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Bottom-up influence of Subjective Success (Happiness) on Sri Lankan Grassroots level Inventors

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Abstract

Owing to the poorer explicit successful performances, the grassroots level inventors in developing countries were not given needed attention and acceptable level recognition. Therefore, the question of why these inventors continuously involved in inventive activities where surroundings are becoming hostile to independent inventing remained unanswered in the literature. The present study aims to fill the said knowledge gap by exploring the demographic, psychological, technical and social causes and consequences of objective and subjective success of grassroots level inventors in Sri Lanka. The study was designed as a correlational research. Out of 640 patent applied grassroots level inventors in Sri Lanka between the year 2000 and 2008, 200 were randomly selected as the sample of the study. The sample represented 31% of the target population, and it has provided the acceptable statistical power 0.80 at 0.05 confidence level. According to the bottom-up path model, income, engagement in inventive activities and external linkages have positive influence on the objective success of grassroots level inventors. On the other hand, grassroots level inventors' marital status, internet usage, life orientation and social capital have significant positive influence on the subjective success of inventors. More importantly, selected inventive life inputs: income, engagement in inventive activities and external linkages as well as the outcomes: objective success, inventive career satisfaction and community connectedness have significant indirect and direct positive influences on subjective success respectively.

Key Words: Inventors, Happiness, Success, Grassroots Science, Sri Lanka

Introduction

Inventors are the people who initiate the ideas of all products and processes that make life easier. Modern hallmark inventive community comprises of Ph.D holders who work in research laboratories, multinational companies and research universities. Hence, the independent inventors have rapidly become the grassroots level of the inventive community (Scotchmer, 2004). These grassroots level inventors involved in inventive activities in their garages with limited resources, while industrial, cooperate and academic inventors are working in sophisticated research laboratories with large resource budgets and return on investments. In recent years, innovation systems and technology development have changed in favor of these organizational inventors. However, even with the unfriendly environmental changes, grassroots level inventors are continuously involved in inventive activities while they are not gaining many material benefits from their inventions (IFIA, 2006). Especially, they are the major players in invention systems in developing countries (WIPO, 2009(a)). This behavior raises the question; whether these inventors value their success on some unseen factors, which subjectively drive them than the material outcomes they gain. Even though intuitive knowledge suggests the existence of such relationships, there is hardly any empirical study conducted to explore the causes and consequences of the subjective aspect of success within the grassroots level inventive community.

Background of Sri Lankan Technological Development

Sri Lanka is a multi-ethnic, lower middle-income island nation in South Asia with 20 million mid-year population in year 2009. Sri Lanka has a comparatively higher human development index than the rest of the South Asian countries, but she has fallen behind in technological development compared to neighboring countries in Asia (Dissanayake, 2003).Exports of garments and textiles, worker remittance, tea and tourism have been the major sources of export income and 81 % of imports consist of intermediate and investment imports (Central bank of Sri Lanka, 2008). The import dependency on industrial and technological products of Sri Lanka has been drastically shifted from western countries to Asian countries during the last five years. In year 2008, 73 % of total imports of Sri Lanka originated from India (24%), Singapore (9%), China (8%), Hong Kong (5%) and other Asian and Middle East countries (51%) (Central bank of Sri Lanka, 2008). This growing trend of importing relatively cheap products from Asian countries has reduced the demand for local products and that has negatively affected local inventors attempting to achieve higher commercial success. Owing to the comparative economic advantages of importing cheap technological products from other countries, the Sri Lankan large-scale corporate sector is hardly involved in inventive activities. A lack of corporate inventions is a significant factor that dramatically influences the technological stagnation of Sri Lanka.

Small private companies rather than public-quoted companies forwarded the only limited number of business affiliated patent applications. This scenario has weakened the private sector funding opportunities for large-scale research and development activities, public awareness about the importance of local inventions, and especially the government's intention to provide facilities to improve local innovations. Hence, citizens tend to be addicted to imported products and the demand locally invented products has rapidly weakened. Because of this trend, neither universities nor research institutes have been encouraged to be involved in inventive activities in Sri Lanka. Therefore, the over-cautiousness on the objective economic disadvantages of the inventions has negatively influenced the technological development of the country. Eventually, it has seriously hurt independent inventors who sacrificed their time, money and other resources to invent something new and useful to the world. Therefore, blindly following the universal objective measurements to measure the feasibility of the local inventions has become a serious trap in Sri Lanka, which has increased her technological dependency on other countries and the ignorance of the local independent inventors. Hence, the overall environment in Sri Lanka has not favored the grassroots level inventions.

The technological environment in Sri Lanka is not encouraging for the grassroots level inventors; however, they have not been discouraged. They have been the driving force of the Sri Lankan innovation system. Recent patent statistics show that a significant percentage of independent inventions represent the national patent system in Sri Lanka (Table 01). On average, the independent inventors in Sri Lanka have forwarded 77% of their applications. It has increased up to 80% and 85% in years 2007 and 2008 respectively.

Table 1: Resident Patent Applications in Sri Lanka -2000-2008

Year	Research Institutes	University Affiliated	Business Affiliated	Non-Resident Affiliated	Independent Inventors	Total	% of Independent inventions
2000	5	2	9	1	52	69	75%
2001	7	1	12	1	92	113	81%
2002	11	6	12	1	69	99	70%
2003	13	5	11	1	50	80	62.5
2004	4	6	14	0	82	106	77%
2005	10	6	16	0	113	145	78%
2006	13	12	14	0	121	160	76%
2007	7	7	15	1	123	153	80%
2008	9	6	14	2	170	201	85%
Total	79	51	117	7	872	1126	77%
%	7.0	4.5	10.4	0.6	77%	100.0	

Source: Sri Lanka National Intellectual Property Office

Apart from the significant proportion of independent inventions, grassroots level inventions in Sri Lanka have showed high technical merits as well. Some of the inventions have been recognized as the best inventions in the world. In the 37th International Exhibition of Inventions of Geneva 2009,Sri Lankan independent inventors have won the prestigious World Intellectual Property (WIPO) award and the International Press Award. Sri Lankan invention of "safety kerosene lamp" also won the BBC World Challenge 2009 award as the best invention of the competition. Further, all the best inventor awards of the Sri Lankan annual presidential awards for inventors in 2006 and 2007 have been won by independent inventors. Unfortunately, a majority of the award-winning inventors were unable to achieve high level commercial success for their inventions. Owing to the emerging hostile technological environment in the world, the growth of grassroots level inventions in Sri Lanka is not generally a part of expected behavior. Hence, the controversial growth of the grassroots level inventors in Sri Lanka has raised a question as to why the grassroots level inventors are kept involved in inventive activities in an environment that has rapidly become hostile for their survival and growth.

Unanswered questions relating to grassroots level inventors?

Owing to the poorer explicit successful performances, the grassroots level inventors in developing countries were not given the needed attention and acceptable level recognition. Therefore, the question of why these inventors continuously involved themselves in inventive activities where the surroundings are becoming hostile to independent inventing remained unanswered in literature. The study has four main objectives. The aim of this study is to explore the demographic, psychological, technical and social causes and consequences of objective and subjective success of grassroots level inventors in Sri Lanka.To achieve the aim of the study, the researcher expected to answer how the selected demographic, psychological, technical, social life domain factors can influence the objective and subjective success of grassroots level inventors in Sri Lanka. To answer these questions, the study explores the factors which influences their objective and subjective level success. The study was designed as an explanatory correlational research. Out of 640 patent applied grassroots level inventors in Sri Lanka between the year 2000 and 2008, 200 were randomly selected as the sample of the study. The sample represented 31% of the target population and it has provided the acceptable statistical power 0.80 at 0.05 confidence level.

Understanding the Subjective Aspect of Success

Historically, the success of the inventors has been measured by their objective performances as inventors (Scotchmer, 2004). Inventors have to achieve a large number of patents, patent citations, commercialized inventions and profits to be

considered 'successful'. However, controversial growth of grassroots level invention in developing countries has questioned the validity of such pure objective success measures. According to Dubina et al. (2011), the objective criteria only represents a stereotyped convention to consider one inventor to be successful over others (Dubina, Carayannis, & Campbell, 2011). Hence, objective criterions do not measure the actual success of an inventor.

Success is defined as an accomplishment of aims or purpose(Oxford University Press, 2010). Almost all human actions and reactions are directed towards success in what they do. Everyone wants to achieve higher success; however, there is no general agreement about what success is and what exactly predicts success (Wrosch & Scheier, 2003). There is especially a large number of arguments over the definition of success, its causes and consequences on human life. Different fields of studies, such as social science, health science, economics, and psychology and community development define the concept of success and its predictors from the perspectives of their particular field. In spite of the multidisciplinary nature of the concept, success has been generally defined as a composite concept that has at least two broad facets. First, the objective success that comprises wealth, physical conditions and physical standard of life. Second, the subjective success that comprises the feeling of happiness and satisfaction with life (Campbell, 1976; Gough, Human Well-being: Bridging the objective and subjective approaches, 2003).

Stanley (1904) wrote a poem called "success" and it begins with, "He has achieved success; that has lived well, laughed often, and loved much…" (Stanley, 1904). If a person is able to live life happily and satisfactorily, he/she eventually achieves success in life. Likewise, in positive psychology literature, happiness and satisfaction with life have been defined as the ultimate aim of living (Conceição & Bandura, 2008; Kenny A. , 2002). Even though, Stanley quoted living well and laughing often as signs of success, in modern positive psychology literature; happiness and satisfaction in life are defined as 'subjective well-being' (Snyder & Lopez, 2007).

Jankovic and Dittmar (2006), had found that, even though materialism is growing in the modern world, strong commitment to materialism is detrimental to an individual's happiness. According to them, if 'success' encapsulates only materialistic outcomes, it will be harmful and counter-productive to the happiness of individuals. Hence, the term "success" needs to be encapsulated as an amalgamation of contrasting materialistic outcomes and subjective well-being. Parallel to that, previous literature on measures of success has criticized the measures of success purely based on financial and objective outcomes. It has

suggested the importance of measuring the subjective aspect of success(Gill &Feinstein, 1994; Rogerson, Findlay, Morris, & Coombes, 1989; Diener & Suh, 1997 a). Following this argument, many commentators have described subjective well-being as an indicator of the success of human life (Gough & McGregor, 2007; Diener & Suh, 2003). Hence, in recent socio-economic literature, subjective well-being has been identified as a better social indicator of the quality of life than the traditional objective indicators (White, 2007; Heylighen & Bernheim, 2001). With the emergence of subjective well-being as an indicator of the subjective aspect of success (Heylighen & Bernheim, Measuring global progress through subjective well-being, 2001) and quality of life(Wrosch & Scheier, 2003), it could be utilized to measure the subjective aspect of success of different social groups. Owing to the conceptual agreement of the subjective well-being as the indicator of subjective success, the present study operationally defined subjective success as the persons' own assessment of subjective happiness and satisfaction of life. Therefore, hereafter in this study the term subjective success will be used as a synonymous with the subjective well-being.

Theoretical Rationale of the Study
With the emergence of positive psychology, the importance of understanding positive strengths of the people rather than only negatives/weaknesses has been broadly accepted. In positive psychology, subjective well-being has been recognized as an indicator to measure the subjective aspect of the success of life, which was never measured by the traditional objective measurements. Even though the concept of subjective success is relatively new, there are a number of emerging theoretical arguments in the field of subjective success (Diener E. , 2009 b). Bottom-up theoretical perspective of subjective success is an approach that proposes subjective success as an ultimate goal of life. It suggests that different life domains have positively or negatively influenced the achievement of subjective success of life. As far as the bottom-up tradition had evolved from the Aristotle's pioneering thought of good life, the majority of the initial studies on subjective success have focused on determining this bottom-up relation of subjective success. However, there are recent studies that have investigated the opposing top-down theoretical arguments of the consequences of subjective success. Top down theories have discussed the long-term consequences of being happy and satisfied with life. One of the major top-down theories of subjective success, the Fredrickson's Broaden-and–build theory suggested the importance of studying subjective success as a relatively static trait by discussing how the happy emotions increase social resources, knowledge and skills of people. Further, the emergence of Veenhoven's sociological theory on subjective success indicates that there are personal and social causes as well as consequences of subjective success within society. By considering all the theoretical arguments, Headey et al.

(2005) suggested that a majority of existing studies on subjective success are not comprehensively evaluated taking into account the personal, psychological and social factors which are the predictors (causes) or which personal, psychological and social factors are the consequences of subjective success. Hence, the level of understanding of possible predictors and influences of subjective success is not absolute. However, so far adequate empirical attention has not been given to investigate the validity of these opposing theoretical arguments.

Stated contextual and theoretical knowledge deficiency of behavior of the grassroots level inventors and subjective success, suggest the importance of searching for answers to the under studied problem of why grassroots level inventors are continually engaged in their inventive activities, while they are not achieving much objective success as defined by society. If the inventors are not achieving the objective success of their inventions, inventive life might be a significant life domain that influences the inventors to be happy and satisfied with their lives. Therefore, as other life domains, there might be positive contributions from the factors of inventive life on the subjective success of grassroots level inventors. Otherwise, the inventors' general tendency to be happy and satisfied with life might encourage them involved in inventive life. However, existing studies on grassroots level inventors were unable to explain coexistence of objective and subjective success and their personal, psychological and social causes and consequences of the grassroots level inventors. This limited contextual and theoretical knowledge of the problem have driven the researcher to investigate how the demographic, psychological, technical and social life factors relate to the subjective and objective perspectives of success of grassroots level inventors in Sri Lanka. Therefore, the main purpose of the present study is to explore the demographic, psychological, technical and social causes and consequences of objective and subjective success of grassroots level inventors in Sri Lanka; in order to explain who and why these inventors are continually involved in inventive activities in hostile environments that limit their independent inventing.

Conceptual Framework of the Study

Since Aristotle had described happiness as the ultimate aim of human existence, a majority of theoretical models in subjective well-being/success studies have been designed as bottom-up models that considered subjective success as the ultimate effect that has many causes (Headey, Veenhoven, & Weari, 2005). Diener, Oishi and Lucas (2003) have hypothesized that subjective success is the ultimate effect that people search for and the different life domains and objective success as the causes for it (Diener, Oishi, & Lucas, 2003, p. 420). As discussed in the previous section, a large number of demographic, technical, psychological and social

factors have been tested as exogenous variables in a number of different bottom-up studies on subjective success (Diener E. , 2009 b).

However, there were hardly any comprehensive studies that have measured a large number of factors in a single model (Rogatko, 2010). Therefore, collective effect of the correlates or predictors on the subjective success have not been understood. To understand the real picture of how subjective success functioned among people, a majority of the possible predictor variables need to be included

	Demographic Factors	
0. Profile Factors		
1. Marriage		
2. Income		

	Psychological Factors	
3. Inventive Career Satisfaction		
4. Maximizing Tendency		
5. Life orientation		

	Technical Factors	
6. Engagement on invention		
7. Internet Usage		

	Social Factors	
8. Social Capital		
9. Community Connectedness		
10. External Linkages		

11. Objective success
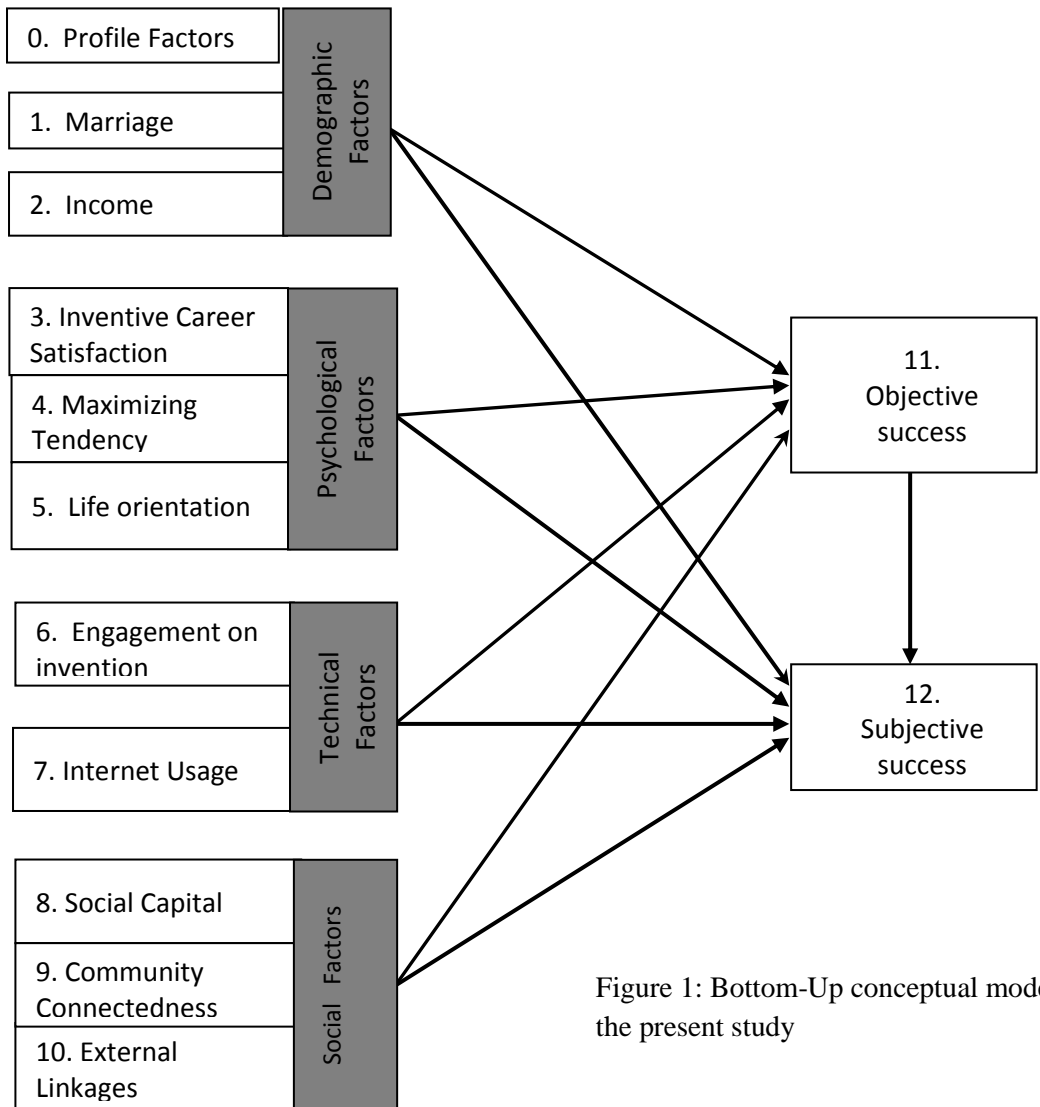
12. Subjective success

Figure 1: Bottom-Up conceptual model of the present study

within an exploratory sturdy framework. Therefore, based on the theoretical framework, literature on correlates of success and the qualitative pilot study, the

present study has defined the bottom-up conceptual model using selected demographic, technical, psychological and social factors as the exogenous variables, objective success as mediator variable and subjective success as the ultimate endogenous variable (Figure 1).

Operationalization of the Variables

Endogenous Variables

Objective Success:

The present study adopted the Hauschildt's innovation process approach (Hauschildt, 1991) to measure the objective success of the inventors. Objective success defined as the measurable and observable monetary and non-monetary achievements of the innovation process. That includes the patent received, awards and rewards, commercialization, commercial survival and profit earnings. The researcher initially developed the objective success measurement as ten-item likert like scale and asked the selected panel of experts to validate the scale. When the researcher consulted Professor Chinta Weick, she advised the researcher to use a limited number of items with dichotomous response, because it is straightforward to measure and avoid complex comparisons (Weick C, Personal Communication, 12 August 2008). Weick & Eakin (2005) also measured the commercial success of inventors using the multi-item dichotomous (0, 1) scale. Therefore, objective success was measured as the summation of five items measured using dichotomous scale (0, 1) on the patent grants, award and rewards, commercial startup, commercial continuation and profitable inventions. In the questionnaire, the researcher asked the respondents to state how many patents they received, how many inventions have won either awards or rewards, how many inventions started to be commercialized, how many inventions have been commercialized and how many inventions have earned profits at the time of survey. Respondents who reported values 1 or more were considered as one (1) and others a zero (0). By calculating the summation of dichotomous responses, the researcher has generated the continuous objective success variable ranging from zero to five. That is higher than the four scale values, which is the minimum recommended range of scales in structural equation and path modeling (Hair, Black, Babin, & Anderson, 2009).

