Rasheed, 2015).

The general principles of all forms of corporate governance are generally related to the shareholders, board members, and stakeholders. In addition to this, corporate governance also places a strong emphasis on the behavior of the corporation and how much the corporation discloses to a public participation in order to gain stakeholder acceptance (Kim, et al., 2016).

Thus, this research implies that a firm with high good practice achievement will gain high stakeholder acceptance. Hence, the following hypothesis is proposed:

H3: Good practice achievement will have a positive relationship with stakeholder acceptance.

3. Research methods

3.1 Sample

For this research, the sample was selected from the firms within national agro processing industry of Thailand. A mailed survey was used for data collection. The questionnaire was sent to 1,428 of the firms within national agro processing industry of Thailand. We were aware that there are differences between the service and the manufacturing sectors. We; however, used data from national agro processing industry as manufacturing sector which is related to transparency management on natural resources, agricultural products, and efficient skilled labor. Manufacturing industry is a key sector of production and economic growth in Thailand. The key participants in this study were chief executive officers (CEO). As a successful leader, a CEO must have a clear direction, be authentic and passionate of bringing people together into good practice achievement. Of the surveys completed and returned, only 486 were usable. The effective response rate and usablility was approximately 34.03% and follows that of Aaker, Kumar and Day (2001). However, the non-response bias did not appear to be a problem in the study on an overall basis.

3.2 Measure

All the variables were obtained from the survey. The independent variable is good practice achievement including fairness, transparency, accountability, responsibility, consistency, and independent. Good practice achievement was measured on 5-point Likert scales (e.g., 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree). Most of the scales employed have been adopted from the existing and validated scales used in the extant literature to fit the current situation. Corporate image has become an essential strategy for many organizations such as low employee turnover, the appearance of major customers, rise in stock value, and good relationships with vendors or government officials. Corporate image was measured on 5-point Likert scales (e.g., 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree). The dependent variables include stakeholder acceptance encompasses three specific areas of firm outcomes. Firstly, financial performance (profits, return on assets, return on investment, etc.). Secondly, product market performance (sales, market share, etc.); and finally, shareholder return (total shareholder return, economic value added, etc.). Stakeholder acceptance was measured on 5-point Likert scales (e.g., 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree).

In addition, the control variables are firm age and size. Firm age was measured by the number of years a firm has been in existence with a dummy variable (e.g., number of years since 1 – 10 = 1, other = 0) (Zahra, Ireland and Hitt, 2000). The firm's size was measured with the number of employees in a firm with a dummy variable (e.g., number of employees from 1 to 500 = 1, others = 0) (Arora and Fosfuri, 2000).

3.3 Method

Confirmatory factor analysis (CFA) was employed to investigate the validity of constructs. Furthermore, factor scores were used to estimate for regression analysis. This research demonstrates the results of factor loading and Cronbach's alpha coefficiencies. All factor loadings are greater than 0.6 (Hair et al., 2006) and are statistically significant. Cronbach's alpha of all variables are greater than 0.7 (Nunnally and Berstein, 1994). Overall, the results indicate the reliability and validity of these constructs.

The ordinary least squares (OLS) regression analysis was employed to estimate parameters in hypotheses testing. Three equation models are shown as follows:

Equation 1: CI = $\beta_{01} + \beta_1 GPA + \beta_2 FA + \beta_3 FS + \varepsilon$
Equation 2: SA = $\beta_{02} + \beta_4 CI + \beta_5 FA + \beta_6 FS + \varepsilon$
Equation 3: SA = $\beta_{03} + \beta_7 GPA + \beta_8 FA + \beta_9 FS + \varepsilon$

Where GPA is good practice achievement; CI is corporate image; SA is stakeholder acceptance; FA is firm age and FS is firm size as measured by dummy variable; ε is error term.

4. Results and discussion

Table 1 shows the descriptive statistics and correlation matrix between variables analyzed by Pearson correlation coefficiencies. Although it indicates a high correlation between independent variables, it does not have severe multicollinearity problems according to the VIFs range from 1.00 to 7.42 (Hair et al., 2006).

4.1 Impacts of good practice achievement on its consequence

Table 2 presents the results of OLS regression analysis of the relationships between good practice achievement and corporate image. To inference Hypothesis 1 which examines the relationship between good practice achievement (e.g., includes fairness, transparency, accountability, responsibility, consistency, and independent) and corporate image. The result shows that independent variables have a significant positive effect on corporate image (b_1 = .086, P< 0.1).

Hypothesis 1 is supported. Good practice achievement includes consistency, responsibility, accountability, fairness, transparency, and independence that are deployed throughout the organization is vital (Cristan, et al., 2016). Managers recognize the importance of creating and maintaining a strong image, and that they also make employees aware of it (Xue and Hong, 2016).

TABEL 1
DESCRIPTIVE STATISTICS AND CORRELATION MATRIX

Constructs	SA	GPA	CI	*FA*	*FS*
Mean	3.54	3.37	3.82	-	-
Standard Deviation	0.42	0.56	0.61	-	-
Stakeholder acceptance (SA)					
Good practice achievement (GPA)	0.65*				
Corporate image (CI)	0.76*	0.65*			
Firm Age (FA)	0.43	0.46	0.51		
Firm Size (FS)	0.25	0.29	0.31	0.27	

* Correlation is significant at the 0.05 level (2-tailied)
[a] Beta coefficiencies with standard errors in parenthesis.

4.2 Impacts of corporate image on its consequence

Table 3 presents the results of the relationship between corporate image and entering into stakeholder acceptance. To inference Hypothesis 2 which examines the relationship between corporate image and stakeholder acceptance. The result shows that corporate image has a significant positive effect on stakeholder acceptance (b4 = .065, P< 0.05). Therefore, Hypotheses 2 are supported. Corporate image ensure availability to expand or grow firm's business or is planning a new venture that creates and communicates a positive image to firm's customers, shareholders, the financial community, and the general public (Shnayder, et al., 2016).

Table 2: Results of OLS regression analysis

Independent Variables	Dependent variable
	CI
Good practice achievement : (GPA)	0.086* (0.042)
Firm Age (FA)	0.056 (0.031)
Firm Size (FS)	0.06 (0.028)
Adjusted R-square	0.658

Note: Standard error is in parentheses.
** p< .05
* p< .10

Table 3: Results of OLS regression analysis

Independent Variables	Dependent variable
	SA
Corporate image (CI)	0.065** (0.049)
Good practice achievement : (GPA)	0.321* (0.125)
Firm Age (FA)	0.035 (0.012)
Firm Size (FS)	0.043 (0.021)
Adjusted R-square	0.526

Note: Standard error is in parentheses.
** p< .05

4.3 Impacts of good practice achievement on stakeholder acceptance

Table 2 presents the results of OLS regression analysis of the relationship between good practice achievement and stakeholder acceptance. To inference Hypothesis 3 which examines the relationship between good practice achievement and stakeholder acceptance. The result shows that an internal control confident has a significant positive effect on stakeholder acceptance (b_7 = .321, P< 0.1).

Hypothesis 3 is supported. Implementation of good practice achievement will also guarantee the company's compliance in conducting good and sustainable management of the environment. It is concerned with managing the process that converts raw materials, labor, and energy into goods and services as stakeholder acceptance (Black, et al., 2014).

5. Contributions and future research

5.1 Theoretical contributions and future directions for research

This study provides important theoretical contributions extending on prior studies by incorporating both perspectives of good practice achievement including fairness, transparency, accountability, responsibility, consistency, and independent in the same model and links this good practice achievement to stakeholder acceptance via corporate image as a mediator.

Especially, as there is a significant direct positive relationship between corporate image and stakeholder acceptance. Finally, further research should reexamine this research model in other group of samples for more generalized.

5.2 Managerial contributions

For executive managers and firms' owners, this study helps them to understand and know that good practice achievement is an important factor that motivates the firms within national agro processing industry of Thailand. Especially, corporate image is the moderating effect of the relationship between good practice achievement and stakeholder acceptance.

6. Conclusion

This study investigates the effects of good practice achievement on stakeholder acceptance using corporate image as a mediator. The samples were 486 chief executive officers (CEO) who participated in the national agro processing industry of Thailand. The ordinary least squares (OLS) regression analysis was employed for data analysis. The findings show that good practice achievement has the most powerful effect on corporate image. Furthermore, the relationship between corporate image and stakeholder acceptance is positive in this empirical research. Interestingly, there is a directly positive relationship between corporate image and stakeholder acceptance.

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Developing countries challenges in applying sustainable urban development: An application on Egypt

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Key words
Sustainable urban development **(SUD),** environmental sustainability (**ES),** sustainability of developing cities **(SDC).**

Abstract

*Sustainable urban development (**SUD**) is influenced by social, cultural, economic and environmental sustainability (**ES**) of developing and developed countries. Our paper will focus on the challenges confront the developing countries in sustainable urban development an application will be on Egypt, which will clarify current situation and future challenge will assess the impact of sustainable development on developing country to propose some possible directions for the future .A new solution of improving sustainability of developing cities (**SDC**) should be found.*

1. Introduction

Changing urban development from its present unsustainable form is a very challenging process, not urban form only but transportation system, water, waste and energy, technologies as well have to be changed, the value systems and the process of urban governance planning, need to reflect a sustainable agenda.

2.1 Literature Review

2.1 Sustainability

According to the United Nations World Commission on Environment and Development (The Brundtland Commission) report, sustainability is defined as the ability to create development that meet the needs of the present generation without compromising the ability of future generations to meet their own needs "the ability to sustain life at the current quality for the generations that come after ours (1987:43).

In general, sustainability is the ability to maintain balance of a certain process or state in any system, sustainability in this context relates to the ability of the environment to meet the basic requirements for the sustenance of the living and nonliving components of the ecological, economic and socio cultural systems in a manner that does not limit the possibility of meeting the present and the future needs of the various components and aspects of the environment.

1. 2-Sustainable Development

According the Rio Declaration on Environment and Development Agenda 21 in 1992, sustainable development became a global strategy for planning professionals, architects and development officials to address human developments effects on the environmental crisis**.** Sustainable Development, need to ensure diversification of local economies through building on exciting economic activities. It needs also to provide a better distribution of benefits through building on activities as it builds on traditional social and economic activities to provide fair benefit distribution **(Fuller Bultjens and Cummings 2005)** The Earth Summit **(UNCED**) , which took place in **Rio de Janeiro in 1992**, recognized how environment and development problems are pressing, **Agenda 21** produced a global programme of action for sustainable development it stresses the importance of improving social , economic and environmental quality in urban

areas, it focused on environmental infrastructure , water , sanitation , transportation and solid waste management , the earth summit broadened environmental issues with other social and economic policy issues. **The World Summit for Sustainable Development (WSSD**), held in August 2002 , urged in its plan of implementation that nations should take steps to make progress in the formulation and elaboration of national strategies for sustainable development and begin their implementation (**UNDESA, 2004).**

Building Sustainable Environment Requires investment in

1. Renewable energy resources.
2. Efficiency in the use of a water and electricity.
3. Design and implementation of compact cities.
4. Increase green area.
5. Reliable, affordable and fast public transportation.
6. Waste management collection and recycling systems.

Sustainable development as applied to urban areas is the ability of the urban area and their regions to continue function at levels of desired quality of life without limiting the options available to the present and future generations, to adverse impacts within and outside their boundaries, the ecological and sociological footprint of cities has spread over ever wider area and the fewer places on the planet earth are unaffected by this phenomenon, changes in the ecology of urban environment occasioned by increasing population, overcrowded habitations and uncontrolled exploitation of natural sources may accounted for this wide ecological footprint of urban area which is not peculiar to developing countries.

2.3 Urban Sustainability

Urban sustainability is the process of developing and redeveloping urban areas in a way that will improve the urban environment, economy and promote equity or social justice, urban sustainability is the future goal of urban sustainable development. **(Martino 2009).**We need to be aware not only of the ways in which social, economic, and environmental conservation can enable economic development which in turn can contribute to greater efforts in the field of environmental management. Sustainability goals can be reached by economic and governmental reform and new policy ideas like smart growth, urban growth boundaries. Many of the advocates of sustainability base their assumptions on very pessimistic view of the world, they assume that the resources of today will be the resources of tomorrow and that human will be unable to discover new ones. **(Bruegman 2005:148). During the Urban 21 Conference (Berlin, July 2000)** they defined the sustainable urban development by improving the quality of life in a city, including ecological, cultural, political institutional, social and economic components without leaving a burden on the future generations, a burden which is the result of a reduced natural capital and an excessive local debt.

3. Sustainable Development Different Aspects

3.1Environmental Degradation

Due to technology changes the environment is affected, thus lead to pollution and depletion of resources. Technological effects refer to changing production methods following changes in economic policies. Pollution emissions are affected by demand for environmental quality, new technologies and national environmental standards**.** Environmental degradation will occur due to population pressures. However, there may also be a negative relationship between technology and sustainable development as certain patterns of growth and technological progress deplete natural resources more rapidly than others.

3.2 Sustainable Human Development

Sustainability in this aspect refers to the provision of sustainable livelihoods for the current and Future generations. The concept of sustainable human development is concerned with poverty alleviation through employment generation and improvement in human well-being. Cities are sustainable through resilient buildings, alternative transportation system, renewable energy systems, water sensitive design and zero waste system.

4. Sustainable Development Criteria

The challenges raised by the imperative of sustainable development will be different for urban planning in poor developing countries than in other wealthy regions of the world , whereas improvement of the residential and hygienic standard will be among the main tasks of a sustainable urban planning, also it must secure that the inhabitants of the area can have their vital needs met in a way that can be sustained in the future and is not in conflict with sustainable development at a global level. A sustainable level of energy use and emissions in European countries must consider both a goal of reducing the global energy use and related emissions, and a goal of increasing the material standard of living in developing countries, the global carbon dioxide must be reduced at least 60 %some of this reduction could be obtained by shifting to other energy sources than oil. In some countries, including Norway, Great Britain and Germany, they focused of the negative environmental consequences of a land consuming and sprawling urban development, loss of natural resources and high energy use for transport and in buildings. In Denmark and partly in Sweden, the discussion has been focused on the possibility of establishing ecological cycles of water and sewage within the separate neighborhood or even at the individual site. The compact cities model implies that future needs for development should primarily be met.

5. Urban Sustainability in Developing Countries

People who live in urban areas have basically different consumption customs than people living in the country side, urban populations consume much more food, energy and durable goods than rural populations which will affect the environment in order to achieve sustainable development for the world its crucial to understand that the care for the environment it's not only for the developed rich countries but its imperatives for developing countries as well developing countries are attracting foreign direct investment associated with urban development, developing countries must be investment friendly by processing land , capital and a cheap, productive labour force. Urban environmental issues should continue to dominate the sustainable agenda in developing countries in the next few decades.

5.1 The Policies should be taken by Developing Governments to help their Cities to move Toward Sustainability.

- Improve infrastructure to enable energy, water, transport and waste to be managed with minimal ecological impact.
- Adopting innovation to ensure that latest Eco technology becomes mainstream.
- Applying tax incentives to direct investment into these new technologies.
- Applying regulations to set the standards high enough for sustainability technologies.
- Regulations alone cannot change behavior, without education and awareness policy approaches will be wasted, lifestyle should be changed , when people start to change their lifestyles and see the difference they become advocates of sustainable transport policies for example they will start to talk with their friends about how they feel better after bicycling, walking or taking the bus or train instead of driving , they will be happy of how much money they saves and how they feel that they contributes in climate changes. In order to make urban development more in line with the requirements of

sustainable development, it seems important to avoid further urban sprawl and expansion of the road and parking capacity , instead , most construction should take place within existing built-up boundaries , in particular in areas not far from the urban center , most of the densification should be channeled to areas already technically affected in order to save urban green areas , restriction should be put on the use of cars , while improving public transportation. Urban greening is an important tool for sustainability; some city greening efforts are achieving environmental results and reducing city costs to provide essential infra-structure. These efforts sometimes face implementation barriers, a lack of clear developed measures of natural system benefits, bureaucracies of some agencies, weakness of government jurisdictions and coordination difficulties.

5.2 Sustainability Challenges and Urban Development in Egypt. The most serious problems confronting developing countries and their inhabitants are lack of financial resources, lack of employment poor services and infrastructure, which include lack of health and educational facilities, rising traffic problem, increasing pollution, lack of water, which means uncoordinated urban development , this should push governments in developing countries to realize socio-economic development and environmental protection , which are the components of sustainable development.

5.3 Urban Development Challenges in Egypt Urban environmental problems in Egypt are multi-faceted, urbanization and issues that come with developmental challenges; urban production and consumption patterns psychological orientation of urban residents as well as institutional failures, these problems pose serious environmental, economic and social challenges to achieve sustainable development in the country. A basic problem in developing country like Egypt is that the population growth rate is faster than the rate of developing infrastructure and services, while the growth rate of productivity is lower. Egypt s primary cities Cairo and Alexandria comprise 43% of the total urban population (17% of the total population of Egypt) while 77 cities comprise 4% of the urban population.

According to a World Bank report it stated that Egypt is facing an urban challenge, in the next years, Egypt population is expected to increase over 100 million most of it will occur within urban areas, accommodating this huge population in short period is a major challenge for the government, urban economies will need to generate about 700,000 jobs each year, urban infrastructure and public services a majority of Egypt's existing urban population is of limited income and suffers from a lack of appropriate urban services and high levels of unemployment and under-employment. While it is known that urbanization is affected by several factors the exploitation and utilization of resources are the most primitive driving force of regional development and urbanization, industrialization and modernization both encourages urbanization and utilizes massive amounts of resources There is an urbanization pattern appears in developing countries, in this Pattern, the sources that affect and restrict the process of urbanization lie in extroverted and environments factors called the exterior industrialization development strategy, export oriented demands, foreign investment and credits, the new international labor division order, economic intervention had a crucial function **A World Bank report (2008)** analyzed the Egyptian urban development experience considering new compact cities that it did not achieve its goals due to the following.

- The problem of Long distances between new constructed cities and existing one.
- The problem of the non-connections between new and existing cities through a transit system.
- The problem of corrupted policies.

5.4 Challenges and Opportunities Facing Urban Development in Egypt:

a) Urban sustainable development and poverty is a basic challenge to the efforts of achieving sustainable development in Egypt.
b) Rapid increase population is another challenge for achieving sustainable development in Egypt.
c) Immigration increase from rural to urban area.
d) Mismanagement of the use of natural resources, especially resources and energy that requires promoting of sustainable and consumption.
e) The lack of environmental awareness aggravates the problem of natural resources; it generates sanitation, hygiene and environmental problems at the community level.
f) Climate change also puts pressure on natural resources, the combination of rapid economic expansion, continued population growth and changing climate raises the possibility of resource scarcities.

Egypt and Energy Debate Some estimation indicate that natural gas and oil reserves , on which Egypt's electricity generation currently relies , will run out in 30 or 40 years According to the international energy agency 2012 estimates that water consumption for energy production will increase by 85% while reaching2035, global energy demand to be increased by an about one third before reaching 2035.Egypt should concentrate its effort for the renewable energy resources, which can be supplied through solar hot water technologies and photovoltaic, wind energy system and Methane; buildings can maximize passive solar design, minimizing heating and cooling needs.

Egypt and Solid Waste Management (SWM) The situation of the SWM clarify the follow

- No national program for SMW.
- Limited laws concerning SWM in Egypt.
- Limited public participation and awareness.
- Collection of waste by informal collectors (zabaleen)
- Poor Recycling activities by informal collectors system.

Egypt and Water Resources Water is a fundamental element for sustainable development in Egypt; moreover, on the long run it requires searching for alternatives and determining the water resources available at present and additional resources that we can obtain in the future. Egypt's main source of freshwater is the Nile, according to an agreement between Egypt and Sudan Egypt its part 55.5x 10 M3; it's subject to unsustainably due to high levels of industrial, agricultural and domestic wastewater pollution. The World Health Organization 2008 Report *Safer Water, Better Health* indicates that %5.1 of all deaths and %6.5 of all disabilities in a year in Egypt are attributable to unsafe drinking water availability in Egypt is on steady decline from about 1.896 cubic meters per year in 1959o about 900 cubic meters in 2000, to 700 cubic meters in 2012, According to the Ministry of Water Resources and Irrigation, Egypt will need 20%more water by 2020, Egypt could be water scarce by 2025 According to the United Nations says, the combination of water scarcity and pollution of the water availability , could be one of the worst resource crises Egypt could face

Egypt Transport Sector Urban Density and Centralization of jobs have a strong relationship with transport patterns specially the level of car dependence and the effectiveness of public transport, more centralized cities tend to have less central city parking, stronger rail systems and more use of public transport for radial trips, higher densities can bring greater protection of the natural environment but all this applied on the developed countries, the result is vice versa in the developing countries. Developing countries need to create higher density development will means less land devoted to sprawl and more land for open space, gardens and

urban agriculture, greater emphasis on community spaces should also means more opportunity for locally managed systems for waste, energy and water, Sustainable transport should be available in Egypt, good transit, walk ability and cycling facilities would shape sustainable Egypt. Motorcycles can avoid traffic queues and are the cheapest form of motorized private transport for moderate income people, but they are also a major cause of air pollution, noise and transport deaths in these cities.

Mobile emissions are one of the major sources of air pollution in the country, producing about 25%of Egypt's co2.The number of vehicles registered in Egypt increases from 3.6 million vehicles in 1992 to almost 6.6 million vehicles in 2005.

According to Egypt Information Portal, 2007 Due to traffic congestion, Cairo had the nation highest concentrations of carbon dioxide 6.8 mg /m3 (According to Egyptian Environmental affairs Agency, 2004) The big task for Egypt is to create a balance between the environmental, social and economic aspects before addressing being sustainable , regarding the environmental aspect the large and growing carbon dioxide emission from transport have become an issue we can no longer ignore emissions concentrations might reach between 650 and 700ppm of carbon dioxide by 2050 and between 800 and 1300 ppm of co2 by 2100 .

According to the Organization for Economic Cooperation and Development 2012 it is determined to preserve the quality of Egypt air, so motor vehicles must be carbon neutral and the plans provide for the construction of hydrogen filling station for fuel cells. The solution for Egypt is to complete the network of the rail, and to concentrate on the public transport, to encourage the idea of walking and cycling which are the most sustainable modes of transport.

Egyptian infrastructure: Egypt possesses a vibrant construction industry, which its growth average 6.8% during 2007-2011, the government continued with its programme of economic reform with major privatization and investment activity during 2007 to 2008 In Egypt we need the solution for radical change in town planning strategy and transformation to sustainable development.

- An action environmental agenda is highly recommended for Egypt.
- We should conserving, protecting and restoring natural resources.
- Encouraging healthy environmental practices.

Countries are consumers of natural capital such as water, energy and other natural resources they are producers as well of large quantities of wastes, in order to avoid serious ecological collapse developing countries like Egypt should adopt sustainable ecosystems.

Egypt must reduce its use of all resources and decrease their waste outputs to become a sustainable country, it must increase its livability in terms of health, employment, income, education, housing, urban design quality Egypt could be described as a sustainable country when it will be able to provide the needs of the population along with the necessary infrastructure health, housing, education, transportation, employment and good governance. The population in Cairo increases every year due to immigration, this increase put strain on housing, employment, healthcare, water and electricity population lead also to crime due to weak job opportunities.

6. Research Problem

Urban sustainable development is a challenge for developing countries; we question how urban development could be used to help developing countries to deep the concept of sustainability.

6.1 Research Question

Based on the above mentioned research problem the following research question is raised

Is applying sustainable urban development could help in the improvement of developing countries?

6.2 Research Objective

The principal objective of this paper is to emphasize the challenge confronts developing countries while applying sustainable urban development.

To address the preceding research question the objective of this paper is

To examine if applying sustainable urban development methods could help in the improvement developing countries sustainability.

7. Research Methodology

In this paper, we explore the concept of applying sustainable urban development and its effect on developing countries, a mixed method of research will be used to conduct the study, the practical part will be conducted by questionnaires, and the theoretical part will rely on periodicals, articles, books.

7.1 Data Collection

The methods used for the data collection was e-mail surveys. The study population was divided into manageable groups within people interest in environmental area and work in it in order to select the sample frame of the study. Out of the 500 questionnaires distributed through e-mail surveys, 100 questionnaires were returned representing a 20% return rate, which was deemed satisfactory.

The questions covered information of the respondents and their assessment of urban development factors in developing countries. Likert Scale questions varied from discussing their understanding of the key elements of urban development in developing countries to the relationship that exists.

7. 2Research Hypothesis

H0: There is a statistically significant relation between applying sustainable urban development methods and improving the situation of the developing countries.

