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SMALL AND MEDIUM ENTREPRENEURS' INTENTION TO USE CLOUD COMPUTING: REFERENCE TO EASTERN PROVINCE OF SRI LANKA

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ABSTRACT

Cloud computing has become one of the keywords in the industry today. Although being not new concept in computing because of the proliferating growth of internet with amazing bandwidth, arrival of mobile devices and requirements of end-users. This paper focuses on the small medium entrepreneurs' intension to use cloud computing services, particularly the Eastern province of Sri Lanka. This paper presents seven factors influencing entrepreneurs' intension. Instruments were developed based on previously studies and study used quantitative method. Data were collected conveniently. Instrument was tested for reliability, regression analysis was performed to see the strength independent variables on the dependent and it technological as was found well as organizational characteristics significantly influence small medium entrepreneurs' intension to use cloud computing services, which is consistent with many previous studies.

Key words: Cloud computing, intension to use, small medium entrepreneurs, technology, organization.

Introduction

Because of severe market competition and a dramatically changing business environment,

firms have still prompted to adopt various hightech information technologies (IT) to improve their business operations (Pan and Jang, 2008; Sultan, 2010). Recently, the term Cloud Computing has been critical in the world of IT. The use of internet-based technologies to conduct business is recognized as an important area for IT innovation and investment (Armbrust et al., 2010; Goscinski and Brock, 2010). Cloud computing has spread out through the main areas related to information systems (IS) and technologies, such as operating systems, application software, and technological solutions for firms (Armbrust et al., 2010). Cloud computing is a kind of computing application service that is like e-mail, office software, and enterprise resource planning (ERP) and uses ubiquitous resources that can be shared by the business employee or trading partners. Thus, a user on the internet can communicate with many servers at the same time, and these servers exchange information among themselves (Hayes, Moreover, telecommunication 2008). and network technology have been progressing fast; they contain 3G, 4G, etc. so the high speed infrastructures are integrated strongly. Cloud computing services can provide the user seamlessly, the convenience, and the quality stable technological support that can develop the enormous potential demand (Buyya et al., 2009; Pyke, 2009). Thus, cloud computing provides the opportunity of flexibility and adaptability to attract the market on demand.

Literature Review

Cloud Computing

McAfee (2011) observe that cloud computing comprises three services: Software-as-a-Service (SaaS): Instead of installing software on the client's machine and updating it with regular patches, frequent version upgrades etc., applications like Word processing, CRM (Customer Relationship Management), ERP (Enterprise Resource Planning) are made available (hosted) over the internet for the consumption of the end-user. It can achieve economies of scale. This is the biggest and most mature cloud model. Commercial vendors are Yahoo Mail, Gmail, Hotmail, TurboTax Online, Facebook, Twitter, Microsoft Office Live, Google Apps, Salesforce.com, Cisco WebEx web conferencing, antivirus, Success Factors (HRM tool) etc., Platform-as-a-Service (PaaS): Instead of buying the software licenses for platforms like operating systems, databases and middleware, these platforms and the software development kits (SDKs) and tools (like Java, .NET, Python, Ruby on Rails) are made available over the Internet. Commercial vendors include Microsoft Azure Services, Amazon Web Services (AWS), Sales-force's Force.com, Google App Engine platform, IBM Cloud burst, Amazon's relational database services, Rackspace cloud sites, Infrastructure-as-a-Service (IaaS): This refers to the tangible physical devices (raw computing) like virtual computers, servers, storage devices, network transfer, which are physically located in data centers but they can be accessed and used over the internet using the login authentication systems and passwords from any dumb terminal or device. Commercial vendors include Amazon EC2 (Elastic Compute Cloud), Elastic Block Storage (EBS) and Simple Storage Service (S3), Rackspace cloud servers, etc.

There are four different cloud deployment models within organizations namely (Marston et al., 2011; Rath, 2012): Public cloud: It is available from a third party service provider via Internet and is very cost effective for universities to deploy IT solutions. For example, Google Apps.

Private cloud: It is managed within an organization and is suitable for large enterprises. For example, the US government cloud product is in a segregated environment, both physically and logically and is being handled by a third party provider, Google. Private clouds provide the advantages of public clouds but still incur capital expenditures. Community cloud: It is used and controlled by a group of enterprises, which have shared interests. For example, the US federal government using community cloud for USA.gov, cars.gov, Apps.gov. Hybrid cloud: It is a combination of public and private cloud.

TOE Framework

Tornatzky and Fleischer (1990) summarized previous studies on innovative information technology adoption and proposed the Technology-Organization-Environment (TOE) framework to understand the critical factors affecting the introduction of new information technology. Their framework contains three major elements that affect the process of adopting innovation technology and it includes dimension. the organization technology dimension environment dimension and (Tornatzky & Fleischer, 1990).

This study focuses on Technology and Organization factors and proposes a two dimensional model (Fig. 1), which incorporates the variables of technology and organization factors in understanding the decision to adopt cloud computing by small medium entrepreneurs in Eastern province of Sri Lanka.

Research Model and Hypotheses

The research model of this study incorporates technologicaland organizational contexts as important determinants of cloud computing adoption.



Fig.: Research Model

Technology dimension

The technology dimension entails the internal and external influences of adopting specific information technology in the organization. Due to the nature of cloud computing technology, *data security* and privacy are the major concerns for adoption (Kuo, 2011). As a result, establishing a secure environment for cloud based enterprise resource planning system data integration and sharing is indeed critical (Chen, Lu, & Jan, 2012). For this reason, data security is included as one of the critical key variables in the technology dimension.

Rogers (1983) defined *relative advantage* as the degree to which a technological factor is perceived as providing greater benefit for firms. It is reasonable that firms take into consideration the advantages that stem from adopting innovations (To and Ngai, 2006). Cloud computing services, which allow operations to be generalized and mobilized through internet transactions, can substitute for or complement ERP software. The study of Premkumar and Roberts (1999) indicated that relative advantages will affect businesses and push them to adopt new information technologies.

Firms may not have confidence in a cloud computing system because it is relatively new to them (Buyya et al., 2009). It may take users a long time to understand and implement the new system. Thus, *complexity* of an innovation can act as a barrier to implementation of new technology;

complexity factor is usually negatively affected (Premkumar et al., 1994). *Compatibility* refers to the degree to which innovation fits with the potential adopter's existing values, previous practices and current needs (Rogers, 1983). Compatibility has been considered an essential factor for innovation adoption (Cooper and Zmud, 1990; Wang et al., 2010). When technology is recognized as compatible with work application systems, firms are usually likely to consider the adoption of new technology. When technology is viewed as significantly incompatible, major adjustments in processes that involve considerable learning are required.

Previous studies have also indicated that IS complexity (Changet al., 2007) and compatibility will affect IT adoption decision positively (Lin et al., 2012; Liu, 2011) for those in the higher education industry. Therefore, perceived system complexity will be a key criterion when making an adoption decision. Furthermore, higher education ERP modules that handle students' enrollment, examination and researches by staff, etc. are rather unique by nature. How to migrate these data with the cloud computing platform will also be a critical factor these organizations need to consider. Consequently, the level of system compatibility is another key factor in the technical dimension. If cloud computing technology can be compatible with the existing systems or applications of the university, then it will be more helpful and also more feasible for the adoption of cloud computing technology.

Because of the varied and extensive nature of the costs, organizations can find the expenses associated with this type of project to be very sizable. For this reason, costs will also be a critical factor for the adoption decision.

Based on the above discussions, this dimension is composed of four variables. These variables are Data Security, Relative Advantage, Complexity and Compatibility.

From the aforementioned theory, the following hypothesis has been developed:

H1: There will be a positively significant relationship between Technology Factors and the Adoption Decision of cloud computing.