Subjective Success:

As per the operational definition adapted in the present study, the subjective success is synonymous with the definition of the subjective well-being. According to the literature, definitions of the subjective well-being consist of emotional (mostly measured by the happiness) and cognitive aspects (mostly measured by satisfaction with life). Subjective Happiness Scale (SHS) and Satisfaction with Life Scale (SWLS) are the most administrated scales to measure subjective success (Snyder & Lopez, 2007; Diener E. , Subjective Well being, 2009 a). The

Satisfaction with Life Scale has been tested for its reliability and validity by the authors and a test has shown high level of consistency, validity and reliability to measure the satisfaction of life of different type of domains (Diener, Emmons, Larsen, & Graiffin, 1985; Pavot & Diener, 1993). The Subjective Happiness Scale is also a widely used and validated instrument in 14 different studies with 2,732 participants (University of Pennsylvania, 2007). The results of the study have signified that the Subjective Happiness Scale has a high internal consistency, and validity. In order to measure both emotional and cognitive aspects of subjective success, integration of the Subjective Happiness Scale and Satisfaction with Life Scale was already practiced by the Pichler (2006) and Lyubomirsky (2008). Therefore, Professor Lyubomirsky recommended the researcher to use integrated scale in the present study (Lyubomirsky S, Personal Communication, 21st February 2010). Both the SHS and SWLS are available for free usage with copy left policy. Therefore, in the present study, Subjective success was measured using summation of original Subjective Happiness Scale - 4 items (Lyubomirsky & Lepper, 1997) and Satisfaction with Life Scale – 5 items (Diener, Emmons, Larsen, & Graiffin, 1985). Both these scales have seven pointlikert like responses from (1) strongly disagree to strongly agree (7). Therefore, in principle summated value for subjective success can range from 9 to 63. For univariate and bivariate analytical purposes, summated value of subjective success is sub-divided into three categories: Low (9-27), Medium (28-45) and High (46-63).

Exogenous Variables
1.1   Psychological Factors

Psychological factors are generally defined as the mental and emotional states of a person that influence or determine their behavior. As discussed in the literature review, success is influenced by both mental and emotional factors. Hence, based on the literature, the present study identified three psychological factors; Inventive Career Satisfaction, Maximizing Tendency and Life-Orientation as possible predictors of subjective and objective success of grassroots level inventors.

a.   Inventive Career Satisfaction (ICS):

Career satisfaction can be measured by a single item scale, Wanous, Reichers and Hudy (1997) have recommended to use multi items scales when possible (Wanous, Reichers, & Hudy, 1997). Greenhaus, Parasuraman and Warmley (1990) defined career satisfaction as 'the satisfaction of a worker towards the successful outcomes of his work life' (Greenhaus, Parasuraman, & Warmley, 1990). They developed a five items scale to measure the career satisfaction of workers covering the satisfaction of achievements, career goals, income, advancement and skill development. Then again the definition of job satisfaction

is determined by the psychological reactions to the characteristics of the job, Macdonald and MacIntyre (1997) developed a ten-item scale (Macdonald & MacIntyre, 1997). owing to the specific focus of the context of the present study, at least five items of Macdonald and MacIntyres' scale had to be removed (item number 1, 6, 7, 8, and 10). The other five items were also needed to be modified to measure career satisfaction of grassroots level inventors. After the modifications, the researcher developed a four item scale to measure career satisfaction; covering satisfaction with achievements, satisfaction with recognition, satisfaction with inventing and willingness to continue inventing activities. Each item was measured using five pointlikert like scale, ranging from 5- highly satisfied/very high to 1- highly dissatisfied/very low. Summated value of the inventive career satisfaction was determined by adding individual scores of the four items. Owing to the suggested scoring method, in principle, an inventor's inventive career satisfaction can obtain any value between 4 (1X 4) and 20 (4X 5). For a multivariate statistical analysis, summated value has been used as metric variable.

b. Maximizing Tendency (MT):

Work of Schwartz et al. (2002) has attracted considerable attention to the maximizing tendency by proposing that individuals differ in their global disposition to maximize versus be satisfied in decision making (Lai, 2010). Maximizing is conceptualized as the tendency for seeking only the best option and not settling anything less (Schwartz, et al., 2002). Hence, the maximizing tendency is the psychological drive of spending resources on aiming to achieve the optimal results rather than being satisfied with less optimal results. Schwartz, et al. (2002) proposed that this difference may represent a general behavioral tendency, and they developed a scale to capture the distinction between decision makers who tend to be "maximizers" and those who tend to be "satisfiers".

Most prior studies have used Schwartz et al. (2002) 13 item maximization tendency scale (Parker, Bruin, & Fischhoff, 2007; Lyenger, Wells, & Schwartz, 2006). However, emerging interest of complex multivariate studies demanded to have a shorter scale that can be administrated within a large number of other variables. Therefore, instrument developers have developed shorter maximization tendency scales based on Schwartz's maximization tendency scale (Diab, Gillespie, & Highhouse, 2008; Lai, 2010; Nenkov, Morrin, Ward, Schwartz, & Hulland, 2008). Among them, Nenkov et al. (2008) tried to refine the original 13-item maximizing tendency scale to nine-item, six-item and three-item scales. Based on the empirical evidence on validity and reliability of the shortened scales, they recommended a six-item scale as the best shorter version for future studies. Owing to this six-item scale, direct items were developed from the original

maximizing tendency scale that had higher academic interest, the present study used the Nenkov et al. (2008) six-item maximization scale to measure maximizing tendency. Each item has seven-option likert like scale from completely agree to completely disagree. As per the scale values, in principle summated value of the maximizing tendency can be ranged from 6 to 42.

c. Life Orientation (LOT)

Scheier and Carver (1985) developed the Life Orientation Test (LOT) to assess individual differences in generalized optimism versus pessimism (Scheier & Carver, Optimism, coping, and health: assessment and implications of generalized outcome expectancies, 1985). The LOT and its successor the LOT-R (Scheier, Carver, & Bridges, 1994) have been used in a number of studies on the behavioral, affective and health consequences. Its shortness makes it ideal for use in studies with many variables like the present study. Compared to LOT, LOT-R is also a short scale consisting of 10 items with only six scoring items (Three items for positive direction and three items for negative direction). They used four items as filler items that have no numerical impact to the summated value. In original LOT-R, respondents were asked to indicate their extent of agreement or disagreement with each of the items using five pointlikert like scale; 0= Strongly Disagree,1= disagree, 2=neutral and 3= agree and 4= Strongly agree. Owing to this scoring, in principle original LOT-R summated value ranges between 0 and 24. However, in the present study LOT-R responses were slightly modified by using the likert scales as 1=Strongly Disagree, 2=Disagree, 3=neutral, 4= Agree and 5= Strongly Agree. Therefore, in principle, the summated value expected to be ranged between 6 and 30.

1.2 Technical Factors

In this study, technical factors are defined as factors that are essential to provide technical resources in the innovation process. The present study selected two technical factors that have potential influence on both the objective and subjective success of inventors.

a. Internet Usage (IU)

In this study, the researcher wanted to measure the grassroots level inventors' internet usage for information, knowledge and communication needs. Therefore, items in shopping motive were considered irrelevant. The researcher modified the WMI scale items to develop a shorter scale by reducing items through combining similar items together. To the extent that surf and research factors measures the general and purposive informational usage of internet, item numbers 4 and 6 of WMI were combined as (you use internet) " to collect information" and items 7 and 9 combined as "to get knowledge". Items 8 and 12 of WMI were combined as "to share information" and items 10 and 11 as "to communicate with others".

Hence, in the present study internet usage scale consisted of four itemlikert anchors as 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4= Agree and 5= Strongly Agree. Therefore, in principle the summated value expected to be ranged between 4 and 20.

b. Engagement in Invention (Daily Inventive Hours)

In the present study, inventors were asked to state the average number of hours(per day) in which they are involved in inventive activities. For multivariate data analysis, the stated number of hours has been taken as the metric variable to measure the engagement in inventions. For univariate explanatory purposes, the stated number of hours spent on inventing activities per day, was categorized into three categories. In principle, the number of hours could range from between zero and any value. Therefore, the upper level of the higher category had to be decided by the researcher. Generally, Sri Lanka has eight-hour working days. Therefore, if the inventor works eight or more hours in inventive activities, it was considered as 'higher engagement' in inventive activities.

1.3 Social Factors

Three types of social domains have been identified as influential social factors of the present study; External Linkages, Social Capital and Community Connectedness.

a. External Linkages

In this study, external linkages are defined as the positive relationship between a grassroots level inventor and the third party (expert personnel, organizations and structures) that influences inventing, patenting and commercializing activities. In innovation literature, the third parties who are involved in the innovation process are known as intermediates. Their assistance has been recognized as an important aspect in the innovation process (Svensson, 2007; Howells, 2006; Hoppe & Ozdenoren, 2005). The survey instrument of Georgia's independent inventors 2007, suggested a list of external resources that an inventor could access during the innovation process (Georgia Tech Enterprise innovation Institute, 2008). They suggested 24 types of external linkages with expert personnel, organizations and entities. However, not all the items were available and applicable in the Sri Lankan context. Therefore, the researcher selected 13 items from the list that can be applicable in the Sri Lankan context. In expert linkages scale of the pilot study the respondents were asked to mark the level of assistance they received from each of the external links at inventing, patenting and commercializing stages of the innovation process using likert like scales as 1=Very Low, 2=Low, 3=Average, 4= High 5= Very High. Then the researcher calculated the average value of each item to take the summated score of the external linkages. However, at the quantitative pilot test, the researcher revealed that respondents could answer

better, when they were asked to assess the overall contribution from the external linkages. Therefore, the researcher modified the External Linkages Scale by asking them to select the overall support they received from the external links using likert like scales as 1=Very Low, 2=Low, 3=Average, 4= High 5= Very High. External Linkages were measured by the summated value of the 13 items of the scale. In principle, summated value could range from 13 to 65.

b. Social Capital

A resource generator scale was developed based on the data collected by a sample of 1007 individuals from a Dutch population in 1999-2000. Original scales had 35 items and factor analysis results reduced the validated scale to a 17 item four dimentional scale (Gaag & Snijders, Proposals for the measurement of Individual Social Capital, 2004). This instrument asks about access to a fixed list of specific social resources, that each represent a vivid, concrete sub-collection of social capital, together covering several domains of life. This instrument can be administered quickly, and results are easily interpretable as the representations of social capital, with more possibilities for use in goal speficity research (Gaag & Snijders, 2003). Even though the original 17-item social capital resource generator scale used acquaintance, friend and family as the response scale, the scoring was a dichotomous "Yes" and "No" scale. Therefore, some authors complained about the high average positive responses of Gaag's resource generator scale (Lannoo, 2009). However, Granovetter's (1973) discussions of strong, weak and absent of social ties had provided a better framework to assess the strength of social capital with higher diversity. Therfore in this study, 17 items of Gaag's individual social capital resource generator scale were translated to the Sinhala language by changing only the currency of the item number 4 to Sri Lankan rupees. However, the reasercher modified the response options of the resources generator scale as 1=No, 2=Official Level, 3= Friend's Friend, 4=Friend, 5= Relative and 6= Family Member. Higher summated scores represent strong social capital and lower summated scores represent weak social capital. In principle, summated score of social capital can range from 17 to 102.

c. Community Connectedness

Even though there are a number of established instruments to measure the sense of community (community connectedness), they are very long instruments (Doolittle & MacDonald, 1978; Davidson & Cotter, Measurement of Sense of community within the sphere of city, 1986). However, Frost and Meyer (2009) have measured the community connectedness of the Lesbian, Gay and Bisexual (LGB) community using a relatively shorter scale. Owing to the LGB community being a community of interest rather than a neighborhood community, the scale was able to adapt to measure the connectedness of the grassroots level inventive community. Frost and Meyer's Community connectedness scale consists of 8-

items that were adapted from a 7-item community cohesion scale used in the Urban Men's Health Study (UMHS). They added one item "You feel a bond with other [men who are gay or bisexual]" taken from Herek & Glunt (1995) community consciousness scale. This scale has shown high validity and Cronbach alpha internal consistent value (Frost & Meyer, 2009). In the present study, Frost and Meyer's community connectedness scale was modified by replacing the specific words related to the LGB community by words related to grassroots level inventive community. Even though the original Frost and Meyer's scale has only four likert like responses (1= Strongly Disagree to 4= Strongly Agree), to increase scale sensitivity, the present study used 7 point likert like scale (1=Strongly Disagree to 7=Strongly Agree). Hence, in principle summated value of community connectedness ranged from 8-56.

Target Population and Sampling Frame of the Study

Based on the operational definition, the population of the study is defined according to the following operational criteria.
1. Inventor should be a Sri Lankan citizen.
2. Inventor must apply for the patent for his/her invention. Inventor should be the applicant of the patent.
3. Patent applicant should be the inventor of the invention that was mentioned in the patent application presented to the Sri Lanka National Intellectual Property Office (SLNIPO).
4. Inventor should not indicate any institutional interest or involvement in the patent application (should not mention institutional name, official designation and official addresses as contact details).

The researcher collected the entire resident patent applicants list for the period between years 2000 and 2008 from the SLNIPO in May 2009. Owing to the mix of grassroots level and institutional investors in the patent applications list, the researcher had to identify the grassroots level inventors manually by analyzing the name of the inventor, name of the patent applicant and addresses of the inventors. According to the analysis of SLNIPO patent registry, from 1 January 2000 to 31 December 2008 there were 872 patent applications forwarded by Sri Lankan grassroots inventors who were named as both inventor and applicant of the patent. However, only 640 inventors have forwarded these 872 patent applications (some of the inventors apply for more than one patent during the period). Therefore, 640 grassroots level inventors were identified as the target population size of the study. Identified independent inventors' patent application numbers, names and postal addresses were entered to a Microsoft Excel 2007 worksheet and sorted in ascending order based on their patent application numbers. This list consisted of

the details of 640 inventors and was considered the sampling frame of the target population. The researcher statistically confirmed that the decided minimum sample size 200 was adequate to get the acceptable results in path analysis as suggested by Hoyle, (1995). After collecting the data using survey methods validity and reliability of the data tested.

Data Analysis and Findings
Correlation Analysis of Variables in Path Model of the Study
In this section, the researcher presents the bivariate analysis of the relationship between variables that are included in the bottom-up model of the study. Marital status was measured as a dichotomous scale variable and in Pearson's correlation analysis, researchers are allowed to use single dichotomous variables along with continuous variables (Meyers, Gamst, & Guarino, 2006, p. 118). In Pearson, product movement correlation matrix, R-value indicates the strength of the relationship (correlation) between two variables and the p-value indicates the statistical significance of the correlation. Guildford (1977) suggested a rule of thumb to interpret the correlation coefficients. According to him, absolute values (+/-) of the correlation coefficients, which range from 0 to .2 indicates negligible relationship, 0.2 to 0.4 indicates low relationship, .4 to.7 indicates moderate relationship, .7 to .9 high relationship and .9 to 1 indicates a very high relationship (Guilford, 1977). Pearson product movement correlation matrix of selected demographic, technical, psychological and social variables in the bottom-up path model is shown in Table 2. It shows that there is a statistically significant relationship between objective success and subjective success at 0.01. The
positive relationship indicated that both objective success and subjective success are moving in the same direction. However, the correlation coefficient (r) was .341 and it indicates the low magnitude of the relationship. According to Table 61,other than marital status (X1), all the other variables have shown a statistically significant positive correlation with the subjective success (Y1), even at a more stringent 0.01 alpha level. Only maximizing tendency has shown negligible level relationship, but r-value .195 is in very close approximation to .2. Inventive career satisfaction and community connectedness had a moderate relationship with subjective success (r=.438 and .414 respectively). Therefore, other than marital status, all the other variables in the conceptual model indicate low to moderate level significant positive relationships with subjective success.
Unlike subjective success, marital status indicates statistically significant negligible positive relationships (r = .142) with objective success at a 0.05 level. Along with that, internet usage (r= .161), inventive career satisfaction (r = .188) and social capital (.192) have shown significant but negligible positive correlation with objective success. Meanwhile, maximizing tendency has shown negative relationship with objective success. However, the strength of the relationship was

negligible (r= -.049) and not significant at a 0.05 level. Daily inventive hours (r = .363), external linkages (r = .354), and income (r = .272), have shown the highest strengths of the statistically significant correlations. However, according to the Guilford rule of the thumb, still these values indicate low relationship with objective   success.   Apart   from   maximizing   tendency   (r=-.049),   life orientation(r=.089) and community connectedness (r = .129) also have not shown a significant relationship with objective success. Multicollinearity among exogenous variables occur only when the correlation coefficient become higher than .8 (Katz, 2006, p. 69). In the correlation matrix, only marital status and income have moderate (r=.429) relationships among the exogenous variables. All other bivariate relationships between exogenous variables (independent variables) of the suggested conceptual model, indicate either a negligible (r <.2) or low (r <.4) relationship. Therefore, among exogenous variables, there is no threat of multicollinearity and each variable is approximately independent or at least only just marginally correlate with each other.

* * P<0.01   * P<0.05   SD= Standard Deviation   N= 200

Table 02: Pearson Product Movement Correlation of Variables in a Conceptual Model

	Mean	SD	Y1	Y2	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
Subjective Success	41.10	7.051	1											
Objective Success	2.52	1.490	.341**	1										
Marital Status	.68	.470	.134	.142*	1									
Income	38.26	19.135	.230**	.272**	.429**	1								
Daily Invent Hours	3.80	1.672	.310**	.363**	.128	.215**	1							
Internet Usage	12.85	4.393	.348**	.161*	-.095	.278**	.148*	1						
Inventive career Satisfaction	16.24	2.110	.438**	.188**	.027	.016	.194**	.111	1					
Maximization Tendency	27.49	5.204	.195**	-.049	-.098	-.086	-.059	.155*	.142*	1				
Life Orientation	23.47	3.024	.365**	.089	.015	.098	.114	.222**	.186**	.179*	1			
External Linkages (Log)	1.28	.108	.225**	.354**	-.047	-.019	.025	.157*	.163*	.026	.151*	1		
Social Capital	54.20	9.405	.314**	.192**	.068	.216**	.180*	.303**	.075	.040	.089	.067	1	
Community Connectedness	43.28	6.265	.414**	.129	-.118	.037	.129	.161*	.348**	.125	.244**	.184**	.098	1

Journal of Business and Technology

Path Analysis of the Conceptual Model

The researcher was interested in exploring how the exogenous variables influence the endogenous factors using the model-trimming approach (Bynrne, 2009). Hence, the initial path model was defined as just an identified recursive saturated model, which had an equal number of free parameters (78) and the data points (78) with a zero degree of freedom. Maximum Likelihood (ML) is the usual default estimation method in most structural equation models ((Ullman & Bentler, 2004; Schumacker & Lomex, 2004; Hair, Black, Babin, & Anderson, 2009; Kline, 2011). Owing to the scale free estimate of the ML method, the researcher was able to use transformed variables within the model with non-transformed variables. As far as the variables in the model satisfied the multivariate normality, outliers' assumptions and minimum sample size requirements, the researcher adapted the maximum likelihood (ML) method to estimate the parameters of the path analysis.

In path analysis, hypothesis of the model check based on the significance and the strength of the standardized regression estimates of the individual paths of the model (Schumacker & Lomex, 2004). Figure 02shows the re-produced initial path model and standardized estimates of the individual paths of the model based on the original AMOS 18 output.

According to the estimated path diagram in Figure 35, Objective success was a significant predictor of the subjective success (β = .13) at 0.05 significant level. However, some of the hypothesized relationships were not significant at 0.05 level. Especially the hypothesized predictors of objective success; Marital Status (β=.03), Internet Usage (β=.00), Inventive career satisfaction (β=.08), Life orientation (β=-.03), Maximizing tendency (β=-.03), social capital (β=.07) and community connectedness (β=.00) have not shown significant regression coefficient at the 0.05 level. However, income (β=.19), daily inventive hours (β=.28) and external linkages (β=.34) were significant at 0.05 levels.

According to the standardized regression estimates, influences of inventive career satisfaction (β =.23) and community connectedness (β=.22) on subjective success were significant at .01 level. The influences of marital status (β=.12), internet usage (β=.15), life orientation (β =.17) and social capital (β=.15) on subjective success were significant at .05 level. However, daily inventive hours (β=.10) and maximizing tendency (β=.10) were significant only at .10 level. Income (β =.03) and external linkages (β=.04) have not shown significant influences even at the .1 level.

Squared multiple correlation coefficient (R^2) estimates the relative amount of variance of the endogenous variable (Y) explained or accounted for, by the exogenous variables (x1, x2, x3…) (Joreskog, 2000). In the initial path model, the squared multiple correlation (R^2) of objective success and subjective success were .306 and .481 respectively. It indicates that exogenous variables in the initial model were able to explain 31% of the variance of objective success and exogenous variables in the model were able to explain 48% of variation of subjective success.