H1: There is no statistically significant relation between applying sustainable urban development methods and improving the situation of the developing countries.

Results and Discussion

Table 1: Means and Standard Deviation minimum, maximum of the factors which have impact on urban sustainable development (USD)

Variable	Observation	Mean	Standard deviation	Minimum	Maximum	CV	Significant level
TP	100	4.9000	.30151	4.00	5.00	.481**	.000
WCP	100	4.7600	.42923	4.00	5.00	.506*	.000
ECP	100	4.4800	.50212	4.00	5.00	.306**	.000
WMP	100	4.7600	.42923	4.00	5.00	.295**	.003
GA	100	4.6400	.48242	4.00	5.00	.285**	.004

Notes: TP: Transport Problem, WCP: Water Consumption Problem, ECP: Energy Consumption Problem, WMP: Waste Management Problem, GA: Green area

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

The descriptive statistics in (Table 1) demonstrate that transport problem has a mean of 4.9 and a range between 4 and 5, water consumption problem has a mean of 4.76 and a range between 4 and 5, energy consumption problem has a mean of 4.48 and a range between 4 and 5, waste management problem has a mean of 4.76 and a range between 4 and 5, green area and infrastructure has a mean of 4.64 and a range between 4 and 5. Which means that values for each variable are valid especially the variables are measured by Likert scale from 1 to 5.The correlation coefficient of transport problem is .481** with significant level .000, water

consumption Problem is .506with significant level of .000, energy consumption is. 306 with significant level of, 000 waste management problems is .295 with significant level of, .003, green area is, 285 with significant level of. 002.

This means that water consumption problem, energy consumptions problem and transport problem has no relation with improving the situation of developing country if it apply sustainable urban development methods, the expansion of the green area and infrastructure has a positive relationship in improving the situation of developing country if it apply sustainable urban development methods.

Table 2:

Variable	Observation	Mean	Standard Deviation	Minimum	Maximum	Correlations	Significant level
if we have a good public transportation network will reduce environmental fingerprint	100	4.1800	0.97835	2.00	5.00	.481**	.000
if we use water solutions will reduce water consumption	100	4.2900	0.60794	3.00	5.00	506**	.000
if we use energy renewable solutions will solve energy problem	100	4.3400	0.65474	3.00	5.00	306**	.000
establishing recycle , reuse and separation program will reduce environment finger prints	100	4.4200	0.95537	2.00	5.00	.295**	.003
the increase of green area could be a tool of applying sustainable urban development	100	4.6400	0.48242	4.00	5.00	.285**	.004

The descriptive statistics in (Table 2) demonstrate that a good public transportation network will reduce environmental fingerprint it has a mean of 4.1 and a range between 2 and 5, water solutions use to reduce water consumption it has a mean of 4.2 and a range between 4 and 5, energy renewable solutions use to solve energy problem it has a mean of 4.3 and a range between 3 and 5, establishment of recycle , reuse and separation programs will reduce environment finger prints it has a mean of 4.4 and a range between 2 and 5, the increase of green area could be a tool of applying sustainable urban development it has a mean of 4.64 and a range between 4 and 5. Which mean that values for each variable is valid

Table 3: Simple Linear Regression for testing the effect of TP, WCP, ECP, WMP, GA and infrastructure as a tool of urban sustainability to improve the situation of developing countries.

Model Summary

Model	R	R Square	Adjusted RSquare	Std. Error of the Estimate
1	.249a	.062	.012	.49946

a. Predictors: (Constant), the increase of green area could be a tool of applying sustainable urban development, establishing recycle, reuse and separation program will reduce environment finger prints , if we use water solutions will reduce water consumption, if we have a good public transportation network will reduce environmental fingerprint, if we use energy renewable solutions will solve energy problem.

b. Dependent Variable: we have an infrastructure problem

The descriptive statistic in (Table 3) demonstrate that the simple linear regression for testing the effect of TP, WCP, ECP, WMP, and GA as independent variables and infrastructure

problem as dependent variable according to it the increase of green area could be a tool of applying sustainable urban development.

Table 4: ANOVAa

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.551	5	.310	1.244	.295b
	Residual	23.449	94	.249		
	Total	25.000	99			

a. Dependent Variable: we have an infrastructure problem

b. Predictors: (Constant), the increase of green area could be a tool of applying sustainable urban development , establishing recycle , reuse and separation program will reduce environment finger prints , if we use water solutions will reduce water consumption , if we have a good public transportation network will reduce environmental fingerprint , if we use energy renewable solutions will solve energy problem

Anova: Analyzes and clarifies the differences between eta-squared and partial eta-squared in fixed

Factor analysis of variance.

The descriptive statistics in (Table 4) (Anova) demonstrate that we have infrastructure problem as dependent variable the increase of Green area and good public transport network as independent variables could be a tool of applying sustainable urban development.

Table 5:

Model	Unstandardized Coefficients		Standardized Coefficients	t	95.0% Confidence Interval for B	
	B	Std. Error	Beta		Lower Bound	Upper Bound
(Constant)	4.402	.569		7.731	3.271	
if we have a good public transportation network will reduce environmental fingerprint	.001	.085	.372	2.250	.022	
if we use energy renewable solutions will solve energy problem	-.002	.157	-.002	-.011	-.313	.309
if we use water solutions will reduce water consumption	-.104	.172	-.126	-.605	-.445	.237
establishing recycle , reuse and separation program will reduce environment finger prints	-.084	.073	-.160	-1.143	-.230	.062
the increase of green area could be a tool of applying sustainable urban development	.070	.108	.067	.646	-.145	.284

Dependent Variable: we have an infrastructure problem

According to (table 5) we assumed that the dependent variable is the infrastructure problem, and independent variables are good public transportation network to reduce environmental fingerprint, energy renewable solutions to solve energy problem, water solutions

to reduce water consumption, establishing recycle, reuse and separation program to reduce environment finger prints, the increase of green area could be a tool of applying sustainable urban development by analyzing the above table we found that standardized and unstandardized coefficient for using energy solution to solve energy problem is -0.02 , to use water solution to reduce water consumption is -,126 and -,104 , to establish recycle program to reduce environmental finger prints was -.160 and -.084 , but it was positive for two factors, if we have a good public transportation network will reduce environmental fingerprint it was 0.372 and 0.01 and sig .000 the increase of green area was 0.067and 0.70 and sig .020 which means good transportation network and green area expansion could be a tool of applying sustainable urban development

This means that if developing countries have a good public transportation network it will help in the process of urban development in this countries as well as if those countries expanded in the green area could be a tool for improving the urban development process in the developing countries

Conclusions

Low levels of economic development, modest urban budget, shortage of environmental infrastructure, shelter and basic services and high level of urban poverty looks equally as unsustainable.

This paper investigated the challenge confronts the developing countries in applying sustainable urban development. We used a spss package (statistical package for the social sciences) to analyze our data, the empirical evidence strongly supports our hypothesis H0 that there is a statistically significant relation between applying sustainable urban development methods and improving the situation of the developing countries, by analyzing some factors could have a positive effect on urban development, transport problem and using a good transport network , green area expansion as a way of applying sustainable urban development methods, the situation of developing countries will be improved .

Recommendations for Sustainable Development in Egypt

Sustainable development should be regulated by national law, unfortunately national laws in Egypt in terms of sustainability are not very well implemented yet, there is a need for a new approach on how to achieve the goals of sustainability in developing countries. Different standards of sustainability for different areas will be the possible solution, a certification system that sets the standards according to the area where the company is located could be a solution, and Sustainability should be measured depending on the characteristics of the community without forgetting the social, environmental and economic components. For Egypt we recommend the following

- Putting strategies to reach a better country sustainable development.
- Financing the strategies through several resource instruments.
- Applying policies and regulations to reduce bad environments habits.
- Applying the concept of resource mobilization
- Public awareness of sustainable development and its benefits.
- Applying renewable energy strategy through solar hot water technologies, wind energy system.
- Applying Waste recycle and reuse programs
- Create places which are environmentally and socially attractive to develop a better urban economy.

Limitations of this study

This study was limited to just one country as a developing country, future studies would be ideal to major sustainable urban development in more than developing country

This study concentrated on sustainable urban development in general, further studies recommend it to focus on specific process of sustainable development which can generate a more reliable response.

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Does increase in the depreciation expensing allowance spur economic growth? Evidence from USA

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Keywords
Tax Code, Section 179, Depreciation, Economic Growth.

Abstract

Despite substantial evidence that economic growth is influenced by taxation, the impact of Section 179 on GDP is unclear. Section 179 of the Internal Revenue Code enacted in 1958 has operated for several decades in the United States. In addition, in late 2010, two congressional acts affecting Section 179 have been passed, i.e. The Tax Relief Act of 2010 and The Small Business Jobs Act of 2010. The essence of these adoptions is to provide incentives for corporate as well as individual taxpayers. However, there are concerns as to the degree of economic growth these adoptions will provide. This research is therefore focused on showing the correlation between these Section 179 deductions, depreciation and economic growth as the Section 179 figures are debated and changed annually. The study suggests that annual increments of capital depreciation deductions will aid corporate growth as well as other variables that affect economic growth in the United States. However, the benefits for small business are lower than for corporations.

1. Introduction

Despite substantial evidence that economic growth is influenced by taxation (Sinn 1981, Baierla et al 1998, Pomerleau 2013), the U.S. Congress and Internal Revenue Service long struggled to determine the proper role of depreciation (Treasury Department study 1989). Since 2002, the two allowances under Internal Revenue Code Section 179 have been used primarily as tax incentives for stimulating the U.S. economy. There is a larger number of articles examining the economic consequence of incomplete deprecation allowance (Sinn 1981, Bartlett 2013, Hoffelder 2013). A new study of tax treatment of capital assets (depreciation expensing allowance and bonus allowance) explains that depreciation, a common accounting method used to calculate the cost of equipment and machinery in financial statements, understates the cost of the assets being acquired and results in a tax system that reduces capital—meaning it hurts the economy (Hoffelder 2013). Available evidence also suggests that the expensing allowances may have a minor effect at best on the level and composition of business investment and its allocation among industries, the distribution of the federal tax burden among different income groups, and the cost of tax compliance for smaller firms (Guenther 2015).

Though it seems that no attempt has been made to address the economic effects of the enhanced Section 179 allowances that were available from 2003 to 2014, several studies have examined the economic effects of the 30% and 50% bonus depreciation allowances from 2002 to 2004 (Cohen and Cummins 2006, House and Shapiro 2006, Knittel 2007). Their findings indicated that accelerated depreciation is a relatively ineffective tool for stimulating the overall economy during periods of weak or negative growth. One caveat is that the authors are not able to generalize findings to a long-term cycle present in capitalist economies that represents long-term, high-growth and low-growth economic periods. However, their findings focus on overall economic effects on investment, not to what extent the depreciation allowances can benefit corporate and individual taxpayers. This lack is the stimulus for the present paper.

The mixed, and perhaps counter-intuitive, empirical results could be an artifact of the empirical approach that overshadows previous studies. This research is therefore focused on showing the correlation between Section 179 deductions, depreciation and economic growth as the figures are debated upon and changed annually. Our finding suggests that annual increments of capital depreciation deductions will aid corporate growth as well as other variables that affect economic growth in the United States. However, the benefits for small business are higher than for corporations because of tax expenditure availability such as foreign income tax credit to multinationals.

This paper contributes to the stream of economic growth literature in following ways: It address time-series data from economic periods including high-growth and low-growth economic periods; the paper is not testing for the causality, but the correlation using data from 2000-2013. The remainder of the paper is organized as follows. Section 2 provides a literature review and legislative history of the expensing allowances. Section 3 describes research methodology and data source. Section 4 presents the results, while Section 5 concludes.

2. A Brief Survey of Literature and Legislative History

Literature Review on Economic Growth

One of the central questions of economics is economic growth. Per Wiki, economic growth is the increase of per capita gross domestic product (GDP) or other measures of aggregate income, typically reported as the annual rate of change in real GDP. Two different approaches are used to calculate GDP. In theory, the amount spent for goods and services should be equal to the income paid to produce the goods and services, and other costs associated with those goods and services. Calculating GDP by adding up expenditures is called the expenditure approach, and computing GDP by examining income for resources is known as the resource cost/income approach. So with the resource cost/income approach, GDP is calculated as wages, rent, interest and cash flow paid to business owners or organizers of production.

Prior study reveals various theories on economic growth, i.e., classical growth theory, neoclassical growth model, endogenous growth theory, unified growth theory, the big push, creative destruction and economic growth, useful work growth theory (Solow 1956, Swan 1956, Barro 1998, Levine 1998, Helpman 2004, Galor 2005, Ayres and Warr 2006). Barro (1998) supports the general notion of conditional convergence based on empirical findings for a panel of around 100 countries from 1960 to 1990 strongly. His paper suggests for a given starting level of real per capita GDP, the growth rate is enhanced by higher initial schooling and life expectancy, lower fertility, lower government consumption, better maintenance of the rule of law, lower inflation, and improvements in the terms of trade. Ayres and Warr (2006) identified common trends and structural changes in their book entitled Economic Growth, Technological Progress and Energy Use in The Last Century. The discussion touches on impact of annual depreciation of Section 179 on economic growth. The book imperatively argued that a consistent increase in Section 179 on annual basis will impact economic growth since it may result to growth in business investment. Galor (2005) from stagnation to Growth Unified Growth Theory emphasized on capital depreciation as a fool that will aid investors in swimming during tough economic times. He stated that capital depreciation may be significant to growth of the economy or businesses as well as private investments. In Swan Trevor's Economic growth and Capital accommodation (1956, page 334-61), he mentioned on the growth impact of bonus depreciation on businesses and individual investors. Significant impacts are mentioned but no concrete observation on specific periods. Solow (1956) made an argument about the assumptions underlying the Harrod-Domar model of economic growth in his 1956 paper. This core assumption of the Harrod-Domar model is that of fixed proportions in production. "There is no

possibility of substituting labor for capital in production" (Solow 1956, page 65). This assumption leads to Solow models of growth. McCallum, Bennett T. (1996)'s paper emphasizes that the neoclassical approach fails to provide any explanation of steady-state growth in per capita values of output and consumption, and also cannot plausibly explain actual growth differences by reference to transitional episodes. He presented and discussed three types of endogenous growth models, which attempt to provide explanations of ongoing per-capita growth. The likelihood of strictly justifying steady-state growth with these models is very small, since it would require highly special parameter values, but the models' predictions may be reasonably accurate nevertheless.

Taking survey of Neo-Classical Growth Theory and Endogenous Growth Theory, we can find following major differences: 1) Exogenous Models (Neo-classical) consider external factors to predict the economic growth. Similarly, Endogenous Model considers internal factors to predict and analyses the economic growth. 2) The Solow Model identifies the capital level per worker and the effectiveness of labor both as the ability to create permanent growth in the per capita stock per labor of the economy. While, AK Model (Endogenous) simply states that the factors of effective human capital i.e. the level of knowledge and specialization available and utilized can be determined and improved within the economy without any need to bring the technological progress. 3) The Solow Growth Model predicts only conditional convergence. However, under AK Model, it suggested that there will be no "Convergence Dynamics" towards steady state level of output or it could be slower than what Solow predicted about state of convergence in its model.

Legislative History of the Expensing Allowances

Since 1958, Section 179 of the Internal Revenue Code gives firms in all lines of business and all sizes the option, within certain limits, of expensing part or all of the cost of new and used qualified property they acquire in the year when the assets are placed in service. Business taxpayers that cannot (or choose not to) claim the allowance may recover capital costs over longer periods and at slower rates by claiming the appropriate depreciation deductions under the Modified Accelerated Cost Recovery System (MACRS) or Alternative Depreciation System (ADS). The lack of consistency on the Section 179 deduction allowance limit has raised some questions as to the incremental rationale or rationale in the decreases. Oppositions to this act centers on the rationale that achievement of the act does not justify the expenditure. Advocates of this act believe strongly that the total effect on the economy more than justifies the expenditure. The non-consensus beliefs of lawmakers on the usefulness of act have resulted in the fluctuations in the annual allowable depreciation over a few year period chosen.

Historically the Section 179 of 1958 allows businesses to completely deduct part of the cost of tangible properties in the year of purchase. However, if a business property had a life more than one year, the cost had to be deducted several years through depreciation.

Congress in addition passed the law for additional first year depreciations, and changed to bonus depreciation in the late years. The intention of course is to provide incentive for businesses and private investors with an aim of triggering economic growth. In 2003 under the job growth and Reconciliation Act, the Internal Revenue Code was expanded to benefit businesses especially small businesses. For example, the one-year deduction amount was increased from $25,000 to $100,000. The $100,000 was to be adjusted for inflation each year. In 2008 the Section 179 expensing amount increased to $250,000 in addition to 50% first year bonus depreciation. Both laws were expended to 2009 under the American Recovery and Reinvestment Act (ARRA).

Properties that qualified for Section 179 bonus depreciation must be tangible personal property actively used in taxpayer's trade or business and for which a depreciation deduction

would be allowed. For Section 179, the acquired property may be new or used, however, for the bonus depreciation, the property must be new.

The allowances have advantages and disadvantages. On the one hand, congress argues that an expensing allowance simplifies tax accounting, and a temporary allowance has the potential to stimulate increased small business investment in favored assets in the short run by reducing the user cost of capital and increasing the cash flow of investing firms. On the other hand, depending on its design, an expensing allowance may interfere with the efficient allocation of capital among investment opportunities by diverting capital away from more productive uses.

3. Methodology

According to abovementioned resource cost/income approach to calculate GDP, GDP = wages + self-employment income + Rent + Interest + profits + indirect business taxes + depreciation + net income of foreigners. Based on this equation, we predict there is positive association between GDP and depreciation including Section 179 deductions, which leads to our main research hypotheses:

H1: GDP is positively associated with Section 179 deductions; and H2: GDP is more positively associated with Section 179 deductions than depreciation expensing allowance.

The paper is testing for the correlation using time-series data from the Internal Revenue Service and U.S. Bureau of Economic Analysis (BEA). The sample years are 2000- 2013, which is publicly available for both sources. To test impact to different tax payers, we distinguish the depreciation expensing allowance claimed by corporations and small business (sole proprietorship) in our data analysis section.

BEA is source of US economic statistics including GDP and growth rate. Corporation Depreciation Data is provided by NAICS industrial sector the numbers of returns claiming depreciation and the respective amounts from nearly all lines on the front page of the IRS Form 4562, "Depreciation and Amortization". The data exclude amounts reported on Forms 1120-S, 1120-REIT, and 1120-RIC. The Sole Proprietorship data include business receipts, deductions, and net income reported by an individual taxpayer on Schedule C of Form 1040. The information is for nonfarm sole proprietorships and is broken down by industrial groups for analysis of the data. Since the data presented here are estimates based on a sample of returns filed, they are subject to sampling error.

4. Data Analysis

Analytical Model

Since investment is generally viewed as a function of the cost of capital, a higher Section 179 deduction allowance limit should reduce the cost of capital and increase investment, subsequently increasing employment due to higher levels of production, which leads a higher economic growth in the following year. It supports the research hypothesis that GDP in year t+1 is positively associated with depreciation expensing allowance claimed in year t. The study uses logarithmic functional forms in distributed lag models to test this hypothesis. The basic form of our regression models includes unknown parameters (β), independent variables (X), and the dependent variable (Y). So $Y \approx f(X, \beta)$, it leads our analytical model as below:

$$y_{t+1} = \beta_0 + \beta_1 x_{1,t} + \beta_2 x_{2,t} + \beta_3 x_{3,t} + u_t$$

Where Y is economic growth measured by the natural logarithm of GDP, X is the natural logarithm of depreciation expensing allowances. X_1 is defined as Section 179 deductions claimed by corporate taxpayers, X_2 is defined as depreciation deduction claimed by individual taxpayers (their business form is proprietorship and hereinafter referred to as small business), X_3 is total

depreciation deductions claimed by corporate taxpayers. We predict all slope estimates be positive.

Descriptive Statistics

Table 1 presents descriptive statistics for our regression model. Our sample shows corporate taxpayers claimed more deprecation expensing allowances (mean 20.1864, median 22.2286) than small business (mean 17.4628, median 17.4354). Corporate taxpayers' depreciations consist primarily of Section 179 deductions (mean 15.8447, median 15.9896). This translates into average value (median value) of Section 179 deductions of $8 ($8.79) billion, untabulated, claimed by the corporations and indicates that Section 179 deductions significantly reduce the cost of corporate capital. In untabulated Person correlations among our test variables, X1 is positively correlated with X2 (.4884). Other correlations among the remainder of the variables are small and negative, thereby mitigating possible multicollinearity concerns.

	Y	*X1*	*X2*	*X3*
Mean	23.3374	15.8447	17.4628	20.1864
Median	23.3918	15.9896	17.4354	20.2286
Standard Deviation	0.1466	0.35106	0.09385	0.13218
Range	0.45029	1.09426	0.29297	0.49167
Minimum	23.0862	15.194	17.3066	19.9471
Maximum	23.5365	16.2883	17.5996	20.4388

Table 1 Descriptive Statistics of Regression Model

Regression Results

Table 2 provides the regressions results for testing H1. Model 1 consists of all three test variables. Model 2 tests H2 with only two variables. Both models have strong F-statistic values (22.28, p<.01; 25.47. p<.01), which suggests a significant model. Two models are well fitted with high adjusted R square values (.84 and .80). In Model 1, we observe the significant positive relationship predicted by hypothesis between GDP and Section 179 deductions. In addition, the positive and marginal significant coefficient on X3 (.24, p< 0.10) are recorded. Together, our regression documents positive correlation between GDP and Section 179 deductions, which supports H1. Surprisingly, the negative and marginal significant coefficient on X2 (-.39, p< 0.10) are also documented. One possible interpretation can be that depreciation offsets self-employment income of small business, which reduces GDP according to abovementioned resource cost/income approach to calculate GDP.

Variables	Prediction	Model 1	Prob.	Model 2	Prob.
X1, Sec.179	+	0.43	***	0.43	***
		(7.75)		(6.95)	
X2, Small Business	+	-0.39	*	-0.45	*
		(-1.89)		(-1.98)	
X3, Corporate	+	0.24	*		
		(1.86)			
Constant		18.62	***	24.51	***
		(4.10)		(6.75)	
R Square		0.88		0.84	
Adj. R Square		0.84		0.80	
F-statistic		22.28	***	25.47	***
AIC		-44.60		-47.29	
DW Statistic		2.00		1.88	

*, **, *** Robust t-statistics in parentheses denote statistical significance at p <0.10, p < 0.05, and p < 0.01, respectively, at the one-tailed level for variables with predictions, and two-tailed otherwise. Variables are defined in Section 4, Data Analysis

Table 2 Regression Results

Model 2 presents same pattern as Model 1. As predicted, Section 179 is significant at positive sign. It supports H 2. Meanwhile, the deprecation claimed by small business is negative and marginal significant. While the Section 179 expensing allowance is not targeted at self-

employed people, the limits on its use effectively confine its benefits to small business owned by self-employed people.

Robust Tests

Akaike information criterion (AIC) is a measure of the relative quality of statistical models for a given set of data. Given a collection of models for the data, AIC estimates the quality of each model, relative to each of the other models. Hence, AIC provides a means for model selection. The AIC info is also provided under each regression model. The Bayesian information criterion (BIC) or Schwarz criterion is a criterion for model selection among a finite set of models; the model with the lowest BIC is preferred. It is based, in part, on the likelihood function and it is closely related to AIC. However, our AIC and BIC, untabulated, agree on the preferred model. Because the use of BIC seems justifiable for model screening in large-sample Bayesian analyses, we do not report this value for our models based on the size of n and relative magnitude of n and k. ΔAIC is 2.7, meaning positive strength of the evidence against Model 1 with the bigger AIC value. However, the higher R square and goodness of fit of the model describes how well the first model fits the set of observations. Further, F-statistic presents a significant fit of the model at level of 5 percent.

To check the collinearity in both Models, we calculate variance inflation factor (VIF). Model 1 has a range from 1.03 to 1.34. Model 2 has equivalent VIFs of 1.31. Multicollinearity is not a problem while interpreting our results. The Durbin–Watson statistic is less than 2, indicating no autocorrelation in the residuals from a regression analysis.