Organization dimension

Organizational factors will affect the intention to adopt new information systems technology (Chang, Hwang, Yen, &Lian, 2006; Hsiao et al., 2009). In this study, the organizational dimension represents different organizational conditions including variables such as Top Management's Support, Adequate Resources, and Benefits for adoption.

Top management's support refers to whether or not the executives understand the nature and functions of cloud computing technology and therefore fully support the development of it. The study of Chang *et al.* (2006) found that top management's support will affect new IS adoption. Top management support is critical for creating a supportive climate and for providing adequate resources for the adoption of new technologies (Lin and Lee, 2005; Wang *et al.*, 2010). As the complexity and sophistication of technologies increase, top management can provide a vision and commitment to create a positive environment for innovation (Lee and Kim, 2007; Pyke, 2009).

If a given organization has a sufficient budget, adequate human resource support, ample time, and good top management's involvement, then the adopting of cloud computing technology will be met in a positive manner. To this end, *adequate resources* are also critical to the success of adoption (Chang *et al.*, 2007).

Finally, potential *benefits* such as improving anorganization's image, gaining strategic advantage over others, improving their service quality, and enhancing the efficiency of internal operations will also be critical. The study of Chang et al. (2006) found that the benefits of IS will lead to a positive adoption. The measurements used for this dimension were adapted from the studies of Premkumar and Roberts (1999), Chang et al. (2007), and Kuan and Chau (2001) respectively.

Based on the above discussions, this dimension is composed of three variables. These variables are Top Management's Support, Adequate Resource and Benefits.

From the aforementioned theory, the following hypotheses have been developed:

H2: There will be a positively significant relationship between Organizational Factors and the adoption of cloud computing.

Research Method

The research is a quantitative study based on questionnaire survey. Quantitative method enables the researcher to test the relationships between the variables identified in the model and thereby let him provide evidence to support or disprove the hypotheses (Carter and Belanger, 2005). The population of this study included all small and medium sized organizations in the Eastern province of Sri Lanka. As the Sampling frame was not available the sampling method became non-probabilistic convenient sampling. According to Hair et al. (1998) as cited by Rehmanet al. (2012), "each independent variable is expected to have ten data records"; since this study had seven independent variables, 70 respondents would have sufficed. According to Sekaran and Bougie (2010), "sample sizes larger than 30 and less than 500 are appropriate for *most research*". Therefore, the size of the sample was decided to be at least 250 small and medium entrepreneurs. Although there are many data collection methods available, because of constraints in terms of time, costs and human resources, the questionnaires were administered personally using drop-off and pick-up approach for printed questionnaires and published on 'web-forms'.

The data collected were examined for outliers, coded and scored appropriately. The initial analysis included an examination of descriptive statistics of demographic variables. Reliability test was conducted to see the consistency of data and Principal Component Analysis was also performed. The resultant variables of the factor analysis were used to see the strength of relationship as well as strength of explaining ability of the variables. These regression tests involved calculating and comparing to gain insight into the nature of the relationship between independent variables and dependent variable. MS Excel 2010 and SPSS 20 were used for analysis.

Data Analysis

Scale Reliability and Factor Analysis

The constructs were tested for reliability by calculating Crobach's Alpha. A total of 30 items were developed to capture the eight constructs under investigation. In order to improve the reliability, two items were removed, one in Top Management's Support and another in Benefits, thereby making the Alpha value well above 0.7 (Hair et al., 1998). Table 1 shows the variables, Alpha values and number of items for each variable.

Variable	Cronbach's	No.
	Alpha	Items
Data security	0.728	2
Relative advantage	0.872	3
Complexity	0.899	5
Compatibility	0.818	3
Top management's support	0.923	3
Adequate resource	0.896	5
Benefits	0.659	4
Intension to Use	0.746	3

Results and Discussion

A regression analysis was undertaken based on the research model which included independent variables and dependent variable. As there were two categories of variables namely Technology and Organization, the regression analysis was run for each category separately. The analysis was facilitated by SPSS software, which investigated the relationship of predictors to outcome variable.

The first analysis was run between Technology variables, namely Data Security, Relative Advantage, Complexity and Compatibility, and Intension to Use variable. The resultant ANOVA (Table 2), showing Significance of .001 or one chance in 1000 of incorrect rejection of null hypotheses, confirms that the data between Technology-predictor variables and Intension outcome variable are strongly correlated and there is a good model.

Мо	del	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	191.513	4	47.878	222.436	.000 ^b
	Residual	54.242	252	.215		
	Total	245.755	256			

Table 2: ANOVA^a

^{a.} Dependent Variable: IntensionToUse, b. Predictors: (Constant), Dat_Security, Re_Advantage, Compatibility, Complexity

The coefficient of determination of the contribution of Technology variables to Intention to Use, the R2, value from Table 3 which is 0.779 (Adjusted R2 .776) indicates a shared variation of about 78% between Technology

variables data and Intention to Use data. That is, approximately 78% of the variances in Intention to Use can be accounted for by knowledge of Technology variables alone.

	Table 5. Wodel Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig.
1	.883ª	.779	.776	.536	.000

Table 3. Model Summary

^{a.} Predictors: (Constant), Dat Security, Re Advantage, Compatibility, Complexity

According to Table 4, the Beta values of Data Security (.617), Relative Advantage (.788), Complexity (.756) and Compatibility (.678) show positive correlations. While the constant is insignificant, all predictor variables show significance of .000, indicating a probability of less than one in 1000 of Type-I error; significantly positive relationships between predictor variables and outcome variable. With a

unit increase in Data Security factor, Intension factor will increase by .604 units. The Intension factor will increase by .773 units when there is one unit increase in Relative Advantage factor. A unit increase in Complexity factor and Compatibility factor will cause .740 unit and .665 unit increase in Intension factor respectively.

Table 4					
		Unstanda	rdized Coefficients	Standardized Coefficients	Sig.
Mod	lel	B	Std. Error	Beta	
1	(Constant)	.059	.034		.088
	Dat_Security	.604	.048	. 617	.000
	Re_Advantage	.773	.038	. 788	.000
	Complexity	934	.040	954	.000
	Compatibility	.665	.045	.678	.000

a. Dependent Variable: Intension to Use

The second analysis was run between Organization variables, namely Top management's support, Adequate resource and Benefits, and Intension to Use variable. The resultant ANOVA (Table 5), showing Significance of .001 or one chance in 1000 of incorrect rejection of null hypotheses, confirms that the data between Organization-predictor variables and Intension outcome variable are strongly correlated and there is a good model.

Мо	del	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	183.083	3	61.028	246.361	.000 ^b
	Residual	62.672	253	.248		
	Total	245.755	256			

Table 5: ANOVA^a

^{a.} Dependent Variable: IntensionToUse, b. Predictors: (Constant), Top Man Support, Benefits, Resources

The coefficient of determination of the contribution of Organization variables to Intention to Use, the R2, value from Table 5 which is 0.745 (Adjusted R2 .742) indicates a shared variation of about 75% between

Organization variables data and Intention to Use data. That is, approximately 75% of the variances in Intention to Use can be accounted for by knowledge of Technology variables alone.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig.
1	. 863ª	. 745	. 742	. 498	.000

^{a.} Predictors: (Constant), Top_Man_Support, Benefits, Resources

According to Table 6, the Beta values of Top Management's Support (.799), Adequate Resources (.744) and Benefits (.818) show positive correlations. While the constant is insignificant, all predictor variables show significance of .000, indicating a probability of less than one in 1000 of Type-I error; significantly positive relationships between predictor variables and outcome variable. With a unit increase in Top Management's Support factor, Intension factor will increase by .783 units. The Intension factor will increase by .729 units when there is one unit increase in Adequate Resources factor. A unit increase in Benefits factor will cause .801 units increase in Intension factor.