Cohen (1988) suggested Effect size as an indicator of the degree of which the tested phenomenon is present in the population. He suggested the calculation of Effects size (f^2) based on the R^2 as,

$$f^2 = R^2 / [1- R^2] \text{ where}$$

f^2= Effects size
R^2 = Squared Multiple Correlation Coefficient

Hence, the effect size of objective success,

f^2_{os} $= R^2_{os} / [1- R^2_{os}]$
f^2_{os} $= .306 / [1- .306]$
        $= .306 / .694$
        $= .440$

In addition, effect size of subjective success,

f^2_{ss} $= R^2_{ss} / [1- R^2_{ss}]$
f^2_{ss} $= .481 / [1-.481]$
        $= .481 / .542$
        $= .926$

Figure 02: Standardized Estimates of Initial Bottom-up Path Model
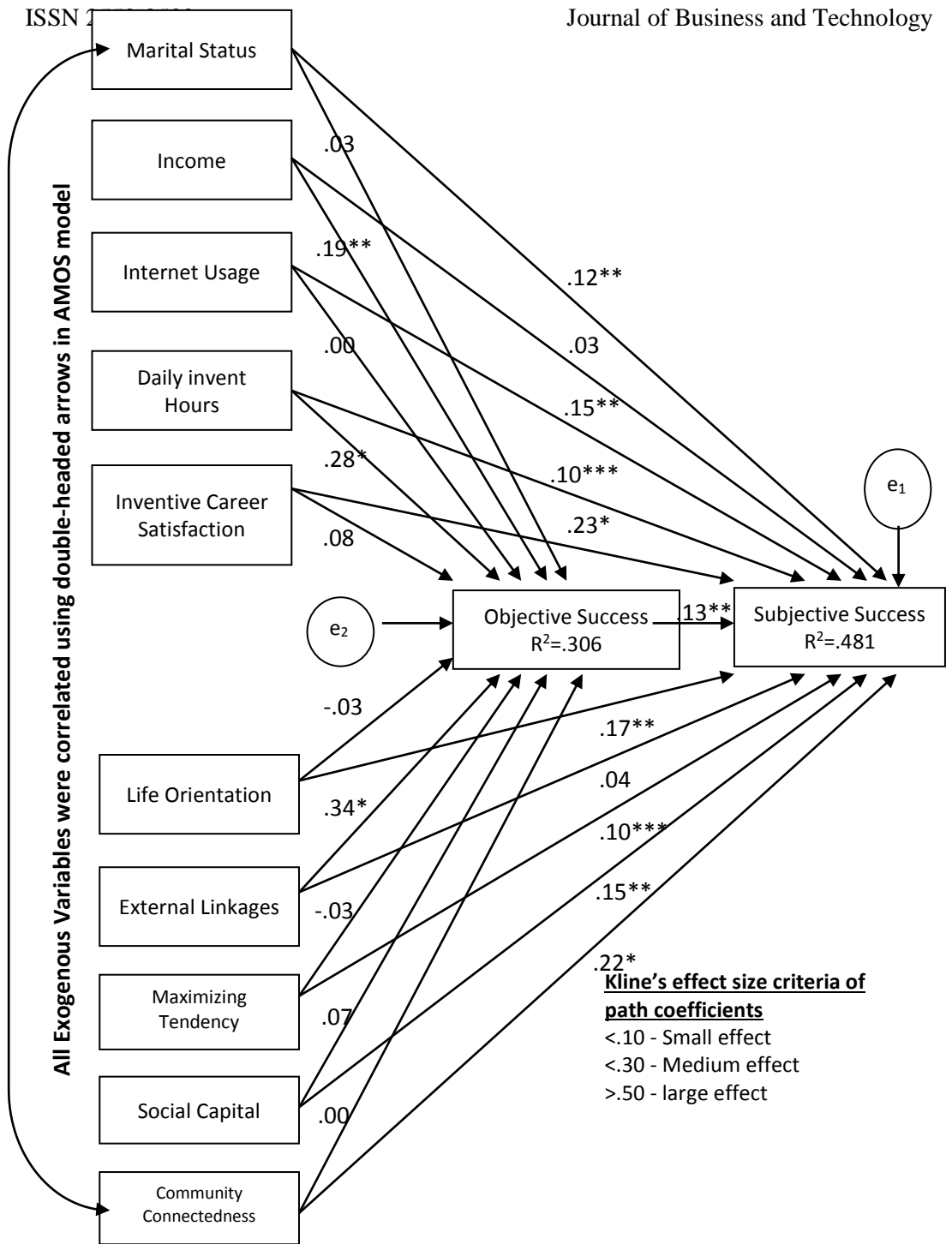
*significant at p<.01   ** significant at p<.05 ***significant at p<.1

According to the Cohen (1988) general recommendations on effect size (small= .02, medium =.15 and Large=.35), both objective success and subjective success models have shown large effect sizes (N= 200).

As far as the number of data points of the model equals to free parameters, the model was just identified as a saturated model. As far as in saturated model χ^2 and degree of freedom equals to zero, model fit indices or modification indices were unable to calculate the initial model.
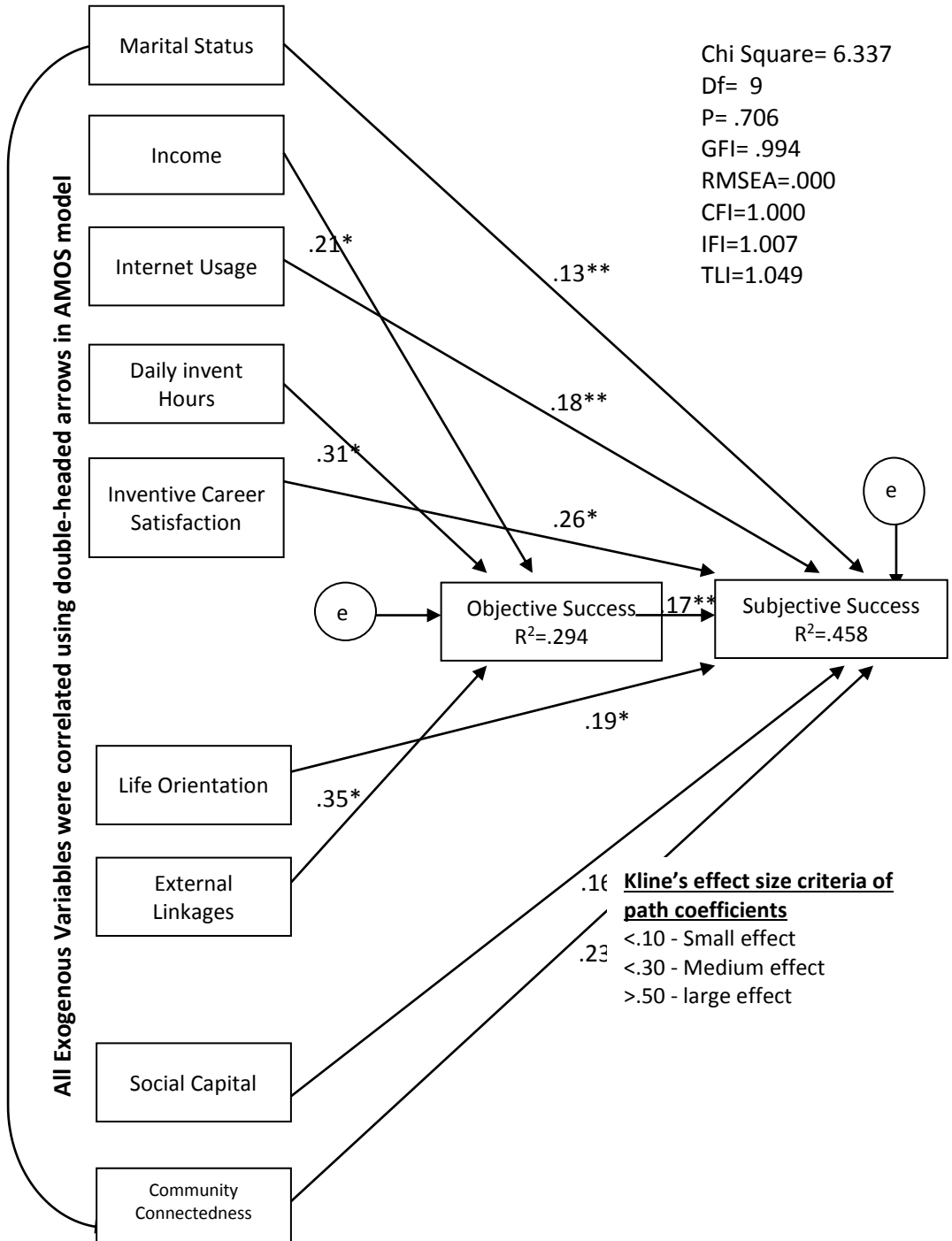
According to the initial model, there were some non-significant relationships between exogenous variables and endogenous variables at .05 level. The researcher modified the path model by eliminating the relationships that were not significant at least at 0.05 levels and re-tested the modified model using ML method. All the paths in the modified path model depicted in Figure 03 were significant at a 0.05 level.

In the modified model marital status (β=.13, p=.013), internet usage (β=.18, p=.002), inventive career satisfaction (β=.26, p=.000), life orientation (β=.19, p=.000), social capital (β=.16, p= .004), community connectedness (β=.23, p=.000), and objective success (β=.17, p=.002) were the significant predictors of subjective success. Meanwhile income (β=.21, p=000), daily inventive hours (β=.31, p=.000) and external linkages (β=.35, p=.000) were significant predictors of objective success at a 0.05 level. According to the Kline (2011) effect size criteria of path coefficients, all the paths in the modified model have shown a small to medium level effect size. Compared to initial model R^2 for objective success decreased slightly to .294 (.306 in initial model) and subjective success decreased to .458 (.481 in initial model). Therefore, effect size of objective success has dropped to .416 and .845 respectively, but still has indicated large effect sizes. In structural equation modeling, the Goodness of Fit Index (GFI) roughly analogous to the multiple R^2 that represents the overall amount of the covariation among the observed variables that can be accounted for by the hypothesized model (Stevens, 2002, p. 431). In the modified model, GFI was .992 and indicated a satisfactory amount of the covariation among the observed variables that can be accounted for by the hypothesized model.

Chi Square= 6.337
Df= 9
P= .706
GFI= .994
RMSEA=.000
CFI=1.000
IFI=1.007
TLI=1.049

All Exogenous Variables were correlated using double-headed arrows in AMOS model

Marital Status

Income

Internet Usage

.21*

.13**

Daily invent Hours

.18**

.31*

Inventive Career Satisfaction

.26*

e

Objective Success
R^2=.294

.17**

Subjective Success
R^2=.458

e

.19*

Life Orientation

.35*

External Linkages

.16

.23

Kline's effect size criteria of path coefficients
<.10 - Small effect
<.30 - Medium effect
>.50 - large effect

Social Capital

Community Connectedness

Significant at p<.001   ** significant at .001<p<.05
Figure 03: Standardized Estimates of Modified Bottom-up Path Model

Owing to the reduction of free parameters to be estimated in the modified model, the degree of freedom increased to nine and therefore, χ^2 and other model fit indices were able to be calculated. Hu and Bentler (1999) had introduced the cut of criteria for fit indices of Structural Equation Models (Hu & Bentler, 1999). Table 62shows the major model fit indices and their cutoff values recommended by the Hu and Bentler (1999), Bynrne, (2009) and Kline, (2010) along with the estimated values of the modified model of the present study. The modified model satisfactorily achieved the values over and above the cut-off criteria of all indices. Hoelter's CN (0.05) is higher than 200, shows the adequacy of the sample size. Then again, standardized residual covariance matrix had no values higher than the cutoff value of 2.00 (Bynrne, 2009). The maximum standardized residual covariance value was 1.040. Therefore, the modified bottom-up model of the study satisfactorily fitted the sample data in the variance and covariance matrix.

Table 03: Model Fit indices, Cutoff criteria and Modified bottom up model values

	Index	Recommended cut off value	Value in the model	Decision
Absolute Fit Indices	χ^2(df, N), P	p>0.05	6.3(9, 200)P= .706	Satisfied
	χ^2/df	<3.00	χ^2/df =.704	Satisfied
	GFI	>.90	GFI = .994	Satisfied
	AGFI	>.90	AGFI=.958	Satisfied
	SRMR	<.05	SRMR= .017	Satisfied
	Hoelter's CN (.05)	>200	Hoelter' CN= 532	Satisfied
	AIC	Lower the Better	AIC=120.34	-
Non centrality- based indices	CFI	>.95	CFI=1.00	Satisfied
	RMSEA(LO90, HI90)	<.08	RMSEA= 0.00(.00,.06)	Satisfied
	PCLOSE	>.50	PCLOSE=.908	Satisfied
Relative Fit Indices	IFI	>.90	IFI=1.00	Satisfied
	TLI	>.95	TLI=1.00	Satisfied
	NFI	>.90	NFI= .984	Satisfied

In the modified final model of the present study, income, daily inventive hours and external linkages have an indirect effect on subjective success. In order to detect whether these indirect effects were significantly different from zero, the researcher selected 2000 bootstrap samples and bias-correlated confidence intervals 95 percent using AMOS 18 bootstrapping.

Table 04: Bootstrapping Results of the Mediation Effects-Bottom-up Model

Variable	Standardized Indirect effect	Bootstrapping Estimates			
		S.E.	Lower Bound (2.5%percentile)	Upper Bound (97.5%percentile)	Sig. P (two-tailed)
Income	.036	.016	.013	.078	.001
External Linkages	.059	.023	.023	.118	.001
Daily invent Hours	.052	.021	.019	.103	.001

According to Table 04, the standardized indirect effects of income, external linkages and daily inventive hours are significantly different from zero at .01 level (P =.001, two tailed). Hence, income, external linkages, daily inventive hours have a significant indirect effect on the subjective success. However, none of these variables indicate a significant direct effect on subjective success in the bottom-up path model. Therefore, objective success could possibly be a full mediator variable between income, daily inventive hours, external linkages and subjective success. However, to assume objective success as a full mediator, the researcher had to check whether there is a significant relationship between income, daily inventive hours and external linkages on the subjective success without having the effect mediation variable. When the researcher assumed objective success as not an intervening variable, income (p=.548) and external linkages (EL) (p=.118) have not shown significant direct effect on the Subjective success (Table 5). However, the engagement in invention (EI) has shown significant direct influences on subjective success (p=.024).

Therefore, objective success was a candidate to be a full mediator between the engagement in invention and subjective success. To test the actual nature of the relationship between these variables, the researcher assumed two possible effects: the indirect effect and partial mediation effect. The researcher entered the objective success as intervening variables in both models. In the indirect effect path model, income, external linkages and engagement in invention showed a significant indirect effect on the subjective success (Table 05). In partial mediation model the direct effects of income (p=.855), external linkages (p=.482) and engagement in invention (p=.083) on subjective success were not significant.

Table 05: Boostrap Significance of Full, Partial, No Mediation and Indirect Effects

	No mediation	mediation			Decision
	X→ SS	X→OS	OS→SS	X→SS	
	P	p	p	p	
Income	.548	.001*	.014*	.855	Indirect
EL	.118	.001*	.014*	.482	Indirect
EI	.024*	.001*	.015*	.083	Full mediation
IU	.004*	…	…	.005	
CC	.001*	…	…	.001	
ICS	.001*	…	…	.001	
MS	.037*	…	…	.034	
SC	.008*	…	…	.011	
LO	.005*	…	…	.005	
OS	…	…	…	.018	

*OS=objective Success, SC=Subjective Success, CC=Community Connectedness, MT=Maximizing Tendency, EL=External linkages, LO=Life Orientation, ICS=Inventive Career Satisfaction, EI=Engagement in inventions, IU=Internet Usage, *= sig. at .o5*

As far as without intervening variable engagement in invention had shown significant influence on the subjective success in no mediation model, the objective success was confirmed as a full mediator variable between engagement in invention and the subjective success. However, either income or external linkages have not shown a significant direct influence on the subjective success in both no mediation and partial mediation models. Hence, the income and external linkages have only the indirect effects on subjective success.

Finally, the researcher tested the indirect effect, partial and no mediation models using nested model approach in AMOS. Chi-square difference test indicated that when assuming the partial mediation model to be correct, the chi square difference between no mediation and partial mediation is statistically significant (CMIN=73.165, Df=4, p=.000). However, the chi-square difference between partial mediation and indirect effect models was not significant (CMIN=3.055, Df=3, p=.383).

Discussion and Conclusion

The results of the top-down path analysis indicated that the inventors' achievements of high-level objective success positively influenced them to earn a higher income (β=.20, p<.05), extra engagement in their inventive activities (β=.29, p<.01) and have better external linkages (β=.31, p<.01). According to Arthur, inventors can achieve optimum objective success only by successful

commercialization of their inventions (Arthur, 1991). Therefore, the commercialization naturally increases their income levels, even though they might not achieve net profits. Not only income, commercialization can bring fame and social recognition to the inventors. As Nikola Tesla quoted, inventors feel an unimaginable feeling when they have seen their inventions becoming successful and that thrill encourages them to be more engaged in inventive activities. Past studies on inventors also revealed that inventors' past success has an impact on their present and future inventive activities (Audia & Goncalo, 2007; Davis & Davis, 2007). A majority of the inventors in the present study also commented that when they contacted external entities for financial and other resources to develop their inventions, external parties especially entities such as banks, requested evidence to prove their inventive success (Wickramasinghe, 2010). Therefore, inventors who achieved past success tend to be more accepted by external parties. When combined, the top down influence to the bottom up impact of the income, engagement in inventions and external linkages on objective success, it gives the impression that there is a cycling relationship between income, engagement in inventions, external linkages and objective success. Higher income, engagement in invention and external linkages lead to the achievement of higher objective success and then the higher objective success leads to an increase in income, engagement and external linkages of inventors.

Unlike the statistically insignificant influence of maximizing tendency on the objective success (β=-.03, p=.624), the results of the top-down model indicated a somewhat significant negative influence of objective success on maximizing tendency (β= -.13, p=.075). This indicated that the inventors' objective success achievements have made the inventors to be more realistic and slightly degraded their unrealistic maximizing tendencies. During the panel discussions, immature inventors; those who had not commercialized their inventions tended to be more critical about support from the government, bank loans and public attitude over local products. However, mature inventors who had gone through the troubles of commercializing their inventions were concentrated only on one or two inventions and were attempting to move forward systematically. One inventor who had eight Sri Lankan patents had tried to commercialize seven of his inventions. However, at the time of the survey, he concentrated only on the "high efficient paddy processing system", which has a high market potential in the agricultural industry (Wickramasinghe, 2010). Therefore, the process that leads to the achievement of the objective success has slightly negative effects on the maximizing tendency of inventors. However, owing to comparatively lower effect sizes of both bottom-up and top-down models, in general it can be concluded that a maximizing tendency appeared as a relatively stable trait of the inventors.

Then again, level objective success had only a statistically insignificant negligible negative impact on life-orientation (β=-.040,p=.566). Past studies have shown inconclusive results on the influence of objective success on life orientation. According to literature, life-orientation (optimism) is a relatively stable personality characteristic of a person (Carver, Scheier, & Segerstrom, 2010). Therefore, it is not significantly volatile to the external stimulus. When facing negative outcomes (low objective success), life-orientation just regulates the optimistic person (inventor) to strengthen him with expecting optimistic results in the future (Carver C. S., 2004). Therefore, in most situations life-orientation would not be increased or decreased with external events and outcomes. As such, life-orientation neither can be drastically increased nor decreased by present external outcomes and events.

According to the results, objective success does not have a significant influence on internet usage, career satisfaction, social capital and community connectedness. Even though there is drastic internet infrastructure development going on in Sri Lanka, in general, the internet penetration rate is very low and majority of the citizens have no access to the internet. Therefore, even where inventors needed internet access it has been a difficult and costly project. Even when they do have access, their awareness and usage of internet to gain knowledge and information of their inventive activities has been lower. Therefore, the potential impact of inventors' achievements on internet usage might not be evitable among the grassroots level inventors in Sri Lanka.

In industrial relation literature, performance has been expected to influence job satisfaction. However, grassroots level inventors have challenged themselves to make break-throughs rather than achieve external outcomes (Dahlin, Taylor, & Fichman, 2007). Therefore, they perceived satisfaction with their work rather than in an outcome. The greatest inventor of all time Thomas Edison once quoted that "One might think that the money value of an invention constitutes its reward to the man who loves his work. However, I continue to find my greatest pleasure, and so my reward, in the work that precedes what the world calls success". The insignificant impact of objective success on inventive career satisfaction among grassroots level inventors indicates the universal validity of Edison's explanation of the inventors.

Most of the grassroots innovation promotion movements in developing countries have ignored the patents applied inventors by assuming patent would provide monopolistic rights to the inventors to achieve commercial success that might work against the other members of the community (Wettansinha, Wongtschowski, & Waters-Bayers, 2008). The results of the present study indicate that objective success of the grassroots level inventors in Sri Lanka have no significant impact on the social capital and community connectedness. Therefore, the increase (or decrease) of objective success has not negatively affected the inventors social

capital or his connectedness to the inventive community. This finding suggests that even though the patent applied grassroots level inventors are getting monopolistic rights for commercial exploitation of their inventions, their objective success has not negatively influenced their connectedness towards the inventive community. Hence, the ignorance of patent applied inventors from the innovation promotion movements in developing countries seems to be based on false assumptions, which were based on wrong contextual interpretations. Therefore, the findings of the present study suggest the importance of supporting patent applied grassroots inventors in developing countries such as Sri Lanka.