5. Discussion and Summary

The Protecting Americans from Tax Hikes Act of 2015 was passed by both the U.S. House and Senate and signed into law on December 18, 2015. This bill expanded the Section 179 deduction limit to $500,000 in 2016. This study documents evidence that higher Section 179 deductions, higher GDP. However, our findings do not support congress on its potential to stimulate increased small business investment in favored assets in the short run by reducing the user cost of capital and increasing the cash flow of investing firms. Both regression models present same pattern on coefficients. As predicted, we observe the significant positive relationship between GDP and Section 179 deductions. Regression results also suggest that GDP is more positively associated with Section 179 deductions than depreciation expensing allowance. But the deprecation claimed by small business is negative and marginal significant. This could be interpreted as offsetting effects of depreciation on self-employment income of small business, which reduces GDP according to abovementioned resource cost/income approach to calculate GDP. One possible explanation is while the Section 179 expensing allowance is not targeted at self-employed people, the limits on its use effectively confine its benefits to small business owned by self-employed people.

This study therefore suggests that annual increments of capital depreciation deductions will aid corporate growth as well as other variables that affect economic growth in the United States. Since investment is generally viewed as a function of the cost of capital, a higher Section 179 deduction allowance limit should reduce the cost of capital and increase investment, subsequently increasing GDP due to higher levels of production. However, the benefits for small business (individual taxpayers such as sole proprietorship) are less than for corporations.

A caveat for this study is that a strong correlation between two factors does not necessarily mean that one is a main cause of the other. In this case, a plausible explanation for the correlation may be that firms with relatively low cost of capital invest more, on average, than firms with relatively high cost of capital for reasons that have little or nothing to do with the cash flows. Further, our regression results are based on limited sample years. Though our

sample consists high-growth and low-growth economic periods, generalizing our findings to a long-term cycle is subject to examination. We recognize that other factors may affect economic growth and the relationship between cash flow and business investment is complicated, additional research is needed to shed more light on it.

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How does learning orientation generate product innovativeness and superior firm performance?

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Product Innovativeness, Learning Orientation, Performance, Turkey

Abstract

This paper attempts to shed light on the role of learning orientations of firms on two dependent variables: product innovativeness and firm performance. Hierarchical regressions were run with data from a random sample of 121 firms operating in Turkey. Findings indicate that internally-focused learning and market-focused learning have significant effects on product innovativeness. When firm performance is included as the eventual outcome variable into the analysis, internally-focused learning and product innovativeness emerge as its main predictors. In fast-paced, highly unpredictable market environments, managers can make use of these findings to their benefit in terms of elevating their firms' innovativeness and performance levels.

1. Introduction

The 21st century has established itself to be an era of uncertainty, heightened competition, complex environmental dynamics and constant change which leaves firms with the sole option of innovativeness (Hult et al., 2004; Wang and Ahmed, 2004; Blumentritt and Danis, 2006; Hsu, 2007; Lin et al., 2008; Man and Wafa, 2009; Rhee et al., 2010; Dulger et al., 2014). Hence, firms should extend ways to learn more about their customers, stakeholders, competitors and the marketplace if they are to survive by higher levels of innovativeness. Moreover, these activities must take the center stage where elevating levels of innovativeness will boost firm performance. Thus, this study seeks to discover the relationships of learning orientation, firm performance and the role of product innovativeness as a full or partial mediator.

On top of this, as an underrated country in emerging market research, Turkey actually provides a unique setting by being the 18th biggest economy of the world with its GDP of over 798 billion dollars (World Bank, 2016). Also, it is the first and only country that entered Customs Union of the European Union (EU) in 1996 without becoming a full member. Therefore, fierce competition from developed and emerging markets comes in. Currently, firms face the need to become innovative for overcoming the defects in the domestic marketplace whilst addressing the competition and customer needs. Dynamic ways to compete appeared whereas lags occurred in other aspects and consequently, we find the responses of Turkish firms noteworthy. A comprehensive model tests a representative sample of domestic and multinational business to consumer (B2C) firms.

2. Model Development

a) Conceptual Model

Research on innovativeness/innovations in developed markets tends to focus on R&D while our model is based on firm-level activities. For emerging economies, Pietrobelli and

Rebellotti (2011) underline three points to consider in drawing conclusions about innovation activities: First, most innovation is based on non-R&D activities which consist of operationalizing technology that is new to the situation of application (Bell, 2007); second, universities, R&D laboratories and/or research institutes may be inadequate and linkages among them and with local firms may be weak or nonexistent; third, especially international inflows of knowledge and technology from external sources are vital factors of the innovation and learning processes.

As this conceptual model aims to find out about how firms manage to learn about and adapt to the free market conditions and competition, we emphasize the multidimensionality of the constructs. Adhering to Wang and Ahmed's (2004) research, product innovativeness will be employed as the propeller of organizational performance along with three dimensions of organizational learning (Weerawardena et al., 2006). The model in Figure 1 proposes that product innovativeness may influence firm performance through various learning orientations.

The general research question is whether organizational learning dimensions are predictors of product innovativeness and ultimately firm performance. In particular, the sequence of effects from organizational learning to innovativeness and firm performance are well-established in prior research In addition, due to lack of prior evidence, whether the mediating role of product innovativeness is full or partial and how this role differs across dimensions of learning orientation remains as another exploratory question. Further, we investigate the effects of organizational age, industry, organizational size, and export income as control variables.

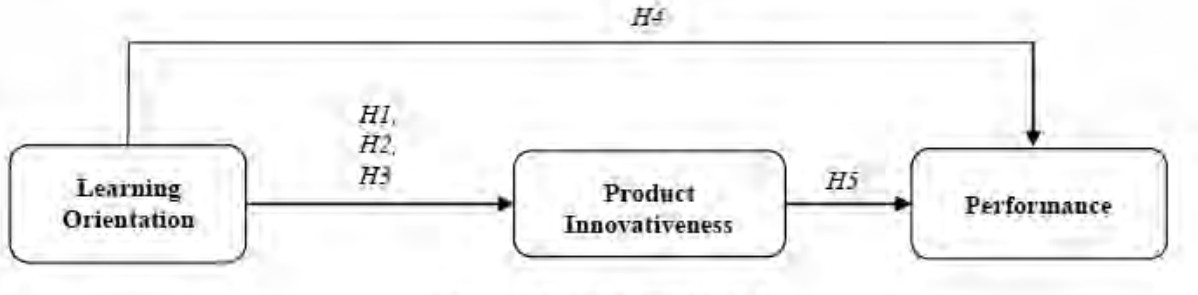

Figure 1: Conceptual Model

b) Turkey as an Emerging Market

To establish the macro setting, we provide common features of emerging markets with respect to Turkey. Such markets supply valuable case studies and natural laboratories in the context of global integration (Danis et al., 2010). Emerging markets are characterized by low-income, rapid-growth and having economic liberalization as the key driver for development (Hoskisson et al., 2000). Competition is promoted domestically, supporting local firms to cultivate international levels of competitiveness (Aulakh and Kotabe, 2008). The early years of transition are characterized by economic decline, social upheaval and political uncertainty resulting in a highly ambiguous environment (Danis et al., 2010) while the competitive landscape stabilizes as ongoing economic and institutional reforms take hold (Warner and Cornelius, 2002). Emerging markets have different ways of processing market information and thus, the resulting strategies quite different than the ones in mature economies (Bruton et al., 2007: 118). In addition, the efficacy of organizational processes may be contingent upon the economic context in which firms compete (Li et al., 2010: 64).

The Turkish the market was liberalized in 1984 but it struggled with high inflation, coalition governments, instable economy and corruption. However, since 2003, the one-party government generated stability and forseeability through sustainable reforms: GDP increased from 232 billion dollars in 2002 to over 798 billion dollars in 2014, inflation fell from 45% in 2002

to 8.3% in 2014 and total reserves increased to over 127 billion dollars in 2014 from 28 billion dollars in 2002 (World Bank, 2016, not updated for 2015 yet).

c) Hypotheses

i. **Innovativeness and learning orientation**

Even if a particular organization has room for innovative ideas to flourish, generating tangible innovations might take a long time, there might be resistance or managers might lack adequate interest. Hence, as a construct, we chose innovativeness and we are interested in how it is affected under diminished market stability and predictability as these may jeopardize the ultimate realization of innovations.

Academic research usually approaches innovativeness as a measure of the degree of "newness" of an innovation (Garcia and Calantone, 2002). As innovativeness requires new information and knowledge so that new ideas can flourish, the aptitude to learn more rapidly than competitors may be the only sustainable competitive advantage in volatile environments (Slater and Narver, 1995). Hence, the learning orientations of firms emerge as an area of interest. Rhee et al. (2010) define learning orientation as the adoption of a basic learning process. Besides, the association between innovativeness with learning orientation is verified by numerous researchers (Baker and Sinkula, 1999, 2002; Calantone et al., 2002; Hult et al., 2004; Lin et al., 2008; Rhee et al., 2010; Dulger et al., 2014).

Wang and Ahmed (2004) identify five main areas that establish an organization's overall level of innovativeness which are product, market, process, behavioral and strategic innovativeness: Product innovativeness emphasizes the novelty and meaningfulness of products while market innovativeness points out to the originality of approaches that firms adopt to penetrate and take advantage of their targeted markets. Process innovativeness captures the introduction of new production methods, management approaches and technology to advance production and management processes. Behavioral innovativeness aids the configuration of an innovative culture. Lastly, strategic innovation is the aptitude to manage ambitious organizational purposes and existing resources so that it is able to leverage limited resources productively. For the purposes of this particular paper, we will only deal with product innovativeness.

Weerawardena et al. (2006) identify three types of learning orientations: market focused learning, relationally focused learning and internally-focused learning. They describe market focused learning as the capacity of the firm to acquire, disseminate, unlearn and use market information for organizational change. Such activities are beneficial in the speed and effectiveness of responses to environmental opportunities and threats. Thus, to realize higher levels of product innovativeness, firms need to relentlessly scan, evaluate, reflect on and learn about their environments:

> H1: Higher levels of market-focused learning will generate higher product innovativeness.

Internally focused learning is the capacity and extent a firm develops knowledge through internal sources (Weerawardena et al., 2006). It includes learning by practice, tentative learning along with in-house R&D and is crucial for attaining new knowledge. So, we propose that technical knowledge is a noteworthy source in stimulating novel and superior ideas:

> H2: Higher levels of internally-focused learning will generate higher product innovativeness.

Firms also learn from other firms and external research institutions, such as universities and industry associations and the capacity and extent an organization acquires knowledge through external linkages or networks describe relationally focused learning (Weerawardena et

al., 2006). Consequently, we posit that for prompting novel ideas, firms need to have relations that provide quality knowledge:

H3: Higher levels of relationally-focused learning will generate higher product innovativeness.

ii. Effects on Performance

As for the relationship between learning orientation and organizational performance, the literature provides academic evidence (Baker and Sinkula, 1999; Lei et al. 1999; Calantone et al., 2002; Hanvanich et al., 2006; Frank et al., 2012; Dulger et al., 2014). Organizational learning is priceless in terms of providing better insight about customers and efficiently meeting their requirements and needs through new products, services and ways of doing business (Slater and Narver, 1995). Firms that learn about customers, competitors and regulators have superior odds of perceiving and acting upon incidents and tendencies in the market and this leads directly to greater new product success, superior customer retention, higher customer-defined quality, and, ultimately superior growth and/or profitability (López et al., 2005). We consequently suggest that:

H4: Higher levels of (a) market focused learning; (b) internally focused learning and (c) relationally focused learning will generate greater organizational performance.

Finally, we observed that recent research has revealed that product innovativeness is associated with business performance (Cooper, 2000; Calantone et al., 2002, Hult et al., 2004; Dulger et al., 2014). Hult et al. (2004) assert that, to respond to the turbulent milieu, it is vital to fuel innovativeness, which is critical for achieving high performance. Thus, we propose that:

H5: Higher levels of product innovativeness will generate greater organizational performance.

3. Method

a) Sample and Data Collection

The sampling enclosed available membership lists of chambers of commerce of major trading cities in Turkey such as İstanbul, İzmir, Ankara, Kocaeli, and Adana. Executives of 700 randomly chosen firms were contacted via telephone and/or e-mail, and as a result and 121 B2C firms agreed to participate in the study. One respondent from each firm answered structured questionnaires through face-to-face interviews.

Respondents were on average 40.5 years old with a standard deviation of 9.8 and have an average organizational tenure of 9.1 years with a standard deviation of 7.3. Eighty seven percent of the respondents are male, 9.1 percent are primary, middle school and high school graduates, 52.1 percent hold university undergraduate degrees, and 38.8 percent hold post-graduate degrees. Ninety one percent of the respondents are middle and top managers, while 8.2 percent are specialists, experts, and consultants. The firms are from a wide variety of industries, including textiles and clothing, financial services, consumer durables, construction services, tourism, food and other FMCG, logistics, transport and warehousing, automotive, and other services and manufacturing firms. Overall, 51.3 percent of the firms are in manufacturing and 48.7 percent are in services industries. Firm ages range from 2 to 221 years with a mean of 24.5 years and a standard deviation of 24.4 years. Firm size ranges from 16 to 174,000 employees with a mean of 2706.2 and a standard deviation of 16209.2. Forty nine percent of the firms do not have any export income, 42 percent retain up to 50 percent of their income from exports and 9 percent retain 51 to 100 percent of their income from exports.

b) Measures

The questionnaire was constructed using the measures that are explained in the next paragraph. Each measure has multiple-items with 5-point summated rating scales with anchors of 1 being strongly disagree and 5 being strongly agree, except for firm and respondent demographics. For each construct, we ran exploratory factor analyses with varimax rotation and averaged the mean scores of each dimension separately.

To measure product innovativeness, Wang and Ahmed's (2004) 29-item scale has 10 items. However, 5 of them had to be eliminated due to bad loadings in conducting a varimax rotation with an exploratory factor analysis. The reliability estimate for this construct is 0.86 which is above the threshold levels suggested by Nunnally (1978). Market-focused learning (α=0.76) was measured via the 8-item scale developed by Weerawardena (2003), internally-focused learning (α=0.92) was measured via an 8-item scale of an adapted version of measures developed by Atuahene-Gima (1993) and relationally-focused learning (α=0.66) was measured via 8-items developed by Cohen and Levinthal (1990) and Rothwell (1992). To measure firm performance (α=0.70), respondents were asked to indicate their firms' level of performance for the last 3 years of operations on return on investment, market share, and total sales growth (e.g., Baker and Sinkula, 2009). We also included a judgmental assessment of overall performance as in the study of Jaworski and Kohli (1993). All four performance items use five-point scales with anchors 1 being much worse than competition and 5 being much better than competition. The rationale for using a three-year performance is that changing market conditions, developments in technology and crises may easily lead firms to make sure they achieve short term goals.

4. Results

The descriptive statistics and the bivariate correlations across the constructs are exhibited in Table 2 to provide a general depiction of the relationships of interest.

Pearson Correlation	Mean	SD	1	2	3	4
Performance Indicators (1)	3,8854	,57604				
Internally-Focused Learning (2)	3,7485	,91492	0,466**			
Market-Focused Learning (3)	4,3416	,56020	0,346**	0,498**		
Relationally-Focused Learning (4)	3,9215	,60038	0,257**	0,417**	0,355**	
Product Innovativeness (5)	3,5233	,87895	0,494*	0,478**	0,413**	0,245**
**p<0.01						

Table 1: Pearson Correlation Results

To test the hypotheses, we employed 2 hierarchic regression models so that we could see each construct's contribution to each model one by one. Specifically, we entered the control variables as the first set of independents, followed by learning orientation dimensions. Product innovativeness was the dependent variable for the first three regression analyses to test H1 – H3. We ran the second regression analysis where firm performance was the dependent variable to test H4 and H5. The outcomes of these analyses are depicted in Table 2 and 3.

Firstly, learning orientation dimensions were analyzed as predictors of product innovativeness. As Table 2 exhibits, the control variables explain only 2 percent of the variability in product innovativeness, which is statistically non-significant ($F_{(4;109)}$ = .0,545). With the addition of learning orientation dimensions, the explained variance explained increases in a statistically and substantively significant sense (ΔR^2 = .257; $\Delta F_{(7;106)}$ = 12,538; p < .01).

	Model 1			Model 2		
	Regression Coeff.	Std. Error	Std. Coeff.	Regression Coeff.	Std. Error	Std. Coeff.
Control Variables						
Organizational Age	0,001	0,004	0,023	0,001	0,003	0,040
Industry	0,176	0,186	0,101	-0,096	0,169	-0,055
Organizational Size	0,000	0,000	0,051	0,000	0,000	0,015
Export Income	-0,002	0,004	-0,068	-0,001	0,003	-0,041
Independent Variables						
Learning Orientation Dimensions						
Internally-focused Learning				0,362	0,101	0,377***
Market-focused Learning				0,241	0,156	0,217**
Relationally-focused Learning				0,036	0,142	0,029
Model Summary						
Adjusted R Square	-0,016			0,229		
R Square	0,020			0,276		
Δ in R Square	0,020			0,257		
F for Δ in R Square	0,545			13,338***		
F for ANOVA	0,545			5,784***		
*p < 0.10 **p < 0.05 *** p < 0.01						

Table 2: Regression Results for Product Innovativeness

Note: Provided in the Table are the results of two sequential regression runs. Model 1 regresses Product Innovativeness against the control variables only, and the following model includes learning orientation dimensions after control variables hierarchically.

As for the individual effects of learning orientation dimensions (Table 2, Model 2), internally-focused learning (β_i = .377; p < .01) followed by market-focused learning (β_i = .217; p < .05) exert the highest positive impact on product innovativeness. This denotes that an increase in internally-focused and market-focused learning will reflect itself in amplified product innovativeness.

Finally, in the second model, learning orientation dimensions and product innovativeness were analyzed as predictors of ultimate firm performance. As Table 3 depicts, the control variables explain only 5.3 percent of the variability in firm performance, which is not statistically significant ($F_{(4;109)}$ = 1,516). In this analysis, only industry significantly affects firm performance, pointing out that, firm performance is better in service firms than in production firms. After the addition of learning orientation dimensions into the analysis in the second model, the proportion of variance explained increases in a statistically and substantively significant sense (ΔR^2 = .210; $\Delta F_{(7;106)}$ = 5,402; p < .01). After the inclusion of product innovativeness, the incremental variance explained is significant (ΔR^2 = .078; $\Delta F_{(8;105)}$ = 6,781; p < .01).

	Model 1			Model 2			Model 3		
	Regression Coeff.	Std. Error	Std. Coeff.	Regression Coeff.	Std. Error	Std. Coeff.	Regression Coeff.	Std. Error	Std. Coeff.
Control Variables									
Organizational Age	0,003	0,002	0,110	0,003	0,002	0,136	0,003	0,002	0,122
Industry	0,221	0,120	0,193*	0,066	0,112	0,057	0,086	0,106	0,075
Organizational Size	0,000	0,000	0,031	0,000	0,000	-0,014	0,000	0,000	-0,020
Export Income	-0,003	0,002	-0,121	-0,003	0,002	-0,111	-0,002	0,002	-0,097
Independent Variables									
Learning Orientation Dimensions									
Internally-focused Learning				0,233	0,067	0,370***	0,155	0,067	0,247**
Market-focused Learning				0,113	0,103	0,110	0,040	0,100	0,039
Relationally-focused Learning				0,081	0,094	0,065	0,073	0,089	0,077
Innovativeness									
Product Innovativeness							0,215	0,061	0,328***
Model Summary									
Adjusted R Square	0,018			0,214			0,290		
R Square	0,053			0,263			0,341		
Δ in R Square	0,053			0,210			0,078		
F for Δ in R Square	1,516			10,078***			17,374***		
F for ANOVA	1,516			5,402***			6,781***		
*p < 0.10 **p < 0.05 *** p < 0.01									

Table 3: Regression Results for Firm Performance

Note: Provided in the Table are the results of three sequential regression runs. Model 1 regresses Firm Performance against the control variables only, and the following models include learning orientation dimensions and product innovativeness one after the other hierarchically.

Concerning the individual effects of learning orientation on firm performance (Table 3, Model 2), internally-focused learning (β_i = .370; p < .01) has a positive impact on performance. In the subsequent analysis including product innovativeness (Table 3, Model 3), only internally-focused learning (β_i = .247; p < .05) is positively related to firm performance. Lastly, product innovativeness (β_i = .328; p < .01) has a significant effect on firm performance such that higher levels of product innovativeness leads to higher firm performance.

Organizational innovativeness emerges as a partial mediator between learning orientation and performance. The internally-focused learning dimension's standardized regression coefficient decreases (from β_i = .370; p < .01 to β_i = .247; p < .05) when we introduced product innovativeness into the analysis (Table 4, Model 3).

In summary, H1 is supported, since market-focused learning is significant for product innovativeness. For H2, the results indicate full support as the proposed relationship is true for product innovativeness as well. H3 is not supported since relationally-focused learning does not have a significant effect on product innovativeness. H4 is partially supported because only internally-focused learning has a significant relationship with firm performance whereas market-focused and relationally-focused learning do not affect firm performance significantly. Lastly, H5 is supported since product innovativeness turns out to be a significant factor for performance. Thus, the results indicate significant values for the majority of the proposed relationships. In particular, the significant relationships are between (a) market-focused learning and internally-focused learning with product innovativeness and (b) internally-focused learning and product innovativeness with performance.

5. Discussion and Implications

As this study is conducted in an ambiguous environment where firms are less familiar to learning as an integral part of business life and indigenous innovation, we believe the outcomes are rather noteworthy. When product innovativeness is considered, the results indicate a positive relationship only with market-focused learning and internally-focused learning. Also, internally-focused learning seems to have a higher impact on product innovativeness when compared with market-focused learning with respect to their standardized regression coefficients. Seeing support for H1 and H2, but no support for H3, we submit the subsequent justifications: New product development requires both market knowledge and information generated from R&D activities to assess the real-life applicability of and the potential demand for the idea. Obviously, relationally-focused learning activities are always useful for new product development; nevertheless, it takes time to establish and nourish new relationships and/or evaluate whether such liaisons are healthy and trustworthy. Also, relationally-focused learning is actually very new for the Turkish market; as they have become a part of business practices around the 1990s. Conversely, even when the economy was a closed one, there were a few firms in the domestic market since the 1950s. Although their activities and supply capacity were limited, some of these firms were acquainted with taking an inquisitive attitude towards their competitors since then. Thus, firms are more accustomed to market-focused learning at an earlier date when compared to relationally-focused learning. Another reason why relationally-focused learning has not emerged as a significant relationship in this analysis, or why H3 is not supported, might be either because the firms have not yet formed external relationships or their existing relations have little to offer in terms of new product development. Also, the firms might be inexperienced or at the early stages of external relationship-building which verifies the perspectives of Bell (2007) and Pietrobelli and Rabellotti (2011). Still, this model verifies firms are now advancing their competitive practices by trying to extract learning opportunities to compete more efficiently.

Lastly, as for firm performance, internally-focused learning and product innovativeness have significant relationships. About this outcome and partial support for H4 and support for H5, we provide the following reasons: It is apparent that firms seem to perform better with different and innovative goods/services. From this point of view, it is only plausible for the firms to secure continuous inflow of customers by product innovativeness which is created via intensifying internal R&D activities.

To sum up, the Turkish market, as a typical representation of emerging markets, seems to have conquered basic obstacles towards economic stability as exhibited in World Bank figures in today's highly competitive and dynamic business milieu. The findings depict that the firms have started to appreciate the importance of organized learning activities and having a concrete strategy on elevating their innovativeness and performance levels. Still, there are not significant for all of the proposed relationships. This outcome illustrates that firms are on the verge of creating sophisticated strategies and learning practices that will precisely address the demands of the local market, global competition and consumers.

6. Conclusion

When faced with fierce competition, firms have to find ways to survive in the highly demanding marketplace. This research explores product innovativeness, learning orientation and performance of the firms in Turkey through world field literature and tested methods. The results reveal that dimensions of learning orientation associates with product innovativeness and overall firm performance through different paths. Internally-focused learning is related to product innovativeness, and overall firm performance. Market-focused learning emerges as a determining factor on and product innovativeness. Most strikingly, product innovativeness is a significant factor in determining overall firm performance. These findings highlight the interplay between learning and innovation as they jointly yield superior firm performance, particularly in emerging nations where the rules of the game are probably much different from those in developed economies.

Thus, managers who are already striving to survive in such a milieu and those who wish to come in to the emerging markets need to be aware of the realities of the conditions. We believe that these finding may help them, as Lu et al. (2008) put it, to devise interesting and novel managerial practices that will fit their specific needs. As time goes by, managers in emerging nations will learn considerably from these studies and find occasions to introduce their own rules into the global competition game. However, until then, we believe that in the fast-paced, highly unpredictable market atmosphere of emerging markets, managers can make use of these findings to their advantage in terms of elevating their firms' innovativeness and performance levels.