		Unstanda	rdized Coefficients	Standardized Coefficients	Sig.
Model		В	Std. Error	Beta	
1	(Constant)	014	.037		.708
	Top_Man_Support	.783	.037	.799	.000
	Resources	.729	.041	.744	.000
	Benefits	.801	.035	.818	.000

Table 7

a. Dependent Variable: Intension to Use

7

The nature of cloud computing is very much in close relationship to the core of the business processes. The purpose of this study is to enhance the understanding of intension to use cloud computing by small medium entrepreneurs in the Eastern province of Sri Lanka. We found that there are seven factors that drive the intension to use cloud computing. They are Data Security, Relative Advantage, Compatibility, Complexity, Top Management Support, Adequate Resources and Benefits.

Data Security was seed to have significant and positive influence on firms' intension to use cloud computing services; the higher the security the more intended the entrepreneurs. Relative advantage was observed to have significantly positive influence on the intension to use cloud computing by small medium entrepreneurs in the Eastern province. This finding is consistent with previous studies by Tan et al. (2008) and Wang et al. (2010). The relative advantage of cloud computing services usage would improve the speed of organizational communication, coordinating efficiency among firms, communication with clients as well as access to market information, etc. (Armbrust et. al., 2010). Expectedly, complexity and compatibility were found to be significant discriminators which mean that small medium entrepreneurs think that cloud computing usage has technological complexity and compatibility. If the complexity in usage and charging looks complex then entrepreneurs would not intend to go for such systems and also if the new system would not go hand in hand with existing legacy system then they would not risk such new systems, and this find is consistent with earlier studies by Wang et. al., (2010) and Oliveria and Martins (2010).

Organizational characteristics would play a major role in decision making process (Cho, 2006) of entrepreneurs. This study have found that top management's support, adequate resources and benefits to significant factors in determining small medium entrepreneurs intension to use cloud computing services. Benefits offer motivation for people to use an innovating technology if they expect relative advantages from a new system to enhance work efficiency Wang et al. (2010). It is clear that if top management's support and adequate resources available and potential benefits are understood, then intension to use an innovative technology would increase.

Conclusions

In order to promote the intension to use and adopt cloud computing it is vital to delineate the factors that influence this intension. Like the pros of this innovative technology there are cons as well, which hinders or defames its usefulness. One such feature is the downtime which is different for provider to provider. The complexity and compatibility of implementing cloud computing could be another barrier to the intension to use such technology. Therefore, it is important to understand the impact of factors influencing the intension to use cloud computing services in small medium industries. Small medium firms that would like to use cloud computing services could start with incremental implantation by means of slowly adding the number of process by establishing more internet infrastructures. These firms can start implement cloud services into businesses by beginning with accounting information systems and customer relationship management systems, etc. and these systems are of high benefits and make the firms to compete with rivals competently.

This study presents key finding that influence the small medium entrepreneurs intension to use cloud computing services. The findings reveal that whether small medium entrepreneurs intend to use cloud computing services depend on firm's technological factors; data security, relative advantage, complexity and compatibility as well as organizational factors; top management's support, adequate resources and benefits.

Further researches can include environmental factors and the scope can be extended to include whole country.

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BRAND SWITCHING FOR THREE SARONG BRANDS IN MARUTHAMUNAI: A USE OF THEORY OF STOCHASTIC PROCESS

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three brands.

ABSTRACT

Brand switching occurs in consumer products since they can be substituted for each other. Most of the people in Maruthamunai wear sarongs specially, three brands such as white brand, normal colour brand and full colour brand. Previous studies witness that switching behaviour of consumer products have been analysed in different setting. However, studies in Srilankan context are limited to researchers' search. Thus, there is a need to study about switching behaviour in different industries. Objectives of this study are to know brand insistence for selected three brands; to know the switching rate i.e. switching behavior for selected three brands and to know the brand loyalty of selected three brands. This study used 385 sarong users in Maruthamunai. They were selected on the basis of random sample selection. Research instrument was a questionnaire. This study used stockastic matrix, Markov Chains and notations of Markovian Model. Results revealed that there is high brand insistency for white brand. Moderate brand insistency exists for normal colour brand. Low brand insistency exists for full colour brands. Findings revealed that the highest switching rate would happen in white brand. Switching rate would be moderate for normal colour brand. The lowest switching rate would happen in full- colour brands. Further, it was found that the highest brand loyalty exists for white brands than normal colour brand and full colour brand. It concluded that of the three brands, white brand has the highest brand insistence, brand switching and

Keywords: Brand switching, Maruthamunai, sarong brands, stochastic process. **Introduction**

brand loyalty. Normal colour brand has the moderate in all these three aspects. Full colour

has the lowest in all these three aspects. This

study has the implication for the producers of all

Brand is a name, sign, symbol or design used to identity a product and distinguish it from another product, service or business. Brand insistence refers to tendency to be continued with existing brand in future. Brand switching is the process of choosing to switch from routine use of one product or brand to steady use of a different but similar product. Brand switching occurs in consumer products since they can be substituted for each other. Brand loyalty refers to consumer's behaviour of repeatedly purchasing a specific brand over a certain period of time. Sarong usage is common in Ampara Coastal Belt Areas. That customers evaluate brands, develop images of brands with varying degrees of loyalty is well established (Keller, 1993; Park, Jun & Shocker, 1996; Arvind Nivedita, 2010). Product attributes are the image building features of a product which may include packaging, branding, labeling, design, colouring, quality, price, warranty and servicing (Biodun, 2002). Maruthamunai is one of the villages situated in Ampara Coastal Area that produce and market sarongs too other parts of the Island. Most of the

people in Maruthamunai wear sarongs specially, three brands such as white brand, normal colour brand and full colour brand on many occasions such as off- office hours, village functions, festivals, weddings, home visits, and so on. However, sarong users switch from one brand to another time to time. Chaarlas & Rajkumar (2012) indicated that if a consumer's propensity to switch is known, the market can be modeled to indicate future market share and the relative positioning of the competing brands.

Statement of the problem

Different studies have been conducted in different countries and in different industries. Empirical evidences shows that switching behaviour has been modeled in numerous studies. Awogbemi, Oloda and Osama (2012) studied about modeling brand switching in consumers' products in Nigeria. In this study, it was examined the relevance of product attributes to switching rates with reference to three brands of soft drinks. Markov chains were employed to determine the brand loyalty of the consumers of the soft drinks and the future market shares in the long run. Sequel to the balance vector generated, it was discovered that the consumers exhibited the most brand loyalty towards Fanta. Similarly, Joe, Alice and Sternthal (1978) studied about brand switching. They used panel data for two consumer packaged goods indicates that media-distributed coupons and cents-off deals induce brand switching and result in less loyalty when retracted than if no deal is offered. In contrast, package coupons stimulate brand loyalty which is maintained when they are retracted. It was concluded that the extent to which economic utility theory and selfperception theory follows the brand switching. Previous studies witnessed that switching cost results in sales decline for products. Some other studies have proved that brand switching causes varying competition. Due to these reasons, there may be chances for sales fluctuation and increased competition among three brands such as white brand, normal colour brand and full colour brand. These previous studies witness that

switching behaviour of consumer products have been analysed in different setting. However, studies in Srilankan context are limited to researchers' search. Thus, there is a need to study about switching behaviour in different industries. In addition to these empirical findings of previous search of literature, evidence from industrial experts termed as owners of weaving centres were also not in same opinion regarding the switching behaviour of sarong users among three brands i.e. white brand, normal colour brand and full colour brand. Thus, researcher selected weaving products for studying about switching behaviour.