In conclusion, the findings of the study indicate that only the factors that provide significant physical resources to the innovation process such as income, time and external linkages are getting a significant payback from the objective success. The achievement of objective success slightly makes the inventors more rational and conservative towards what can actually be achieved.

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The Tourism-Led Development Strategy in Sri Lanka

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Abstract

Sri Lanka has an ability become one of the best tourism countries (TCs) in Asia. However, it missed opportunities on a number of occasions due to inappropriate economic policies, continuous political violence, and wars. Since 1983 the Sri Lankan tourism sector was seriously affected by the nearly three decades of separatist war which ended in May 2009. Immediately after the end of war tourism in Sri Lanka bounced back and it now has become the engine of economic growth in post-war Sri Lanka. In this paper, a historical analysis has been undertaken to demonstrate how Sri Lanka miss matched their development strategies in terms of tourism, although the country had the potential to attract a record number of tourists. The post-war tourism boom has given Sri Lankans and the Sri Lankan tourism sector new hopes and optimism. This paper demonstrates that the Sri Lankan tourism sector has potential and opportunities to play a vital role in the post-war inclusive development strategy in terms of generating much needed foreign exchange, poverty alleviation via employment generation, accelerating economic growth and uplifting living standards of all Sri Lankans.

Keywords: Sri Lanka, tourism, tourism development strategies, tourism boom, post-war development,

Introduction

There is a large body of literature on the relationship between international tourism and economic development. This literature has focused on the tourism-led growth hypothesis, and it has established that the development of the tourism sector generates economic growth (see Hazari and Sgro 1995, Balaguer and Cantavella-Jordá 2002). Many single country case studies and cross-country studies provide empirical support to the tourism-led growth hypothesis. Brau, Di Liberto & Pigliaru (2011) emphasised that: "more recently, different studies – both analytical and empirical – go a step further by pointing out the possibility that tourism can make an economy grow at a rate comparable with, or even faster than, the ones associated with other types of specialisation, in which the potential for sector-specific technological progress is higher". Tourism has become an engine of growth in tourism countries (TCs) such as Maldives, Pacific Island Nations and Island Nations in the West Indies. On the basis of the well-established empirical literature, tourism is "an increasingly popular component of development strategy in low-income countries" (Wattanakuljarus and Coxhead 2008). According to Wattanakuljirus & Coxhead (2008), the popularity of tourism as a component in development strategies is based on three beliefs. Firstly, tourism can play a substantial role in increasing foreign exchange earnings and in contributing to economic growth. Secondly, it can play an important role in improving income distribution through creating employment opportunities since tourism is a labour-intensive industry with relatively limited human capital skills required by employees. Finally, tourism is an environmentally friendly "clean" industry and its growth generally do not lead to adverse environmental impacts. On the basis of the above arguments, policy makers can target tourism-led developments to accelerate economic growth and development in developing countries with potential for tourism development. Sri Lanka is one of the so-called TC's that tourism-led development strategies have been applied for decades in different policy frameworks. In this paper attempts to review Sri Lanka's tourism-led development policies and especially the post-war tourism development strategies.

Tourism Development in Sri Lanka

Sri Lanka has been a tourist destination for centuries because of its strategic location and uniqueness. At the end of the 13th Century A.D. Marco Polo visited Sri Lanka, then known as Ceylon, and noted: " the traveler reaches Ceylon, which is the untouchably finest island of its size in all the World" (UNDP;WTO 1993). Therefore, it was known as "The Pearl of the Indian Ocean," "Serendib," "Ceylon" and "Taprobane" among the explorers and merchants for many years (SLTDA 2011). Although there have been ups and in the number of tourist arrivals to Sri Lanka during the post-independence period, Sri Lanka satisfies the

criteria required to be considered as one of the 'tourism countries' (TC) (Brau, Di Liberto et al. 2011).

Sri Lanka had not the tradition of tourism, unlike industrial countries. Early travel was principally religious undertaking to shrines of Anuradhapura, Polonnaruwa or Adam's peak and travel were domestically and very limited. However, during the colonial period, Sri Lanka was   very often attracted to travelers who sailed between the West and the East through the port of Colombo on many cruise ships, freighters and other vessels since its primary location on the world sea lanes. Therefore, the passengers used to enter the port of Colombo and enjoyed sightseeing in Colombo, Kandy, and their surroundings. As a result, the government set up its first Tourist Bureau in 1937 mainly to service these passengers when they came ashore by greeting them and providing sightseeing tours. Although accurate records are unavailable, " it is estimated that approximately one hundred thousand to two hundred thousand passengers visited the country per annum" (SLTDA 2011 p. 1). However, the Tourist Bureau ceased its operations in 1940 due to the commencement of World War II. Due to the War, there was little tourist activity.

After gaining independence in 1948, the new government decided to reorganize tourist activities by setting up the Government Tourist Bureau under the Ministry of Commerce in 1948, and the task was entrusted with the functions of undertaking tourist promotional works in overseas. As the development of accommodation facilities was a primary requirement of the promotion of tourism. According to SLTDA information (SLTDA 2011 p.1), there was a range of accommodation facilities throughout the country which was constructed during the British colonial rule. These facilities were not originally designed for the promotion of inbound tourism but for the use of planters, the business community, and government officials. Some of these relatively luxurious accommodation facilities, which at that time were residences of colonial governors, were later converted into prime hotels in Sri Lanka. These included the Galle Face Hotel, Grand Oriental Hotel, and the Mount Lavinia Hotel in Colombo, Queens Hotel in Kandy, Grand Hotel, and St. Andrews Hotel in Nuwara Eliya, and New Oriental Hotel in Galle. These hotels were renovated and were used as prime accommodation facilities for foreign visitors. In addition to   hotels, some accommodation facilities were built as Tourist Rest-houses. These accommodation establishments were developed in places of scenic beauty such as Ella, Belihul Oya, Horton Plains, Pussellawa, Polonnaruwa, Sigiriya, Dambulla, Tissa Wewa, Nuwara Wewa, Kitulgala, Bentota, and Tissamaharama. As a result of such a government promotions and foreign relations aided the tourism business enormously in gaining respect and confidence during the period of 1948 to 1953 and tourism receipts doubled from $ 1.04 million to $ 2.23 million (Due 1980).

There was a rapid growth of international tourism around the world during the 1950s (Nordström 2005) largely due to the introduction of jet aircrafts for civilian transport after the World War II (May and Hill 2004). Therefore, Sri Lanka had a golden opportunity to establish a tourism hub in between the East and the West using its strategic unique central location and relatively sufficient accommodation facilities (Fernando, Bandara et al. 2013, Fernando, Bandara et al. 2017). It was necessary to invest in infrastructure in developing counties for them to attract a share of this growth in international tourism. For example, new airports with wider and long runways and parking bays, with large spaces, terminal buildings with modern facilities were required to facilitate inbound tourism. However, during the period 1954 – 1960 tourism arrivals in Sri Lanka declined rapidly. Leading hotels experienced unbelievably low occupancy rates ranging from 14 per cent to 32 per cent for those years as a result of government's poor political strategy for tourism (Due 1980). Like other South Asian countries, Sri Lanka implemented a protectionist import-substitution regime after independence except for a brief episode of 1948-1956 (Athukorala 1998).   Under this closed trade policy regime, the government's main focus was to develop import-substitution industries to accelerate growth and tourism was not considered as a key ingredient in the national economic development strategy (see Table 1 for details of the historical evolution of national development strategies and tourism promotion and market strategies). Therefore, tourism development failed to take root, and Sri Lanka missed a golden opportunity to establish a tourism hub in between the East and the West while Singapore that was the main identified competitor, was moving fast strategically by improving its tourism infrastructures to develop international tourism during the 1960s. Sri Lankan policy makers missed this first opportunity to develop its tourism sector by not investing in tourism related infrastructure and not considering tourism as an important sector in its national economic development policy (Fernando 2015).

Table 1: A Chronology of National Economic Policies and Tourism Development Strategy in Sri Lanka

Period	National Economic Policy Regime	Tourism Development Strategies	Main features of strategies
Before 1948	The pre-independence – open economic policy	1937 - First Tourism Bureau was established. 1940 - Tourist Bureau ceased its operations due to the War	Provided services to the passengers who sailed between the West and the East through the port of Colombo.
1948 - 1956	Continuation of pre-independence open economic policy	1948 - Revival of Government Tourist Bureau	Began to undertake tourism marketing and promotional strategies immediately after independence from the colonial rulers.

Journal of Business and Technology

1956 - 1965	Closing up the economy with the import-substitution strategy	Under the closed economy, tourism did not play an important role in the national development strategy	Under the directionless and loosely organized Tourist Bureau there was no tourism promotional and marketing activities.
1965 - 1970	Partial departure from the closed economy	1966 - The government legislative body was established for the tourism sector 1966 - Introduction of the first Ten Year Master Plan for tourism	The revival of tourism promotion and marketing strategies. Tourist Board Act No. 10 of 1966, Ceylon Hotel Corporation Act No 14 of 1966, Tourist Development Act No. 14 of 1968. The plan became the blueprint for tourism development and witnessed first tourism boom in Sri Lanka. The country witnessed a first-wave of new hotel construction with five resort development zone
1970 - 1977	Closing up the economy again	No new government initiative to develop tourism	The rate of investment growth in tourism fell down due to the re-establishment of import control measures. However, tourism grew rapidly as a result of previous promotional activities and peaceful environment.
1977 - 1996	Opening up the economy	1977 - Introduction of trade liberalization, exchange rate reforms and incentives for FDI.	Sri Lanka managed to attract a large number of tourists especially from Europe under the open economic policies. Tourism was promoted. The progress continued until 1983. Tourism became a victim of war since 1983.
	The second wave of economic reforms in 1989	1992 - Introduction of the second Ten Year Tourism Master Plan	Temporary rebound in tourism Sector and recovery of tourism arrivals with the second wave of trade reforms
1996 to date	Continuation of opening economic policies with some limitations	2002 - Signing a cease-fire agreement and created a peaceful environment for the tourism sector.	The relatively peaceful short term environment gave rise to an increase in tourist arrivals to Sri Lanka
		2005 - New tourism Act. 2008 - Introduction of the Third Tourism Master Plan	A closer relationship between government and private sector through joined experiences board has built integrated approach to tourism.
		End of war in 2009 – Launching new tourism promotion strategy 2011-Implementation of the Tourism Development Strategy	The tourism sector has made a remarkable recovery, and it is becoming one of the fastest growing and dynamic industries in the country due to a peaceful environment.

Source: Adapted from (Fernando, Bandara et al. 2013)

Although the country is extremely rich in natural, cultural and heritage-based resources as described above, it took about 18 years after independence for Sri Lanka for policy makers to recognize a significant role for tourism in enhancing economic development. After identifying tourism as a key sector for the first time, the Sri Lankan government commissioned a study to prepare a Ten Year Master Plan for tourism in 1966. This plan was developed with funding from USAID (United Nations, 1993). Following this study the Sri Lankan government passed two acts (the Tourist Board Act No. 10 of 1966 and Tourist Development Act No. 14 of 1968) to establish institutional arrangements such as the Ceylon Tourist Board, the Ceylon Hotel School and the Ceylon Hotels Corporation in order to actively engage in tourism promotion and development for Sri Lanka (see for details, United Nation 1993). It was very difficult to attract private sector investors into this area of the economy without incentives since the number of tourist arrivals was by then small relative to other destinations. Therefore, the Sri Lankan government offered an incentive package to the private sector including fiscal and financial concessions, and land on concessional rates and provision of infrastructure. This created the first tourist boom in Sri Lanka and a first-wave of new hotel construction mainly occurred along the Southern Coast. As shown in Figure 1, the period of 1966-1977 witnessed a rapid growth in tourist arrivals in Sri Lanka. The pro-western United National Party (UNP) Government introduced a far-reaching economic reform package in 1977 and commenced the process of opening the economy. This was a turning point in economic policy for Sri Lanka, and this policy change not only stimulated export-led industries but also assisted in attracting international tourists. During the period from 1966 to 1970 the country witnessed an increase of 23 per cent in tourist arrivals on average per annum (from 18,969 in 1966 to a peak of 407,230 in 1982). Although there was a negative annual growth of 14 percent in 1971, as a result of the first Youth uprising in the South, there was a further rapid rise in tourist arrivals between 1972 and 1982 at a rate around 24 per cent per annum. The numbers of inbound tourists in Sri Lanka reached 100,000 in 1975 for the first time. With the introduction of open economic policies in Sri Lanka in 1977, the tourism industry enjoyed remarkable success until 1982, recording an increase in tourist arrivals from 153,665 in 1977 to 407,230 in 1982. The period 1978-1982 can thus be considered as a relatively prosperous period in the early history of Sri Lanka.
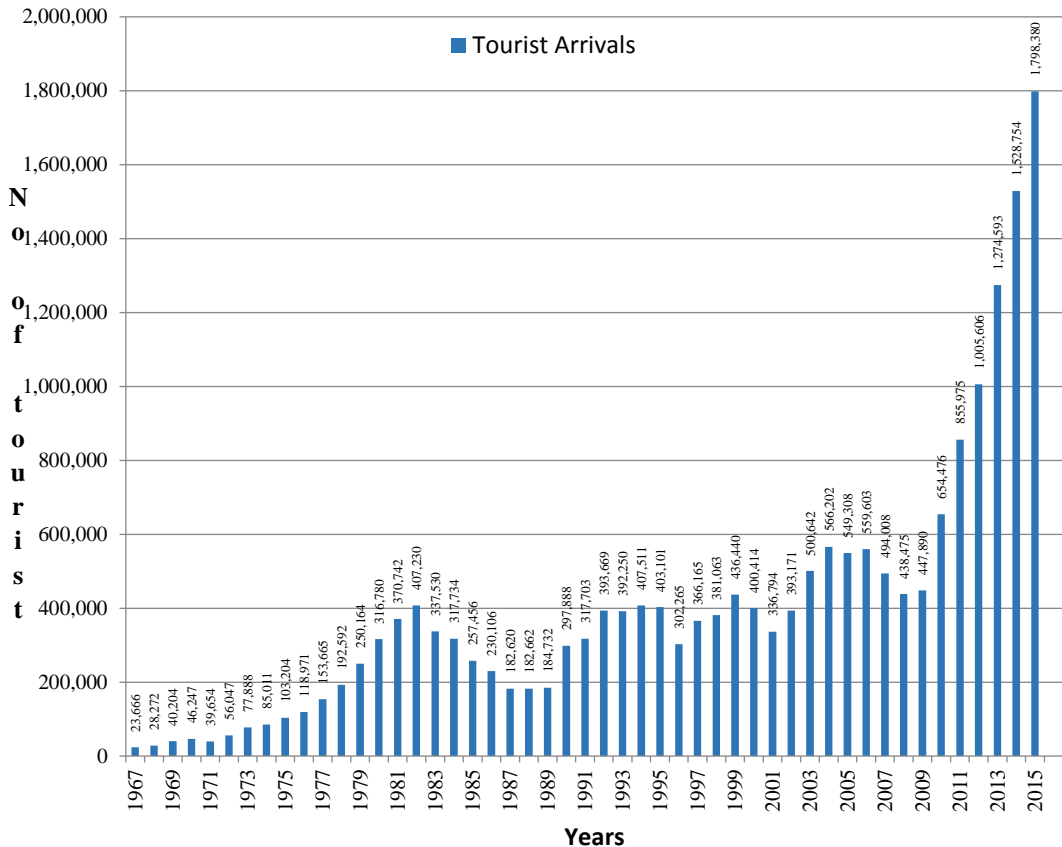
Figure 1Tourist Arrivals to Sri Lanka and year on year growth from 1966 to 2015
Source: Based on Sri Lanka Tourist Board Annual Reports, various issues

Unfortunately, the first tourism boom ended with the eruption of well-known ethnic riots in July 1983 and the escalation of the separatist war in the North and East. During the next twenty-seven year period, Sri Lanka missed many opportunities to attract tourists and foreign direct investment (FDI) to the sector because of the above mentioned 'twin wars' (namely the separatist war in North & East coupled with youth violence in the South). It is clear from Figure 1 that the year 1983 was a turning point in terms of such missed opportunities. All expectations of reaping the benefits of economic liberalisation in 1977 and Sri Lanka's dream of becoming another Singapore faded away.

During the first episode of war (1983-1987), the number of tourist arrivals declined at an average annual rate of 15 percent. Although the peace process started between the Sri Lanka Government and the Eelam separatists in 1987 following the intervention of the Indian government, the tourist arrivals to Sri Lanka were stagnating and low as a result of the above-mentioned 'twin war.' However, the elimination of the second youth uprising in the South in 1989 and the beginning of another round of peace talks between the Sri Lankan government

and the Eelam separatists resulted in a temporary rebound in the tourism industry in 1990. This rebound was also supported by the second wave of economic reforms including a further liberalisation of the trade regime (Kelagama.S and Danham.D 1995).

These economic reforms associated with the Second Ten Year Tourism Master Plan induced a recovery of tourism arrivals from 184,732 in 1989 to 393,669 in 1992. However, the Eelam separatists started the Second 'Eelam War' in 1990, and the president of Sri Lanka was assassinated by the Eelam separatists in 1993. As a result, Sri Lankan tourism again showed negative rates of growth. After seventeen years in power, the right-of-centre UNP government lost power in the 1994 general elections and the left-of-centre People Alliance (PA) government led-by the former president (Mrs. Bandaranayake Kumaranatunga) came to power with new directions and expectations. The new government began a fresh round of peace talks with the Eelam separatists in 1994, and there was a small growth in tourist arrivals during this brief period. However, once again, peace talks collapsed, and the war started again in earnest in 1996. The Sri Lankan security forces captured Jaffna (the heart of the Northern Province), and the Eelam separatists started to mount attacks on economic targets like tourist hotels, the Central Bank and the business district in Colombo. The Eelam separatists attacked the Colombo International Airport in 2001, and the tourism sector faced a severe crisis, and the economy recorded negative economic growth for the first time in three decades. As a result of the ensuing economic crisis, as well as an increase in the intensity of war in the North and East and attacks mounted by the Eelam separatists in Colombo and the Southern part of the country, the PA government became unpopular. In 2002 the right-of-centre-pro western government led by the UNP came into power and began a fresh peace process in 2002 after signing a cease-fire agreement (CFA) with the Eelam separatists following international mediation led by Norway. Between 2002 and 2006, there was a relatively peaceful environment in the country and the government had six rounds of peace talks with the Eelam separatists. The relative optimism in relation to the possibility of achievement of long-term peace and the relatively peaceful short term environment gave rise to an increase in tourist arrivals to Sri Lanka during this period. This was a mini-tourism boom. However, the war between the Eelam separatists and the Sri Lankan government security forces started again in 2006, and the tourism industry was badly affected once again between 2006 and 2009. During this period the growth in tourist arrivals was negative as expected. Finally, the war ended in May 2009 as the result of the government forces defeating the Eelam separatists and gaining full control over the entire island. Following the end of nearly three decades of brutal separatist war between the separatist rubbles and government security forces in Sri Lanka in May 2009, Sri Lanka has witnessed an unprecedented post-war tourism boom beyond its expectation. The number of

international tourist arrivals to Sri Lanka has sharply increased breaking all previous historical annual and monthly tourist arrivals records.

The Post-war Tourism Boom in Sri Lanka

After recognising the key role that the tourism industry can play in post-war development the Sri Lankan government launched a Tourism Development Strategy (TDS) with a five-year master plan for 2011-2016, setting a number of important targets centered on attracting a large number of international tourists. It has a number of ambitious targets. These include "an increase in tourist arrivals from 650,000 in 2010 to 2.5 million by 2016, attract US $3 billion of FDI within the planned period, an increase in direct and indirect tourism related employment opportunities from 125,000 in 2010 to 500,000 by 2016, distribution of the economic benefits of tourism to a larger cross-section of the society, increase in foreign exchange earnings from US$ 500 million to US$ 2.75 billion by 2016, contribute towards improving the global trade and economic linkages of Sri Lanka and position Sri Lanka as the world's most treasured island for tourism" (Ministry of Economic Development 2011). These targets are almost four times of the values of 2010in terms of numerical values. All other targets are related in the sense that they depend on the realisation of the target of attracting a large and expanding number of international tourists.