7. Limitations and Future Directions

The first limitation is the small sample size and thus, the study needs to be replicated with larger and more heterogeneous samples and in other emerging markets, to generalize the findings. Despite our rationale, the 3-year performance measurement might be considered as one that is short-term oriented. Even if the nature of innovativeness and learning is dynamic and continuous (Jean and Sinkovics, 2010), we conducted the empirical analysis with cross-sectional data. In effect, some outcomes could be the result of such data and might alter in a case where a longer term indicators and longitudinal data are employed.

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UK company strategies in reducing carbon dioxide emissions

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Key words
CO_2 emissions, reduction, logistics, strategies

Abstract

This study investigated a number of large UK companies' strategies in reducing emissions of carbon dioxide (CO_2) in their supply chain operations. In-depth interviews were conducted with logistics/supply chain (SC) managers across different sectors. The research identified the main CO_2 reduction strategies, and examined these in the light of existing literature in the research domain. One of the key findings was that there was a strong tension between cost reduction (identified as the major driver for reducing CO_2) and lack of resources (the main barrier). It was also found that most CO_2 reduction strategies had started only fairly recently, and so far, were mainly operational and tactical in nature. This study makes an empirical contribution to a better understanding of how companies form their CO_2 reduction strategies in response to environmental pressures. It has implications for policy makers in terms of how to motivate logistics/SC managers to implement strategies to reduce the environmental impact of CO_2 emissions in their business operations. Therefore, it is recommended that logistics/SC managers develop and implement practical initiatives and strategies to reduce CO2 emissions, and to embed these into corporate strategy.

1. Introduction

The distribution of goods contributes significantly to global warming, and this presents 'a much greater and more immediate threat than previously thought' (McKinnon, 2001:4). Freight transport, as a key part of logistics, is a substantial contributor to CO2 emissions. The 1997 Kyoto Protocol agreement set targets for 37 industrialized countries and the European community for reducing greenhouse gas (GHG) emissions (UNFCCC, 1997). Since then there has been an increasing public and government concern for the environment, and companies have been under mounting pressure to reduce the environmental impact of CO2 generated by their activities, including logistics activities. This research mainly focuses on two questions: What strategies are currently being implemented in selected UK companies to reduce carbon dioxide (CO_2) emissions in their supply chain (SC) activities? And what are the main drivers and barriers affecting the implementation of these strategies? Data were collected from in-depth interviews that were carried out with senior SC managers from 15 large UK companies with significant SC activities. Key findings are analysed in the light of the relevant literature review.

2. Background and Literature review

a) Research background

As mentioned above, the distribution of goods contributes significantly to global warming (McKinnon, 2001). For example, emissions of CO_2 from logistics activities in the UK for 2004 were 34 million tonnes, about 6% of the total UK emissions (McKinnon, 2007). Findings from Kahn-Ribeiro and Kobayashi (2007) and the World Economic Forum (Doherty and Hoyle, 2009) are consistent with these UK findings, and show that total world emissions from the freight transport sector are between 6% and 8% of global emissions. Another study from Kahn-Ribeiro and Kobayashi (2007) estimates that just the freight transport share of energy related CO_2 emissions worldwide is in the region of 8%. This means that with the inclusion of warehousing and handling, logistics accounts for 10%-11% of the worldwide total (McKinnon, 2010a).

In terms of economic activity, a report from DHL (Ehrhart, 2010) estimated that the logistics industry generates about 9% of the world's GDP, while in Europe it accounts for about 10% of GDP. As the pressure mounts on global supply chains to produce enough food, goods and services to meet the needs of growing population, the logistics industry is expected to continue to grow, and so will its energy consumption and CO_2 emissions unless change is introduced (Beamon, 2008). With the forecasted growing rates of the shipping industry and with reduction of emissions by the rest of the national economies by an average of 50%, the total emissions from the logistics and shipping industry are expected to be around 15-30% of the CO_2 total world emissions by 2050 (McKinnon, 2010b). These are worrying figures and for this reason many authors (e.g. Aronsson and Brodin, 2006; EUROSTAT, 2010) have emphasized the need for decoupling the growing rates of transportation volumes and the emission this produces.

In the light of these facts, a variety of strategies to reduce CO_2 emissions are being currently used or actively considered in UK SC operations, especially by the larger firms which have the available resources and capability. There are now a number of studies regarding such strategies, and in the UK useful reports on these have been produced by the Department of Energy and Climate Change, the Department for Environment, Food and Rural Affairs, the Carbon Trust, the Chartered Institute of Logistics and Transport, and the Social Research Council.

b) Studies on environmental impact of SC activities

There has been an increasing number of studies that look at the environmental impacts of SC activities. Topics studied included: CO_2 auditing (Piecyk, 2010); environmental impacts of freight transport (Cullinane and Edwards, 2010); the environmental impact of warehousing and distribution (Marchant, 2010); reverse logistics and waste management (Cherrett et al., 2010); and the environmental costs of logistics (Piecyk et al., 2010). Specific practices that have an impact on CO_2 emissions include: the use of 'green' criteria to choose suppliers and transporters (Edwards et al., 2010); consolidation of shipments and selection of cleaner transport modes (Eglese and Black, 2010, McKinnon, 2010d, McKinnon and Edwards, 2010); the use of environmentally friendly packaging, recuperation of materials for reuse, and the disposal of waste (Cherrett et al., 2010). Mollenkopf et al. (2010), for example, examined the relationship among three SC strategies - green, lean and global, through an in-depth review of literature which revealed that these SC strategies had many barriers as well as drivers but with converging and contradictory points. Doherty and Hoyle (2009) identify some of the more significant and commercially-feasible opportunities for the decarbonisation of logistics and transport. These include the use of 'clean' vehicle technologies; de-speeding the supply chain; enabling low-carbon sourcing; optimised logistics networks; energy efficient logistics buildings; packaging design initiatives; training and communication; modal switches; reverse logistics; increased home delivery; and reducing congestion. These initiatives in combination, according to the authors, can have the potential to reduce global logistics and freight transport emissions by 1,400 million tonnes of CO_2 in the medium term, i.e. 50% down from current levels. However, many companies find it is not so easy to those initiatives in practice because there are all sorts of barriers.

c) Significance of the study

While there are some signs of development in the understanding of the firms responses towards environmental issues such as CO_2 emissions, especially since 1997 after the Kyoto Protocol agreement, there is little understanding of the individual SC managers' behaviour and perceptions, and their decision-making process (Carter and Easton, 2011). This is surprising considering the importance and urgency in developing strategies for achieving lower emissions

(Wu and Dunn, 1995, Ehrhart, 2010). Moreover, several authors have pointed out the need for the academic research to stay close to SC practices in order to identify the new perspectives and address the industry's mainstream strategic concerns, including CO_2 emissions (McGinnis and Kohn, 1990; Eisenhardt and Zbaracki, 1992; McKinnon, 2007; CCC, 2008; McKinnon, 2010b & 2010c). This led to the start of the research presented here which mainly focused on examining the two questions: What strategies are currently being implemented in selected UK companies to reduce CO_2 emissions in their SC activities? And what are the main drivers and barriers affecting the implementation of these strategies? The findings from the responses were analysed in the light of relevant literature reviewed for this study.

3. Research methodology

To achieve the objectives of this research, a number of research methods were considered, including questionnaire survey, case study, and qualitative interview. Interviewing, one of the most important sources of qualitative research, was judged as the method most likely to yield the information required. In this technique, although the research would pursue 'a consistent line of inquiry', the actual stream of questions in an interview was 'fluid rather than rigid' (Rubin and Rubin, 1995). Throughout the interview process, the researcher had two main jobs – 'to follow the line of inquiry …' and 'to ask the questions in an unbiased manner that also serves the needs of the line of inquiry' (Yin, 2003: 90).

A key criterion for selecting the UK companies to interview was that they had significant logistics operations. Contacts were established primarily via the Chartered Institute of Logistics and Transport (CILT-UK), where this included personal contacts at CILT events, direct e-mails, and a general e-mail requiring collaboration in the research sent to the selected members on the CILT membership database. In practice, it required quite a lot of effort to get in touch with logistics and SC managers at a suitable level who were willing to be interviewed for this research, and whose companies were willing for the interviews to take place, even with a guarantee of anonymity. In the end over 20 large UK companies agreed to take part in the interviews, but a total of 18 logistics managers from 15 large UK companies were finally interviewed. These including five food manufacturers, three logistics operators, three transport infrastructures, one essentials manufacturer, one fluid equipment manufacture, one retail, and one hospitality company.

A questionnaire with 16 questions was sent to the respondents about two weeks before the agreed date for interview to allow time for thought-out responses. The interviews lasted up to an hour and were taped with the interviewee's agreement, and subsequently transcribed. All companies were guaranteed anonymity to help yield more meaningful replies. The interviews were semi-structured, and based around the questionnaire, but were deliberately 'open-ended' to allow interviewees to elaborate on issues that seemed to them particularly important.

The transcribed interviews were analysed using NVivo. Eight themes were chosen from the interview questions, and the quotations extracted from the interviews related to these themes, with each relevant sentence or phase tagged according to the theme or sub-theme judged most appropriate. These were then reviewed by the research team, and some responses were also subsequently cross-checked with the interviewees to check accuracy. The result was thus a detailed thematic qualitative analysis of these interviews.

4. Discussion of findings

a) Company awareness of CO_2 reduction issues

Interviewees were asked if their companies were aware of the need to reduce CO_2 emissions. Given the initial selection of companies involved, all the 15 companies investigated were aware in general terms of the need to reduce CO_2 emissions from their logistics operations.

In particular, the managers from the three logistics operators showed a high degree of awareness. They mentioned that logistics is the core of their business and as their activities involve an extensive use of fuel and energy so they are 'in the spotlight' when dealing with the topic with customers and other stakeholders. The logistics managers at the six different manufacturing companies indicated that CO_2 reduction in logistics activities are included as part of the corporate commitment to reduce their total emissions within their environmental agenda. However, they said that the majority of the resources assigned to reduce their emissions were invested in their core manufacturing operations. The two logistics practitioners from the retailer investigated were clear that the majority of the CO_2 their company generates is based on their transport and distribution activities. They were also very aware of the need to reduce the emissions of logistics if the company wanted to achieve its environmental targets. The two logistics participants working for infrastructure facilities associated with shipping also agreed that in addition to the need to reduce the emissions of their own operations, an important issue for them was to assist their customers in reducing their emissions in turn, either through modal shift or through improving their inbound and outbound supply chains. The participant at another infrastructure operator was also keen to emphasize to their customers the importance of facilitating low-carbon means of transportation such as use of electric trains. The interviewee from the hospitality company said that their company had just started to be aware of CO_2 reduction issues and they would be incorporating more initiatives in the future years.

b) CO_2 reduction strategies in logistics and SC activities

The interview questions then examined current and planned strategies undertaken by the participant companies to reduce CO_2 emissions, specifically in logistics and SC activities. All the respondents stated that their companies have already started to make, or planned to make, changes in their logistics and SC activities in order to reduce their CO_2 emissions. However, the changes and initiatives aimed at reducing emissions in logistics and SC operations were mainly implemented at the operational and tactical levels, with less focus on large and expensive strategic changes such as network optimisation, centralisation, localisation, change in information systems, or changing a large proportion of the fleet to greener vehicles. However, it is worth mentioning that there had been a general increase in the use of multimodal transportation, changing to rail or waterways when the infrastructure and capacities were appropriate for such change.

Another important change at the strategic level was the increased number of cases of collaboration between companies, even when they are direct competitors. An example of such collaboration could be seen between two food manufacturers which have been sharing units for transporting goods with similar characteristics. And, as mentioned above, the three companies which are managing transport infrastructure are implementing not only initiatives to reduce their own emissions, but also making infrastructural changes to facilitate greener means of transportation for their customers.

There were examples from the interviews to illustrate some of the key logistics and SC initiatives implemented by the respondents' companies to reduce CO_2 emissions. These cover a wide range of actions, and show a considerable degree of forward thinking and commitment. However, an important finding from these interviews was that even in these large companies, with significant resources and capacity, the issue of CO_2 reduction in logistics and SC operations had not been embraced as extensively as might be the case, particularly in the important area of monitoring and reporting CO_2 reductions achieved. Moreover, despite a long-standing awareness of the issue by the logistics managers and by the companies themselves, most initiatives to reduce CO_2 emissions specifically in logistics had started only in the last 4/5 years.

A number of the initiatives of the companies investigated for this study are seminar to those suggested by Doherty and Hoyle (2009) that were discussed in the literature review section. For example, this study has confirmed that the above authors' promotion of 'optimised logistics networks' and 'modal switches' (or 'multimodal transportation' used for this study) are the initiatives that have already been used by some of the UK companies to reduce carbon emissions and improve energy efficiency in logistics/SC activities.

c) Drivers for implementing CO_2 reduction initiatives

An important area explored were the factors that are influencing companies in their decisions for taking CO_2 reduction actions. *A priori*, one can speculate as to a wide variety of drivers, and it is important to know which are predominant. Drivers can include, for instance, a concern over the risks posed by climate change; the need for compliance with existing legislation; anticipation of new government legislation; cost and benefit considerations; requirements imposed by suppliers or customers; or simply a wish by the company to appear green. The interviewees were asked therefore about the drivers of the change towards low CO_2 logistics operations. Answers from participants were very diverse as their companies were also diverse in nature and with different operational characteristics. Nevertheless, they agreed on one fundamental driver: CO_2 reduction is frequently linked with cost reduction. For this reason, cost benefits were mentioned by all the interviewees as a driver for implementing CO_2 reduction initiatives, with some differences between the levels of importance they gave to this. The other main driver highlighted by the majority of the interviewees was corporate social responsibility, which was engrained in the values and principles of most of the companies interviewed. But they suggested that any effort to reduce emissions in logistics had to balance financial, social and environmental factors, in order to guarantee the sustainability of their businesses.

d) Barriers for implementing CO_2 reduction initiatives

When analysing the interviews, it was noted that according to the nature of their business, companies face a wide variety of barriers, reflecting the differing function of logistics in their operations. However, the most frequently mentioned barrier was lack of resources. Many respondents mentioned that capital had been an issue, especially since the start of the economic crisis in 2008, and companies had prioritised investments in activities that added more value to their products. Three of the food manufacturers indicated that because logistics is a support function and not the core of their business, it had not received the same attention, and it had been difficult to channel additional resources to implement initiatives. Since logistics is not their biggest CO_2 emitter it had also been lower on their priority list for potential CO_2 reduction. Not only the lack of financial resources has been an issue, but time resources had also affected and delayed the implementation of CO_2 reduction initiatives in logistics. The interviewee at one food manufacturer revealed that they are on a tight timescale and 'sometimes... little things … won't get done, just because there just isn't the time to actually do them'. Respondents at another food manufacturer, and at the essentials manufacturer, also had similar statements and agreed that an important barrier is people's time to actually make these changes in logistics happen.

Despite of the barriers discussed above, surprisingly one of the most frequent responses was that there were 'no major barriers for implementing initiatives to reduce emissions in logistics'. This is an encouraging finding for those wishing to see CO_2 reductions continue to be taken forward. Almost a third of the respondents agreed that because all of these initiatives come together with logistics efficiency and cost benefits, everybody is on board from top management to the lower levels of management.

e) Strategic changes in logistics and SC due to CO_2 emissions concerns

We also examined the extent that CO_2 reduction has led to *strategic* changes in companies' logistics activities. The general response from the companies was that there had been no *major* strategic changes in logistics due to CO_2 concerns. However, most respondents admitted that a more strategic approach will be needed in order to tackle this issue. Strategic changes in logistics and SC usually require structural changes which at the moment are not widely adopted. Multi-modal transportation, which in the context of CO_2 reductions means moving to a fuel-efficient combination of transport modes, and the use of new vehicle technologies (such as hybrids or electric units), were the main structural changes mentioned by the majority of the companies interviewed, and these initiatives were just at the beginning of their development. The companies that showed the most significant structural and strategic changes were the ones providing transport infrastructure, as they have to facilitate an increased use of rail and water modes of transport by their customers. Operational and tactical strategies to reduce CO_2 emissions have started more recently and structural ones mainly at an even earlier stages. For these strategic changes to happen, participants in the retail company and two of the infrastructure companies said that changes at a national level coming from the government are needed. These changes will need to focus on improving the rail, water and road networks. Another strategic change that will need to occur in the next few years is that companies will need to increase collaboration within their own supply chain, and even with competitors from other supply chains, in order to reduce their tonne-kilometres. Some of the companies interviewed, such as the food manufacturers, have already started already with this, and will be including further in their logistics strategic planning in the near future.

f) Emergence of CO_2 reduction initiatives through the organisational structure

How CO_2 reduction initiatives within logistics and SC activities develop within company management structures? Are these mainly driven top-down from senior management or are they mainly initiated by the logistics managers themselves? An interesting finding was that companies where logistics is a core function, such as the logistics operators and the infrastructure operators, there was a strong influence from top management, with the drive mainly a top-down process. Perhaps this was due to the more structural type of initiatives these companies were implementing. This was the case, for example, with the port and the rail operators, as they require a significant amount of investment and strategic thinking in connection with any proposed initiatives. For the three logistics operators in particular, any initiative to reduce CO_2 emissions will affect their core operations, and also directly affect revenues. Apart from these participants, the two respondents from the hospitality company and the industrial manufacture also indicated that the top-management was the main initiator of their CO_2 emissions initiatives in logistics. However, as these two companies were the ones with the fewer initiatives already in place, one might speculate that this top-down approach was in fact holding them back.

For the organisations where logistics is a core function, strategic change requires a top management who are very familiar with the new logistics concepts and technologies. This does not have to be the case for companies where logistics is only a support function, and here the middle logistics management stated they were the most knowledgeable when it came to the formation, evaluation and implementation of changes and solutions for their logistics operations. Nevertheless, these managers pointed out also that such changes would not be possible without the engagement of all levels of management. The respondent from a food manufacturer summed this up when he declared: '...aspirations to beat environmental problems come from the top, but actually the ideas are generally generated within the middle and further down'. Other key statements from the interviews stressed the importance of logistics middle

managers in setting the targets of CO_2 reduction for the logistics operations, as they are the ones that knows what is feasible.

5. Summary and Conclusions

This paper reports the findings from an investigation of 15 large UK companies having significant supply chain activities of the following factors: the company awareness of the environmental impact of CO_2 emissions from their logistics and SC activities; initiatives taken to tackle these emissions; the drivers and barriers within the company affecting these initiatives; the extent of strategic changes in logistics and SC practices with the company due to CO2 emissions concerns; and how CO2 reduction initiatives for logistics and SC activities have developed within company management structures. Key findings of this research include:

- Despite a long-standing awareness of the CO_2 issues by the companies, and the logistics managers within the companies, most CO_2 reduction initiatives only started in the last three to four years, and have been mainly operational and tactical rather than strategic.
- There is a positive correlation between most CO_2 reduction initiatives and cost reduction, and this link has been a major driver for the adoption of CO_2 reduction in the companies investigated.
- A key barrier cited for the adoption of CO_2 reduction initiatives in logistics and SC has been the lack of resources to carry out identified changes. Other barriers include the countervailing pressures from new business demand, such as online retailing, and the fact that CO_2 reduction technologies are not yet settled, so investment is still considered risky. This is supported by the view that SC strategies had both barriers and drivers that have converging but contradictory points (Mollenkopf et al. 2010).
- In the companies surveyed, there had been no significant *strategic* changes in logistics and SC activities within the companies due to CO_2 concerns, but most respondents felt that a more strategic approach will be needed in order to tackle the issue.
- CO_2 reduction initiatives were mainly driven top-down from senior management for companies where logistics/SC is a core function, but the role of logistics/SC middle managers is very important in setting the targets of CO_2 reduction for the logistics and SC operations.

The study has confirmed the awareness by UK companies of the need to reduce CO_2 emissions in logistics activities and thus has led to a wide range of autonomous logistics initiatives being adopted, or being considered for adoption. The findings have also confirmed the statement that the need to implement logistics initiatives to reduce CO_2 emissions has led to an increased role for logistics managers, especially in companies where logistics is a support function, as opposed to companies where logistics is a core business. However, the adoption of those more structural/strategic changes has not yet happened to a major degree, at least in the major companies studied here, although this is expected in the years to come. Nevertheless, it is hoped that this study can assist logistics managers in the development and implementation of initiatives and strategies to reduce CO_2 emissions, and to embed these into corporate strategy.

6. Research Limitations & Direction for Further Research

This section highlights some of the limitations:

- It is recognised that the 15 companies interviewed do not statistically represent UK large companies as a whole. However, they were all large companies with significant logistics activities, covered a range of industries, and included companies where logistics was a core business, as well as those where it was a support function.
- By contrast, the 18 interviews were judged the right number for the resources available. Each interview took a significant amount of time to set up and considerably more to

transcribe and analyse. While additional data is usually a desirable goal, obtaining further interviews would have reduced the degree of analysis possible.

- A questionnaire survey might have been able to reach out to more companies and hence to collect more sizeable sample data.

Therefore, further research can be conducted using semi-structured questionnaire survey to reach more respondents, cover more companies and include a wider range of industries.

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Determinants of fuels stacking behaviour among households in Bauchi Metropolis

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Energy stacking, energy ladder hypotheses, Nigerian electricity supply industry, private investment, households' energy utilization

Abstract

Energy consumption is an important determinant of the socio economic status of citizens across the globe especially the consumption of modern energy. According to the energy ladder hypothesis households move along the energy ladder as their income increases. At the lower rung of the ladder are the low income and usually uneducated households who mainly consume traditional fuels while the middle class and those at upper echelon of the society largely consume transitional and modern fuels. However the prevalence of energy stacking behaviour where households adopt more than one fuel type has been observed even among the middle and upper income families. The question is why is the observed energy consumption pattern in violation of the energy ladder hypothesis? The paper assesses the combined influence of four variables which include income level of households, education level/exposure of households, households' size and modern fuels supply security on fuels stacking behaviour of households. Multivariate analysis was conducted to assess the combined influence of the IVs on the DV. The model has an R^2 value of .252 meaning that the model explains about 25% variation in the DV. Individually the variables that make significant and unique contribution to the model are educational level of households, income level of households and family size of households. We therefore recommend improved macroeconomic management to improve households' income, improved educational system and increased supply and diffusion of modern fuel as a way of reducing the prevalence of energy stacking behaviour of households.

1.0 Introduction

Energy consumption is a major determinant of the socio- economic life of the people. Energy is required for the satisfaction of numerous human needs; heating, cooking, preservation, movement, production of agricultural and industrial goods among others. In the post Neolithic revolution, biomass (crop residues, dung, firewood etc) was the dominant source of energy supply but it was later replaced by coal due to its (coal's) high energy density.

Explanations on households' fuels choice has for long been dominated by the energy ladder hypothesis which explains fuels choice in terms of energy transition based on the income level of the particular household making the choice. According to the energy ladder hypothesis as their incomes rise, households move up the energy ladder. Households move away from traditional fuels to transitional fuels such as kerosene and charcoal as their income increases before finally moving to modern fuels such as grid based electricity and LPG which are superior to traditional or transitional fuels (Leach, 1992; Farsi, et al, 2007). Modern fuels are superior and preferred because of their high levels of efficiency, cleanliness and ease of use compared to crop

residues, dung, firewood and other traditional biomass fuels. Though the fuel transition has largely been attributed to income, recently critiques of the energy ladder hypothesis show that other factors (such as infrastructure availability, relative fuel and technology prices and the reliability of different fuel systems) also have some bearings on household fuels usage (Leach, 1992; Tiwari, 2000; Pachuari, 2004; ESMAP, 2003).

In fact, recent empirical researches have questioned the validity of the energy ladder hypothesis in explaining the households' fuels choice or fuels transition (Smith, et al., 1994; Barnes and Floor, 1996; Elias and Victor, 2005). They have shown that energy transition does not follow the linear pattern prescribed by the energy ladder hypothesis (a series of simple, discrete steps prescribed by the energy ladder hypothesis) but rather a predominant multiple fuels use. Accordingly, with increasing prosperity households adopt new fuels and technologies to serve as partial and not perfect substitute for traditional fuels ((Eberhard and Van Horen, 1995; Masera, et al., 2000; IEA, 2002; Leiwen and O'Neill, 2003). The prevalent use of multiple fuels has been observed in many countries and many communities. For example, households in urban areas of Guatemala, simultaneously use firewood and LPG for cooking (ESMAP, 2003). Also in rural China, biomass and electricity are the most common fuel pairing in households (Leiwen and O'Neill, 2003). Additionally, in Brazil, although firewood's fraction of fuel budgets falls as incomes rise; fuel wood use continues even at relatively high income levels (de Almeida and de Oliveira, 1995). Though domestic energy needs of households in Nigeria is largely limited to cooking and lighting, the use of multiple fuels for domestic energy utilization especially in the urban and semi urban and rural areas has been reported (Nnaji et al., 2012; Ogwumike, et al., 2014).