Objectives of this study

Objectives of this study are to:

- 1. To know brand insistence for selected three brands
- 2. To know the switching rate i.e. switching behavior for selected three brands
- 3. To know the brand loyalty of selected three brands

Significance for the study

Number of studies has been conducted time to time since they play an important role in marketing for marketer, customer and the community. Customers evaluate brands, develop images of brands with varying degrees of loyalty is well established (Keller, 1993; Park, Jun & Shocker, 1996; Arvind Nivedita, 2010). Product attributes are the image building features of a product which may include packaging, branding, labeling, design, colouring, quality, price, warranty and servicing (Biodun, 2002). Every consumer of a product is expected to have utility function for each of these attributes. Utility function enables a consumer of a product to study how product satisfaction varies with alternative levels in each of the attributes. A good brand induces competitive advantage and prevents competition. For instance, Lake (2014) stated that brand brand is intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of

other sellers. Therefore it makes sense to understand that branding is not about getting your target market to choose you over the competition, but it is about getting your prospects to see you as the only one that provides a solution to their problem. Therefore, marketers have to prevent customers from brand switching. Branding has many advantages such as delivering clear message to customers, confirming marketers' credibility, connecting marketers' target prospects emotionally, motivating the buyer and generates user loyalty. When marketer allows customers to switch from one brand to another, gaining these advantages would become questionable. Thus, a marketer has to be concentrated on brand switching about their brands. Brand switching is a loss to the company. To succeed in branding marketer must understand the needs and wants of their customers and prospects. Thus, brand switching analysis should be conducted time to time for the betterment of the company. Brand resides within the hearts and minds of customers, clients, and prospects. It is the sum total of their experiences and perceptions. Maruthamunai is one of sarong producing city in the Island. Sarong production fulfills the local demand for men who wear sarongs. Thus, when studying about brand switching behaviour of sarong users consumers may be sustained for long term for local consumption of sarongs. Sometimes, brand switching can lead sarong users to shift from one to another. Thus, a particular manufacture may face switching cost in due course. This is why this study is undertaken to make awareness about switching behaviour among the sarong manufacturers.

Review of Literatures

Brand switching can be studied using the stochastic theory. Properties of stochastic theory relates to probability and the time series. This is why a number of researchers have started their studies on brand switching using stochastic theory. Research has been conducted from the earliest. Frank (1974) studied about the theory of stochastic preference and brand switching. Study provided strong evidence using brand choice behavior. Study found that brand choice behaviour is substantially stochastic. This study tested a general theory of stochastic preference. Study concluded that brand switching data were in substantial agreement with the theory. Similarly, another study was conducted by Givon (1984) who studied about variety seeking through brand switching. Research analysed the concept of variety seeking behavior is modeled as a stochastic brand choice model that yields a measure of variety seeking for each individual consumer. Study used panel data for 28 products. Study concluded that each household and the possibility of market segmentation are consistent with by variety seeking behavior.

Following these studies, there were few recent studies in the areas of brand switching. For example, Harald, Gupta and Dick (2003) studied about sales promotion bump due to brand Research argued that several switching. researchers have decomposed sales promotion elasticities based on household scanner-panel data. study offer a complementary decomposition measure based on unit sales. The measure shows the ratio of the current cross-brand unit sales loss to the current own-brand unit sales gain during promotion. Study reported empirical results for this measure. Study also derived analytical expressions that transform the elasticity decomposition into a decomposition of unit sales effects. These expressions show the nature of the difference between the two decompositions. Fudenberg and Tirole (2000) studied about customer poaching and brand switching. Study examined switching and repeat purchase effects of advertising in mature, frequently purchased product categories. Study draw on consumer behavior theories of framing and usage dominance to formulate a logit choice model for measuring these effects. Study estimate the model using single-source scanner data. Results suggest that advertising induces brand switching but does not affect the repeat purchase rates of consumers who have just purchased the brand, a result consistent with usage dominance rather than framing. It was found that the switching influence to be largely confined between the current and previous purchase occasions. Study concluded that the magnitude of this effect and explore potential profitability. In the first study, scanner-panel data were used. Similarly, in the second study, logit choice model were used. These two studies used different methodological aspects for their study.

Some other studies have been conducted for analysing the relationship between two variables along with different methodological views. One of the study conducted by Deighton, Caroline and Scott (1994) studied about the effects of advertising on brand switching and repeat purchasing. Study determined the multiple effects of retail promotions on brand loyal and brand switching segments of consumers. Segments were determined by an iterative Bayesian procedure. The variations in within-segment brand shares within a store are related to promotional variables by a logit model estimated by nonlinear least squares. Store share was modeled as a function of store attractiveness, a summary measure of the store's promotional activity on the multiple brands. Finally, category volume is related to overall product category attractiveness in a model that includes both current and lagged effects. The research approach is applied to the IRI ground coffee data. Result of the first finding disclosed that the market can be characterized by brand loyal segments, each of which buys mostly their favorite brand, and switching segments, each of which switches mainly among different brands of the same type (e.g., drip, percolator). The second finding was that promotional variables have significant effects on within-segment market shares.

Some other studies have been conducted about modeling Richard (1989) studied about brand switching model with implications for marketing strategies. Study collected switching data in the areas of durables and services. A two-class "hard-core loyal" and "potential switcher" latent model for the analysis of brand switching data is proposed. Some previously unpublished automobile data will be presented and analyzed along with another data set for frequently purchased packaged goods. Study showed how simple model can be easily estimated using a standard log-linear modeling approach. Naufel, and Dipak (1991) modelled purchase-timing and brand-switching behavior incorporating explanatory variables unobserved and heterogeneity. This study used a continuous-time semi-Markov approach to analyze in a single framework the purchase-timing and brandswitching decisions of households for a frequently purchased product. Study found that the probability distribution of interpurchase times is not the same for various switching between brands, revealing extra information about the purchase-timing decisions. Further, it was found that though the marketing mix and household demographic variables explain a large part of the variation in the brand-switching rates, they account for only a small part of the variation in the repeat purchase rates. Another finding from the analysis is that the rates of switching between brands due to promotional activities such as special displays and price reductions are in reverse order to the share of purchases of the various brands.

Methodology

Sample selection

This study used 385 sarong users in Maruthamunai. They were selected on the basis of random sample selection. Major sarong weaving centres, Textiles, retailer outlets and wholesale outlets were considered for selecting these samples.

Material

Research instrument was a questionnaire that was distributed with final year Undergraduates, Faculty of Management and Commerce, South Eastern University of Sri Lanka, Oluvil. Items in the questionnaire was tested using satisfactory Cronbach alpha values.

Method and procedure

This study uses stockastic matrix, Markov Chains and notations of Markovian Model for analyzing objectives of this study.

Stockastic matrix

In mathematics, a stochastic matrix (also termed probability matrix, transition matrix, substitution matrix, or Markov matrix) is a matrix used to describe the transitions of a Markov chain. Each of its entries is a nonnegative real number representing a probability. It has found use in probability theory, statistics and linear algebra, as well as computer science and population genetics. There are several different definitions and types of stochastic matrices. They are (1) A right stochastic matrix is a square matrix of nonnegative real numbers, with each row summing to 1. (2) A left stochastic matrix is a square matrix of nonnegative real numbers, with each column summing to 1.

In the same vein, one may define stochastic vector (also called probability vector) as a vector whose elements are nonnegative real numbers which sum to 1. Thus, each row of a right stochastic matrix (or column of a left stochastic matrix) is a stochastic vector.

Markov Chains

Markov model is a stochastic process used in terms of a random variable indexed with respect to time. Its analysis also takes cognizance of a sequence of events. The state probabilities at a future instant given the present state of the process do not depend on the states occupied in the past. The behavior of the system in each state memorizes i.e the future state of the system at tn+1depends on its present state at tn (Dilip, Rupam & Anupawa, 2009). Markov chains have been used in many applications; see Jarrow, David and Stuart (1997), Zipkin (1993), White (1993), Sandman (2005), Guedon (1993), Glennon, Dennis and Peter (2005) among others.