This demonstrates that the Sri Lankan government is very keen to accelerate economic development through tourism. It is also important for Sri Lanka to implement marketing and management strategies to rebuild its image as an attractive and safe tourist destination after decades of negative international publicity highlighting the on-going political violence, the war and persistent acts of terrorism prior to 2009 as well as concerns about alleged human rights abuses in the final stages of the war. In addition to the TDS, Sri Lanka has launched a massive marketing campaign under the tourism branding slogan of "Sri Lanka - the wonder of Asia." This strategy is important for Sri Lanka considering its effort to recreate its image and the competition it faces from other destinations in terms of attracting international tourists. As results of these influences, Sri Lanka Tourism has surged to a new high record of 1,798,380 arrivals in 2015, transcending all time high hits in the history. As a result, the experience of the short history of the post-war period shows that the tourism sector has now become a main driver of the Sri Lankan economy in terms of foreign exchange earnings, employment generation and attracting foreign direct investment (FDI). In 2015, tourism generated 319,436 both direct and indirect employment opportunities and Rs. 405,492 million (US$ 2,980.6 million) foreign exchange earnings in the Sri Lankan economy (SLTDA 2015)

According to TDS, it is clear that government's growth strategy is to consolidate first and then, to target exponential growth which means that for the first four

years the Government expects 12.9 per cent to 28.6 per cent per year growth rates. Thereafter the growth rate is anticipated as accelerating up to 48.1 percent in 2015 and finally to be stabilised at around 25 percent growth per annum in 2016 (see Figure 2 for more details). According to Figure 2, actual tourist arrivals have been more than the expected against the target set for each of the past five years until 2014 and could not achieve the target in 2015.

Figure 2. Expected tourist arrivals and growth 2010 to 2016.
Source: Based on tourism development plan 2011 – 2016 (Ministry of Economic Development 2011) and Sri Lanka Tourism Annual Report (SLTDA 2012)

Current issues of tourism in Sri Lanka

 A growing sector of an economy is always facing challenges, and therefore, tourism sector as a growing sector in Sri Lanka is no exception. There are a number of impediments to achieving such targets and need to be addressing them by both tourism industry and government. Analysing tourism sector is more complicated as tourism differs from many other economic activities in that it makes use of a diverse range of facilities across a large number of industrial sectors (Pham and Dwyer 2013). Comprehensive and reliable statistics are essential for policy-makers to make evaluate the efficiency and effectiveness of management decisions to support tourism development. It needs to be a solid data base. However, available data have numbers of shortcomings even tourism arrivals in Sri Lanka.

Firstly, accommodation is more important for tourism, and it should be fulfilled international tourism standards. The Sri Lankan hotel industry comprises tourist

hotels that are graded establishments, along with other establishments such as guest houses and inns registered with the Sri Lanka Tourism Development Authority (SLTDA 2012). According to the Sri Lanka Tourism Annual Report, the lodging establishments registered with the SLTDA amounted to 783 which provided 20,609 rooms as at 2012 and the annual hotel room occupancy rate was 70.1% (see Table 1 for more details).

Table 6: Accommodation Capacity

Class of Accommodation	Accommodation Capacity			Room Occupancy Rate
	No of Units	No of Rooms	No of Beds	
Hotels	**354**	**19,376**	**30,399**	**74.5**
5 Star	13	2,744	6,420	74.9
4 Star	18	2,084	3,329	75.1
3 Star	15	1,469	2,378	74.3
2 Star	33	2,022	3,981	71.9
1 Star	34	1,725	2,322	73.6
Unclassified	217	9,592	18,992	73.2
Supplementary Establishments	**1,409**	**10,702**	**20,211**	**78.0**

Source: Annual statistical report of Sri Lanka tourism – 2015

The Sri Lankan tourism industry needs around 45,000 hotel rooms to accommodate the estimated 2.5 million tourists by 2016 (according to TDS). This represents a massive challenge. The existing accommodation capacity in the Sri Lankan tourism sector seems to be inadequate to cater anticipated tourism demand or target since it is a difficult task to build a large number of hotel rooms in a very short period of time. However numbers of arrivals are confusing for example, current tourism arrival figures are calculated according to the definition of tourist who spends 24 hours or more, these include many Sri Lankans with foreign passports, foreigners working with local organisations and spend time with business partners all of whom come from limited period less than one year that categorised tourist, however, they may not occupy in hotels room as a tourist guest. If all these are factored in, according to SLTD annual report 2015, only around two third of tourist arrivals are needed hotel rooms for their accommodation and others especially Sri Lankans those who have foreign passports, around 25 per cent of total tourism, most probably accommodate with their relations. In addition, the government has initiated some other community-based alternative accommodation development programs such as the 'home stay' program. However, higher-quality accommodations are necessary for Sri Lanka to attract quality high spending tourists. According to the SLTDA, only about 6,000 of the currently available rooms are of medium to high quality. Refurbishment of existing hotel rooms is one option to meet the requirements of the expected number of high-quality tourists.

Secondly, the tourism industry needs to be improved transport infrastructure facilities in order to meet the needs of the anticipated increase in tourism numbers. Despite the recent implementation of massive infrastructure development projects, Sri Lanka has a long way to go to catch up with other favoured Asian tourist destinations like Singapore and Thailand. The country is still lagging behind in terms of road and rail transport. Moving tourists from one location to another location within the country is still time-consuming due to poor infrastructure. Although Sri Lanka is an island, it is yet to have the facilities needed to promote and accommodate significant overseas tourism arrivals by sea. However, tapping into sea travelers (such as the cruise ship market) is at embryonic state. The port infrastructure in the North and the East was severely damaged by the war, and rebuilding is necessary in order for tourism potential to be fully realised.

Thirdly, The TDS has identified two types of human resource gaps: the gap in the accommodation industry itself, and the gap in related services. The industry is facing a shortage of trained workers because of decades of neglect in training tourism workforce due to civil disturbances. As highlighted in an industry report, the tourism sector needs five times of the current workforce to cater for 2.5 million tourists by 2016 (Clearer Skies 2011). The hospitality related education and training facilities are not sufficient to train such high numbers of workers or to train workers at the level needed to compete effectively in the high end of the tourism sector.

Fourthly, according to the Tourism Development Strategy 2011 – 2016, the industry is expected to move towards premium prices with greater value addition attracting higher spending tourists. It is important that the country moves away from low-cost tourism and focuses on high-end tourism (Ministry of Economic Development 2011). Although the country expects to move away from the low-cost tourism and focuses on high-end tourism, attracting quality tourists has been the main issue. There have been growing number of South Asian tourists and members of Sri Lankan diaspora compared with tourists from rich western countries. According to some recent estimates, 20 percent of recent tourist arrivals are members of the huge Sri Lankan diaspora who are visiting friends and relatives (see Miththapala 2012). According to the same source, only 82 percent of international arrivals in 2010 were "real tourists" who stayed in hotels.

Finally, rapidly increasing accommodation costs represent another constraint on meeting tourism targets. According to some recent reports, (Clearer Skies, 2011), the pricing of hotel accommodation is not competitive, and Sri Lankan hotel accommodation is over-priced for its quality compared with its rivals. While Sri Lanka is more expensive than many other countries for four-star and five-star accommodation, it is more competitive in terms of the price of three-star rated beach resort hotels. These are generally not of a standard that is attractive to international tourists. The room-rates in Sri Lanka have gone up because of the

post-war tourism boom such that comparable room rates in other tourist destinations like Thailand, Indonesia, Vietnam, and Kenya are cheaper than Sri Lanka. Over the last few years, hotel charges have gone up by about 50 percent (Clearer Skies 2011). Some believe that the government regulation of these charges represents an unhealthy intrusion into the sector and that it is important to allow rates to be determined by the market (The Nation 2011). The tourist price index estimated by the Sri Lanka Tourism Development Authority (2010) shows that the index increased by 5.3 percent in 2010. Sri Lanka competes with other countries in South Asia and the Asia-Pacific region. However, the overall tourist price index showed an increase of 5.3 percent, when compared with the previous year. In absolute terms, it increased by 1,510 points from 4,940 in the 2009/2010 season, to 6,450 in the 2012/2013season (SLTDA 2012). Prices of the accommodation sector increased by 3.9 percent while the food & beverage sector increased by 6.1 per cent and the transport sector increased by 7.7 percent(SLTDA 2012).

In order to maintain competitiveness with other countries in South Asia and the Asia-Pacific region, theSri Lankan government has introduced a comprehensive policy framework for tourism development. Several key initiatives have been proposed such as setting up an Aquaculture park in Batticaloa, promote sale of gem and jewellery, encourage MICE tourism by establishing necessary infrastructure, encourage spending by tourists, transform and upgrade tourist attraction sites and local tourism zones, encourage theme parks and removal of tax for water sport equipment yachts, etc. & introduce hovercraft and other water based sports for tourists, tax holidays for investors With the view of improving operational efficiency and to facilitate investment a new organisation will be formed under the name "Agency for development". Tourism branding plan, training, and development for tourism youth, registration of tourist hotels based on quality standards, etc.

As such Sri Lanka Tourism is confident that the new strategic direction will move the country forward making it the most sought after travel destination in Asia while all stakeholders of the industry reap its benefits. It is very clear that within the next few years to come, the tourism industry will become a sustainable sector in the Sri Lankan economy being the top GDP contributor within next few years. Sri Lanka will adopt a concerted and coordinated approach linking private and public sector and all stakeholders, to assess policies that govern future industry development and provide knowledge to guide successful and sustainable Travel & Tourism strategy for the country.

Conclusion and Recommendations

In this paper reviewed that how the country attempted to achieve early expectations and how it missed opportunities on several occasions due to

Journal of Business and Technology

inappropriate economic policies, political violence, and wars. The post-war peacetime has given Sri Lankans and the Sri Lankan tourism sector new hopes and optimism. There is no doubt that the Sri Lankan tourism sector can play a vital role in the post-war inclusive development strategy in terms of generating much needed foreign exchange, poverty alleviation via employment generation, accelerating economic growth and uplifting living standards of all Sri Lankans. In particular, it can play a role in promoting inclusive growth by taking into account the war affected Northern and Eastern regions via a major boost in tourism related infrastructure.

Sri Lankan tourism has managed to recover quickly since the end of war in 2009. After recognising the role of post-war tourism, the Sri Lankan government has launched the TDS for the period 2011-2016. A number of policy inferences can be drawn from this study. Given the limited resources available to the Sri Lankan government and the competing claims on these resources, development of strategies for and active promotion of public-private partnerships aimed at creating new tourism related infrastructure (hotel resorts, cruise line facilities, road transport upgrades, etc.) are recommended. There is should be a consideration for promoting the country as a price competitive and safe tourism destination. The country has to maintain political stability and work towards reconciliation process with improved governance and maintaining rules of law in order for the development strategy to be fully realised. Having painted a very optimistic picture about the future of the Sri Lankan tourism sector, it is important to highlight future challenges in this concluding section in line with current issues in the tourism sector in Sri Lanka. The tourism sector and the Sri Lankan government need to implement a sustainable tourism strategy collectively.

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Effect of Human Capital on Productivity and Efficiency in the Banking Sector: An Exploratory Study of Sri Lanka and New Zealand

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Abstract

The performance of world class manufacturing companies is not only based on equipment, material, and processes but also human capital. Thus, this research contributes and extends the existing knowledge on human capital to provide a comprehensive understanding by exploring following questions: "How do human capital effect on productivity and efficiency?" and "How do human capital and its role on productivity and efficiency in the banking sector in Sri Lanka differ from that in New Zealand?". This research employed a qualitative case study as a research approach. Data is collected, via conducting in-depth interviews, and gathering information from available secondary sources from 10 banks in two nations, Sri Lanka and New Zealand. Data analysis is done through content analysis which resulted in a comprehensive understanding of the relationship between HC and the productivity and efficiency in the banking sector in a developing country, Sri Lanka and a developed country, New Zealand. This study revealed that HC has the potential to enhance overall productivity and efficiency in thebanking sector in both contexts. Comparative analysis suggests that although some differences existed, views on the importance of having HC to enhance productivity and efficiency in these two countries were consistent.

Keywords: Human capital, efficiency and productivity, banking sector, Sri Lanka, New Zealand.

Introduction

Workforce and talent are the driving forces behind innovation that leads sustained competitive advantage (Verma and Dewe, 2008, Gamerschiag and Moeller, 2011, Memon et al., 2009, Rastogi, 2000). In this setting, human capital is a key component for anycorporation. Manufacturing based companies function with tangible resources such as materials, processes, and equipment; however, the cornerstone is human capital (Brandt et al., 2013). More importantly, the success behind world class manufacturers is their human capital (Brandt et al., 2013). 'Nike' benchmarked as the most innovative company in 2013, for example, came from talented people; and not from physical assets. Indeed, the live asset, human capital, enhances overall productivity and performance of organizations.

The concept; human capital began in the 1960s with scholars like Adam Smith, Irvin Fisher and Shultz. Initially, it was discussed within the arena of society. Human capital was not a well- known concept for organizations until the 1980s. This was when discussions began about intangibles, intellectual capital, knowledge management, and organizations. Initially, the literature focused on intellectual capital and then moved to its subcomponents of structural capital, customer capital and human capital (Bontis and Fitz-enz, 2002, Kym and Moon, 2006, Schnieders et al., 2005). Among these three, human capital identified as the most important subcomponent of intellectual capital (Cuganesan et al., 2007, Rastogi, 2000).

A number of studies of intellectual capital were carried out including a human capital focus on different nations and industries (Tovistiga and Tulugurova, 2009, Abeysekera, 2008a, Abeysekera, 2007, Cuganesan et al., 2007, Abeysekera, 2006, Cuganesan, 2006, Abeysekera and Guthrie, 2004, Courchene, 2002, Brennan, 2001, Subbarao and Zeghal, 1997). These studies revealed that different nations and different industries follow different practices about human capital in order to achieve amyriad of advantages such as competitive advantage, enhance productivity, enhance performance, etc.

Despite the magnitude of practices in human capital around the world, there have been few studies on human capital and its importance in enhancing productivity and efficiency. Especially, no studies focus on the relationship between the extent of human capital and productivity and efficiency in the banking sector in Sri Lanka and/or New Zealand. Therefore, this study aims to achieve an objective, "*How is human capital in the banks in two nations, Sri Lanka and New Zealand, theeffect on productivity and efficiency*?". In this setting, this study examines the following research questions:

1. How do human capital effect on productivity and efficiency?

2. How do HC and its roleon productivity and efficiency in the banking sector in Sri Lanka differ from that in New Zealand?.

Human Capital

Various definitions of human capital have been given in the literature(Tovistiga and Tulugurova, 2009, Berkowitz, 2001, Bontis, 1998, Schnieders et al., 2005). However, alittle consistency is found among these definitions. Brooking (1996)defined human capital as employees and their skills, experience and competencies. Brooking's definition was expanded by Australian Society of CPA (ASCPA) and the Society of Management Accountants Canada (CMA) in 1999 and International Federation of Accountants (IFAC) in 1998 (as cited in Abeysekera and Guthrie, 2004). This study uses Brooking's 1996 definition with a modification regard to knowledge, training, and values(Abeysekera and Guthrie, 2005, Guthrie and Petty, 2000, Shaikh, 2004). Accordingly, human capital is defined as employees' skills, knowledge, experience, and values.

Human Capital Theory

Human Capital Theory refers to the positive correlation between investment in HC and economic return. In his 1961 paper, 'Investment in HC,' Shultz elaborates on the relationship between education and the productivity of employees. Shultz first identified the type of expenditures incurred for HC and then what expenditure contributes to increasing productivity. According to Shultz, expenses incurred for HC are categorised as consumption and investment (Schultz, 1961, Sweetland, 1996). Expenditure for consumption is usually provided for acquiring 'full day's work' from the workforce, for example, food and shelter (Schultz, 1961, Becker, 1962), but expenses for investment yield a long-term return, for example, schooling, on the job training and medical care. Schultz (1961) argued that people with no schooling and poor health are unskilled and perform at a lower rate. Therefore, productivity depends on investment in HC. In particular, Shultz emphasises the way investment in HC has to be done. Accordingly, among different ways of improving human capabilities such as health facilities, on the job training, formal education, study programs for adults, and migration of individuals and families to adjust to changing job opportunities, Shultz identified the most appropriate dimension for improving capabilities as 'education'(Schultz, 1961). Shultz's perspective of HC can conclude that 'the knowledge and skills that people acquire through education are forms of capital, and investment on this capital yield returns (Schultz, 1961).

After Schultz's work, Becker (1962) applied the idea of human capital in economics. Here, Becker's Human Capital Theory is based on both schoolings and on the job training (Sweetland, 1996, Becker and Tomes, 1994). Becker's

approach in 1964 contributed to the development of Human Capital Theory, introducing a money rate of return on investment in education and training (Becker, 1962). Also, Becker in his work in 1964 argues that employers prefer to invest in training to acquire firm-specific skills rather than general skills (Swart, 2006, Kessler and Lulfesmann, 2002, Kriechel and Pfann, 2005). Firm-specific HC is used within the specific job or firm, and general HC used in across jobs, firms and industries (Kriechel and Pfann, 2005). As Swart (2006) states, general HC is developed from outside the boundaries of the organisation. Accordingly, this kind of knowledge is easily transferable across the firm. Levels of formal education, years of experience, etc. are some indicators that can be used to measure general HC (Swart, 2006, Kriechel and Pfann, 2005). On the other hand, specific HC is developed within the organisation and cannot be easily transferable to any other firms or industries (Swart, 2006). The knowledge of specific HC is considered unique to an organisation. As Kriechel & Pfann (2005) states, working in a job for a longer period and gaining specific education qualifications accumulate specific HC. According to Becker (1964), employers prefer to invest in firm-specific skills rather than generic skills, because such skills cannot be transferable and result in higher productivity (Kessler and Lulfesmann, 2002).

Justification to Select Banking Sector

Scholars argue that human capital is pivotal to any sector (Wickramasinghe and Fonseka, 2012). Specifically, the service sector is considered an ideal pool to study human capital because the service sector performance depends on humans (Joshi et al., 2010). Thus, this study selected the banking sector, which is a key sector in the service sector(Mavridis, 2004).

Justification to Select New Zealand

New Zealand was chosen as a comparable country to Sri Lanka for two reasons. First, with reference to the human capital level, New Zealand ranks in one of the highest positions. The second reason for using New Zealand as a comparison is that New Zealand and Sri Lanka are categorised in the same region of Asia and the Pacific. Specifically, in the Asia and the Pacific region, Singapore is ranked in first place in the Human Capital Index and New Zealand in second place (World Economic Forum, 2013). There is a comparative study in the field of human capital between Singapore and Sri Lanka (Abeysekera, 2008b), but no studies have been found in between New Zealand and Sri Lanka.

Method

The study adopted the interpretivist paradigm (qualitative method). Both primary and secondary data were used for this study. Primary data was collected via semi-structured in-depth interviews. Particularly, 21 in-depth interviews were conducted with six banks in Sri Lanka and four banks in New Zealand. Secondary data was collected from both published and unpublished sources including annual reports, media publications, website publications and case studies. Data analysis is done through content analysis with the support of NVivo software. When analysing the data, six banks in Sri Lanka named as bank A, B, C, D, E, and F and four banks in New Zealand as G, H, J and K.

Findings
Sri Lanka

While recognising the importance of HC in enhancing efficiency and productivity, three banks (A, C, and D) in the sample in Sri Lanka identified different strategies for enhancing them and these included improving employee wellness (health) and the recruitment of internal employees for vacancies. In terms of enhancing productivity and efficiency through improving employee wellness, Bank C stated that:

> *We think that people have to be physically fit. Then, that will improve his or her health and, at the same time, productivity, efficiency et cetera.*

As Bank C noted, they organised different programmes to stimulate the wellness of employees, for example, a wellness programme called "Lose to Win" was conducted by the bank with the intention of reducing employees' weight. Employees from different departments participated in this competition and worked towards reducing their weight in consultation with doctors. Employees who did not participate in the competition also enjoyed the programme by supporting employees who participated. Finally, the employee team who lost the most weight was rewarded for their efforts. As Bank C remarked, this programme contributes to improve physical fitness as well as mental fitness:

> *These kinds of strategies help people to be healthier and active. Teamwork improves and finally they increase involvement in company matters very actively. We in the HR team also take part, so HR was also a team. It is a really surprising thing to see how [much] people enjoy this programme. During that period we saw a kind of special motivation and unity among staff. Doctors came here and gave advice and lessons, [provided] different exercise programmes, help(ed) with dieting et cetera.*

> *Finally, we rewarded to winning team. We all really enjoyed it.*

By conducting these programmes the bank expected to enhance not only the physical fitness and happiness of employees through providing a new, positive life experience but also to improve the motivation of employees to work. With enhanced motivation, employees work harder and more efficiently, which improves the overall level of productivity. This view was in line with Human Capital Theory (Schultz, 1961), which explained that organisations tended to develop their HC through investing in them owing to their ability to enhance productivity. Such investment includes expenses incurred for employee education, health and training (Becker, 1964, Flamholts and Lacey, 1981, Marginson, 1989, Schultz, 1961).