A pertinent question is what compels the prevalence of multiple fuels usage by households? In attempt to answer the question the paper assesses the combined influence of some variables on households' fuels usage in Bauchi metropolis. Few studies if any have been conducted to provide explanations to the prevalence of energy stacking behaviour amongst households especially in Bauchi State. Thus, the justification for the paper. It is expected that the study will be of tremendous policy and research significance. Understanding of fuels choice behaviour and factors underlying such behaviour will enrich government policy on economic empowerment and poverty alleviation. It is also expected to enrich government policy on improving the health status of women and children and on the diffusion of modern fuels technology. These will ultimately help in reducing the depletion of forest resources and on creating local micro enterprises that may engage in the provision and supply of cleaner cooking fuels. It is also expected that the paper will come out with findings that will enrich government energy security policy especially those that have to do with generation and distribution of electricity and the supply of other modern fuel such as LPG. Finally, the outcome of the research is also expected to stimulate further research endeavour in the area of households' fuels choice, fuels utilizations, households' willingness to pay for reliable modern energy among others.

1.1 Objectives

The major objective of the paper is to explain the reasons for multiple fuel adoption otherwise known as fuel stacking among households in Bauchi metropolis.

The specific objectives of the paper are

1. To assess the influence of income level of households on household's fuels stacking behaviour
2. To examine the influence of household's exposure (education) on households' fuels stacking behaviour.

3. To identify the role of family size in fuel adoption on fuels stacking behaviour of households in Bauchi metropolis
4. To examine the extent to which households' fuels stacking behaviour is affected by modern fuels supply security.

1.2 Hypotheses

1. Households' fuel adoption behaviour is independent of households' income level.
2. Level of households' exposure (Education) does not significantly affect households' fuels stacking behaviour.
3. Fuel stacking behaviour of households is not significantly affected by family size.
4. Modern fuels supply security does not significantly affect households' fuels stacking behaviour

The rest of the paper is organized as follows: section 2 presents the literature survey and the theoretical discussions; section 3 presents the methodology of the research while section 4 presents the results and discussions. Section 5 concludes the paper.

2. Literature Survey and Theoretical Discussions

2.1 Literature Survey

Energy is vital to human existence. Its availability and quality define the socio economic status of the citizenry and also define the progress of a society or nation. In satisfying their domestic energy quests, households at the lower rung of the society usually rely on biomass resources such as cow dung's, farm residues, wood fuels etc for their cooking and heating purposes. The reliance on biomass however comes with a lot of costs. Such costs include deforestation of the forest stock, serious health burden in the form of the respiratory diseases that women and their children get exposed to while cooking and the toll that biomass collection takes on women's time among others (Elias and Victor, 2005). Additionally, the three stones stove used by lower income families has low heat intensity making it a highly inefficient way of energy utilization. FAO, (2006) reports that about 2 billion people in the world rely on biomass to satisfy their energy quests. This number is projected to rise to 2.6 billion by 2015 and 2.7 billion by 2030(IEA, 2006; Mekonnen, 2009).

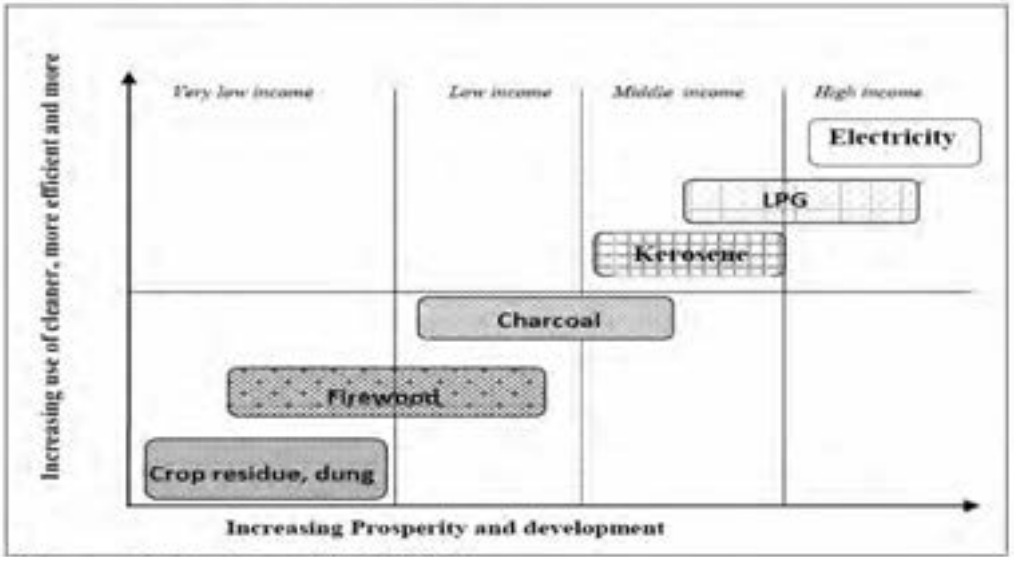
Though Nigeria is an energy rich country possessing abundant variety of energy resources, a great number of households rely on traditional or primary fuels for cooking and other domestic activities such as lighting. In fact, ECN, (2003) reports that about 60% of Nigerians rely on fuel wood for cooking and other domestic uses (Nnaji et al, 2012). Also NBS (2004) reports some startling statistics on households' energy usage in Nigeria: the percentage of households that rely on biomass for cooking rose from 47% in 1980 to 70.8% in 2004, the percentage of households that used kerosene for cooking declined from 49.0% in 1980 to 26.6 per cent in 2004, also the percentage of households that use electricity for cooking declined from 2.6% in 1980 to 0.5% in 2004, while households that used LPG for cooking increased marginally from 0.8 per cent in 1980 to 1.0 per cent in 2004. The heavy reliance on fuel wood for cooking is adversely impacting on the environment causing deforestation, air pollution, soil erosion and desertification in most parts of the country especially in the Sahel Savannah ecological zone (Ogwume, 2014). Also NBS, (2004) reports that due to the erratic nature of electricity supply and petroleum products, households use other sources of energy such as candles, batteries, generators as standby means for lighting their houses.

According to the energy ladder hypothesis households adopt newer and more efficient fuels and technologies as their incomes improve. Thus households ascend the energy ladder with increase in incomes. The energy ladder hypothesis therefore based the transition of households in the fuels scale on household income status. Accordingly, households are classed

into three different classes of energy usage. The first stage is the stage of total reliance on biomass while in the second stage households rely on transitional fuels such as kerosene, coal or charcoal. In the third phase, households switch to LPG, natural gas or electricity. According to the energy ladder hypothesis the main driver for the energy switching behaviour of households' is income and relative fuel prices (Leach, 1992; Barnes and Floor, 1999 Barnes, Krutilla, and Hyde, 2002). Thus the energy ladder hypothesis holds that households' fuel adoption is income dependent (Heltberg, 2003).

In reality however households especially in developing countries do not linearly transit from traditional to modern fuels as described by the energy ladder hypothesis (Pachauri and Spreng 2004; Elias and Victor, 2005; Ouedraogo, 2006; Demurger and Fournier, 2011; Ogwume, 2014). Empirical researches conducted in different parts of the world reported energy stacking as the dominant fuel adoption behaviour by households. For example, Ogwume, et al, (2014) found that in Nigeria instead of households abandoning traditional fuels as income (or expenditure on energy) increases, households tend to stack different forms of fuels. This behaviour is consistent with consumer preferences in the face of supply constraints. Thus households even at higher income group still use firewood for cooking (Ogwume, 2014). Also Masera et al, (2000) using longitudinal data reported fuel stacking behaviour among households in Jaracuaro village and some states in Mexico. Additionally, Mekonnen et al, (2009) found evidence of fuel stacking among households in Tigrai and other major cities of Ethiopia. Although modern energy fuels and technologies are more efficient and more convenient in their use compared to the traditional fuels, their adoption in many developing countries especially by low income families is hampered by high upfront capital costs and lack of infrastructure for their transport and distribution (Elias and Victor, 2005).

Figure: 1 Energy Ladder Model



Source: WHO 2006 as cited in Mensah and Adu, (2013): An Empirical Analysis of Households Energy Choice in Ghana.

Figure1 illustrates the fuels transition of households based on households' income as explained by the Energy Ladder Hypothesis.

2.2 Theoretical and Empirical Issues

The theory of consumer behaviour provides the theoretical foundation for the analysis of fuels choice of households. The basic postulate of consumer behaviour is that households as

economic agents are rational agents that always act rationally to maximise their utilities. Consequently, as rational consumers, households always choose the most preferred bundle from a set of feasible alternatives (Varian, 2010). As their income increases, households do not consume more of the traditional fuels, but they shift to newer, more improved fuels which are more efficient and user friendly indicating that traditional fuels are inferior goods while the modern fuels are normal economic goods (Rajmohan and Weerahewa, 2007; Demurger and Fournier, 2011). Thus low level of income means more dependence on traditional fuels due to a combination of income and substitution effect (Baland et al, 2007; Ogwumike, et al 2014).

Recent studies (Masera et al., 2000; Heltberg, 2005; World Bank, 2003; Mekonnen and Köhlin, 2008; Ogwumike, et al 2014 among others) have however argued that households choice of fuels are not affected by income alone but by a myriad of factors some of which are economic and others non-economic (Ogwumike, et al 2014).

Households' fuels choice has generated a lot of research interests. Consequently, many empirical researches examine fuel choice behaviour of households. Empirical studies have confirmed the energy ladder hypothesis and fuels stacking behaviour. Hosier and Dowd, (1987) examined households' fuels choice in Zimbabwe using multinomial logit model. Though their findings confirm the energy ladder hypothesis, they also discovered the influence of other factors such as size of households and location of households in the fuels choice decisions of households (Mensah and Adu, 2013). Mekonnen and Kohlin, (2008) also studied the fuel choice behaviour of households in Ethiopia. Their results confirmed the existence of multiple fuels adoption among households in major Ethiopian cities. Ouedraogo, (2006) using multinomial logit model analysed factors determining urban households cooking energy preferences in Ouagadougou. They found that household's reliance on traditional fuels for cooking are due to poverty factors such as low income, households' poor access to electricity for primary and secondary energy uses, low housing standards and household size (Ogwumike, 2014).

2.3 Conceptual Framework

The conceptual model used for the study is described in figure 2 below. The figure depicts the four constructs of the study which are income level of households (ILH), educational level of households (ELH), family size of households (FSH) and modern fuels supply security (MFSS) and their relationship with the DV household's fuels usage decisions (HFUD).

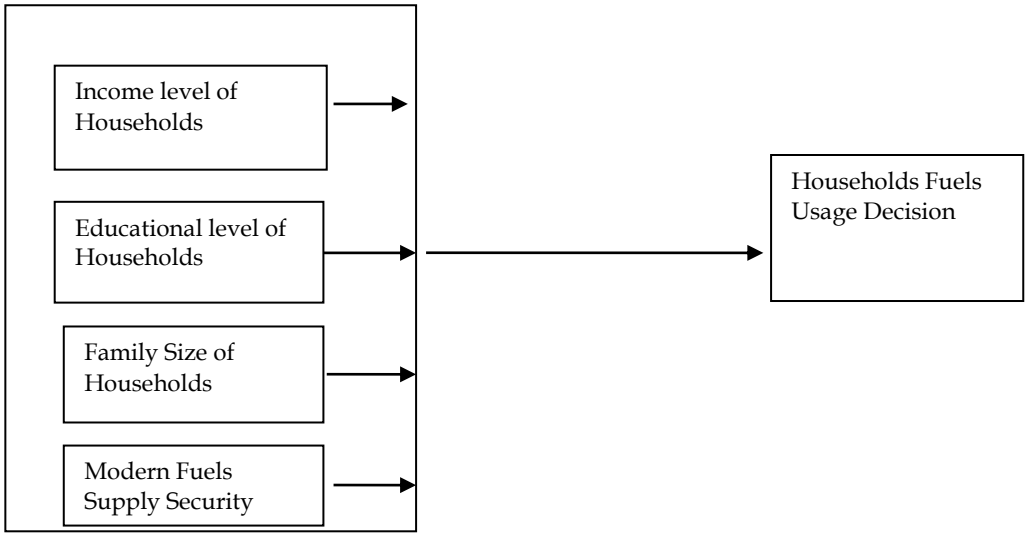


Figure 2: Conceptual Framework

The constructs are operationalised as follows

2.3.1 Income level of households. Refers to the income earned by the household head that usually caters for the family. Normally the households' heads' income in many Nigerian households determine the economic level of buoyancy of the family. In recent times women increasingly are working and earning money which in some communities help to supplement the expenditure of the households. According to the energy ladder hypothesis income determine the choice of cooking fuels and the amount of energy consumed by the particular household. As income increases households switch away from traditional to modern to fuels a process referred to fuel switching or inter fuel substitution (Leach 1992; Heltberg, 2003,

2.3.2 Educational level of households. Educational levels of household heads determine the choice the households make in terms of cooking fuels. Education affects the level of social exposure of the households which also affect the adoption decision of households of cooking fuels. Educational status of household's head also affects the awareness level of the household about the existence of modern fuels and their advantages over traditional fuels (Hertberg, 2003; Suliman, 2010)

2.3.3 Family size of households. Refers to the number of people in a particular household. The bigger the number the more fuels consumption of that family and also the more expenditure the family incurs in meeting the cooking fuels needs of the family. In most cases family size compels the use of diverse fuel sources (Suliman, 2003).

2.3.4 Modern fuels supply security. Refers to the availability and sustainability of the fuel supply in the market. In many developing countries modern fuels (such as LPG and electricity) supply is erratic due to a number of reasons. Such reasons include inadequate generation, transmission and distribution infrastructure in the case of electricity supply in Nigeria, poor roads that hamper steady supply of LPG products especially to semi urban areas etc. The insecurity of such fuels supply ultimately affects the adoption behaviour of households with regards to cooking fuels as households use both traditional and modern fuels together instead of substituting one with the other (Masera, et al, 2000). Security of supply is dependent on such factors as the route and frequency of delivery among others (Masera, et al, 2000),

2.3.5 Households' Fuels Stacking Behaviour. The dependent variable measures households' fuels adoption behaviour. It has to do with the decisions that households make in the adoption of fuels for cooking. The study measures the influence of the four variables on the DV.

3. Methodological Issues and Data Analysis

3.1 Methodological Issues

Survey research design was used to collect data from the sampled respondents using structured questionnaire.

Multiple regression analysis was employed to assess the combined influence of the constructs (income level of households' educational level of households, family size and modern fuels supply security) on the dependent variable (households' fuels stacking behaviour). The population of the study was made up of heads of households in Bauchi metropolis that are also connected to the national grid being supplied by the Jos Electricity Distribution Company (JED). The sampling frame is drawn from the population of JED electricity consumers which stood at 33,339 consumers. Sample was selected from the population through simple random sampling. The sample size was determined using Yarmane, (1992) formula for normal approximation at 95% confidence level and 5% error margin which translated into about 400 respondents as per below;

$n = N/1+Ne^2$ ..... (1)

Where;

N = the population size (33,339), n = sample size, e = error margin.

Thus $n = 33,339/1+ 33,339(.05)^2 = 400$ respondents.

The sample size arrived at meets the sample size requirements of multiple regressions analysis as recommended by Green, (1991); Hair et al (1995); Oppenheim, (1996); Tabbachnic and Fiddel, (2007) and Pallant, (2007; 2011). However, 420 questionnaires were distributed to the respondents in order to reduce the influence of non-returned or non-correctly filled questionnaire.

3.2 Data Analysis

3.2.1 Respondents' Energy Use Characteristics

About 420 questionnaires were distributed to responding households. 342 questionnaires were returned correctly filled representing about 81% of the questionnaires sent out. 209 or 61% of the respondents use energy for cooking and lighting while 23.4% or 80 respondents use energy cooking and for heating purposes. On the other hand, 25 or 7.3% of respondents reported using energy for cooking, lighting and heating. Additionally, 18 or 5.2% of the respondents reported using energy for cooking, lighting and water heating while 10 respondents or 2.9 of the respondents surveyed reported using energy for cooking, lighting, heating and entertainment. Thus majority of households use energy largely for cooking and lighting which is in tandem with previous studies on households' energy usage in developing countries (Masera, et al, 2000; Ogwumike et al 2014).

With regards to the educational attainment or exposure of responding households' heads 49 respondents or 14.3 % have senior secondary certificate, 112 respondents or 32.7% have a diploma certificate while 92 respondents or 26.9% are educated up to degree level. Households' heads qualifications above master's degree represent 25.7% or 88 respondents.

On the occupation of respondents about 51 respondents or 14.9% were farmers, 107 or 51.7% were public servants. On the other hand 42 respondents or 12.3% of respondents were business men and women while 35 or 1.02% of the respondents were engaged in other forms of activities such micro business, tailoring, entertainment etc The Gender distribution of the respondents are 293 or 85.7% male and 49 or 14.3% of respondents or female. The households' heads covered in the study are largely headed by male representing about 85.7 while households with female heads represent only 14%. Some studies have shown that technology adoption by households is affected among other factors by the sex of the households' heads (Heltberg, 2003, Suliman, 2010).

On the expenditure on cooking fuels it was discovered that about 51respondents representing about 15% of the respondents spend less than N1000 or about 5 dollars per month. Households that spend between N1000-N3000 (5 dollars to 16 dollars) on cooking fuels numbered about 166 representing about 48.5% of the households surveyed while households whose spending on cooking fuels ranged from N3500-N5000 (18 to 25 dollars) reached about 81 households or 23.7%. Also 34 households representing about 9.9% of households studied spend between N5, 500-N10, 000 (27.6 to 55 dollars). Only 10 households incur expenditure above N10000 (55 dollars) per month on cooking energy representing about 2.9% of the total respondents. Households' expenditure on cooking energy and also generally on energy is taken to signify households' income level the quality of life enjoyed by such households among others (Leach, 1992, Masera et al, 2000; Heltberg, 2003; Suliman, 2010).

On the percentage of income spent on energy for cooking, 183 or 53.5% of the households spend about 1-5% of their income on cooking fuels while about 75 respondents representing about 22% of the households spend between 6-10% of their income on cooking fuels. On the other hand, 50 respondents or about 15% of respondents spend between 11-15% of their income on cooking fuels monthly. Only 35 households that represent about 10.2% spend above 15% of their income on cooking fuels monthly. Percentage of income spent on cooking fuels signifies a number of things. Firstly, it indicates the quantum of energy consumption of the family and by

extension the type of fuels use by the family as modern fuels are relatively more expensive. It also indicates the level of income of households as greater percentage shows higher income even though poor households who earn meagre income have to spend large percentage of their income to meet their energy needs.

The family size of the responding households differs considerably. Family size refers to the number of people in a particular household. Usually the larger the family size the more the energy consumption of such a household (Suliman, 2010). 190 or 56% of the responding households have 3-6 persons per household. 93 households representing about 27% of the responding households have between 7-10 members per households. Households with a family size of between11-14 numbered 37 households or 10.8% of the responding households. Households with family size above 14 are 21 households or 6.1 of the responding households. Family size is an important determinant of fuels house choice and fuels stacking behaviour (Suliman, 2010).

On the fuels type used by households for cooking purposes, the result indicates households' reliance on more than one fuels type. About 80 households depend exclusively on biomass representing about 23%. Responding households that use kerosene and charcoal are 196 households or 57%. Households that rely on LPG and biomass are 35 respondents which accounting for 10.2% of the responding households. While households that combine electricity and all other forms of fuels including LPG, kerosene, charcoal and biomass are 30, accounting for about 9% of the households.

Number of time cooking is done is an indicator of the extent of energy consumption for cooking purposes. 20 households cook once daily representing about 6% of the respondents while households that reported cooking twice per day were 101 respondents which represent about 30% of the respondents. On the other hand, households that cook three times per day were 220 representing about 64% of the households surveyed.

Before the commencement of data analysis and hypothesis testing the data was subjected to descriptive analysis in order to ensure data normality which is central to the conduct of multiple regressions analysis. The data was observed to be normal as the data largely lie on the diagonal line in the Normal PP Plot graph in figure 3.

Multicolinearity test was also conducted to ensure that all the constructs were on their own and independent that is no construct measures more than one construct. From the table 3 Beta coefficient, the tolerance and VIF were used to test the multicolinearity among the variables. All the tolerance values were not more than 0.10 and VIF value is not more than 10, as such there was no multicolinearity among the constructs (Pallant, 2007).

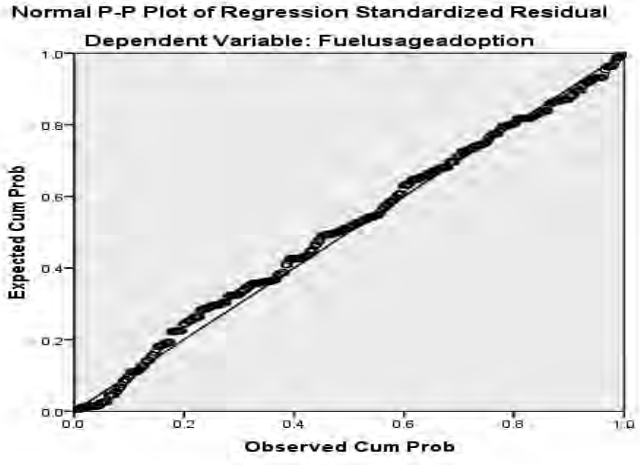


Figure 3: Normal PP Plot.

3.2.3 Validity test

The validity of the scale was tested using IBM SPSS's factor analysis with aid of exploratory factor analysis using Principal Component Analysis (PCA). In respect of the first construct; Household income/expenditure, the sample size is 342 which is above 300 sample size that is considered good sample size according to Tabanick and Fidell (2007). The Kaiser-Meyer-Olkin (KMO) is 0.611 which is above the minimum standard and considered suitable. Bartett's test of sphericity Approx. Chi-square is 77.862, df is 10 and sig. is 0.000, which is less 0.50. Also the communalities were above the minimum standard of 0.50, except HIE3 with 0.476. In addition, from the total correlation matrix, some of the coefficients were above 0.30. The variance explained of the entire variables was 62% which can be considered satisfactory according to Hair et al (2010). Therefore, only HIE1, HIE2, HIE4 and HIE5 are valid to measure construct.

With regard to Education level/exposure of household, the sample size is 342, the Kaiser-Meyer-Olkin (KMO) is 0.659, Bartett's test of sphericity Approx. Chi-square is 122.002, df is 10 and sig. is 0.000. All the items have communalities above 0.50, except EEH3 with 0.469. Therefore, EEH1, EEH2, EEH4 and EEH5 are the only items to measure the construct. In the case of family size of household, the sample size remains 342, the Kaiser-Meyer-Olkin (KMO) is 0.542, which is above the minimum standard of 0.05. Bartett's test of sphericity Approx. Chi-square is 173.053, df is 10 and sig. is 0.000 which is less than 0.05. Communalities for HFS1 is 0.304 where as the remaining items have the communalities above 0.50. As such, only HFS2, HFS3, HFS4 and HFS5 are the only items to measure the construct. The modern fuel supply security also has the sample size of 342, the Kaiser-Meyer-Olkin (KMO) is 0.607, Bartett's test of sphericity Approx. Chi-square is 209.440, df is 28 and sig. is 0.000 which is less than 0.05. The MFS4 has the communalities of 0.459, MFS7 has 0.334 and MFS8 has 0.486, while MFS1, MFS2, MFS3, MFS5 and MFS6 have their communalities above 0.50. Therefore, MFS1, MFS2, MFS3, MFS5 and MFS6 are the only items to measure the construct. In the case of Fuel Usage/adoption by household, the sample size is 342, the Kaiser-Meyer-Olkin (KMO) is 0.738, Bartett's test of sphecricity Approx. Chi-square is 161.384, df is 15 and sig. is 0.000 which is less than 0.05. The communalities for FUH2 is 0.249 and FUH3 is 0.391 while the remaining items have the communalities above 0.05. As such only FUH1, FUH4, FUH5 and FUH6 are the only items to measure the construct.

Table 1: Factor loading: Rotated Component Matrix of Household income/expenditure, Education/Exposure, Household family size, Modern fuel supply and Fuel choice adoption.