Notations of Markovian Model

Suppose Xn with n denotes random variable on discrete space S. The sequence X = (Xn : n) is called a stochastic process. If P is a probability measure of X such that P(Xn+1 = j/X0 = i0...,Xn = in) = P(Xn+1 = j/Xn = in) for all i0,... in, and , then the sequence X is a Markov chain on S. The probability measure P is the distribution of X, and S is the state space of X. If the conditional probability P(Xn+1 = j/Xn = in) are independent of time index n , then the Markov chain X is homogeneous and denoted by P(Xn+1 = j/Xn = i) = Pij for all $i,j\in S$. Pij describes the probability of movement from state i to state j during a specified or discrete time interval. Table 3.3.31 tabulates the probability P_{ij} .

	FromTo	S 1	S2	•••••	Sn
	S1	P11	p12		P1n
	S2	P21	P22		P2n
Pij		•	•		•
		•	•	•	•
		•			
	Sn	Pn1	Pn2		Pnn

Table 3.3.31: The probability Pij

Where; Σ Pij = 1, Pij ≥ 0 for all i,j and S1 S2, . . . Sn are discrete states. However, if a Markov chain has initial probability vector X0 = (i1, i2, .

. . in) and transition matrix Pij, the probability vector after n repetition is $X0 \cdot p^n I_{,j}$ which defines the future state probabilities.

Data Analysis, Results and Presentation

Collected data were tabulated in Table 4.1.

FromTo	White Brand	Normal Colour Brand	Full Colour Brand
White Brand	100 (White Brand to	50 (White Brand to	35 (White Colour to
	White Brand)	Normal Colour Brand)	Full Colour Brand)
Normal Colour Brand	40 (Normal Colour	80 (Normal Colour	15 (Normal Colour
	Brand to White	Brand to Normal	Brand to Full Colour
	Brand)	Colour Brand)	Brand)
Full Colour Brand	10 (Full Colour Brand to White Brand)	15 (Full Colour Brand to Normal Colour Brand)	40 (Full Colour Brand to Full Colour brand)

Table 4.1: Collected data

Brand preferences are shown in Table 4.2.

Table 4.2: Brand Preference

Brands	Number of sarong users
White Brand to White Brand	100
White Brand to Normal Colour Brand	50
White Brand to Full Colour Brand	35
Normal Colour Brand to Normal Colour Brand	80
Normal Colour Brand to White Brand	40
Normal Colour Brand to Full Colour Brand	15
Full Colour Brand to Full Colour brand	40
Full Colour Brand to Normal Colour Brand	15
Full Colour Brand to White Brand	10
Total	385

(Source: From Field survey, 2014)

Brand insistence and switching rate are shown in Table 4.3.

FromTo	Frequency	Percentage	Probability for sub total	Probability for grand total
White Brand to White Brand	100	54	0.540541	
White Brand to Normal Colour Brand	50	27 0.27027		45
White Brand to Full Colour Brand	35	18	0.189189	
Sub total	185		1	0.480519
Normal Colour Brand to Normal Colour Brand	80	59	0.592593	
Normal Colour Brand to White Brand	40	29	0.296296	40
Normal Colour Brand to Full Colour Brand	15	11	0.111111	
Sub total	135		1	0.350649
Full Colour Brand to Full Colour brand	40	62	0.615385	
Full Colour Brand to Normal Colour Brand	15	23	0.230769	38
Full Colour Brand to White Brand	10	15	0.153846	
Sub total	65		1	0.168831
Total	385			1

Table 4.3: Brand insistence and switching rate

(Source: From Field survey, 2014)

Transition frequency is tabulated in Table 4.4. Transition matrix is shown in Table 4.5.

FromTo	White Brand	Normal Colour Brand	Full Colour Brand	Frequency
White Brand	100	50	35	185
Normal Colour Brand	40	80	15	135
Full Colour Brand	10	15	40	65
Total				385

 Table 4.4: Transition Frequency

FromTo	White Brand	Normal Colour Brand	Full Colour Brand	Probability
White Brand	0.540541	0.27027	0.189189	1
Normal Colour Brand	0.592593	0.296296	0.111111	1
Full Colour Brand	0.615385	0.230769	0.153846	1

 Table 4.5: Transition Matrix

Transition diagramme is shown in Figure 4.1.



Figure 4.1: Transition diagramme

Brand loyalty using forecasting

Brand loyalty is measured using general rules for forecasting for next period with the support of formulas stated in 4.1.1 and 4.1.2.

$$X^{(n)} = X^{(n-1)} P$$
.....Equation (4.1.1)

 $X^{(n)} = X^{(0)} P^{n}$Equation (4.1.2)

Forecast for the 0th period is predicted by frequency for transition matrix for each brand such as white brand, normal colour brand and full colour brand divided by total frequency. Table 4.1.1 shows the frequency ad probability for forecasting 0th period.

Table 4.1.1:The frequency and probability forforecasting for 0th period

Frequency	Probability
185	185 / 385 = 0.480
135	135/385 = 0.350
65	65 / 385 = 0.168
385	

Forecast for the 1st period is predicted by $X^{(n)} = X^{(0)} P^n$. i.e. $X^{(0)}$ is 0.480, 0.350 and 0.168. These values are multiplied by P^n found in transition matrix. Table 4.1.2 shows forecasting for 1st period.

FromTo	X ⁽⁰⁾	White Brand	Normal Colour Brand	Full Colour Brand	
White Brand		0.540541	0.27027	0.189189	
Normal Colour Brand	0.480, 0.350 &	0.592593	0.296296	0.111111	
Full Colour Brand	0.100	0.615385	0.230769	0.153846	
		$\begin{array}{r} 0.480 * 0.540541 \\ = 0.2594 \end{array}$	$\begin{array}{r} 0.350 & * & 0.27027 \\ & = & 0.0945 \end{array}$	$\begin{array}{r} 0.168 * 0.189189 \\ = 0.0317 \end{array}$	
		$\begin{array}{r} 0.480 * 0.592593 \\ = 0.2844 \end{array}$	$\begin{array}{r} 0.350 * 0.296296 \\ = 0.1037 \end{array}$	$\begin{array}{c} 0.168 * 0.111111 \\ = 0.01866 \end{array}$	
		$\begin{array}{r} 0.480 * 0.615385 \\ = 0.2953 \end{array}$	$\begin{array}{r} 0.350 * 0.230769 \\ = 0.08076 \end{array}$	$\begin{array}{r} 0.168 * 0.153846 \\ = 0.0232 \end{array}$	
		0.8391	0.2789	0.0736	

Table 4.1.2: Forecasting for 1st period

Table 4.1.3 shows the forecasting for 0th and 1st period

Table 4.1.3	Forecasting	for 0th	and 1st	period
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FromTo	White Brand	Normal Colour Brand	Full Colour Brand
0	0.480	0.350	0.168
1	0.8391	0.2789	0.0736

Conclusions

From Table 4.3, brand insistency varies brand to brand. It could be understood that majority 100 users of the sarong users insist on white brand. 80 users insist on normal colour brand users. Low number (40) of sarong users insists on full colour brand. There is high brand insistency for white brand. Moderate brand insistency exists for normal colour brand. Low brand insistency exists for full colour brands. In case of brand switching, 85 white brand sarong users wish to switch to normal colour brand (50) full colour brand (35). 55 normal colour brand sarong users wish to switch to white brand (40) and full colour brand (15). 25 full colour brand sarong users wish to shift their brand as normal colour brand (15) and as white brand (10). The highest switching rate would happen in white brand. Switching rate would be moderate for normal colour brand. The lowest switching rate would happen in full- colour brands. With regard to the brand loyalty, forecasting values for 0th and the 1st period, values of white brand, normal colour brand and full colour brand are 0.480 & 0.8391; 0.350 & 0.2789 and 0.168 & 0.0736. Thus, the highest brand loyalty exists for white brands than normal colour brand and full colour brand. In toto, of the three brands, white brand has the highest brand insistence, brand switching and brand loyalty. Normal colour brand has the moderate in all these three aspects. Full colour has the lowest in all these three aspects.