Further, internal recruitment was also mentioned as a mechanism to enhance efficiency and productivity. Banks A and D expressed a different approach for this purpose, that is, they redesigned the recruitment procedure in such a way as to reduce time and costs. As Respondent in Bank D states, the redesign was:

> *Because we need to take one who knows our culture, our values, and our procedures of the bank. The most suitable one comes from inside not from outside. We don't have time to waste recruiting one from outside and teaching him what our culture, procedures, and values are. It takes time. Otherwise, it is a waste of time and the money.*

As stated in the comment above, the bank preferred not to recruit employees externally due to the associated high costs. External recruitment incurs substantial expenses related to advertisements, hiring, inductions, training, and development. The bank is of the opinion that if they recruited employees internally, it would help to reduce these expenses. They believed the costs they incur to develop external candidates were a waste of money and time, thereby, reducing efficiency and productivity. In summary, bank D believed that they could enhance efficiency and productivity by reducing or eliminating expense. For this reason, the bank has set their recruitment policy to recruit internal candidates to fill vacancies. Bank A also agreed with this view stating that:

> *Through internal recruitment, we expect to enhance cost efficiency* (Bank A)

In supporting the banks' (A and D) views, Lepak and Snell (1999) stated that an organisation's decisions, about whether to invest in HC, depended on the

possibility of exceeding the enhancement of productivity over investment costs. If costs associated with the investment exceeded the expected improvement in productivity and efficiency, then rational organisations would not invest in HC.

However, the view that internal recruitment enhanced productivity and efficiency contradicted Human Capital Theory (Schultz, 1961). Human Capital Theory was associated with the enhancement of productivity through investing in HC (Becker, 1964, Flamholts and Lacey, 1981, Marginson, 1989, Schultz, 1961). Yet, in this study, Banks A and D attempted to enhance productivity and efficiency not through investing in HC but through eliminating such investment costs.

New Zealand

When the researcher inquired about why HC is important, Bank K promptly stated that *"because, for efficiency."* The reason was that it was necessary for banks to accomplish their objectives such as achieving planned competencies, going to the global market, and to be benchmarked.

> *If we are planning to achieve the competency and planning necessary to go out to the global market and if we want to benchmark, especially globally, then we have to know what we have. What kind of people we have and what their skills are and what values they bring to the company.* (Bank K)

A similar view was provided by Bank G reporting that the financial sector remained a challenge so therefore, the banks had to enhance their efficiency and productivity in order to strengthen their financial position.

> *While we continue to build the business, the financial services environment remains challenging and has required us to maintain a focus on strengthening our financial position, while at the same time improving efficiency and productivity.* (Annual Report, Bank G, p. 8)

Thus, from the perspective of Banks K and G, enhancing efficiency and productivity is vital to them. In terms of how banks enhance efficiency and productivity, similarly to the Sri Lankan findings, Banks G and J identified different HC attributes in achieving this, which included innovativeness and diversity. Bank G reported that diversity enhances productivity.

> *We believe diversity, flexibility and inclusiveness are vital to improving the quality and productivity of our workforce.* (Annual Report, Bank G, p. 17)

Diversity was a significant attribute of HC for the sample banks in New Zealand. All banks in the sample recognised that their employees comprised a mix of personnel of different genders, nationalities, cultures, ages, and with differing perceptions. As banks in the sample further noted, diversified employees contributed to the bank in many ways due to their potential to think differently. The banks interviewed seemed to engage with employees to motivate different thoughts and perspectives because this resulted in innovative solutions to problems, which improved the business process. Bank J noted that:

> *… through an initiative called [name of bank and programme] we have a program that empowers our people to make continuous improvements to their day-to-day activities – we are proactively working towards improving our customers' experience and our internal productivity.* (Annual Report, Bank J, p.17)
> *Technology and innovation are key priorities for the Board; we recognise that they pursue sustainable efficiency and productivity improvements.* (Bank J)

Thus, banks in the sample remained committed to managing the diversity and innovativeness of HC in order to pursue sustainable productivity improvements and business efficiency. The linkage between HC and efficiency and productivity accord with previous findings (Apergis et al., 2009, Sharma, 2014).

The findings presented with regard to the two countries are compared in the following section.

Comparison of the importance of Human Capital on Efficiency and Productivity between Sri Lanka and New Zealand

Enhancing productivity and efficiency via human capital was recognised as important by the sample banks in both countries; however, the way they achieved them was quite different. The New Zealand sample banks mentioned that employee diversity and innovative ideas enhanced efficiency and productivity while Sri Lankan sample banks specified it could be achieved through investment in improving employees' physical and mental fitness and internal recruitment. The latter mechanism of Sri Lanka was internal recruitment, which was absent from the New Zealand context and contradicted Human Capital Theory. However, in supporting the banks' views, Lepak and Snell (1999) stated that organisations'

decisions about whether they invested in human capital or not, depend on the possibility of exceeding enhanced productivity over investment costs. Thus, rational organisations would not invest in human capital if the costs associated with the investment exceeded the expected improvement from productivity and efficiency.

Contribution

Banks in both Sri Lanka and New Zealand appeared to have a common view that human capital is important to the banking business owing to its wider role in enhancing productivity and efficiency. Such similarity between Sri Lanka and New Zealand has not been addressed by any previous study in the field of human capital. Further, though there are similarities in terms of the role of human capital between sample banks in Sri Lanka and New Zealand, the following difference was also found. The New Zealand sample banks noted that employee diversity and innovative ideas enhanced efficiency and productivity, while the Sri Lankan sample banks specified these could be achieved through investment in improving employees' physical and mental fitness and internal recruitment. Such differences between Sri Lanka and New Zealand has not been addressed by any previous study in the field of human capital.

Limitations of the Research

The qualitative case study method was adopted and focused solely on the banking sector. At the time the interviews were conducted, there was a total of 34 banks in Sri Lanka and 21 in New Zealand. Although the study invited all banks to participate only six banks from Sri Lanka and four from New Zealand agreed to take part. The sample size is, therefore, small. The small sample size meant that we must be careful not to generalise. As Adler and Adler (2012) note, the purpose of qualitative research is to generate a subjective understanding of how and why people perceive, reflect, role-take, interpret, and interact. In other words, qualitative research findings are theoretically valuable even though they may have fewer subjects than quantitative methods (Adler and Adler, 2012). In order to counter this limitation, the researcher decided to collect data not only from depth interviews but also secondary resources.

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Does Gender Diversity Influence the Operational Sustainability of Microfinance Institutions (MFIS) In Sri Lanka

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Abstract

This study examines the relationship between gender diversity and operational sustainability of Sri Lankan Microfinance Institutions (MFIs). The static OLS regression and random effect models are used to analyse an unbalanced panel data comprising 243 firm-year observations over the period 2007 to 2012. Findings show that the institutions with female directors on the board have a negative effect on operational sustainability. This study also discovered that MFIs with female CEOs and female chairpersons have a positive effect on operational sustainability. This research provides insight to the policy-makers regarding gender diversity on boards in Sri Lankan MFIs.

Keywords: Corporate Governance, Financial Performance, Gender Diversity, Microfinance Institutions (MFIs), Operational Sustainability, Sri Lanka.

Introduction

Corporate governance practices first appeared in the microfinance literature in 1997 (Lapenu & Pierret, 2006), emphasising the importance of enhancing the viability of the industry in developing countries (Hartarska, 2005; Labie, 2001; Mersland, 2011; Mersland & Strøm, 2009; Varottil, 2012). Although many studies have focused on the relationship between corporate governance practices and firm performance, there is scant literature relating to the microfinance sector. The empirical analysis in relation to for-profit organisations provide support to the view that good corporate governance practices leads to an improved financial performance and it is argued that improved governance practices in the MFIs will also lead to improved financial performance and outreach (Bassem, 2009; Cull, Demirgüç-Kunt, & Morduch, 2007; Hartarska, 2005, 2009; Hartarska & Nadolnyak, 2007; Mersland, 2009; Mersland & Strøm, 2009). As corporate governance practices is in its infancy in the MFIs, little or no consideration has been given to the measuring impact and evaluating processes for enhanced performance of MFIs in Sri Lanka.

This study selects gender diversity as the main corporate governance factor to examine the MFI operational sustainability as it has become one of the major corporate governance factors in recent years. Adams and Ferreira (2009), state that board directors around the world are now under pressure to appoint female directors to their boards. Many governance reforms stress the importance of gender diversity in boards with a view that women on boards have potential to add value to firm performance in a significant way (Adams & Ferreira, 2009; Carter, Simkins, & Simpson, 2003; Erhardt, Werbel, & Shrader, 2003). For example, governance reforms in UK, Sweden, Norway and Spain have explicitly stressed the importance of gender diversity in the boardroom. However, it is questionable whether women directors have a significant impact on the governance of companies because prior research has provided inconclusive and debatable evidence in different contextuals (Adams & Ferreira, 2009; Campbell & Mínguez-Vera, 2008; Hewa-Wellalage & Locke, 2013; Lückerath-Rovers, 2013).

The motivation to examine the impact of gender diversity on MFI financial performance in Sri Lanka is as follows. Enhanced microfinance activities became one of the major economic development goals in Sri Lanka (Central Bank of Sri Lanka, 2012) and there is a lack of corporate governance guidelines for Sri Lankan MFIs to improve their service in broader context (Modoran & Grashof, 2009). Therefore, the findings of this study will contribute to existing literature relating to corporate governance practices in MFIs in the Sri Lankan context.

The remainder of this paper is structured as follows. The first section gives a brief introduction to the MFIs in Sri Lanka. Second, a review of literature relating to

gender diversity and development of the hypotheses are presented. Data collection and research method are described next and finally, this paper presents the findings and concludes it by discussing the implications of the study.

MFIS in Sri Lanka

According to GTZ ProMiS (2010), the microfinance movement formally began in 1906 in Sri Lanka with the establishment of Thrift Credit Cooperative Societies (TCCSs). According to GTZ-ProMiS (2010), a number of different local and international non-governmental organizations (NGOs) entered the microfinance sector between the late 1980s and early 1990s. Similarly, the commercial banks and financial institutions entered the microfinance industry in Sri Lanka (SAMN, 2010) in the late 1980s. Following the tsunami which struck Sri Lanka in 2004, an influx of foreign aid channelled into the microfinance sector. As a result, the microfinance sector had significant growth over the years.

The report on the state of microfinance in Sri Lanka prepared by the Institute of Microfinance (InM) emphasises that there were about 1,061,457 active borrowers in 2008 in 20 key MFIs, compared to 981,724 in 2006 in the same 20 MFIs. In terms of portfolio growth, the total outstanding loan balance was around Rs.18 billion (USD 157 million) in 2008 which is approximately a Rs.6 billion (USD 52 million) increase from 2006.

The Sri Lankan microfinance sector consists of a diverse range of institutions which do not fall under the purview of a single authority. The diverse range of MFIs exists as they registered under various types of laws. Some institutions are regulated by many authorities and some may not have any regulation at all. Absence of a cohesive regulatory and supervisory system for the microfinance sector hampered the growth of the sector, especially for NGO-MFIs (Modoran & Grashof, 2009). As a result, the Sri Lankan governement recently enacted the Microfinance act, no. 6 of 2016 to regulate and supervise MFIs in Sri Lanka. This legal and operational framework for microfinance would help to expand the availability of financing micro enterprises (Central Bank of Sri Lanka, 2012, p. 187).

Literature Review relating to Gender Diversity and Firm Performance

In recent years, the phrase 'board diversity' has become entrenched in the corporate governance vocabulary but still there is no consensus among scholars about what board diversity actually is? Arguably, board diversity as a concept relates to board composition and mixture of attributes, characteristics and expertise that support board processing and decision making by individual members in the board (Milliken & Martins, 1996; van der Walt & Ingley, 2003). Board diversity is supported on the basis of moral obligation to shareholders, stakeholders and for commercial reasons by obtaining extensive decisions (Daily

Journal of Business and Technology

& Dalton, 2003; Kasey, Thompson, & Wright, 1997; Mattis, 2000). The Board of Directors in a company need to have right composition to provide diverse viewpoints (Milliken & Martins, 1996). An increase in board diversity would provide linkages to additional resources (Kasey et al., 1997) and improve organisational value and performance (Huse & Solberg, 2006).

In a Sri Lankan context, the study conducted by Heenetigala (2011) using a sample of 37 companies from the top 50 Colombo Stock Exchange (CSE) listed companies, shows there is a positive relationship between board composition and return on equity. In the MFI context, many firms still struggle to identify board members with an appropriate background who are able and willing to dedicate the time that effective monitoring requires (Armendariz & Labie, 2011). Most of the board members of not-for-profit MFIs are generally upper or middle class professionals. Further, Mersland and Strøm (2009) noted that stakeholders such as donors, customers, employees and debt holders are generally absent from MFI boards.

There are two theoretical perspectives underlining the argument of board diversity in corporate governance literature, i.e. Agency Theory and Resource Dependency Theories. The Agency Theory explains the board's monitoring role in relation to protect the shareholders interest from its management due to the separation of corporate management from its owners. This theory describes two key issues, which are influence of board composition on firm performance and the impact of firm leadership structure (Jensen & Meckling, 1976; van der Walt & Ingley, 2003). Resource dependency theory highlights that the board members should consist of stakeholders and influential community parties who can provide legitimacy and prestige with their knowledge, skills and important external links (Hillman, 2005; Hillman, Cannella, & Harris, 2002; Hillman &Dalziel, 2003; Huse & Rindova, 2001; Provan, 1980). This can be achieved by increasing the number of board members and their diversity (Pfeffer, 1973).

In most recent studies, the relationship between board diversity and firm performance has highly concentrated on demographic factors, like gender and ethnicity (Erhardt et al., 2003). In the broader conception of board diversity, gender diversity is widely used in recent studies as a corporate governance factor (Milliken & Martins, 1996) than demographic factors (van der Walt & Ingley, 2003). Some scholars (Huse & Solberg, 2006; Singh & Vinnicombe, 2004; van der Walt & Ingley, 2003) have shown that few women sit on corporate boards but Daily, Certo, and Dalton (2000) state that women's representation on boards is gradually increasing. In the 1980s and 1990s, women had more opportunities to enter corporate boards as the size of boards gradually increased (Bathula, 2008).

Several scholars have empirically tested the consequences of women directors on firm performance (Carter et al., 2003; Farrell & Hersch, 2005; Fields & Keys, 2003; Smith, Smith, & Verner, 2006). However, this is a debatable issue whether

gender diversity assists in improving the firm's performance. Even though gender diversity is identified as a corporate governance indicator its impact on firm performance provides ambiguous predictions (Erhardt et al., 2003; Hewa-Wellalage & Locke, 2013; Milliken & Martins, 1996; Rose, 2007). For example, using data for the 2,500 largest Danish firms in the period of 1993-2001, Smith et al. (2006) indicate that women in top management jobs tend to have a significant positive impact on firm performance. Carter et al. (2003) found a positive relationship between gender diversity and firm value among fortune 1000 firms. Board diversity is positively associated with these financial indicators of firm performance (return on asset and investment) for 127 large US companies in 1993 and 1998 (Erhardt et al., 2003). Reddy, Locke, Scrimgeour, and Gunasekarage (2008) found a significant positive relationship between female directors on the board and financial performance. In the MFI context, Bassem (2009) notes that board diversity with a higher percentage of women enhance MFI performance. By using random effect panel model for 278 MFIs in 60 countries between the years 2000 and 2007, Mersland and Strøm (2009) pinpoint that the financial performance of MFIs improves with a female CEO.

However, Farrell and Hersch (2005) were unable to find a relationship between firm performance and women directors on the board. Similarly, Rose (2007) also couldn't find a significant relationship between gender diversity and firm performances from a cross sectional analysis of all Danish companies listed in Copenhagen Stock Exchange in the period between 1998 and 2001. After a study of 240 YMCA organisations, Siciliano (1996) highlighted that gender diversity had a positive impact on social performance, but a negative impact on the amount of received funds. In an Asian context, Bonn, Yoshikawa, and Phan (2004) found mixed evidence after comparing the female directors on the board and firm performance in Japan and Australia. In a recent study conducted by Hewa-Wellalage and Locke (2013), for the listed companies in Sri Lanka, found a significant negative relationship between the female directors and firm performance.

Based on the indication given by many empirical studies, it is important to further explore the impact of gender diversity of boards on MFI performance as it leads to better corporate governance by providing diverse viewpoints, value and new ideas to the boards, provoking lively boardroom discussions (Burke, 1997; Daily, Certo, & Dalton, 1999; Huse & Solberg, 2006; Pearce & Zahra, 1991; Singh & Vinnicombe, 2004). Previous studies have reached inconsistent results which leads to unclear ideas about gender diversity's influence on firm performance. Therefore, this study argues that MFI boards are likely to have a high level of diversity, proposing the following hypotheses as:

H$_1$: There is a significant positive relationship between female directors on the board and a firm's operational sustainability in MFIs in Sri Lanka

H$_2$: There is a significant positive relationship between female CEOs on the board and a firm's operational sustainability in MFIs in Sri Lanka

H$_3$: There is a significant positive relationship between a female chairman on the board and a firm's operational sustainability in MFIs in Sri Lanka

Data Collection

Estimating the precise number of MFIs in Sri Lanka is quite significant due to the diverse legal forms in the microfinance sector. Therefore, the MFIs considered in this study are firmly limited to the more formal and semi-formal financial institutions (excluding informal providers such as moneylenders, thrift and saving societies) as they are conducting their microfinance activities under regulations. It is hard to trace the microfinance activities in informal organisations as they do not register under any regulation or regulated body. This study employs board characteristics of formal and semi-formal institutions as independent variables and no information is gathered for informal institutes due to the unavailability of director board information.

Sample and sample period are constrained by the data availability. This study collected data from the MFIs that are registered with MIX market and Lanka Microfinance Practitioners' Association (LMFPA), the Sri Lankan microfinance network. MIX market is a non-profit private organization focused on promoting information exchange in the microfinance industry. Recent studies (Bassem, 2009; Cull, Demirgüç-Kunt, & Morduch, 2011; Gonzales, 2007; Lin & Ahlin, 2011; Shahzad, Tripe, Matthews, & Ozer Balli, 2012) have used MIX market database for their empirical studies as MIX collects its data mainly through the contracted consultants and the country level networks that are based on each country (Lafourcade, Isern, Mwangi, & Brown, 2006). These data were self-reported by MIX and reclassified based on the international accounting standards (Lafourcade et al., 2006).

Data sources have been consolidated into one separate country specific database that includes 54 MFIs for Sri Lanka. The institutions in this study are purposely selected due to the availability of audited financial statements and accessibility of data through the databases and some have been omitted from the total sample due to insufficient data. These databases cover the majority of MFIs of significant size that generally provide small uncollateralised loans to underserved people. The director information has been collected from the individual institutions by researching their websites and contacting them. Table 2 describes the percentage of types of organisations included in the sample.

Table 2: Organisation Types

NGO	46.15 %
Company	38.46 %
Licensed Specialized Bank	9.23 %
Cooperative	3.08 %
Credit Union	1.54 %
NBFI	1.54 %

Source: Computed data

Table 3 depicts the definitions of variables used in the study. The operational sustainability measure, which is known as operational self-sufficiency (OSS), is the dependent variable that is used in order to find the relationship with gender diversity. MFIs required sufficient operating income to cover operational costs such as salaries, supplies, loan losses, and other administrative costs (Lin &Ahlin, 2011; Nawaz, 2010). OSS derives from the revenue earnings of operations by dividing the total value of financial expenses, loan expenses and operating expenses. This is a widely used variable in any organisation type to measure their institutional performance, which is a major indicator for MFI sustainability when comparing to other financial performance variables (Bassem, 2009; Hartarska, 2005; Hartarska & Nadolnyak, 2007; Mersland, Randøy, & Strøm, 2011; Mersland & Strøm, 2009; Strøm, d‟Espallier, & Mersland, n.d.; Tchakoute-Tchuigoua, 2010). OSS with higher than one may reflect that the firm is viable to cover its costs through the revenues when comparing the financial revenue with financial and operating expenses including provision for loan impairment.