Code	Items	Component
HIE2	Though my income has increased in recent times, I still use biomass for cooking	0.557
HIE3	It cost a lot of money to acquire modern stoves for cooking	.577
HIE4	One of the ways to promote the use of modern energy fuel is through the subsidising of the acquisition of the fuel technologies.	.540
HIE5	Higher prices of modern fuel make household to mix modern fuel with traditional fuel that are relatively cheaper.	0.525
EEH1	Household with highly education heads usually LPG or electricity for cooking.	.625
EEH2	We use modern fuel such as electricity and LPG because my friends also use them	.527
EEH4	Using different fuel satisfy my taste.	.679

EEH5	Household fuels choice is affected by fuel choice of family relations, friends and associates.	.528
HFS2	It cost a lot of money to rely on modern fuel in large household.	.750
HFS3	We use traditional fuel during celebration such as naming and weeding ceremonies due to the number of people that partake in the security.	.620
HFS4	Family size induces multiple fuel choice behaviours as a way of ensuring fuel security.	.599
HFS5	Large households indicate the availability of labour for biomass collections.	.683
MFS1	Electricity supply in my neighbourhood is erratic.	.570
MFS2	There is constant supply of electricity in my neighbourhood.	.671
MFS3	There is constant supply kerosene in my neighbourhood	.533
MFS5	Though I use electricity for cooking but I still use fuel wood and charcoal because of the supply reliability challenges of modern fuel.	.681
MFS6	Nigeria roads are in good condition so it is easy to transport energy resources.	.574
FUH1	I use modern energy because it is clean.	.549
FUH4	I use fuel wood for cooking because the kind of food I cook is best cooked using fuel wood.	.519
FUH5	Though I use gas I complement it with other fuels because of the high cost of gas and electricity.	.503
FUH6	Number of times I cook determines my fuel choice	0,509

3.2.4 Regression analysis and Test of Hypotheses

After meeting the key assumptions of regressions analysis (figure 2 and table 3) data analysis was conducted the result used to test the hypotheses of the study using and multiple regression and simple linear regressions analyses.

Table 2: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
W1	.502[a]	.252	.243	.54143

a. Predictors: (Constant), Modern fuel supply, Household Income, Family size of household, Education level and exposure

b. Dependent Variable: Fuels stacking behaviour

The model summary depicted in table 2 shows the r and the r^2 value of the model. It can be seen that the model has an r value of .502 and an r^2 value of .25. It means that the model explains about 25% variation in the dependent variable. Thus the four variables together explain about 25% variation in the model.

Table 3: Beta Coefficients[a] Collinearity Statistics

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.627	.288		2.179	.030		
	Income level of Households	.204	.057	.176	3.556	.000	.909	1.100
	Education level/exposure	.229	.054	.221	4.251	.000	.823	1.216
	Family size of household	.320	.057	.284	5.582	.000	.857	1.166
	Modern fuel supply security	.048	.060	.042	.795	.427	.813	1.229

a. Dependent Variable: Fuels usage /adoption

The Beta coefficient and collinearity statistics table shows the individual construct contributions to the model and the tolerance and variance inflation factor. From the table three constructs make unique and significant contribution to the model. FSH (family size of households) makes the greatest unique contribution to the model contributing about 28% of the variance in the DV with a p value of .000 which is less than 0.05($p<0.05$). This is followed by the construct ELH (educational level / exposure of households) which makes the second biggest contribution to the model contributing about 22 % of the variance in the DV with a p value of .000 which is less than 0.05. Construct ILH (income level of households) makes the third unique and significant contribution to the model. The construct contributes about 18% of the variance in the DV with a p value of 0.000 which is less than 0.05($p<0.05$). MFSS (modern fuels supply security) contributes about 4% of the variance in the DV with a p value .427 which is greater than 0.05. Thus the contribution of the construct is insignificant.

3.2.5Test of Hypotheses

The hypotheses to be tested are restated below.

2. Education/exposure Level of households does not significantly affect households' fuels stacking behaviour.

3. Fuel stacking behaviour of households is not significantly affected by family size.

4. Modern fuels supply security does not significantly affect households' fuels stacking behaviour.

The decision rule guiding hypothesis testing is provided below:

Reject Ho if $P < 0.05$

Accept Ho if $P > 0.05$

1. Going by the decision rule above and on the basis of the data in table 3 the null hypothesis which states that *households' fuels adoption decision is independent of households' income level* is rejected and the alternate hypothesis which states that *households' fuels adoption decision is dependent on the income level of households level* is accepted.

2. Going by the decision rule and the data in table 3 the null hypothesis which states that *Education exposure level of households does not significantly affect households' fuels usage decision* is *rejected and the alternate hypothesis which states that education/exposure level of households significantly affect the fuel usage decision of households* is accepted.

3. Going by the decision rule and data in table 3 the null hypothesis which states that *family size of households does not affect the fuel stacking behaviour* is rejected and the alternate hypothesis which states tha*t family size does not significantly affect fuel stacking behaviour of households* is accepted.
4. Going by the decision rule and the data in table 3 the null hypothesis which states that *modern fuel supply security does not significantly affect households' fuels adoption behaviour* is accepted.

4.1 Summary of findings

The findings from the study indicate the use of multiple fuels by households in the study area. The findings also show the glaring absence of linear transition by households in terms of fuels usage. Thus the findings negate the energy transition prescribed by the energy ladder model. These findings are in line with the works of Leach, (1992), Masera et al, (2000) Heltberg, (2003) Suliman, (2010).

The findings also show that income level of household's impacts reasonably on households' choice of cooking fuels but does not largely infer transition from traditional to transitional and finally to modern fuels. As income increases households tend to adopt newer or probably modern fuels but not perfectly substituting traditional fuels with modern or transitional fuels. These findings tally with the findings of Leach, (1992), Masera et al, 2000; Heltberg, (2003) Suliman, (2010) Ogwumike et al, (2014).

Another important variable that affects considerably the choice of modern fuels by households is the educational level or exposure of household's head. The more educated or exposed households are usually more inclined to adopt modern fuels. Though the findings of this study show widespread adoption by more educated households but the findings also show widespread fuels stacking as shown by the works of Hertberg, (2003) Suliman, (2010) Mensah and Adu, (2013).

Finally, findings on modern fuels supply security show that modern fuels supply challenges caused by frequent power outages, non availability of LPG are other supply disruptions doe not in a significant way affect fuel stacking behaviour fo households. These findings sharply contrast with previous findings by Leach, (1992), Masera et al, (2000), Heltberg, (2003), Mekennon, (2009), Suliman, (2010) Ogwumike et al, (2014).

4.3 Research Limitations

The study has some limitations that are worth noting. These include the following:
1. The study surveyed households in Bauchi metropolis which is the capital of Bauchi State. The energy consumption pattern maybe different from what obtains in rural and semi urban areas. It may be construed that the data obtained from this study may help to explain households' choice of cooking fuels or other general characteristics. We recommend for caution in that regard.
2. The constructs or IVs of the study used in the study are only four. The choice of the constructs was guided by the previous dominant literature. However, the model explains only about 25% variance in the DV leaving room for about 75% of the influence to other constructs not used in the study.
3. Finally the study focused on cooking fuels used by households instead of general energy utilization by households.

4.4 Suggested Areas for Future Researches

We submit that the following research areas are germane to households' energy utilization and have immense research potentials. They include
1. Households willingness to pay for improved supply of modern fuels
2. Mobilising Private Finance to Ensure Modern Fuels Supply Reliability in Nigeria
2. Economic costs of indoor pollution resulting from biomass dependent cooking
3. Modern fuels supply challenges in rural areas of Northern Nigeria

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Collective action as a way to develop Organic Farming in Armenia

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Keywords
Organic farming, collective action, peasants, Armenia

Abstract

Armenia is a landlocked country which gained its independence about 24 years ago. A big portion of population (44.2%) is still involved in agriculture and mostly consists of smallholder farmers. More than 20% of Armenia's GDP comes from agriculture. The government considers organic agriculture as a priority area in the country's agro-food policy as well as part of sustainable development. However, organic farming is still on its early stages of development just like in other Eastern European, Caucasian and Central Asian countries. Yet, the country already has an organic certification body which is recognized both in the US and the EU, organic supermarket in the capital city and a growing demand for organic products.

Those smallholder farmers and especially the organic producers face difficulties accessing markets, gathering necessary information, meeting quality control and food safety requirements, certifying their production as organic or fair trade, accessing credits and so on. Researchers believe that smallholder agriculture can play an important role in reducing global poverty as a vast number of world's poor are rural households that are involved in agriculture. Armenian smallholders are no exception and they face most of the same challenges and problems that peasants from other parts of the world do. This paper studies one of the ways that these challenges can be overcome, that is, collective action which has proved to be successful in many cases.

Although collective action can be very useful and helpful for smallholder farmers and there is even a small successful example from the organic sector in Armenia, it is not a panacea. Organizing a collective action is not an easy task and its success depends on many factors such as small group size, clearly defined boundaries, shared norms, past successful experiences and others.

1. Introduction

In the beginning of 1990s Armenia was experiencing a gradual decline in productivity which was followed by the collapse of Soviet Union (EconomyWatch Content, 2010). In addition to this, in 1992 the border between Armenia and Azerbaijan was closed with the start of conflict over Nagorno-Karabakh. This war prompted Turkey to keep back normal diplomatic relations with Armenia and thus seal its border with the neighbor county. Consequently, there are only two land access options for Armenia—via Georgia and Iran. In early 1990's after the collapse of the USSR Armenia had to start many things from the scratch—including the agricultural policies and laws, with all the reforms and development still taking place nowadays.

One of the big moves was the transition from collective farms of Soviet times to land and property privatization. As a result of that transition, about 340.000 private family-owned farms were created (Grigoryan & Urutyan, 2006). World Bank country study conducted in 2007 reports that 97% of agricultural output in Armenia comes from family farms whose average farm size was 1.4 ha. Urutyan, Yeritsyan and Mnatsakanyan (2015) suggest that since Armenia experiences high immigration rates of farmers who have low profitability, the average farm size has probably increased to 3 ha as many of those farmers either sell or allow their neighbors to cultivate their lands. This has also resulted in having fewer farmers reducing the number from 340,000 to 200,000. Only 6% of those farms have more than 10 ha of land (Urutyan, et al., 2015). Below is a table showing the agricultural holding by the type of ownership in the country.

Agricultural holdings by type of ownership	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
TOTAL (thous. ha)	325.2	331.8	310.2	306	304.5	300	283.6	286.7	304.2	318.1
Private (peasant farms) (thous. ha)	322.3	329.7	308.6	304.2	302	298	281.1	285.3	302.9	316.8
Commercial (thous. ha)	2.9	2.1	1.6	1.8	2.5	2	1.5	1.4	1.3	1.3

Table 1: Agricultural holdings by type of ownership
Source: (Urutyan, et al., 2015)

As Grigoryan & Urutyan (2006) mention, agriculture plays an important role for the country, particularly for the purpose of job creation and poverty reduction, as well as rural development. About 21.9% of the country's GDP composites of agriculture while approximately 44.2% of its population is involved in agriculture (CIA, 2014).

With an increasing demand for organic produce and growing environmental concerns both in the local and international markets, the government of Armenia considers organic agriculture as a priority area in the country's agro-food policy as well as part of sustainable development (Darbinyan, 2011). Taking into account the current developments in the region, particularly the fact that Russia has banned imports from the EU, USA, Australia, Canada and Norway, it creates a big gap that needs to be filled and Armenia can use that opportunity and expand its export of high-value food items (i.e. organics) to Russia. According to Urutyan, Yeritsyan and Mnatsakanyan (2015) the prices of organic products in Russian and EU supermarkets are about 2-3 times higher from those in the local market.

Considering the small farm sizes in Armenia and the early stage of organic sector development in the country this paper will study one of the ways to boost the sector—that is, through promoting collective action. The rest of the paper is structured in the following way: Part 2 presents the historical development and the current status of organic farming in Armenia. Part 3 shows the challenges faced by peasant household. Part 4 introduces ways in which collective action can help 'peasant' households and what makes collective action successful. Finally, Part 5 discusses the limitations of collective action.

2. Organic Farming in Armenia

2.1. Historical Overview

As of 2011 the UN Environment Programme (UNEP) reported that Armenia just like other Eastern European and Caucasus countries was in the early stages of organic agriculture development. In early 2000s several NGOs initiated the first steps in organic agriculture and so far most of the initiatives are driven by NGOs with very little government involvement and usually sponsored by foreign donors. The marketing of organic products, however, did not start until 2008 (United Nations Environment Programme, 2011). One of the pioneers in introducing the organic agriculture practices in the country is SHEN NGO which started operating in 1998 (Grigoryan & Urutyan, 2006).

From 2000 till 2012 as part of EPER regional program in the South Caucasus countries SHEN had been educating farmer groups as well as individual farmers by spreading the knowledge on organic agriculture cultivation methods. It has not only offered free advisory services to the farmers but also increased the awareness on organic products among the consumers (SHEN NGO, 2012). Another important step in the development of organic agriculture was the establishment of a certification body. In 2002 the first certification body—Ecoglobe was founded which offers both Control and Certification services to its clients

(Grigoryan & Urutyan, 2006). Its certificates are accepted both in the US and EU which makes Ecoglobe one of the two certification bodies in the EECCA region that have international recognition (United Nations Environment Programme, 2011)

As it is stated on the website of the Ministry of Agriculture of the Republic of Armenia: "*It should be mentioned that legislative environment in this regard is fully regulated. The RA Government adopted the law on Organic Agriculture approved by the RA National Assembly on May 5, 2008 and enacted on May 14, 2009.*" EU organic regulation and Codex Alimentarius have served as basis for the organic law in Armenia, which has a large scope and thus requires further by-laws. The stakeholders have also requested a National Organic Agriculture Plan to be prepared (Darbinyan, 2011). The same research notes that recently the investment into agriculture in the country has increased both form local and foreign private investors, who are mostly the Armenian diaspora from Russia, US and Europe.

Since the country is relatively small (around 29.000 square km) it cannot compete with other regional countries on the quantity of produced agricultural products, however one way to compete with them and develop the agriculture in the country in the long run is concentrating on a competitive advantage which can potentially be the organic farming. One of the reasons it can become a competitive advantage is the abundancy of cheap labor in the country, and since organic farming is labor-intensive in nature, this can in turn reduce the unemployment rate (Grigoryan & Urutyan, 2006). In 2009 the Armenian Government provided 1 million US dollars to a processor which was supposed to further develop the sector in the country by planting organic berry plantations throughout the country.

2.2. *Current Market Situation and Trends*

The Armenian Government does not directly support farmers to start growing organically by direct payments, which Darbinyan (2011) suggests can be one of the reasons why organic farming is developing slower on a farm level than it is preferred by the other stakeholders, such as the processors. Certification, which requires big investments initially, is one of the obstacles for the farmers, especially the small ones. However, SHEN Organic Service initiated an action of supporting small farmers by bringing them together, so that they can share organic certification costs. As a result several dozen of small holders have been put into two groups with the aim to share the certification fee (SHEN NGO, 2012).

According to Ecoglobe's (the only organic certification body in Armenia) official report dated on 10th April 2015 there were 25 certified farmers who were involved in growing plant products, processing, wild collection (the term means that only the product can be certified but not the land/collection area, although the latter needs to be registered by a certification body.) as well as honey making. In addition to that, there are six organically certified beekeeping enterprises and one producer of biological fertilizers. The processors are usually the ones who are also involved in the export and import of the products and the main players in the market are: Tamara Fruit, Beer of Yerevan, SIS Natural, HAM, Biouniversal and some others (Darbinyan, 2011).

According to the 2014 and 2015 reports titled *The World of Organic Agriculture: Statistics and Emerging Trends* by FiBL and IFOAM the development of organic agricultural land in the country shows an increasing trend. Particularly, in 2009 there was only 600 ha of organically certified land, in 2010 and 2011—750, in 2012 it reached 810 and finally 1000 hectares in 2013. Thus, organic agricultural land occupies only 0.1% of the total agricultural land. In addition, there were 11,050 and 11,250 hectares of organic wild collection areas in 2012 and 2013 respectively. It is also worth mentioning that the organic products' prices are about 20-25% higher than those of non-organic products (Global SPC , 2014).

Below is a table showing the same data from the FiBL and IFOAM reports for the regional countries to be able to compare the current situation:

Country	Organic ag. land 2009 (ha)	Organic ag. land 2010 (ha)	Organic ag. land 2011 (ha)	Organic ag. land 2012 (ha)	Organic ag. land 2013 (ha)	Total org. area, including wild coll. 2013 (ha)
Armenia	600	750	750	810	1,000	12,250
Azerbaijan	20,339	21,347	21,959	23,740	23,331	24,268
Georgia	1,208	1,401	1,999	1,999	1,999	3,405
Turkey	325,831	383,782	442,582	523,627	461,396	1,418,657
Iran	8,853	7,256	43,332	42,634	12,156	39,708

Table 2: Organic agricultural lands in the region

The table clearly shows that in all three South Caucasus countries (Armenia, Azerbaijan, Georgia) the picture is very similar and Armenia can compete with those countries in the export markets. However, when it comes to Turkey and Iran, it seems as though organic agriculture in Armenia is far less developed than in those countries and will probably be hard to compete in terms of scales of production.

There is over 30 main organic product types grown in Armenia—that is: fruit and berries, such as apricots, cherries, plum, grape, peach, pomegranate, peach, apples, as well as vegetables and salad crops like tomato, potato, cucumber eggplant (aubergines), zucchini (courgettes), carrots, etc. and wild collection crops and herbs: mint e.g. peppermint, rosehip (SHEN NGO, 2012). Besides, the organic processed foodstuff sector is getting somewhat competitive by attracting more and more companies to the market. There are about 40 processed foodstuff currently produced in the country and that includes, organic juice, juices with honey, teas, essential oils, breads and cereals. As of 2012 the annual total export of organic products was about 151 tons, most of which is juice and dried fruits (SHEN NGO, 2012).

A research titled *Market Assessment and Development for Organically Grown Produce in Armenia* carried out by Urutyan gives some interesting insights into the purchasing behavior of the Armenian households. The research shows that in 54% of the cases mothers in households are the ones purchasing fruits and vegetables, while fathers purchase them in 30% of the cases. 73% of the respondents had mentioned that mothers are the ones who decide what fruits and vegetables to buy. At the same time, as the research suggests 59% of the respondents have agreed that advertising does impact their purchasing decisions, only 31% of the information about food is received through advertising, while slightly bigger percent of information on food is spread through word of mouth. Having this information will allow the marketers to target the right audience for raising awareness on organic produce and promote it.

According to the same research which was conducted in 2007, 33.3% of the surveyed people think that the main advantage of organic products is that it is healthy, while 32.1% thinks that the main advantage is the taste. Interestingly enough, 11% of the respondents have mentioned that they do not know of any advantage organic products have. Another interesting aspect is that 55.5% of them did not know about the availability of organic products in Armenia and 67% had never tried any organic products. Nevertheless, 48% of the respondents have answered that they would prefer to buy organic products from specialized stores, which was followed by 25% people who would prefer to acquire from supermarkets and 23% from farmers markets.

One of the most important finding of the research is consumers' willingness to pay (WTP) for organic produce. It states that only 12% of the surveyed people have answered that

they are not willing to pay extra for organically grown produce, while about 60% has agreed to pay a price premium of 10-30% (45% of people: 10-20%, 15% of respondents: 20-30%). Also, 16% has shown willingness to pay 30-50% more for organic produce. Last but not least, the author says that 90% of the respondents who had non-complete and complete higher education (including MS and PhD) were willing to pay price premiums, as well as most of the respondents who had a child aged 17 and below.

A study using contingent valuation method based on data collected from two large urban areas in Spain, confirms other studies' findings that willingness to pay for organics differs based on consumer segments, cities and products (Sanjuán, Sánchez, Gil, Gracia, & Soler, 2003). They find that those consumers who are the most concerned about health and live in large cities are willing to pay the highest price premium reaching 22-37% for vegetables excluding potatoes, while those for potatoes were between 13-17%. The finding about WTP for organic products in Armenia goes along with many findings from other countries showing that depending on the product and location, organic price premiums fall within the range of 10-30 percent (Huang & Lin, 2007).

3. Smallholder Farmers and Challenges Faced by Them

Since most of the farmers in Armenia are of small scales as shown previously, it is important to talk about challenges they face. Smallholder agriculture can play an important role in reducing global poverty as a vast number of world's poor are rural households that are involved in agriculture (Markelova, et al., 2009). At the same time, as Barham and Chitemi (2009) suggest since smallholder farmers are the largest group involved in agriculture, the sector's development will not occur without engaging those smallholder farmers.

It is being widely recognized that the opportunity to partake in markets plays an important role in raising smallholders income associated with agricultural production and other related rural activities (Markelova, et al., 2009). Although there are more market opportunities, there is also a fear that smallholders will be totally left out of markets by large producers as they face high transaction costs in nearly all non-labor transactions while having a competitive advantage over large producers in a way that they have access to tacit knowledge and cheaper family labor (Poulton, et al., 2010).

Smallholder farmers face many challenges due to their small scales, such as difficulty in accessing market information, meeting quality control and food safety requirements (Gulati, et al., 2007), and the already high transaction costs that they incur increase even further especially in attempts to access organic, fair trade and other high-quality and niche markets (Poulton, et al., 2010). The reason is that those markets usually require special certification provided by third parties which can become a major barrier for peasant households to enter those markets (Markelova, et al., 2009). In addition, as Gulati et al (2007) suggest smallholder farmers are not always able to supply standardized products on constant basis.

Talking about Armenian smallholder farmers, in order for them to access the organic markets (supermarkets) in Russia and EU which offer 2-3 times higher prices than the local supermarkets, those farmers should be able to provide higher volumes to be competitive in foreign markets (Urutyan, et al., 2015).

In general, there is a growing demand for higher value and processed food all around the world as more and more people have higher purchasing power (Markelova, et al., 2009). Along with that, food safety standards have also increased and the costs associated with meeting those standards can squeeze small farmers out of markets as they need to learn how to produce safe food by utilizing cost-effective technologies and be recognized as producers of safe food, and most importantly they need to find ways to compete with bigger producers (Narrod, et al., 2009).

Narrod et al (2009) write about three main constraints that result in smallholder farmers being excluded from high-value markets. Those constraints are scale, information and reputation. According to them, meeting the standards posed by those markets requires high fixed costs in production and marketing as well as acquiring and processing information, while peasant households do not usually have easy access to credit. Last but not least, Markelova at al (2009) also claim that for many farmers it is hard to access inputs, extension and training as a result of a reduction in state-funded agricultural support.

4. Collective Action as a Solution

One of the ways for smallholder farmers to overcome the challenges they face is to act collectively by participating in farmer organizations (Stockbridge, et al., 2003). Farmer organizations are one of the collective action types which have more formal organizational structure and can provide a wide variety of services to smallholder farmers (Hellin, et al., 2009). Farmer organizations can help them reduce the transaction costs related to accessing markets, inputs and outputs, obtain required information, get access to new technologies which will in turn enable them to participate in markets (even in high value markets) and compete with larger producers (Stockbridge, et al., 2003). The way collective action makes it easier for smallholders to enter markets is that it strengthens their bargaining power with other stakeholders such as buyers and middle-men (Markelova, et al., 2009).

There are many cases that prove this, but just for illustration purposes here are three examples from three different countries that show how collective action can help smallholder farmers overcome their challenges. Narrod et al (2009) show an example where smallholder farmers in India were also enabled to collectively obtain food safety certifications and participate in high value markets which would have been impossible to achieve had they acted individually. As shown earlier, farmers in Armenia who grow organically were able to receive organic certification by getting together and splitting the costs of certification and this process was initiated by one of the local NGOs (SHEN NGO, 2012). Through collective marketing action Nyabyumba Farmer Group in Uganda found innovative ways to respond to changes in market. They started using group saving mechanism after borrowing their initial capital, also they jointly bought a truck when they realized that the transportation costs are much higher than what they had expected (Kaganzi, et al., 2009). In addition to having access to new markets, bringing innovation to existing value chains and having more marketing opportunities, by participating in collective action particularly in producer groups farmers can also access other services, successfully cover transportation costs and generally meet their financial needs (Markelova, et al., 2009).