Managerial Implications

White brand has highest brand insistence, brand switching and brand loyalty among users. There is a significant number of switching brand users. Thus, it is not a good sign for producers of white brand sarongs. Awareness has to be given to prevent the brand switching by way of new designs, new decorations and so on. Normal colour brand has the moderate in all these three aspects among users. Brand switching rate is nearing to white brand. Thus, similar efforts have to be taken by producers of normal colour brands. Full colour has the lowest in brand insistence among users. This is danger to the producers. Thus, full colour is not preferable among users. Thus, production of full colour should be limited. Full colour brands cannot be inventoried.

Value addition

This study applies the stochastic probability method in this study for brand switching behaviour in weaving industry in Ampara Coastal Area.

Limitations and further research avenues

This study is limited among the sarong users of Maruthamunai. This geographical limitation can be extended to some other places in future studies.

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ORGANIZATIONAL JUSTICE AS AN ANTECEDENT OF JOB SATISFACTION OF ADMINISTRATIVE STAFF IN SRI LANKAN STATE UNIVERSITIES

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ABSTRACT

The construct of job satisfaction is widely acknowledged as an important requirement for the effective functioning of any organization. One important antecedent of Job satisfaction is justice perception. Universities in Sri Lanka are facing challenges in improving job satisfaction of administrative staff and thus, their commitment to gain competitive advantage and retention of the efficient administrative staff. Further the level of justice perception is found to be low among the administrative staff. Therefore, objective of this study was to find out the influence of justice perception on the job satisfaction. Self administered questionnaire was used to collect the data from a sample of 250 administrative staff members employed in 15 national universities in Sri Lanka. Analysis of this study revealed that the state university administrative employees were generally satisfied with their job. However, satisfaction with opportunity for independent thought, feedback on performance, pay for job, promotion opportunities, benefits received were very low among the staff. The findings of the study also showed positive relationship of justice perception with job satisfaction. Implications of findings, limitations and areas for future research also discussed.

Keywords: Job satisfaction, Organizational justice perception, distributive justice, procedural justice, interactional justice, administrative staff in universities.

Introduction

The concept of job satisfaction according to Robbins (2001) can be described as a general attitude towards one's job; the difference between the rewards received and what they actually believe they should have received. In organizational studies, Currivan (2000) claimed that job satisfaction is widely studied as work outcomes in organizational settings. Numerous researchers (for instance Goris et al., 2000) conceptualized job satisfaction as multifaceted instrument that consisted of "work itself", "quality of supervision", "relationships with coworkers", "promotion opportunities", and "pay". The job satisfaction can therefore be defined as a collection of attitudes, feelings, beliefs and behavior one has towards his or her iob.

Employees with higher job satisfaction are important as they believed that the organization would be of tremendous future for them. Hence they are more committed to the organization, have higher retention rates and tend to have higher productivity (Fatt, Khin & Heng, 2010). Therefore, organizations must strive to identify antecedents that influence the job satisfaction of employees. antecedent One such is organizational justice which describes the individual's perception of the fairness of treatment received from an organization and their behavioural reactions to such perceptions (Fernandes & Awamleh, 2006). It has shown to be associated with several outcomes such as job satisfaction, work motivation (Suliman, 2007; Fernandes & Awamleh, 2006; Cropanzano et al., 2001; Moorman, 1991), intention to turnover (Colquitt et al., 2001), work performance (Suliman, 2007; Fernandes & Awamleh, 2006; Phillips et al., 2001), commitment (Folger & Konovsky, 1989), organizational citizenship behaviour (Moorman, 1991).

Organizational justice is typically conceptualized with three components: distributive, procedural, and interactional justice (Cropanzano et al., 2001; Masterson et al., 2000; McDowall & Fletcher, 2004). Distributive justice, recognized as first sub-dimension of organization justice, mainly considered with the workers' perception in the fairness of outcomes, such as monetary rewards obtained by the workers from the organization (Elovainio et al., 2005; Ramamoorthy & Flood, 2004; Greenberg, 2006; Aryee et al., 2002). This is defined by Moorman (1991) as "the fairness of outcomes an employee receives such as pay and promotions". This type of justice is based on equity theory which emphasized on the judgments made by the employees about the outcomes (for example, promotion, pay) offered by the organization against their effort by which they work or in accordance with given criteria (Cropanzano & Greenberg, 1997; Hubbel & Chory-Assad, 2005; Blakely et al., 2005; Alder & Ambrose, 2005). Distributive justice is also considered as the leading factor towards organizational effectiveness (Tang & Sarsfield-Baldwin, 1996).

Procedural justice refers to the perceived fairness of the processes used to determine organizational outcomes (Colquitt et al., 2001; Folger & Konovsky, 1989). It derives from the perceived equity of organizational policies and procedures determining resource allocation and other managerial decisions (Peele III, 2007). Employees judge the equity of procedures by the amount of bias, the breadth and accuracy of information gathering, number of relevant parties given voice in the decisions, ethical standards applied, and the universality consistency and of decision implementation (Stecher & Rosse, 2005).

Interactional justice focuses on employees' perceptions about the fairness of the interpersonal treatment received during implementation (Bies & Moag, 1986). It refers to the quality of interpersonal processes and treatment of individuals (i.e. being treated with dignity and respect), as well as the extent to which reasons behind the outcomes are explained (Bies & Moag, 1986). Perceptions of interactional justice result from supervisor trust-building behaviours such as "availability, competence, consistency, discreetness, fairness, integrity, loyalty, openness, promise fulfillment, receptivity and overall trust" (Deluga, 1994, p. 317).

Effects of Organizational Justice on Job Satisfaction

The influence of different dimensions of organizational justice (procedural, distributive, interactional) on job satisfaction is a widely researched topic and hence explains the importance of organizational justice in an organization (Cohen-Charash & Spector, 2001; Colquitt et al., 2001; Viswesvaran & Ones, 2002). A basic element in employee's satisfaction and organizational productivity is organizational justice (Aydin & Kepenekci, 2008).

Organizational justice puts stronger impact on different attitudes of the employees like job satisfaction and organizational commitment (e.g. Bakhshi & Kumar, 2009; Colquitt et al., 2001). Folger and Konovsky (1989) found positive association among the dimensions of organizational justice with job satisfaction. The studies of Colquitt et al., (2001), Folger and Cropanzano (1998), Cohen-Charash and Spector (2001) also found that justice dimensions have positive and significant impact on job satisfaction.

Fernandes and Awamleh (2006) conducted a research to find the impact that three dimensions of organizational justice (procedural, distributive and interactional justice) have on job satisfaction and self assessment performance. The results of

the study revealed that all three dimensions of organizational justice were significantly influenced job satisfaction. A meta-analysis found that distributive justice is a crucial predictor of job satisfaction (Colquitt et al., 2001; Lambert, 2003). Distributive justice is among various determinants of job satisfaction (Feinstein & Vondrasek, 2001). Folger and Konovsky (1989) and McFarlin and Sweeney (1992) found that perceptions of distributive justice are significantly correlated with pay raise satisfaction as well as with job satisfaction (Martin & Bennet, 1996). Contemporary studies noted that employees have a tendency to display feeling of dissatisfaction as they perceive an unfair content of rewards (Cropanzano & Greenberg, 1997).