Table 3: Dependent and Independent Variable Definitions

Variables	Acronym	Definition
Dependent Variable		
Operating Self-Sufficiency	Oss	Operating Self-Sufficiency is the total financial revenue divided by the financial expenses, loan loss provision expenses and operating expenses
Independent Variable		
Percentage of female directors	Perfemdir	The ratio of female directors to total number of directors on the board
Dummy variable for gender diversity	Dumfemdir	Dummy variable that takes a value of 1 if there is at least one female directors on the board
Female CEO	Femceo	Dummy variable that takes a value of 1 if the CEO of the firm in a female

Female Chairperson	Femchair	Dummy variable that takes a value of 1 if the Chairperson of the firm in a female
Board Size	Lnbsize	The natural logarithm of the total number of directors on the board
Control Variables		
Firm Age	Lnfage	The natural logarithm of the number of years from the date of establishment
Firm size	Lnfsize	The natural logarithm of the firm's total assets
Leverage	Lev	The ratio of the firm's total debt to its total assets
Year dummy variables	Year	Six year dummies for each of the years from 2007 to 2012
Organisation Type dummy variables	Otype	Dummy variables for each of the organisation type: NGO, Company, NBFI, Specialised Licenced Bank, Cooperatives and Credit Unions

A percentage of female directors on the board, gender dummy variables for female directors on the board, female CEO and female chairperson are used as the proxies for gender diversity on the board. Board size is employed as the other corporate governance variable. Firm age, firm size, leverage, year dummy variables and organisation type dummy variables are treated as control variables in line with previous studies (Bassem, 2009; Galema, Lensink, & Mersland, 2012; Hartarska, 2005, 2009; Hartarska & Mersland, 2009; Hartarska & Nadolnyak, 2007; Hewa-Wellalage, Locke, & Scrimgeour, 2012; Kyereboah-Coleman, 2006; Kyereboah-Coleman & Osei, 2008; Mersland et al., 2011; Mersland & Strøm, 2009; Reddy et al., 2008; Strøm et al., n.d.).

Method

The research method is to investigate empirically the relationship between gender diversity and operational sustainability of MFIs in Sri Lanka. The research design of this study is longitudinal (panel) as it collects data from different types of cases within a panel study framework by improving the understanding of causal influence over time by illuminating social change (Bryman, 2012). Therefore, this panel comprises of 243 firm-year observations over the period of 2007 and 2012. The rationale for selecting this period is to include up-to-date information. The data are annual and analyse using STATA statistical packages for further interpretation.

This study employs different statistical methods to analyse the data. Descriptive statistics including mean, standard deviation, minimum and maximum values are computed to identify the overall behaviour of the data. In particular, data is normally distributed so that parametric form of statistical modeling can be employed. Correlation matrix of variables are used to measure the relationships between variables which helps to identify the independent variables that are highly correlated with each other (Bernard, 2013). This study computed the variance inflation factor (VIF) diagnostic to measure the multicollinearity. Two-sample *t*-tests were used to compare means of operational self-sufficiency between director boards with women directors and without women directors (Bernard, 2013). However, the *t*-test analysis does not support to find the gender diversity impact on operational sustainability along with other corporate governance factors.

Inferential statistic, such as the multivariate (multiple) linear regression model, called multiple-R, which has more than one independent variable at a time on a dependent variable was developed to test the hypotheses by identifying the relations between variables (Bernard, 2013, p. 551 & 654). This model is employed to understand the combined correlation of a set of independent variables on the dependent variables, taking into account the fact that each independent variable might be correlated with each of the other independent variables (Bernard, 2013, p. 660).

The commonly used multivariate statistical data analysis technique for econometric, finance and social science researches is panel data analysis as it can recognise the unobservable heterogeneity which exists when the relationship between corporate governance variables and performance variables are influenced by the unobserved factors. The two methods, fixed-effect and random effect, are used normally to diagnose the unobserved factors in panel a model. Hausman Test is used to choose between fixed-effect and random effect models (Hausman, 1978). It examines whether the individual effects are uncorrelated with other regressors in the model. Under the null hypothesis that individual effects are random, these estimators should be similar as both are consistent (Cameron & Trivedi, 2010, p. 266). If the Hausman test fails to reject the null hypothesis then the random effect model can be employed for the study. Further, fixed-effects model is impractical in most corporate governance research as it only uses time variation not within firm variation to drive the results (Brown, Beekes, & Verhoeven, 2011). Based on the Hausman test results, this study has used only the random effect model to explain the significant relationship of data.

Findings and Discussion

Table 4 provides descriptive statistics for major variables in the study. The mean value of OSS is 0.97, which is closer to the one. This indicates that the MFIs in Sri Lanka are not lucrative. The percentage of women directors on the board is approximately 46% which is higher than the value obtained by Hewa-Wellalage et al. (2012) for listed companies in Sri Lanka (7.4%). Catalyst census shows that in the USA in 2001 there were only 12.4% women directors among Fortune 500 companies and overall 6.4% in UK companies in the same year (Singh & Vinnicombe, 2004).However, MFIs with female CEO and chairpersons are 26% and 33% respectively. Similarly, Mersland and Strøm (2009) found in their study on 278 MFIs from 60 countries that there are approximately 24% female CEOs. The number of board members in Sri Lankan MFIs are around 8.55 and this research findings is aligned with the Mersland and Strøm (2009) as they noted that most MFIs have a board of 7-9 directors.

Table 4: Descriptive Statistics

	Mean	Std. Dev.	Min	Max
Operational self-sufficiency (OSS)	0.97	0.35	0	2.08
Female CEO	0.26	0.44	0	1
Female Chairperson	0.33	0.47	0	1
Percentage of Female Directors	0.46	0.33	0	1
Number of board members	8.55	4.3	1	30
Firm Age	13.5	8.6	0	41
Firm Size	16.2	6.37	0	24.8
Leverage	0.69	0.25	0	1.1

Source: Computed data

Table 5 presents the Pearson's correlation matrix for dependent and independent variables in the model. The percentage of female directors, female CEO and female chairperson variables are significantly correlated with OSS with weak correlation coefficients of -0.104, 0.128 and 0.154 respectively. However, these provide an indication for hypotheses testing. Even through the coefficients are smaller than 0.7, they were checked for multicollinearity.

Allison (September 10, 2012) states that there will be multicollinearity issue when a VIF is greater than 2.50, which corresponds to an R^2 of 0.60 with other variables. However, a commonly given rule of thumb is when the VIF is 10 or more there is multicollinearity among the independent variables and it is a considerable situation. As per the research findings, it is evident that all VIF and R^2 values in table 6 are less than 2.5 and 0.60 respectively.

Table 5: Correlation matrix for OSS

	Oss	perfemdir	femceo	femchair	lnbsize	lnfsize	lnfage	lev
oss	1							
perfemdir	-0.104*	1						
femaleceo	0.128**	0.436***	1					
femchair	0.154**	0.559***	0.387***	1				
lnbsize	-0.00254	0.354***	0.251***	0.284***	1			
lnfsize	0.249***	-0.115**	0.00737	0.0833	0.657***	1		
lnfage	0.0556	0.344***	0.00421	0.193***	0.306***	0.0509	1	
lev	-0.144**	0.149**	0.105	0.0259	0.0574	0.142**	0.0441	1

Note: *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively
Source: Computed data

Table 6: Multicollinearity diagnostic of variables

Variable	VIF	SQRT VIF	Tolerance	R-Squared
Oss	1.21	1.1	0.8237	0.1763
Perfemdir	2.25	1.5	0.4445	0.5555
Femaleceo	1.34	1.16	0.7475	0.2525
Femchair	1.64	1.28	0.6086	0.3914
Lnbsize	1.28	1.13	0.7825	0.2175
Lnfsize	1.39	1.18	0.7219	0.2781
Lnfage	1.33	1.15	0.7526	0.2474
Lev	1.12	1.06	0.8907	0.1093

Source: Computed data

According to the tables 7, 8 and 9, the null hypotheses of equal population means are rejected due to the corresponding two-tailed p-values of 0.0085, 0.0474 and 0.0147 are less than 0.01 and 0.05 respectively, which means that the differences of means in OSS between gender diversity are significantly greater or less than 0 by allowing for differences in variances across groups.

Table 7: Independent sample *t*-test for female directors on the board

	Without female directors	With female directors	Difference
Mean of OSS	1.086122	0.9429293	0.14***
Standard Deviation	0.3294428	0.3427901	
Observations	49	194	

Note: *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. P-Value = 0.0085

Source: Computed data

Table 8: Independent sample *t*-test for female CEO

	Without female CEO	With female CEO	Difference
Mean of OSS	0.9445	1.043433	-0.10**
Standard Deviation	0.3404897	0.3467055	
Observations	176	67	

Note: *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. P-Value = 0.0474

Source: Computed data

Table 9: Independent sample *t*-test for female Chairperson

	Without female Chairperson	With female Chairperson	Difference
Mean of OSS	0.9329012	1.044588	-0.11**
Standard Deviation	0.3436806	0.3354335	
Observations	178	65	

Note: *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. P-Value = 0.0147

Source: Computed data

Table 10 depicts the multivariate regression results for ordinary least squares (OLS) and random effect approaches. The OLS results for pooled data are presented in column 2 and 3. Findings revealed that the percentage of female director variable is significantly negatively correlated to OSS at 5% level ($t = -2.88$), whereas *femaleceo* and *femchair* variables are positively and significantly related to OSS.

Hausman test result suggests that it is important to employ the random effect model than fixed-effect model due to the acceptance of hull hypothesis as P-value is insignificant and greater than 0.05 level (p = 0.0811, $chi^2(7) = 12.65$). According to the random effect model in column 4 and 5 of table 10, the coefficients of *perfemdir,femaleceo* and *femchair* variables are significant at 1% and 5 % respectively, however, *perfemdir* is significant negatively to OSS ($t = -2.83$).

Table 10: Pooled OLS and Random-Effects Regression Results

	Pooled OLS		Random effects	
	b	t	b	t
perfemdir	-0.2571***	-2.88	-0.3129***	-2.83
femaleceo	0.1182**	2.1	0.1282**	2.04
femchair	0.1204**	2.28	0.1264**	2.07
lnbsize	-0.0095	-0.22	0.0183	0.33
lnfsize	0.0285**	2.1	0.0204	1.04
lnfage	0.0127	0.42	0.0313	0.77
lev	-0.3436***	-3.24	-0.2163**	-2.08
constant	0.5847*	1.97	0.5944*	1.65
year dummies	Yes		Yes	
otype dummies	Yes		Yes	
N	243		243	
R2	0.3572			

Note: Asterisks indicate significance at 10% (*), 5% (**), and 1% (***). Year dummy 2007 and Organisation Type dummy Company are treated as the benchmark categories to avoid dummy variable trap.

Source: Computed data

After controlling for firm size, age, leverage, organisation type and year variables, this study found a significant negative relationship between the percentage of women directors and firm performance, which fails to accept the H_1 hypothesis of the study. In addition, findings of this study are similar to the findings of Shrader, Blackburn, and Iles (1997); Smith et al. (2006); Kyereboah-Coleman (2006) and Strøm et al. (n.d.) that show that the female CEOs are significantly positively related to firms' performance. However, female directors on the board have a significant negative impact on the performance which is similar to studies conducted by Hewa-Wellalage and Locke (2013) for Sri Lankan listed companies and Adams and Ferreira (2009) for the US market. Furthermore, it has been realised that the female chairperson and OSS effect is similar to that of the female CEO, where OSS is better in MFIs with a female chair. These put forward to accept H_2 and H_3 hypotheses of the study.

Conclusion

This study makes an advanced contribution to the understanding of corporate governance practices in MFIs, identifying the impact of gender diversity on firm operational sustainability. In prior studies, the nature of corporate governance practised by MFIs are less understood and no substantive work using multiple MFI outcomes over a number of years has been undertaken in Sri Lanka. A positive impact of this study for the microfinance industry is to observe how MFIs can be strengthened to achieve better performance through gender diversity. This study also points out guidance for selecting directors for MFI boards based on their gender diversity. The findings encouraged MFIs to consider further significant governance factors which will improve and sustain the industry.

The concerns raised in reviews of individual MFIs and normative discussions of what should constitute best practice do point to the need for better understanding of the nature of corporate governance practised by the MFIs and also, to understand the nature of the relationship that exists between institutional success and corporate governance. The Microfinance sector needs to be more effective if it wants to become the miracle cure for poverty. Now the sector is attempting to reinvent itself. This study points to the need for further empirical research for MFIs using dynamic panel generalised methods of moment estimator to strengthen the speculations found in this study.

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Resource Based View as a Governing Tool for Corporate Entrepreneurs: A Practical Viewpoint

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Abstract

Being entrepreneurial typically differentiates from a business. Incorporating different conceptualizations of entrepreneurship definition, we highlighted the importance of Shane & Venkataraman's (2000) definition of opportunity recognition as the heart of entrepreneurship. Complementing Ireland, et al's., (2003) notion of strategic entrepreneurship and Barney's (1991) Resource Based View (RBV) theory, we tried to make a practical implication for corporate entrepreneurs. Top ten entrepreneurs based on the Forbes Online Magazine were observed and generalized, linking the theories of strategic entrepreneurship and RBV. Subsequently, inferences were drawn highlighting the fact that almost all successful entrepreneurs in the world implicitly utilize inferences of RBV in their corporate entrepreneurial moves.

Key Words: Resource based view, cooperate entrepreneurs, strategic entrepreneurship, opportunity recognition

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Introduction

Entrepreneurship and Strategic Management as study domains are concerned with wealth creation and growth (Amit & Zott, 2001; Hitt, et al., 2001) and those have been linked to practical implications as well. In today's business world, regardless of the type and size of the venture, being entrepreneurial is important. Besides, what is being entrepreneurial? This is a question addressed in an exploratory manner in this note. Furthermore, we propose Resource Based View (RBV) of the firm as a governing tool for corporate entrepreneurs in attaining the said objectives of wealth creation and growth. In fact, RBV is a theoretical perspective that has impacted strategic management literature substantially. Therefore, we intersect two domains; namely, strategic management and entrepreneurship and propose some strategic insights with the inferences of the RBV.

In our work, we do not argue nor assume that strategic management and entrepreneurship are a single discipline that has been subdivided. Rather, strategic management and entrepreneurship have rendered valuable contributions to organizational science literature (Ireland, Hitt, & Sirmon, 2003).

The remainder of this article has been organized as follows. As an opening to the work, we have answered the above mentioned question-, what is being entrepreneurial?. We have highlighted that being entrepreneurial is indeed different from one business to another. To address the core of the article, the third section elaborates the notion of strategic entrepreneurship as a new dimension for corporate entrepreneurs to practice. Thereafter, the fourth section addresses the RBV and the implications it has on corporate entrepreneurs. Importantly, this section comes with case descriptions highlighting a few corporate entrepreneurs in the world. Practical examples have been given and explained as to how corporate entrepreneurs have achieved success.

What is being entrepreneurial?

Being entrepreneurial is certainly not running a business and it undoubtedly goes beyond a profit motive. We agree with the fact that, entrepreneurship as a scholarly inquiry has been addressed differently by different scholars imposing different conceptualizations and definitions. For example, Davidsson (2005) asserted entrepreneurship as consisting a new entry. While Lumpkin & Dess (1996) highlighted creation of a new enterprise and Low & MacMillan (1988) highlighted creation of a new organization. Differently, Gartner (1988) suggested entrepreneurship as a purposeful activity to initiate, maintain and aggrandize a profit oriented business. Recently, Hisrisch & Peters (1989) wrote,

> *"Entrepreneurship is creating something new with value by devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risks, and receiving the resulting rewards of monetary and personal satisfaction and independence". (p.8)*

Adding to that, a significant definition was given by Shane & Venkataraman (2000), , "Entrepreneurship as the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited" (p.218).

We extracted Shane & Venkataraman's (2000) definition of entrepreneurship to distinguish who is an entrepreneur and who is not. Venkataraman (1997) in his seminal work of entrepreneurship highlighting entrepreneurial opportunities, pointed out opportunities as the most neglected subject domain in entrepreneurship. However, Shane & Venkataraman very importantly highlighted opportunity recognition as the heart of entrepreneurship. We as the writers of this note also acknowledge this promising definition of entrepreneurship and state that, an individual or a firm that identifies an entrepreneurial opportunity can be an entrepreneur by capitalizing the opportunity identified. In recognizing entrepreneurial opportunities, we pay much emphasis to the identified opportunity and it should be indeed novel. Simply, it should be an opportunity which had not been practiced in the past. Supporting this opportunity recognition premise, (Barringer & Ireland (2011) proposed that opportunities can be stimulated in two ways. They are namely; internally stimulated entrepreneurial opportunity and externally stimulated entrepreneurial opportunity. The former is the approach where the entrepreneur decides to start a venture and the latter is the approach where the entrepreneur recognizes the opportunity based on the external environmental factors. Furthermore, they suggested that entrepreneurial opportunities are being recognized in three ways. One is, the problem solving approach, identifying a gap in the marketplace and, observing the trends.

While complementing Shane & Venkataraman (2000) and Barringer & Ireland (2011), we offer 'Levels of Opportunity Recognition' as a new dimension to address the question of being entrepreneurial.

Entrepreneurship is practiced in two ways. One is entrepreneurship on an individual level and the other is entrepreneurship practiced in a macro level. Entrepreneurship at the individual level can be defined as an individual or a team who identifies an entrepreneurial opportunity and capitalizes it while converting the opportunity into a viable business. Theoretically, Collins & Moore (1970) suggested independent and corporate entrepreneurship. For example, Ashish Rangnekar, the founder of BenchPrep identified a fascinating entrepreneurial opportunity utilizing problem solving approach. He invented a mobile application to store all the subject-based interactive courses which can be accessed via computers and iPhones, Androids, and iPads. And later this initiative became a successful business in the on world. Entrepreneurship at the macro level is defined as intrapreneurship, corporate entrepreneurship. These two terms of intrapreneurship and corporate entrepreneurship are used interchangeably in

entrepreneurship literature. This thinking of corporate entrepreneurship has been addressed since the 1980s. Lumpkin & Dess (1996) in their seminal work suggested that ventures can be launched either by a start-up firm or an existing firm. The thinking of practicing entrepreneurial aspects in an existing firm has been addressed differently by different scholars such as corporate entrepreneurship (Zahra, 1993), corporate venturing (Biggadike, 1979), intrapreneuring (Pinchot, 1985) etc.

Having known the two ways of entrepreneurship that are practiced, we link Shane & Venkataraman's (2000) premise of opportunity recognition. We state that, regardless of the way[1] in which entrepreneurship is practiced, entrepreneurial opportunity recognition acts as the key mile stone of this process. The absence of entrepreneurial opportunity hinders the sustainability of the venture. Observing the atmosphere of entrepreneurship at a glance, we could observe the levels of opportunities identified by firms and individuals. Simply, there are high levels of opportunity recognition and low levels of opportunity recognition which Wexist.

For example, a small food cafeteria established in an urban town can also be perceived as opportunity recognition based on the assumption that the particular entrepreneur sees an opportunity depending on his level of opportunity recognition. But the authors view in this regard is, putting up a small food cafeteria corresponds with a low level of opportunity recognition which also has the less tendency to sustain. However, the entrepreneur sees some kind of an entrepreneurial opportunity or otherwise he/she may not launch his/her venture in the urban town. Similarly, putting a food cafeteria with unique value proposition as a product or service which no one have produced in the past can be categorized as a high level opportunity recognition, which also has much tendency to sustain. For example, Starbucks as a firm identified a high level of opportunity when compared to the existing cafeterias in the world, then positioned the value proposition differently and very competitively thus ensuring sustainability. Herewith we propose that, this is the level that each venture should try to reach anticipating high levels of sustainability. Simply put, starting a venture is easy, but ensuring sustainability is comparatively harder. Thus, we propose once more, that sustainability should be ensured with a high level of opportunity recognition despite the other factors of firm performance. The following depiction summarizes the facts discussed above.

Dimensions of Strategic Entrepreneurship

Despite the varied conceptualizations of strategic entrepreneurship we propose that Ireland, et al's., (2003) work is still unchallengeable. Gaining over 800 citations during the time period of 2003-2004 the article has been gaining much

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[1] Individual level and macro level (corporate entrepreneurship) of entrepreneurship.

attention in entrepreneurship literature. We complement their inferences and the others and try to introduce a new dimension to the existing body of knowledge.
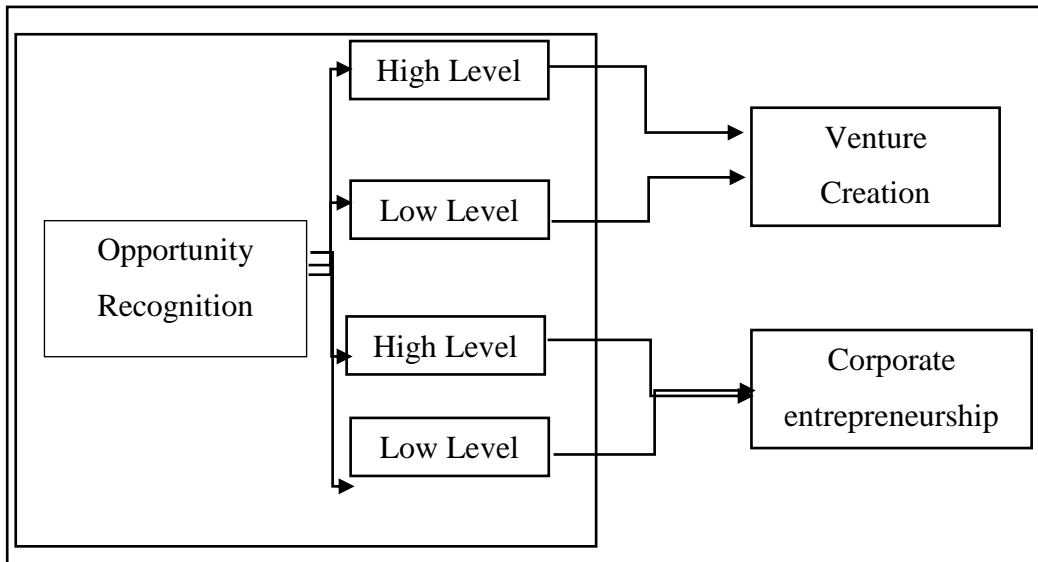

Figure 01: Levels of Opportunity Recognition.