Weatherspoon and Reardon (2003) suggest that supermarkets are generally attractive markets for farmers as they offer good profits on continuous basis and sometimes they are not as strict about food safety requirements as the export markets. Also, since these markets (supermarkets, export markets) usually require large volumes of supply, one of the ways for smallholders to access those markets is by supplying and coordinating their activities collectively (Markelova, et al., 2009). Especially for perishables that require more care for maintaining quality and thus more knowledge on how to do it, collective action can help smallholders to acquire transport, equipment, technical expertise and knowledge that otherwise would not have been accessible to them individually (Markelova, et al., 2009)

Barham and Chitemi (2009) mention that another reason why collective action has received more attention is that as market access proponents claim in order for those farmers to survive in the global economy they need to learn entrepreneurial skills which means moving from production-oriented paradigm to market-oriented behavior. An important attribute of collective action is social capital which is developed in the process of social learning; that is, the

process when people collectively define the problems they face, find solutions and evaluate the results, which moves those individuals from being separate agents with different outlooks to a group with shared perspectives and values (Koelen & Das, 2002). Kruijssen et al (2009) show graphically how social learning boosts social capital which make collective action even more successful which in turn brings more social learning and so on.

The traditional co-operatives mostly aim at creating economies of scale to access markets while the new models of co-operatives want to enter specific markets and offer high-quality products (Knickel, et al., 2008). Involving specialists other than farmers in collective action can be a successful tool to create more innovation and new products that could bring a higher value for all the actors in the collective (Markelova, et al., 2009). The new types of cooperative try to achieve customer loyalty and/or price premium by offering high-quality products that are different from what market already offers (using market or product differentiation strategy) and marketing of organic products, the entire process of production and certification is a great example (Knickel, et al., 2008). In Europe only where the demand for organic products grows at a rate of 10% yearly collective action for organic farmers not only can increase their incomes but also serve as a path for sustainable development of food systems, rural areas etc (Knickel, et al., 2008).

4.1. Success Factors and Challenges for Collective Action

Agrawal (2001) suggests the following list of factors that make collective actions successful:

1. Small group size
2. Clearly defined boundaries
3. Shared norms
4. Past successful experiences
5. Appropriate leadership
6. Interdependence among group members
7. Heterogeneity of endowments, homogeneity of identities and interests, and
8. Low level of poverty.

Markelova et al (2009) mention that even though it is easier for small groups to self-monitor it is easier with larger groups to achieve economies of scale which is very important for smallholder farmers. In addition, Braham and Chitemi's (2009) research on Tanzania does not find any evidence for the idea that small groups can be marketed better over larger groups and in general they find that group size does not have any impact on the collective marketing performance. Usually, producers of undifferentiated products do not benefit much from joining farmer groups and in other cases the transaction costs of organizing into groups can be so high that it does not make economic sense for farmers to establish farmer organizations. (Hellin, et al., 2009). A research conducted in Kenya shows that ownership of communication devices, such as phones, TV and radio decreases the probability that farmers will participate in collective marketing explained by the fact that those tools can serve as a substitute to getting information about the market. Same research shows that education level has a positive impact on participation in producer marketing initiatives (Shiferaw, et al., 2008).

Although collective action can have a positive impact on farmers by enabling them to access markets, usually there is a need for a third/external party to initiate and facilitate the collective action, teach them how to engage in marketing activities and support them by providing technical assistance, as farmers usually do not self-organize on formal basis (Markelova et al., 2009). This has a crucial importance because poor farmers usually do not have the necessary knowledge, financial means, education, management and entrepreneurial skills.

Armenian farmers are no exception. Grigoryan et al (2008) show a list of reasons why farmer organizations in Armenia have failed:

1. Lack of understanding of the three main principles of cooperative
2. Poor management
3. Irrigation (in Lukashin cooperative)
4. Rural finance and access to credit
5. Agricultural inputs and technology
6. Marketing of agricultural produce

Thus, it is necessary to understand the roles of public and private sectors especially questions such as how farmer organizations should be established and who should fund the establishment (Hellin, et al., 2009). Public and private sectors are especially needed for disseminating information, providing financial means, building capacity in auditing, certification and business, training group members and improving governance and democratization of farmer organizations (Shiferaw, Obare, & Muricho, 2008 and Narrod, et al., 2009).

Markelova *et al* (2009) think that private sector can be best in helping farmer organizations to meet the market requirements such as certification, safety and quality standards. Hellin *et al* (2009) suggest that while development agencies play an important role in the initial stages of farmer organizations, private sector's role increases as those organizations become more mature. Meanwhile, governments are the major actors in creating environments that enables collective action to take place and operate especially considering that the poor have many constraints such as access to input markets and credit (Markelova *et al*., 2009)

However, this does not guarantee that collective action will be successful even after the group members receive financial support and are willing to work collaboratively as the success depends also on the social-demographic characteristics of the group members (e.g. age, race, gender, education, etc), product types, previous experience with collective action and the market that they are trying to enter (McCarthy, 2004). Central and Eastern Europe is a good example: in the socialist past farmers and rural households were forced to be part of collective action, the type of which had many disadvantages and this led to having very low levels of trust in cooperatives and generally in the idea of collectivity even in our days (Knickel *et al* 2008).

Devaux *et al* (2009) also show that collective action results in better teamwork and innovation. At the same time, in order to have successful collective action that is both sustainable and effective it is important to make sure that all the stakeholders are actively involved in the decision making process and they understand the common and problems (Kruijssen *et al* 2009) However, Kaganzi *et al* (2009) show that for collectively supplying graded produce farmers in Uganda were incentivized to produce individually but sell collectively by being paid and rewarded according to the quality and quantity of their individual production.

Another challenge is that even many organizations which work on fostering collective action (that is working either as collective farms or cooperatives) do not know how much the services they provide will cost to them and therefore they do not incorporate all their costs. Hellin *et al* (2009) bring two examples: first they refer to a research in Spanish conducted by Agropyme who shows that on the example of Honduras where those costs can be outrageously large, that is, peasants cover up to 84% of the required incorporation costs, such as "technical and organizational assistance, infrastructure and working capital" and that money comes from donor funding. Knickel *et al* (2008) suggest that although public support is important there is a risk of depending too much on that support and this needs to be taken in account.

Last but not least, as research shows collective action can and does help smallholders to solve many of the marketing challenges that they face but it is not a panacea because problems

such as "free riding by group members and reduced flexibility to respond to market changes" can still take place even in collective organizations (Kruijssen, *et al*., 2009).

5. Conclusion and Recommendations

Armenia is a landlocked country which has gained its independence about from Russia on 21st September 1991. A large portion of population (44.2%) is involved in agriculture and mostly consists of smallholder farmers. Currently more than 20% of Armenia's GDP comes from agriculture. The government considers organic agriculture as a priority area in the country's agro-food policy as well as part of sustainable development. However, organic farming is still on its early stages of development just like in other Eastern European, Caucasian and Central Asian countries. Yet, the country already has an organic certification body which is recognized both in the US and the EU, organic supermarket in the capital city and a growing demand for organic products.

Researchers believe that smallholder agriculture can play an important role in reducing global poverty as a vast number of world's poor are rural households that are involved in agriculture. Armenian smallholders are no exception and they face most of the same challenges and problems that smallholder farms from other parts of the world do. In particular, they have difficulty in accessing markets, gathering necessary information, meeting quality control and food safety requirements, certifying their production as organic or fair trade, accessing credits and so on. One of the ways that this challenges can be overcome is collective action which has proved to be successful in many cases.

Although collective action can be very useful and helpful for smallholder farmers it is not a panacea. Organizing a collective action is not an easy task and its success depends on many factors such as small group size, clearly defined boundaries, shared norms, past successful experiences and others.

For further research, I would recommend to conduct a mixed method research about organic agriculture in Armenia to have a better understanding of the local picture, experience and expectations, considering that it is a fairly new and developing sector in the country and region. The limiting factor is that there is very little data on organic production in the country and very few producers. Also, it would be very useful for policy purposes to study whether or not Armenian farmers are familiar with organic practices and if so can Armenia produce organic food products at competitive prices. Last but not least, considering the country's bad experience with collective action during the Soviet times and farmers' negative attitude towards it I would recommend to study the potential areas for public private partnership, such as educating farmers, changing their perceptions and maybe even establishing successful role-model cases.

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Motivational factors as determinants of employee commitment and performance enhancement in profit oriented firms: a survey of selected brewery manufacturing companies in Nigeria

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Motivational Factors, Employee Commitment, Performance Enhancement, Profit-Oriented Firms, Frustration, Determinants

Abstract

The objective of the study is to investigate the Impact of Motivational Factors such as extrinsic, intrinsic rewards and social motivational on employee commitment and performance enhancement in profit oriented firms with a focus on selected Brewery Manufacturing firms in Nigeria. Data for this research is obtained from both primary and secondary sources. The sample size for the study is 280 from six (6) Brewery firms. Multiple Regression test was used in testing the two (2) formulated hypotheses. The study findings revealed that motivational factors such as Intrinsic, extrinsic and social motivation have a good relationship with employee commitment and performance enhancement in profit oriented firms especially Brewery manufacturing companies. Other findings were that lack of motivational incentives will lead to employee frustration in these companies. The study recommends that adequate and consistent provision of intrinsic, extrinsic and social motivational incentive packages to staff to facilitate employee commitment and high performance attainment is important at all times. The study also recommended that, establishing organizational objectives and goals by companies is a good starting point by management to know the essential motivational incentives that should be granted to employees for productivity attainment.

Introduction

Understanding why people do the things they do on the job is not an easy task for the managers. Predicting their response to management's latest productivity program is harder yet. Fortunately, enough is known about motivation to give the thoughtful manager practical, effective technique for increasing people's efforts and performance. Bateman and Snell (1996) and Dugguh (2008) maintained in their respective research endeavor that; organizational objectives/goals are unattainable without the enduring commitments of members of the organization. The degree of commitment and performance is a function of motivation. Motivating employees to perform tasks assigned to them is one of the major challenges confronting management and managers. Motivation is one of several factors that go into a person's performance. Though, motivation is a key factor that influence a worker's performance, it often appears to be in short supply and needs to be constantly replenished.

Yalokwu (2006) see motivation as forces that energizes, direct and sustain a person's efforts. Zedeck & Blood (1974) view motivation as an emotion or desire operating on a person's will and causing that person to act. A highly motivated person will work hard towards achieving performance goals. With adequate ability and understanding of the job, such a person will be committed and highly productive. To be effective motivators, managers must know what behavior they want to motivate people to exhibit. Organization motivate employee to exhibit;

Joining the organization;
To remain in the organization;
To come to work regularly;
To perform tasks assigned to them;
To exhibit good citizenship behaviors.

Robbins (1998) maintains that good citizens of the organization are committed, satisfied employees who perform above and beyond the call of duty by doing extra things that can help the company. The importance of citizenship behaviors may be less obvious than productivity but these behaviors help the organization function smoothly. They also make manager's lives easier. It also helps managers motivate employee to engage in constructive behaviors.

According to Mullins (1996), the needs and expectations of employees at work can be categorized in a number of ways. These include;

Extrinsic motivation – This is related to tangible rewards such as salary and fringe benefits, security, promotion, materials goods, contract of services, the work environment and conditions of work. Such tangible rewards are often determined at the organizational level and may be largely outside the control of individual managers. This is an instrumental orientation to work and concerned to other things.

Intrinsic Motivation – This is the psychological rewards such as the opportunity to use one's ability, a sense of challenge and achievement, receiving appreciation, positive recognition, and being treated in a caring and considerate manner. The psychological rewards are those that can usually be determined by the actions and behavior of individual managers. This is a personal orientation to work and concerned with oneself.

Social relationship – This is referring to things such as friendships, group working and the desire for affiliation, status and dependency. This is a relational orientation to work and concerned with other people.

Buchanan and Huczynski (2004) maintains that, a person's motivation, job satisfaction and work performance will be determined by the comparative strength of these set of needs and expectations, and the extent to which they are fulfilled. For example, some people may make a deliberate choice to forgo intrinsic satisfaction and social relationships (particularly in the short term or in the earlier years of their working life) in return for high economic rewards. Other people are happy to accept comparatively lower economic rewards in favour of a job which has high intrinsic satisfaction and for social relationships. Nwachukwu (2009) maintains that the major problem confronting management of organization is that of motivating workers to perform assigned tasks and to be highly committed to meet or surpass predetermined standards. He emphasized that with adequate motivational factors in place, it will serve as energizing force that will induces or compels and maintains behaviors of employee towards high performance in organizations and contributes to person's degree of commitment.

Daft (2005) emphasized that, to motivate employee for performance, the attributes of effective standards of performance needs to be identified. They include;

Standards must be based on the job and not the person(s) in the job. In other words, standards of performance should be established for the job itself – regardless of who occupies the job.
Standards of performance must be achievable.
Standards must be understood.
Standards must be agreed on
Standards must be specific and measurable as possible
Standards must be time oriented
Standards must be written
Standards must be subject to change

Yalokwu (2006) identified performance categories and standards of performance for organizational jobs / tasks, motivated employee are required to adopt. These includes:

Work quality
Standard: provides accurate, thorough, professional work regularly.

Job knowledge
Standard: well informed and educated in performing to the level expected for the job
Organization and planning
Standard: organize, plans, and forecasts work skillfully to meet job needs.
Analysis and Judgment
Standard: Analyses problem skillfully, use logic and good judgment to reach solutions.
Dependability and Consistency
Standard: Personally, responsible, steadfast and can be called upon for difficult and pressured challenges.
Interpersonal skills
Standard: work well with others, get things done with people and keep information open at all levels.
Initiative
Standard: Helps to determine the needs of the work place; help all to meet the goals.
Team work
Standard: Coordinates own work with others, seek opinions, values working relationships.
Service – centered work
Standard: Regularly seek to provide quality service to achieve customer satisfaction.
Attendance and punctuality
Standard: regularly present and punctual

Organizational commitment on the other hand is defined as a state in which an employee identified with a particular organization and its goals and wishes to maintain membership in the organization (Langton, Robbins and Judge, 2010). Professor John Meyer (1993) at the University of Western Ontario and his colleagues have identified and developed measures for three (3) types of commitment. These include;

Affective commitment – In this case there is an individual relationship to the organization: his or her emotional attachment to, identification with and involvement in the organization.

Normative commitment – This is the obligation an individual feels to staying with the organization.

Continuances commitment – This is an individual's calculation that it is in his or her best interest to stay with the organization based on the perceived costs of leaving the organization.

A positive relationship appears to exist between organizational commitment and job productivity, but it is a modest one. Several pieces of research reveal that the relationship between commitment and performance is strongest for new employees, and it is considerably weaker for more experienced employees. At the same time, there is research evidence demonstrates a negative relationship between commitment and both absenteeism and turnover.

Research evidence on a number of companies known with high organizational commitment identified five reasons why employees commit themselves. These include;

They are proud of the company's aspirations, accomplishments, and legacy, they share its values.

They know that each person is expected to do, how performance is measured and why it matters.

They are in control of their destinies; they savour the high risk, high reward work environment.

They are recognized mostly for the quality of their individual performance.

They have fun and enjoy the supportive and highly interactive environment. (Shore and Wayne, 1993).

It is pertinent to note that adequate motivation could lead to commitment and standard job performance using the above highlighted standards. Despite the provisions of motivational incentive i.e. extrinsic, intrinsic and social motivational needs by organizations, there exist instances of negative performance trends in organizations. The researcher therefore wants to establish why this is so.

2. **Statement of the Problem**

The concern for staff with regards to welfare rewards and creation of a conducive atmosphere to enhance employee commitment and high performance attainment is of great importance to the organization. Considerable efforts is expended by the Executive Management of business organizations in ensuring that good motivational incentives and programs are provided to employees at all times. Yet still the same negatives exist, these include instances of frustration experienced by employees resulting to low performance level by business firms have caused distress and liquidation in organization. These have created a gap to be filled in this research endeavor especially in developing countries like Nigeria. Could it have been that these motivational packages are not appropriately administered by Executive Managers of the organization or inadequately allocated? This is the concern of the researcher.

2. **Research Question**

In light of the aforementioned issues, the following research questions may be considered relevant:

To what extent is the impact of motivational factors on employee commitment and performance enhancement in profit oriented firms with a focus on Breweries Companies in Nigeria?

To what extent have motivational factors have caused employee frustration in profit oriented firms with a focus on Breweries Companies in Nigeria?

3. **Research Objectives**

The relevant objectives are:

To examine the relative impact of motivational factors on employee commitment and performance enhancement in profit oriented firms with focus on Breweries Companies in Nigeria.

To evaluate the extent to which motivational factors have influenced employee frustration among profit oriented firms with focus on breweries companies in Nigeria.

4. **Research Hypotheses**

The following research hypotheses structured in a Null form may be considered germane for this research endeavor;

Ho_1: Motivational factors have no significant impact on employee commitment and performance enhancement in profit oriented firms in Nigeria.

Ho_2: Motivational factors have not produced significant effects on employee frustration among the profit oriented firm in recent years in Nigeria.

5. **A Brief Survey of Literature**

Motivation is one of the key ingredients in employee performance and productivity. Even when people have clear work objectives, the right skills, and a supportive work environment, they won't get the job done without sufficient motivation to achieve those work objectives. McShane and Glinow (2000) refers to motivation as the forces within a person that affect his or her direction, intensity and persistence of voluntary behavior. Motivated employees

are willing to exert a particular level of effort (intensity), for a certain amount of time (persistence) toward a particular goal (direction).

To Griffins (1997), motivation is the set of forces that causes people to behave in certain ways. Daft (2008) view motivation as the forces either within or external to a person that arouse enthusiasm and persistence to pursue a certain course of action. Employee motivation affects productivity and part of a manager's job is to channel motivation toward the accomplishment of organizational goals. Sev (2013) maintains that, the study of motivation helps managers understand what prompts people to initiate action, what influences their choice of action and why they persist in that action overtime.

The importance of motivation to an organization is that, it can lead to behaviors that reflect high performance within organizations. Studies have found that high employee motivation goes hand-in-hand with organizational performance and profits. Managers can use motivation theories to help satisfy employee needs and simultaneously encourage, high work performance. It is therefore, pertinent that managers have to find the right combination of motivational techniques and rewards to keep people satisfied and productive in a variety of organizational situations.

Internalized motivation, as noted by Nwachukwu (2000) is more sustaining than induced motivation. An employee derives satisfaction from being able to perform his work satisfactorily what management should strive to do is to give the employee every help that he needs in order to work well. An employee is at his best when he does what he enjoys doing.

Self-motivation is encouraged by;

Acquisition of the skills to do a job satisfactorily so that the employee likes what he/she is doing. When an employee feels and believes that the work he does has intrinsic value, that is, that he derives pleasure and has a feeling of self – fulfillment through its performance.

Autonomy – the feeling of being one's own boss. As an employee gains skill and does his work with little or no supervision, a new feeling of autonomy is generated. The satisfaction drives from this leads to hard work.

Achievement – the ability to accomplish a task satisfactorily gives one the feeling of achievement. This is particularly so when the employee receives the attendant rewards ear-marked for the accomplishment of a task. This could be demonstrated by promotion, an increase in wages, more responsibility and authority.

Understanding – nothing is more fulfilling than working with a supervisor who understands, and demonstrates empathy. A supervisor who observes when a subordinate looks anxious, tired, physically or mentally exhausted and walks over to show some sympathy, is very understanding. Small remarks like, "John", you look very tired today, are you all right? Why don't you take it easy today? Or a supervisor, who judiciously grants permission for a day off to employees for unavoidable circumstance within the house or village, helps to internalize motivation. The employee develops the spirits of belonging and attempts to be "good" to the organization.

Knowledge of where one stands – employees like to know where they stand at all times. Being in doubt as to one's progress makes one lose the same sense of accomplishment and pride in one's work. It is part of one's egoistic need to be able to answer the question, how am I doing? An employee must be given the opportunity to understand the present in order to predict the future uncertainty kills.

Praise – An employee who accomplishes a task with purpose deserves a compliment. Some supervisors will never fail to reprimand an employee for a poor performance, but never remember to praise him or her for an outstanding one.

We praise an individual not for the good he/she does, but for the evil he elected not to do. Praises stimulate the heart and good one to more action.

Praises stimulate the heart and good one to more action. Simple praise – a little pat on the back – that's great; well done: I know you would do it; I do not know what I could do without you", are very reassuring.

Attention – every person deserves some attention. An employee likes to know that he is not just part of the organizational status. Noticing when an employee is sick, absent, unproductive etc is part of giving attention.

An employee could deliberately absent himself from work or reduce his productivity just to find out if anyone cares. Knowing that someone cares is very important and increases self-esteem.

Acceptance – every employee likes to know that he/she has been accepted by the organization. Acceptance is manifested in several ways: sharing information with employees, giving them a feeling of belonging and being wanted, or making them feel proud of the organization makes them feel accepted. An employee who is selected for a training program often feels accepted by the organization. Any form of investment in an employee gives them the feeling of belonging and increases there self–confidence.

These are the needs that internalized development help to arouse in the individual. The best motivation is self – motivation and any activity undertaken by management to induce this will be in the best interests of both management and the employee.

Porter and Lawler (1968) have summarized several popular methods of incentive compensations programs as ways to motivate employees to higher levels of performance as follows:

Program	Purpose
Pay for performance	Reward individual's employee in proportion to their performance contributions. Also called merit pay
Gain sharing	Rewards all employees and managers within a business unit when predetermined performance targets are met. Encourage team work.
Employee stock ownership plan (ESOP	Gives employees part ownership of the organization, enabling them to share in improved profit performance.
Lump – sum bonuses	Reward employees with a one-time cash payment based on performance
Pay for knowledge	Links employee salary with the number of task skills acquired. Workers are motivated to learn the skills for many jobs, thus increasing company flexibility and efficiency
Flexible work schedule	Flexible time allows workers to set their own hours. Job sharing allows two or more part – time workers to jointly cover one job. Telecommuting, sometimes flex-place, allows employees to work from home or an alternative workplace
Team – based compensation	Reward employees for behavior and activities that benefit the team, such as cooperation, listening and empowering others.
Life style rewards	Reward employees for meeting ambitious goals with luxury items such a high definition television, tickets to big – name sporting events and exotic travel

Source: *Dyck and Neubert (2008) Principles of Management, International Students Edition; South-Western Cengage Learning.*

Nwachukwu (2006), Luthans (2002) and Wendell French (1974), emphasized that lack of motivation can make employee to be a threat to himself and the organization. When an employee fails to achieve a goal, he or she feels frustrated and acts in such a way as to show

his/her inability to achieve. They might develop behavior peculiarities characteristic of the position in which he or she finds themselves such as anxiety. They could develop defensive behavior often referred to as defensive mechanism. The most common symptoms of frustration as a result of inadequate motivation in organization are: -

Displacement – Taking out one annoyance on another person other than the primary source of frustration. An illustration is a man who has a nagging wife who reprimands him every time, but who goes to work to take it out on his subordinate.

Aggression – Reaction by physically or verbally attacking others. It is a hostile act associated with emotional anger. It could be an attack on substitute objects (scapegoats).

Regression – A breakdown of constructive behavior to childish acts. In the work environment the individual plays like children, throw things and engages in childish pranks. Other characteristics of regressive behavior are; following the leaders, lack of responsibility, unreasoned fear, ganging up childishly, childish crying (of women), and sulking (of men).

Fixation – A compulsion to continue an unproductive activity. The employee keeps washing his or her tools, frequents the toilet, or ties and unties his/her shoes.

Projection – Blaming others for one's failure, thoughts, feelings or behavior. Thus the saying, "when you make a mistake blame somebody.

Rationalization – Offering socially acceptable excuse or reason for one's failure to achieve in place of the real reason.

Negativism – Interpreting every action as a calculated attempt to undo one. Perceiving evil in everything happening around you.

Withdrawal – Attempt to avoid the barrier physically or psychologically.

Compensation - Over reacting to cover areas in which one thinks one is inferior or one has a feeling of inadequacy.

Identification – Identifying with and initiating others people behavior.

Ailments – Pretending to be sick or literally becoming sick to avoid a threatening situation.

Alienation – This is also a common problem as a result of lack of motivation in organization. It is a feeling of self-helplessness. It happens when an individual feel that in the role they play they are estranged from the kind of life of which he or she is capable. This happens when a person surrenders their destiny in the hands of another in order to earn a wage.

According to Faunce (1968) powerlessness, normlessness and meaninglessness are predisposing conditions to alienation. Alienation steps in when an employee perceives that he/she cannot achieve their goal or objective through the organization.

6. Methodological Framework: -

For this study, the researcher adopted a cross–sectional design of the quasi-experimental design. This design is most suitable since there are no real experiments carried out with human beings who are the study subjects in this case. The design suitability is seen in the fact that it involves taking a sample of elements from a population of interest which is measured at a single point in time (Baridam, 2001: 57). The population for this study comprises of five (5) Breweries companies in Nigeria with management staff population as follows:

Guiness Nigeria Plc Lagos 436, consolidated Breweries Plc Iddo – Lagos 165, Nigeria Breweries Plc Iganmu – Lagos 144, Bendel Breweries Limited, Benin City 92, Sona Breweries Plc Otta, Lagos 76, and Benue Breweries Limited, Makurdi, 21. This altogether makes a total management staff population size of 934.