Past researches showed that procedural justice also has a relationship with employee satisfaction (Konovsky & Cropanzano, 1991; Lambert, 2003), because when employees observe that performance rating and chances of promotion are not based on justice practices but on political and biased motives, and their performance is not truly considered, they become de-motivated and their satisfaction with job decreased. In another study, Bakhshi, Kumar and Rani (2009) reported the positive and significant association of distributive justice and procedural justice with organizational commitment and job satisfaction. Consistent with the prior findings, Najafi et al. (2011) also concluded that educational experts of different universities reported higher job satisfaction on the provision of organizational justice. Fatt et al. (2010) reported that "the higher level of employee's perception towards procedural justice and distributive justice tended to increase the level of employees' job satisfaction and organizational commitment" (p.13). Findings from empirical studies in a variety of settings provide evidence that the three types of organizational justice have significant effects on the job satisfaction. Based on the above literature, this study seeks to investigate how significance is the perceptions of organizational justice on the job satisfaction of administrative staff in Sri Lankan state universities.

Study Context

Although academic staff and students are undoubtedly integral to the higher education enterprise, another relevant stakeholder group in higher education is administrative staff members. Administrative staff in universities undertakes a wide variety of duties, including those performed by analysts, secretaries, personal assistants and executives.

Universities in Sri Lanka are facing challenges in improving the job satisfaction of their administrative staff and thus, their commitment to gain competitive advantage and at the same time retention of the efficient administrative staff. There are many changes occurring in Sri Lankan higher education sector today. According to the proposals for the university reforms introduced by the government in 1998, and some of the potential activities such as expansion of university education, diversification of university courses and curriculum reforms, private sector linkage, staff training and development, quality improvements and the growth of student intake for universities etc., have been identified to be strengthened in the university education in the future.

Therefore, in this rapidly changing environment, all administrators in the system should be encouraged and motivated to face the new challenges associated with their jobs, which will be helpful to increase their job satisfaction. Because all administrative functions depend on administrative staff to perform them whereby the satisfied administrators can provide good service to the institution and thus the institution can function smoothly.

The findings of the survey conducted by Luo, Fan and Premakumara (2008) on Job Satisfaction of University Administrators: Empirical Evidence from Sri Lanka show that most of the university administrators were dissatisfied with their present salary, promotions and career advancement. List of present pay related factors explaining the job dissatisfaction of the respondents included but not limited to the following: not reflecting their work performance and responsibility, not matching with the market value, same salary scales offered to officers who do not bear any responsibility or accountability, not matching with the cost of living, insufficient when compared with the private sector, and not matching with their qualifications. The factors which they were dissatisfied on promotion are as no performance based system, long delays in the promotions, no proper procedure and scheme, more weight given for experience than qualifications, third party interventions which open avenues for unsuitable persons to get promotions, and no uniformity and no transparency in circulars and the policies. An examination of the respondents' responses revealed the list of factors, which contribute mostly to dissatisfaction with personal career growth and advancement: limited prospects for career advancement, no formalized training, no equal opportunities in training, favourites getting opportunities even for unwanted training, no training need analysis, and superiors considering their own advancement.

According to a primary survey conducted by the researchers among the administrative staff in Sri Lankan state universities in August 2013, it was found that there have been a number of problems existing among them which contribute to job dissatisfaction related to justice perceptions. Some of them are: extra working hours without additional payment, work pressure, low level of treatment by top management, bad working environment, less promotion opportunities, work unfairness, low salary level, etc. It was also found in the survey that many administrative staff members have shown intentions to exit from their administrative positions and join other better jobs if they could gain. The job requires higher standard of qualifications and a tough recruitment system. However, the benefits are not much attractive when compared to some other comparable positions which require the same level of qualifications.

Further, according to the existing scheme, the promotional opportunities for administrative staff in Sri Lankan state universities seem to be unfair. For example, an Assistant Registrar after the completion necessary of required qualifications to become a Senior Assistant Registrar has to wait until a cadre falls vacant in the university system. The promotion does not depend only on merit. This is the case for a Senior Assistant Registrar to become a Deputy Registrar. This unfair situation of less promotion opportunities tends to push the administrative staff into job dissatisfaction. Therefore, it is necessary to study the effects of justice perception on the job satisfaction of the administrative staff and find solutions to eliminate or minimize these problems for the smooth functioning of the universities.

Therefore, objectives of the study are to find out the general influence of justice perception on the job satisfaction of administrative staff in Sri Lankan state universities and also to find out the relationship between dimensions of justice perception and job satisfaction. It is also aimed to determine which dimension of the justice perception has more effects on the job satisfaction of administrative staff in Sri Lankan state universities. Although many researches have been carried out on employee job satisfaction in general, no research has been done so far related to the effects of justice perception on the job satisfaction of administrative staff in Sri Lankan universities. In this research, through combining theoretical and empirical research, it is aimed to find out the effects of justice perception dimensions on university administrators' job satisfaction, thereby laying the theoretical foundation for the practice and for future research.

Based on the review of literature on the effects of organizational justice on the job satisfaction and the existing problem of administrative staff in Sri Lankan state universities the following conceptual framework (Figure :1) is developed.



Figure 1: Conceptual Model

Based on the aforementioned conceptual model, the following hypotheses have been developed.

 H_1 . Distributive justice perception is positively associated with the job satisfaction of administrative staff in Sri Lankan state universities.

 H_2 . Procedural justice perception is positively associated with the job satisfaction of administrative staff in Sri Lankan state universities.

 H_3 . Interactional justice perception is positively associated with the job satisfaction of administrative staff in Sri Lankan state universities.

Methods

The study used a correlational design to examine the relationship between two quantitative variables. The aim of this study is to determine the degree of the relationship between justice perception and job satisfaction.

Sample characteristics

Sampling method employed was stratified. Data were collected from 250 administrative staff members employed in 15 national universities coming under the purview of the University Grants Commission of Sri Lanka through a questionnaire.

		Frequency	Percentage
Gender	Male	83	59.7
	Female	56	40.3
Age groups	Below 30 years	09	6.5
	31 - 40 years	52	37.4
	41-50 years	57	41.0
	51 – 60 years	21	15.1
Education Level	G.C.E (A/L)	08	5.8
	Bachelor Degree	47	33.8
	Postgraduate Diploma	35	25.2
	Master Degree	49	35.3
Position	Registrar	05	3.6
	Bursar	02	1.4
	Deputy Registrar	13	9.4
	Deputy Bursar	04	2.9
	Senior Asst. Registrar	32	23.0
	Senior Asst. Bursar	12	8.6
	Asst. Registrar	51	36.7
	Asst. Bursar	20	14.4
Year of Experience	Less than 02 years	27	19.4
	02 - 05 years	33	23.7
	06 - 10 years	30	21.6
	11 - 15 years	27	19.4
	16-25 years	15	10.8
	More than 25 years	07	5.0

Table 1: Characteristics of Respondents (N=139)

Source: Survey Data

139 questionnaires were returned, comprising a response rate of 58.4%. Seven responses were eliminated due to excessive missing data. Table.1 presents the profile of the respondents with regard to gender, education, employment status, job title, and years of experience. Most of the respondents (60.43%, n=84) had completed postgraduate Diploma and Master Degree. Of this sample, 83 (59.7%) were male and 56 (40.3%) were female. With regard to years of employment, most of the respondents (n=60, 43.1%) had 0 - 5 years of experience.

Data were collected using questionnaire. While the first part of the questionnaire intended to collect the demographic variables of the respondents the second part was intended to collect the data about independent and dependent variables.

Measures

Perceptions of distributive justice were measured with the Distributive Justice Index, developed by Price and Mueller (1986). This five-item scale measures the degree to which rewards received by employees are perceived to be related to performance inputs. Each item asks for the degree to which the respondent believes that he or she is fairly rewarded on the basis of some comparison with responsibilities, education and training, effort, stresses and strains of job, and performance. Items were re-worded to accommodate the use of a 5-point scale ranging from (1) "strongly disagree" to (5) "strongly agree." For example, the item, "How fair has the company been in rewarding you when you consider the responsibilities you have?" was changed to "I am rewarded fairly in view of the responsibilities I have".