At the surface level they propose that strategic entrepreneurship involves behaviors of advantage seeking and opportunity seeking. They further suggested that, relatively small entrepreneurial firms are effective in capturing opportunities while established firms are good at gaining competitive advantages. They have further suggested that, entrepreneurial culture and entrepreneurial leadership and the mindset, and managing resources strategically to initiate innovations are crucial factors in developing strategic entrepreneurship.

In fact, the two dimensions of advantage seeking behavior and opportunity seeking behaviors are emerged as outcomes of strategic management and entrepreneurship respectively. De Carolis, (2003) proposed that, strategic management as a domain examines the approaches in creating competitive advantages in the process of wealth creation. Simply stated, what a firm does in order to out-do the existing players in the market (advantage seeking behavior). As we mentioned above, selling books online is perceived as a good strategy in Amazon in outperforming other players in the market. In contrast entrepreneurship always focuses on novelty and newness in the form of new products, markets, ideas etc. (Daily, McDougall , Covin , & Dalton, 2002). Extending the thoughts of entrepreneurship Shane & Venkataraman (2000) postulated discovering and exploiting entrepreneurial opportunities as the heart of entrepreneurship. As an example, a drug as a cure for aids can be perceived as a

good entrepreneurial opportunity since no one in the market hast captured that yet, and thus opportunity seeking behavior.

Having known what the objectives of strategic management and entrepreneurship are, strategic entrepreneurship was defined by Ireland, et al., (2003) based on the Ireland, et al., (2001) work. They concluded that strategic entrepreneurship results from the integration of entrepreneurship and strategic management. Importantly, strategic entrepreneurship involves entrepreneurial activities in strategic perspectives (Ireland R. D., Hitt, Camp, & Sexton, 2001). This is indeed an important fact to all entrepreneurs to understand. A firm which captures an entrepreneurial opportunity and capitalizes on that in a strategic perspective with the objective of wealth creation is important for entrepreneurs. Absence of this process is named as under rewarding stakeholders (Ireland, Hitt, & Sirmon, 2003). Their conclusions with regard to strategic entrepreneurship was that small entrepreneurial firms are good at capturing entrepreneurial opportunities while they lack in implementing the entrepreneurial opportunity in a strategic perspective. While established entrepreneurial firms are good at the strategic perspective, they lack in opportunity recognition. Importantly, what we suggest here is that, to reward stakeholders and to create wealth in an entrepreneurial firm, combination of opportunity seeking behavior (i.e., entrepreneurship) and advantage seeking (i.e., strategic management) behavior is important.

Resource Based View and the Implications it has on Corporate Entrepreneurs.

In fact, this section of the paper addresses the core of the discussion. Having identified what is known as being entrepreneurial and having known strategic entrepreneurship, this section addresses how a resource based view can be used as a governing tool for corporate entrepreneurs to practice strategic entrepreneurial aspects discussed above. To enrich the practicality this section highlights some of the key insights of top corporate entrepreneurs in the world. Opportunity seeking and advantage seeking behaviors have been examined while observing resource based view factors in the particular organization and eventually inferences have been drawn in relation to the theoretical bases.

Resource Based View of the Firm

Resource Based View Theory is cited by a number of authors suggesting the contexts of strategic management (Newbert, 2007), (Ali, Hussain, & Jamal, 2011), management, (Tuan & Mai, 2012), competitive advantage, (Newbert, 2007), (Amis, Pant, & Slack, 1997), and RBV is the most influential theory in strategic management, (Barney, Wright, & Ketchen, 2001). The key insights of the RBV as a theory was postulated by Edith Penrose. She highlighted the importance of resources in achieving the competitive position in a firm. Penrose (1959) in her book signified that a firm's internal and external growth acquired through a

merger, acquisition or diversification is a result showing how resources are deployed. However, her thoughts were built on the fact of 'collection of productive resources' (p. 24). Thereafter, prior to the official conceptualization of RBV by (Wernerfelt, 1984), (Rubin, 1973) conceptualize the term of resource bundle to a firm. Wernerfelt's (1984) definitions of RBV is considered as a key mile stone of today's theory of RBV. He asserted that firm performance is explicitly driven by the product or the service of the organization, while resources of the firm implicitly drive performance. And subsequently Barney, (1986) refined this thoughts. Prahalad & Hamel's (1990) insights of the RBV was able to strengthen the theoretical bases further. They asserted that the critical task of the firm's competitive position is backed by the management of the firm and by their radical products launched to the market. Those radical products are enabled by the exploitable nature of the firm's core competencies. Refining the previous thoughts of Wernerfelt (1984) and Rubin (1973), Prahalad & Hamel (1990) highlighted inimitable skills, knowledge, etc. the still unchallengeable paper was proposed thereafter by Barney (1991). He was able to bring the fragmented literature base on the firm's resources to a testable comprehensive theoretical framework. His RBV insights were based on two important assumptions; firm resources are imperfectly mobile and those are heterogeneously deployed among the firm. He further argued that valuable and rare resources of a firm lead to attain competitive advantages and enhanced performance in a shorter time period. However, Barney's RBV was subjected to critics as the theoretical bases are in static nature (Newbert, 2007). Though it being subjected to critics, his underline theoretical contribution highlighted four empirical indicators in attaining sustainable competitive advantages. Valuable, rare, inimitable and non-substitutable resources inevitably lead to gain competitive advantages; that was his premises in building the theory. Typically, firm resources include all assets, capabilities, organizational processes, firm attributes, information, knowledge etc.
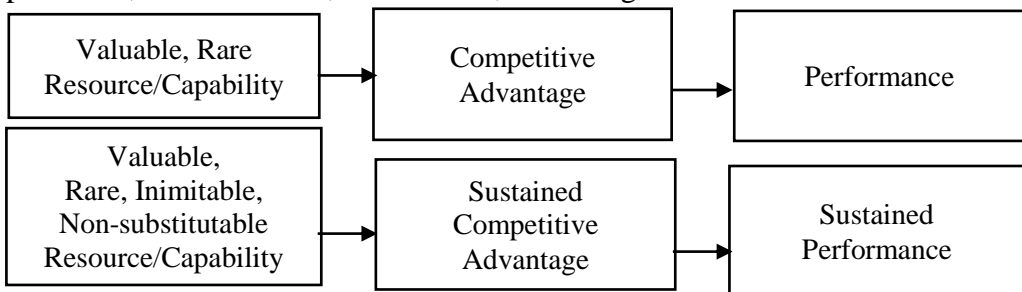

Figure 02: Barney's (1991) theoretical model

Linking the Constructs

The sections of what is being entrepreneurial clearly mentioned that, entrepreneurship is not a typical business. Entrepreneurial attempts certainly go

beyond profit motive. Despite the other definitions of entrepreneurship we highlighted Shane & Venkataraman's (2000) definition of entrepreneurship is a major influencer of an existing literature base. Precisely, we quoted their definition and emphasized that entrepreneurship scrutinizes discovering, evaluation and exploitation of opportunities as an action to create goods and services and eventually to create wealth. Further, we articulated that, sustainability is ensured by a high level of opportunity recognition. Regardless of the type of entrepreneurship, (independent or corporate) a high level of opportunity recognition leads to ensure sustainability. The notion of strategic entrepreneurship was brought forward highlighting the dimensions of opportunity seeking and advantage seeking behaviors. Thereafter, the most promising theory of strategic management, the Resource Based View theory was positioned and described along with it's premises. We highlighted that valuable, rare, inimitable, and non-substitutable resources and capabilities eventually lead to attain sustained competitive advantage. In fact, these are the facts that elaborated in detail above. The reason to recall what we discussed above is, this section proceeds to evaluate whether the top corporate entrepreneurs in the world do hold the characteristics of the RBV, strategic entrepreneurship and do they actually entrepreneurial? Their characteristics in relation to these grounds are observed and inferences are generalized as suggestions to upcoming entrepreneurs.

To attempt this objective, we observed the Forbes Magazine[2] online (Forbes, 2013) and we assume that this data is reliable. Following paragraphs provide facts in relation to the top ten entrepreneurs in the world (They are listed in no specific order).

Evan Spiegel

Evan is the founder of Snapchat[3]. He developed a photo messaging application. Using the application, users are allowed to take photos, record videos, and text and draw and subsequently send them to a controlled list of recipients. These photos and videos are known as 'snaps'. As of May 2014, the Snapchat application users were sending 700 million photos and videos per day. His target was to capture young demographics. As of 2013, his net worth counted as US$ 210 million.

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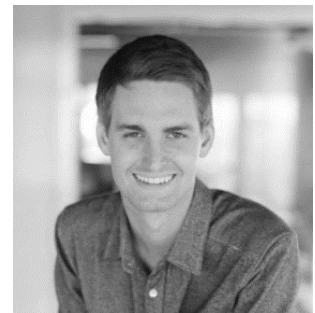
[2] Forbes is an American business magazine owned by Forbes, Inc. Published biweekly, it features original articles on finance, industry, investing, and marketing topics.
3 Official webpage: https://www.snapchat.com/

Jeff Bezos

Jeff is known in thee-commerce business industry very well. He is also known as an investor who is the CEO and co-founder of Amazon.com[4]. Amazon is a benchmarking company in the retail industry and the company sells books online and now the company has captured a wide variety of a product portfolio. As of 2014 his net worth was US$ 32.3 billion.

Larry Page

Larry is a well remounted corporate entrepreneur in the world. He is also a computer scientist and a well-known business magnate who is the CEO and the co-founder of Google[5]. Google is an American multinational corporation specializing in internet-related services and products. Prodcuts and services include, search, online advertising technologies, software and cloud computing. His net worth was US$ 32.3 billion as of September 2013.
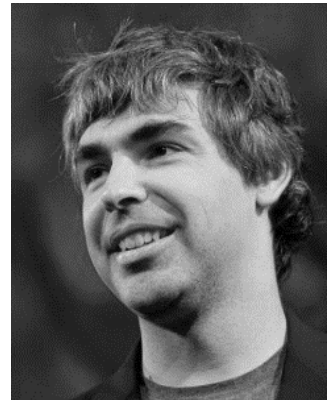
Howard D. Schultz

Howard is an American business owner and he is best known as the chairman and CEO of Starbucks[6] and a former owner of the Seattle SuperSonics[7]. Starbucks is famous as a brand of coffee. Starbucks is known as the world's largest coffeehouse company, with 23,305 stores in 65 countries and territories including 13,049 in the United States, 1,909 in China, and 1,555 in Canada, etc. his net worth totaled to US$ 1.6 billion as of March 2013.

Mark Elliot Zuckerberg

Mark is an American internet entrepreneur and a computer programmer. He is best known as one of the five co-founders of the social media networking website,

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[4] Official website: http://www.amazon.com/
[5] Official website: http://www.Google.com/
6 Official website: http://www.starbucks.com/
7 The Seattle SuperSonics (also commonly referred to as the Sonics professional basketball team

Facebook[8].   As mentioned Facebook is an online networking service headquartered in Menlo Park, California. Facebook was founded in February 4, 2004 and as of now, Zuckerberg enjoys a net worth of US $33.1 billion (July 2014).

Bre Pettis

Bre is known as an American entrepreneur, multi-artist and a video blogger. Bre is a co-founder and the CEO of MakerBot[9] Industries, a company that produces desktop 3D printers, scanners and 3D entertainment He has made some investments in companies such as Bond, Elepath, Dragon Innovation, Dash Labs, Techshop, Local Motors, Cambrian Genomics, and Circa. He started his career as a school teacher and now is one of the top ranking entrepreneurs in the world.

Jack Dorsey

Jack is also an American entrepreneur and a web developer. He is widely known as co-founder and co-creator of Twitter[10] and he is famous as the founder of Square, Inc.[11] a mobile payment company. Jack differentiated his entrepreneurial activity from the existing social media entrepreneurs in the world by positioning Twitter as a social networking service that enables users to send and read short messages called 'tweets'. As of March 2014, his net worth totaled to US $2.2 billion.

Travis C. Kalanick

Travis is an American entrepreneur. He is the co-founder of the peer-to-peer file-sharing company Red Swoosh and the transportation network company Uber. Literary, he is defined as a serial entrepreneur due to his number of entrepreneurial activities. As of 2013 his net worth totalled to US $18.2 billion.

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[8] Official website: http://www.facebook.com

[9] Official website: http://www.makerbot.com/

[10] Official website: http://www.twitter.com

[11] Official website: http://www.squareup.com

Godfrey Sullivan

Godfrey is a renounced American corporate entrepreneur and the CEO of Splunk which is an American multinational corporation headquartered in San Francisco, California, which produces software for searching, monitoring, and analyzing machine-generated big data, via a web-style interface. Splunk (the product) captures, indexes and correlates real-time data in a searchable repository from which it can generate graphs, reports, alerts, dashboards and visualizations.

Timothy Ferriss
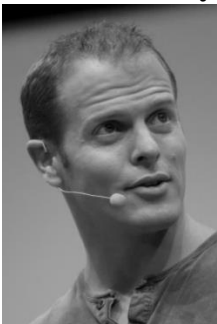
Timothy is dynamic in nature. He is famous as an American author, entrepreneur, angel investor and public speaker. Among the famous publications, The 4-Hour Workweek: Escape 9-5, Live Anywhere, and Join the New Rich stands as the top ranking book in New York Times, Wall Street Journal and USA Today. Remarkably, The 4-Hour Workweek has made the best seller list for 7 consecutive years from 2007 to 2013.

Discussion

A question that is being asked throughout this entire note is, what is being entrepreneurial? We drew inferences from Shane & Venkataraman (2000) and stated that opportunity recognition is at the heart of entrepreneurship. Observing entrepreneurial biographies of top ten entrepreneurs as per the Forbs list, "do you still think that being entrepreneurial is synonymous to a typical business? No, all the successful entrepreneurs in the world, have a significant opportunity recognition aspect". Starting from Evan Spiegel's opportunity recognition to Timothy Ferriss, all successful entrepreneurs have one thing in common. That is opportunity recognition. Simply stated, what if Evan Spiegel launched a mobile application such as Viber or Tango[12]? He would have ended up with minor gains because that opportunity has already captured by Viber and Tango. Soinstead, he positioned his application as a mobile photo and video messaging application and clearly captured an entrepreneurial opportunity. These facts imply that, imitative

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[12] Viber and Tango are free online call and messaging service providing applications.

businesses are not entrepreneurial which have a less tendency to sustain. Complementing Barringer & Ireland's (2011) thoughts of opportunity recognition, Evan Spiegel identified an unfilled gap in the marketplace and positioned his mobile application. *Thus, we answer a substantial portion of our discussion with practical examples, being entrepreneurial typically comprehends opportunity recognition and exploitation.*

We theorized about strategic entrepreneurship as well. Complementing Ireland, et al., (2003) we highlighted that strategic entrepreneurship simultaneously requires opportunity seeking and advantage seeking behaviors. Highlighting this theoretical premise of Ireland, et al., let's now observe what the above listed corporate entrepreneurs entail in relation to strategic entrepreneurship. Mark Elliot Zuckerberg and Jack Dorsey are two well renounced social media entrepreneurs. Zuckerberg positioned Facebook as a very creative social media website for the youth. What if Jack Dorsey positioned Twitter as another social media website? He positioned his social media website as an enabler of short messages. Doesn't this behavior imply opportunity seeking and advantage seeking? By positioning Twitter as a differentiated product of Facebook, Jack Dorsey clearly tried to gain an advantage over all the social media websites at that time, and on the other hand clearly that is opportunity seeking behavior. What if Howard D. Schultz positioned Starbucks as another cafeteria? Would it sustain? Positioning Starbucks differently as a place which provides 'pleasure' for their customers clearly depicts the advantage seeking and opportunity seeking behaviors. *Thus, we state that, almost all the successful corporate entrepreneurs in the world depict strategic entrepreneurial aspects of opportunity seeking and advantage seeking behaviors.*

Having discussed this- what is being entrepreneurial and do corporate entrepreneurs practice strategic entrepreneurial aspects; this section proceeds to discuss whether successful entrepreneurs explicitly or implicitly encounter RBV as a governing tool in corporate entrepreneurial activities.

Bre Pettis, co-founder and CEO of MakerBot engages with uncommon types of entrepreneurial activity. Production of desktop 3D printers, scanners and 3D entertainment can be sometimes intimidating to some. However for us, this is indeed entrepreneurial.
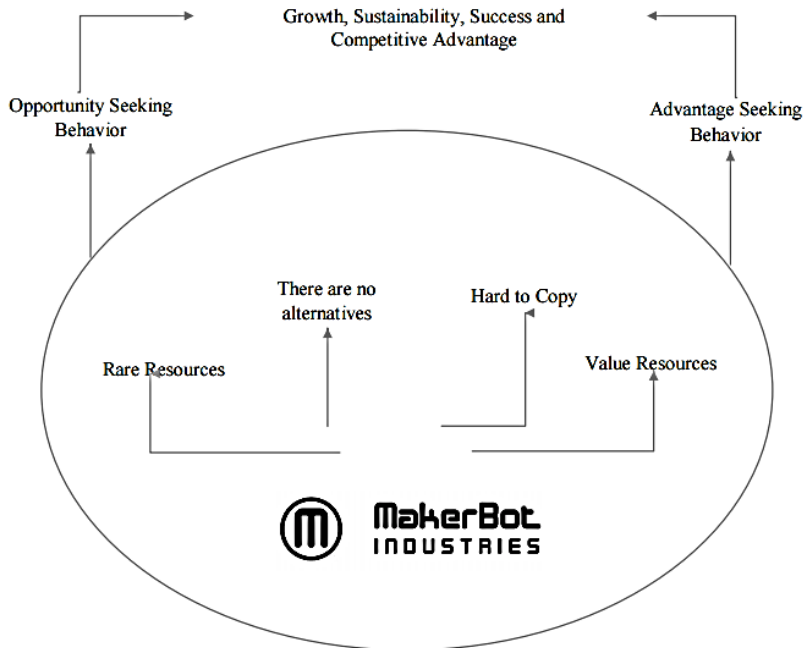
Figure 03: Linking RBV and Strategic Entrepreneurship

The above figure three depicts strategic entrepreneurial aspects and RBV inferences. As an entrepreneur, Bre Pettis's business clearly shows opportunity seeking behavior and advantage seeking behavior. The conventional printing technology was revolutionized with the insights of the entrepreneur by this 3D printing technology. This implicitly depicts opportunity seeking behavior. In fact, his resources (physical and knowledge) are indeed rare, and in fact perfect alternatives are very less to replace the products of Compact, Experimental and Desktop 3D printers and scanners (Figure 04).
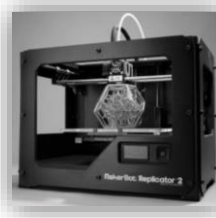

Figure 04: *Some of his products*

Facts in relation to MakerBot Industries implies that the entrepreneurial activity is implicitly supported by RBV and Strategic entrepreneurial activities. *Thus we strive to claim that, most successful entrepreneurs implicitly use the theoretical base of Resource Based View as a governing tool in corporate entrepreneurial activities.*

Summary

The business world is intensely competitive at present. Every corporate strives to gain a market share and enjoy a satisfactory rate of return while serving the society at large. However, entrepreneurial ventures are not always and primarily motivated by money. We agree with the fact that profit motive is important, however, entrepreneurial activities always go beyond profit generation. Strategic entrepreneurship as a scholarly inquiry is gaining much attention from scholars at present. Also, the Resource Based View Theory governs many aspects of strategic management and now many entrepreneurial companies are governed implicitly by its inferences. In this explanatory note we strived to enrich the thoughts of strategic entrepreneurship and strategic management highlighting the RBV. We captured successful entrepreneurs in the world and attempted to link their practicality into theory. In fact, our generalizations are at the surface level. Based on the outlook and with some insights we were able to rationalize some theoretical as well as practical means. However, our exploration depicted that, almost all the successful corporate entrepreneurs in the world hold valuable, rare, inimitable and non-substitutable resources. Furthermore, they seek advantages and opportunities. Finally, we linked the inferences of Ireland, et al., (2003) Barney (1991) Shane & Venkataraman (2000), and generalized some findings which enables empirical tenting in different settings.

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