The selection of the companies bordered on factors such as size of employee, scope of operation, age, assets base and quality. This will enable us establish the impact of motivational factors on employee commitment and performance enhancement in profit oriented firm particularly the brewery firms in Nigeria.

The choice of the brewery companies is judgmental. Primary source of data collection especially the questionnaire will be administered to obtain viable information on the subject matter using 5 - point Likert rating scale of **Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD).**

To scientifically generate a sample size, the Yamane's formula (1964) was applied. According to Baridam (2001), this formula can be used for a homogenous population like the one in this study. The formula is stated below:

$$n = \frac{N}{1 + N\,(e)^2}$$

where: n = sample size
e = level of significance
N = population size
1 = constant value

The total population size of 934 was used to obtain the sample size of six (6) Breweries Companies in the study of 0.05 level of significance as shown below;

$$n = \frac{934}{1 + 934\,(0.05)^2}$$

$$n = \frac{934}{1 + 934\,(0.0025)}$$

$$n = \frac{934}{1 + 2.335}$$

$$n = \frac{934}{3.335}$$

$$n = 280$$

From the total sample size, the individual company's sample size was calculated. The formula applied was Bowley's population allocation formula (1964) in Nzelibe (1992: 201) as shown below

$$nh = \frac{\curlywedge Nn}{N}$$

Where: nh = the number of units allocated to each company
n = the total sample size
nh = the number of employees in each company
n = the population size

Following the Bowley's Allocation formula, the individual company's sample size is derived as follows:

S/N	Name of Company	Company's Population	Total Sample Size
1.	Guiness Nigeria Plc Lagos	436	131
2.	Consolidated Breweries Plc Iddo Lagos	165	49
3.	Nigeria Breweries Plc Iganmu Lagos	144	43
4.	Bendel Breweries Ltd Benin City	92	28
5.	Sona Breweries Plc Otta Lagos	76	23
6.	Benue Breweries Ltd Makurdi	21	6
	Total	**934**	**280**

Source: Company's Records and Field Survey (2016)

For Guiness Nigeria Plc Lagos, $nh_1 = \frac{280 \times 436}{934} = 130.70 = 131$

For Consolidated Breweries Lagos, $nh_2 = \frac{280 \times 165}{934} = 49.46 = 49$

For Nigeria Breweries Plc Lagos, $nh_3 = \frac{280 \times 144}{934} = 43.1 = 43$

For Bendel Breweries Plc Benin City, $nh_4 = \frac{280 \times 92}{934} = 27.58 = 28$

For Sona Breweries Plc Lagos, $nh_5 = \frac{280 \times 76}{934} = 22.78 = 23$

For Benue Breweries Plc Makurdi, $nh_6 = \frac{280 \times 21}{934} = 6.29 = 6$

To ascertain the validity of the research instruments for this research, content validity is applied and it consists of face and sampling validity.

Face validity is concerned with the researcher's subjective evaluation as to the validity of a measuring instrument (Baridam, 2001: 80). Baridam further states that, expert opinion on the subject matter can be sought to confirm the extent to which the questionnaire has a face validity. Five (5) experts each from the six (6) Brewery companies making a total of thirty (30) were consulted on the subject matter of motivational factors as influencing employee commitment and performance of organizations and all confirmed the questionnaire used for the study are adequate for face validity. They also confirmed that the given population for the situation is adequately sampled. For reliability of the measuring instruments it refers to the consistency or precision of the measure. Gay (1996: 144) states that reliability means dependability or trustworthiness and that any reliable measure yields the same result anytime it is readministered.

Cronbach Alpha was used in determining the reliability of the instrument as shown below;

Reliability Statistics

Cronbach Alpha	No of Items
0.81	30

Source: Field Survey (2016)

Our Cronbach Alpha value of 0.81 means that our instruments are very reliable.

Multiple Regression Test is used for the testing of two (2) formulated hypotheses.

7. Data Presentation and Analysis

This section deal with the description statistics with the presentation of tables and figures and test of hypotheses.

A total of 280 questionnaires were distributed to the Management Staff of (6) surveyed Breweries in Nigeria. Specifically, 131 questionnaires were distributed to Management staff of Guiness Nigeria Plc, 49 questionnaires to management staff of consolidated Breweries Plc Lagos, 43 questionnaire to management staff of Nigeria Breweries Plc Lagos, 28 questionnaire to management staff of Bendel Breweries Ltd Benin, 23 questionnaire to management staff of Sona Breweries Plc Otta, Lagos and 6 management staff of Benue Breweries Plc Makurdi. All the questionnaire were filled and returned indicating a high response rate of 100% on the subject matter of motivational factors as a determinant of employee commitment and performance in profit oriented firms were evaluated.

Key: SA = Strongly Agree, A= Agree, U = Undecided, D= Disagree, SD = Strongly Disagree

The number in the bracket are percentages

Table 1.0: Distribution of the Respondents opinion with regards to whether motivation factors are adequate to impact on employee commitment and performance

Statement	Name of Brewery Company	Degree of response					
		SA	A	UD	D	SD	Total
Motivational factors	Guiness Nigeria Plc Consolidated Breweries	40 (30.53)	45 (34.35)	4 (3.05)	28 (21.37)	14 (10.68)	131

are adequate to impact on employee commitment and performance in these organizations	Plc Nigeria Breweries Plc Bendel Breweries Ltd Sona Breweries Plc Benue Breweries Ltd	21 (40.81) 18 (41.86) 8 (28. 57) 2 (8.69) 2 (33.33)	23 (46.93) 20 (46.51) 11 (39.28) 8 (34.78) 3 (50)	- - 2 (7.14) - -	6 (12.24) 5 (11.62) 7 (25) 13 (56.52) 1 (16.66)	- - - - -	49 43 28 23 6
Total		**90**	**110**	**6**	**60**	**14**	**280**

Source: Field Survey (2016)

In the question that sought to find out whether motivational factors are adequate to impact on employee commitment and performance enhancement in their organizations amongst other, it is seen from the table 1.0 that the Nigeria Breweries Plc have a lead with 41.86% representing 18 employees who strongly agree. They are followed by consolidated Breweries Plc with 40.81% representing 20 employees who strongly agree. Next is Benue Breweries Ltd with 33.33% representing 2 employees who strongly agreed. Guiness Nigeria Plc followed with 30.53% representing 40 employees. Bendel Breweries Ltd has 28.57% representing 8 employees and lastly, the Sona Breweries Plc with 8.6% representing 2 employees strongly agree on this position.

In the "Agree" option, Benue Breweries Ltd lead with 50% for 3 employees for agree. They are followed by consolidated Breweries Plc with 46.93% standing for 23 employees. Nigeria Breweries Plc have 46.51% representing 20 employees. Bendel Breweries Ltd followed with 39.29% representing 8 employees for agree. They are followed by Sona Breweries with 34.78% standing for 8 employees for agree. Lastly, for agree option is Guiness Nigeria Plc with 34.35% standing for 45 employees.

For the undecided option, Bendel Breweries Ltd lead with 7.14% representing 2 employees and Guiness Nigeria Plc with 3.05% representing 4 employees. There is no respondent for Nigerian Breweries Plc, consolidated Breweries Plc, Sona Breweries Plc and Benue Breweries Ltd for the undecided option.

For the "Disagree" option, shows that Sona Breweries Plc leading with 56.52% standing for 13 employees. They are followed by Bendel Breweries Ltd with 25% (7 employees); followed by Guiness Nigeria Plc with 21.37% (28 employees); followed by Benue Breweries Ltd with 16.66% (1 employee). Consolidated Breweries Plc have 12.24% (6 employees) and lastly Nigeria Breweries Plc with 11.62% (5 employees).

The last option of "Strongly Disagree" shows that Guiness Nigeria Plc leading with 10.68% representing 14 employees. The rest of the Brewery companies have not presented any candidate for this category.

Table 2.0: Distribution of the subjects perception that extrinsic, intrinsic and social motivational programs are the popular methods adopted by the organization**.**

Statement	**Name of Brewery Company**	**Degree of response**					
		SA	**A**	**UD**	**D**	**SD**	**Total**
Extrinsic, intrinsic and social motivational	Guiness Nigeria Plc Consolidated Breweries Plc Nigeria Breweries Plc	55 (34.35) 16 (32.65) 15 (34.88) 10 (35.71)	55 (41.98) 20 (40.81) 17 (39.53) 11 (39.28)	25(19.08) 10(20.40) 7 (16.27) 5 (17.85)	6 (4.58) 3 (6.12) 4 (9.30) 2(7.14)	- - - -	131 49 43 28

programs are the popular methods adopted to motivate employees to higher performance in our organization	Bendel Breweries Ltd Sona Breweries Plc Benue Breweries Ltd	7 (30. 43) 2 (33.33)	9 (39.13) 3 (50)	7 (30.43) 1 (16.66)	- -	- -	23 6
Total		**95**	**115**	**55**	**15**	**-**	**280**

Source: Field Survey (2016)

On the issue of popular motivational methods adopted by our organization are extrinsic, intrinsic and social in nature, table 2.0 reveals that Bendel Breweries leads with 35.71% representing 10 employees for strongly agree option. Nigeria Breweries followed with 34.88% standing for 15 employees. Guiness Nigeria Plc followed with 34.35% representing 45 employees. Benue Breweries have 33.33% standing for 2 employees followed by consolidated Breweries Plc with 32.65% (16 employees). The least percentage for strongly agree is 30.43% standing for 7 employees for Sona Breweries Plc.

On the "agree" response option, Benue Breweries Ltd leads with 50% standing for 3 employees. They are followed by Guiness Nigeria Plc with 41.98% representing 55 employees. Consolidated Breweries Plc followed with 40.81% representing 20 employees. Nigeria Breweries Plc followed with 39.53% standing for 17 employees. Bendel Breweries is next on this option with 39.28% (11 employees) and lastly Sona Breweries Plc with 39.13% representing 9 employees for agree option.

The greatest percentage of 30.43% standing for 7 employees by the Sona Breweries Plc, are undecided about whether motivational methods such as extrinsic, intrinsic and social programs are adopted by the company. The consolidated Breweries Plc had 20.40% standing for 10 employees. They are followed by 19.08% standing for 25 employees. Next is, Bendel Breweries Ltd with 17.85% (5 employees) on this undecided option. Benue Breweries Ltd recorded 16.66% (1 employee) for undecided and the least percentage of 16.27% standing for 7 employees is recorded by Nigeria Breweries Plc.

For the "Disagree" option, Nigeria Breweries Plc leads with 9.30% standing for 4 employees, while Bendel Breweries followed with 7.14% representing 2 employees. Next is, Consolidated Breweries Plc with 6.12% standing for 3 employees. The least percentage for the disagree option is 4.5% representing 5 employees is recorded by Guiness Nigeria Plc. However, Sona Breweries Plc and Bendel Breweries Ltd did not present any candidate for the category.

Table 3.0: Distribution of the Respondents Notion concerning poor management system and inadequate motivation as leading to symptoms of frustration by organizational employee.

Statement	**Name of Brewery Company**	**Degree of response**					
		SA	**A**	**UD**	**D**	**SD**	**Total**
Poor management system and inadequate motivation would lead to symptoms of frustration of employee in our organization	Guiness Nigeria Plc Consolidated Breweries Plc Nigeria Breweries Plc Bendel Breweries Ltd Sona Breweries Plc Benue Breweries Ltd	48(36.64) 22(44.89) 20(46.51) 8(28.57) 7(30.43)	44(33.58) 18(36.73) 16(37.20) 11(39.28)	34(35.95) 9(18.36) - 7(25) 6(26.08) -	3(2.29) - 3(10.71) - -	2(1.52) - - - -	131 49 43 28 23 6

		4(66.66)	10(43.47) 2(33.33)				
Total		**109**	**101**	**56**	**15**	**2**	**280**

Source: Field Survey (2016)

With regards to employee frustration in your organization as a result of inadequate motivation and poor management system, table 3.0 reveals that 66.66% representing 4 employees strongly agree for Benue Breweries Ltd. They are followed by 46.51% standing for 20 employees for Nigeria Breweries Plc. Consolidated Breweries Plc followed with 44.89% representing 22 employees. Guiness Nigeria Plc followed with 36.64% standing for 48 employees. They are followed by Sona Breweries Plc with 30.43% (7 employees) only 28.37% representing 7 employees featured for Bendel Breweries Ltd.

In the "agree" response option, 43.47% standing for 10 employees said frustration is as a result of inadequate motivation and poor management systems. 39.29% representing 11 employees from the Bendel Breweries Ltd agree to the fact. For Nigeria Breweries Plc 37.20% representing 16 employees also agree while 36.73% standing for 18 respondents from consolidated Breweries Plc also agree on the notion. 33.58% representing 44 respondnets from Guiness Nigeria Plc also agree while for Benue Breweries Ltd only 33.33% representing 2 employees agree.

For the "undecided" option, only 26.08% representing 6 employees from Sona Breweries Plc were undecided. They are followed by 25.94% from Guiness Nigeria Plc standing for 34 respondents. Bendel Breweries Ltd followed with 25% representing 7 respondents while consolidated Breweries Plc have 18.36% standing for 9 respondents were undecided. However, there were no respondents for Nigeria Breweries Plc and Benue Breweries Ltd for the undecided option.

For the "Disagree option", show Nigeria Breweries Plc with 16.27% representing 7 respondents while Bendel Breweries Ltd followed with 10.71% standing for 3 employees, lastly in Guiness Nigeria Plc 2.29% representing 3 respondents disagree. Consolidated Breweries, Sona Breweries and Benue Breweries recorded in respondent for this option.

For the strongly disagree, Guiness Nigeria Plc recorded 1.52% representing 2 respondents for the strongly disagree. All the other organizations has no respondent.

9. Testing of Hypotheses

Two hypotheses are formulated in this research survey on motivational, factors as determinants of employee commitment and performance enhancement in profit oriented firms, a survey of selected Breweries manufacturing companies in Nigeria.

Research Hypothesis One

Ho_1: Motivational factors have no significant impact on employee commitment and performance enhancement in profit oriented firms with focus on Brewery Companies in Nigeria.

This table is used to determine how well a regression model fits the data:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.827[a]	.684	.648	.853

In this example, a value of 0.827 indicates a good level of employee commitment and performance. The R square also called the coefficient of determination which is 0.684 with 68.4% proportion of variance in the dependent variable that can be explained by the independent variables.

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	**Regression**	**41.066**	**3**	**13.689**	**18.798**	**.001[b]**
	Residual	18.934	26	.728		
	Total	60.000	29			

Statistical significance

The table shows that the independent variables are statistically significantly predicting the dependent variable, F (3, 26) = **18.798**, P < 0.05, R^2 = .684. That is, we reject the hypothesis which states that Motivational factors have no significant impact on employee commitment and performance enhancement in profit oriented firms in Nigeria with focus on Brewery Companies in Nigeria.

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.917	.218		8.807	.000
Extrinsic Methods	.020	.016	.379	1.255	.031
Intrinsic Methods	.054	.033	1.020	1.619	.008
Social Relationship	.029	.033	.565	.859	.018

a. Dependent Variable: Employee Commitment and performance

Interpretation

Based on the above table, the equation for the multiple regression here is

$y = X_1 + X_2 + X_3 + X_4 + C$ where C is the constant

Predicted y = $+ 0.02X_1 + 0.054X_2 + .029X_3 + 1.917$

Motivational factors have a good relationship on the employee commitment and performance enhancement in profit oriented firms with focus on Brewery Companies in Nigeria.

Research Hypothesis Two

Ho_2: Motivational factors have no significant effects on employee frustration among the profit oriented firms Companies in recent year.

This table is used to determine how well a regression model fits the data:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.779[a]	.607	.568	.713

In this example, a value of 0.779 indicates a good level of employee frustration. The R square also called the coefficient of determination which is 0.607 proportion of variance in the dependent variable that can be explained by the independent variables.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	**57.344**	**3**	**19.120**	**23.628**	**.059[b]**
	Residual	21.056	26	.809		
	Total	78.400	29			

Statistical significance

The table shows that the independent variables are statistically significantly predicting the dependent variable, F (3, 26) = **23.628**, P < 0.05, R^2 = .607. That is, we reject the hypothesis which states that Motivational factors have not produced significant effects on employee frustration among the profit oriented firms Companies in recent year.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.191	.318		9.107	.065
Extrinsic Methods	.040	.046	.579	1.445	.051
Intrinsic Methods	.074	.013	1.320	1.819	.098
Social Relationship	.102	.073	.765	.919	.078

a. Dependent Variable: Employee frustration

Interpretation

Based on the above table, the equation for the multiple regression line is

$y = X_1 + X_2 + X_3 + X_4 + C$ where C is the constant

Predicted y = $+ 0.04X_1 + 0.074X_2 + .102X_3 + 2.191$

Motivational factors have a good relationship on the employee frustration among profit oriented firms in recent years.

10. **Discussion of Findings and Policy Implications**

This study has produced important discoveries as evidenced and derived from the data presentation and analysis above.

Firstly, the study found out that, brewery manufacturing firms in Nigeria have adopted a strategy of providing adequate motivational incentives to employees in order to enhance commitment of employees and high quality performance. These motivational incentives vary from economic rewards i.e good pay, fringe benefits, material goods, pension and gratuity. Also intrinsic motivation is also given by creating a motivating work environment. Jobs are designed and redesigned for the comfort of the staff. The strategy of job rotation, job enlargement and job enrichment is adopted by breweries. The companies on a consistent basis have ensured that core job dimensions such as skill variety, task identity, task significance, autonomy and feedback are adopted by these companies in motivating them and by ensuring that they derive maximum satisfaction that will guarantee commitment and high performance attainment. There is also a cordial and good working relationship by member of staff that will facilitate the spirit of affiliation, status and dependency.

The above position confirms the views of Maslow (1943), Nwachukwu (2011), Herzberg (1959) who consensually maintained in their respective researches that, there should be a unity of aim between organization and employees. As the individual employee sees the organization as the channel through which he will attain his desired goal, the organization in turn see the employees as a partner in the attainment of organizational objective and goals. The goal of the individual becomes an integral part of the organizational goal. An employee has a definite expectation from the organization. The organization that consistently meets the expectations of individual employees through motivational incentives such as pay for performance, gain sharing, employee stock ownership plan, lump-sum bonuses, pay for knowledge, flexible work schedules, team base compensation, life style rewards, job rotation, job redesign, job enrichment, job enlargement amongst others will tend to have better workers than those which do not. This will lead to job satisfaction, organizational commitment and productivity will be attained.

Specifically, for Maslow (1943) he emphasized that there are five basic human needs that employees need to acquire from the organization in a hierarchy of prepotency, these include

Physiological needs: These relates to pay, organizational factors, pleasant working conditions employees needs

Safety needs relates to organizational security

Social needs such as cohesive work groups, friendly supervision and professional associations, Esteem needs such as social recognition, job title, high status job, feedback from the job itself, and Self-actualization relates to organizational factors as challenging job, opportunities

for creativity, achievement in work and advancement in the organization. He emphasized that employees of the organization need these motivational factors as they progress in their career and advanced in their jobs. This will lead to high commitment and performance leading to attainment of organizational objective and goals.

The implication for the above position is that the Executive Management of Brewery firms needs to constantly evaluate the pertinent motivational incentives desired by the organizational employees and adequately own up by providing these need to sustain employee commitment and high performance levels.

Secondly, adequate motivational packages be supplied to employees this will prevent and eliminate frustration of staff that will lead to exhibition of symptoms such as displacement, aggression, regression, fixation, negativism, ailment, withdrawal, rationalization, sabotage amongst others.

This agrees with the view of Nwachukwu (2011), Langton, Robbins and Judge (2010) who affirms that an unmotivated employee is a jackless in the hands of the company. He/her is ill-used and goes about his/her tasks in a sullen anger. His or her needs are not being met and they are frustrated. With time, he/she starts to exhibit different kinds of defensive behaviors. There appear to be some relationship between the work a person does and his mental sanity. This is revealing that a motivated worker is a satisfied employee. He/she tends to stay longer, have a reduced absenteeism rate, fewer complaints and require less supervision than dissatisfied ones. Lawter and Porter (1968) observed that, the level of performance or accomplishment is a causal factor in job satisfaction.

Mullins (1996) confirms that performance gives rise to intrinsic rewards (internal happiness generated by accomplishment or work well done). It also give rise to extrinsic rewards for work well executed. This is tapered by perceived equitable reward (the extent to which the employee believes that he is getting his due). These cumulatively leads to satisfaction. The implication of the above is that consistent monitoring and supervision by the management to know exactly the pertinent motivational incentives required by employee is important for effective management.

It is rewarding to emphasize that with quality motivational incentives by brewery firms; there is affective commitment, in which it is strongly associated with positive work behavior such as performance, attendance and citizenship behavior. In this case as shown in table 1.0, Nigeria Breweries Plc which recorded 41.86% followed by Consolidated Breweries Plc with 40.81% for strongly agree option appears to have more affective commitment from employees which will lead to good work behavior. But for normative commitment is less strongly associated with positive behaviors. Because continuance commitment reflects an individual's calculation that it is in his or her best interest to stay with the organization (perhaps because it would be difficult to find a job elsewhere), it is often associated with negative work behaviors.

One can authoritatively say that, employees who are highly committed to their organizations exert more discretionary effort – that is, willingness to go beyond their usual job duties – than employees who lack commitment.

Langton, Robbins and Judge (2011) confirm that individual who show little commitment to their organizations are four times likely to quit their jobs than the average employee.

11. **Conclusion and Recommendations**

The issue of motivating employees concerns both the management and employees in any organization. Management can motivate employee by extrinsic rewards (i.e salaries, fringe benefits, security, promotion, material goods, work environment, meaningful training and positive and safe conditions in the workplace), intrinsic rewards which is a sense of challenge and achievement, receiving appreciation, positive recognition, caring for employees and social

motivation which is desire for affiliation status and dependency etc. for any organization to motivate an employee, there must be;

Needs that the employer wishes to satisfy, these can be real or imagined, aroused by the employer, or socially compelling circumstances such as the desire to appear successful, to maintain one's family, to make more money etc.

The motivating factors must be one that meets the desires or aspirations of the employee for whom it is being designed.

The goal must be perceived as been attainable

The employer must believe that given prescribed behaviors will lead to the attainment of the goals. It is important to note that, an unmotivated employee is a threat to the organization. When an employee fails to achieve a goal or perceives that he cannot achieve a goal, he/she feels frustrated and could develop other peculiarities characteristics of the position in which they find themselves. The following suggestions may be considered as critical success parameters and pertinent for the organization deriving from the findings of the study: -

Periodic review and analysis by the management of organizations to know the most important areas that employees need to be motivated upon is essential.

Adequate and sufficient provision of extrinsic/intrinsic and social motivational incentive packages to staff will facilitate employee commitment and high performance is necessary at all times.

Consistent diagnosis by organizational managers to establish the causes of employee frustration that are detrimental to productivity attainment such as role conflict, role overload, role ambiguity etc is important for Brewery manufacturing companies.

A specialized unit within the Human Resource Management (HRM) department be created to find best and better solutions that can prevent the conditions that will give rise to frustration symptoms such as aggression, regression, fixation, withdrawal and displacement amongst others.

Management of Breweries companies should note that poor job design and lack of training will give rise to lack of accomplishment of organizational goals and objectives, therefore should be discouraged.

Establishing of organizational objectives and goals by organizations is a good starting point for management to know the essential motivational incentives that should be granted to employees. Breweries should endeavor to sustain motivation to ensure that employees are satisfied to guarantee commitment and high performance attainment.

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RESEARCH QUESTIONNAIRE

Motivational factors are adequate to impact on employee commitment and performance in our organization.

Strongly Agree (SA) [ ]
Agree (A) [ ]
Undecided (U) [ ]
Disagreed (D) [ ]
Strongly Disagree (SD) [ ]

Extrinsic, intrinsic and social motivational programs are the popular methods adopted to motivate employee to higher performance in our organization.

Strongly Agree (SA) [ ]
Agree (A) [ ]

Undecided (U) [ ]
Disagreed (D) [ ]
Strongly Disagree (SD) [ ]
Poor management system and inadequate motivation would lead to symptoms of frustration by our organizational employee.
Strongly Agree (SA) [ ]
Agree (A) [ ]
Undecided (U) [ ]
Disagreed (D) [ ]
Strongly Disagree (SD) [ ]

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