Perceptions of procedural justice were measured using six items. This scale is based on one used by Moorman (1991). These six items were designed to measure the fairness of procedures in the organization as revealed by procedures which promote consistency, bias suppression, accuracy, correctability, representativeness, and ethicality. For example, "My organization's procedures generate standards so that decisions can be made with consistency". Items measure the response using a 5-point scale ranging from (1) "strongly disagree" to (5) "strongly agree".

Perceptions of interactional justice were measured using 15 items. This scale is based on one used by Moorman (1991). The items were designed to measure supervisor consideration of employee rights, treatment of employees with respect and kindness, and provision of explanations and justification for decisions. For example, "My immediate supervisor treats me with kindness and consideration". Items measure the response using a 5-point scale ranging from (1) "strongly disagree" to (5) "strongly agree".

Job satisfaction was measured using twenty three items. This scale is based on Minnesota Satisfaction Questionnaire (MSQ). This scale uses multiple items. There are two good reasons to use multiple items. First, multiple item scales are more reliable than single items. This is because respondents can make mistakes when filling out questionnaires. Errors can be made when a respondent interprets a question differently than intended. Second, multiple items allow for a more complete assessment of a facet. A single item may not do a good job of covering all aspects. For example, an employee may be able to indicate their overall satisfaction with pay in a single item, but pay includes many aspects that would take several items to cover. The questionnaire includes a 23-item scale to measure seven specific satisfactions; pay and benefits, job security, social, supervisory, growth satisfaction, work environment and nature of the job. The format for the facet items is a five-point scale ranging from (1) "very low" to (5) "very high".

The questionnaires were prepared in English since the sample were able to understand English language which is a compulsory component for recruitment of administrative staff in Sri Lankan university system. Contact information of the researcher was provided to the participants in case any questions or concerns arise. The researcher visited universities and distributed surveys to participants. Also the questionnaires were sent to participants and received back through email and fax. A covering letter from the researcher accompanied each survey.

Data Analysis

In order to achieve acceptable levels of measurement reliability and validity, a pilot study was conducted among 38 respondents to refine the original survey instrument.

it had distributed normal in the Z curve. Table 2 reports the descriptive statistics for the measures used, including Mean, standard deviation, and internal consistency reliability for each measure. These values show that the constructs achieved are all excellent and high reliabilities and the alpha values indicated that the study's instrument and data were reliable.

Correlations between the independent and dependent variables of this study are also given in Table 2. To examine the relationship between distributive justice perception (DJP) and overall satisfaction (OAS), this study performed correlation and regression analysis. A significant

Table 2. Correlations among variables (N=137)									
	Μ	SD	Alpha	DJP	PJP	IJP	INS	ENS	OAS
Distributive Justice									
Perception (DJP)	2.72	1.06	0.94	1					
Procedural Justice									
Perception (PJP)	2.97	0.89	0.90	0.11	1				
Interactional Justice									
Perception (IJP)	3.29	0.91	0.87	0.33**	0.44**	1			
Intrinsic									
Satisfaction (INS)	3.19	0.93	0.90	0.49**	0.36**	0.50**	1		
Extrinsic									
Satisfaction (ENS)	3.13	0.93	0.89	0.45**	0.48**	0.55**	0.79**	1	
Overall									
Satisfaction (OAS)	3.12	0.92	0.90	0.45**	0.44**	0.52**	0.87**	0.93	** 1

Table 2: Correlations among Variables (N=139)

Source: Survey Output

The collected questionnaires were then subjected to primary analysis in order to ascertain whether the respondents understood the instructions clearly and they followed them simply and easily and to judge the time taken to complete the scale, and specially, whether the scale items were appropriate for the target respondent population. Tests of internal consistency (Cronbach's alpha) were conducted to assess the reliability of each of the scales used. All of the measures included in the questionnaire showed adequate levels of internal consistency reliability. Normality was checked with data collected and was found that correlation was found between distributive justice perception (DJP) and overall satisfaction (OAS), r = 0.456, p = 0.000. A significant correlation between procedural justice perception (PJP) and overall satisfaction (OAS), r = 0.448, p = 0.000, between interactional justice perception (IJP) and overall satisfaction (OAS), r = 0.521, p = 0.000, and between distributive justice perception (DJP) and intrinsic satisfaction (INS), r = 0.493, p = 0.000 were also found in this study. A significant correlation between procedural justice perception (DJP) and intrinsic satisfaction (INS), r = 0.360, p = 0.000, between interactional justice perception (IJP) and intrinsic satisfaction (INS), r = 0.507, p = 0.000, between distributive justice perception (DJP) and extrinsic satisfaction (ENS), r = 0.453, p = 0.000, between procedural justice perception (PJP) and extrinsic satisfaction (ENS), r = 0.483, p = 0.001. and between interactional justice perception (IJP) and extrinsic satisfaction (ENS), r = 0.483, p = 0.001. and between interactional justice perception (IJP) and extrinsic satisfaction (ENS), r = 0.550, p = 0.000 were also found from the analysis.

Discussion of Findings

Organizational justice perceptions i.e. distributive justice perception, procedural justice perception and interactional justice perception are positively correlated with the overall satisfaction of the administrative staff in Sri Lankan state universities. These findings are consistent with the studies of Folger and Konovsky (1989), Colquitt et al., (2001), Folger and Cropanzano (1998), Cohen-Charash and Spector (2001) who found positive and significant association among the dimensions of organizational justice with job satisfaction.

The results of the regression analysis suggest that the interactional justice was the best predictor of overall satisfaction ($\beta = 0.204$, t = 3.712, p =0.00) as well as intrinsic satisfaction ($\beta = 0.252$, t = 3.841, p = 0.00) and extrinsic satisfaction (β = 0.250, t = 4.133, p = 0.00) of the administrative staff in Sri Lankan state universities, followed by procedural and finally the distributive justice. This finding indicate that the quality of treatment that administrative staff receives from their top management when policies and procedures are implemented at the workplace are the most important predictor of their level of satisfaction. Honesty, courtesy, timely feedback, respect for rights and the chances to express viewpoints are the most critical components for securing satisfied administrative members in the Sri Lankan university system. Administrative staff members are satisfied when their immediate

supervisors interact with them in a transparent manner and the procedures are clear in generating standards to make consistent decisions, and being able to request for clarification or additional information about the decision. The more the universities improve the interactional justice in the university system, the more the administrative staff will be satisfied both intrinsic and extrinsic.

Procedural justice perception also influences the overall, intrinsic and extrinsic satisfaction of the administrative staff significantly. Overall satisfaction ($\beta = 0.150$, t = 3.860, p = 0.00), intrinsic satisfaction ($\beta = 0.113$, t = 2.436, p = 0.00) and extrinsic satisfaction ($\beta = 0.113$, t = 2.436, t = 4.368, p = 0.00).

Distributive justice perception also plays an important role in the overall, intrinsic and extrinsic satisfaction of the administrative staff. Overall satisfaction ($\beta = 0.118$, t = 4.685, p <0.05), intrinsic satisfaction ($\beta = 0.156$, t =5.217, p = 0.00) and extrinsic satisfaction ($\beta =$ 0.128, t = 4.638, p = 0.00). The results of this study support previous research conducted to explain the importance of the allocation phenomenon in organizations (Alexander & Ruderman, 1987; Cropanzano & Greenberg, 1997; Folger & Konovsky, 1989). For example, people tend to be more satisfied with outcomes they perceive to be fair than with those they perceive to be unfair. In addition, people may compare the adequacy of the rewards they receive to their expectations, or referent standards. Thus, if employees feel discontent with what they receive compared to those doing similar jobs, they are more likely to quit. This supports the contemporary studies which noted that employees have a tendency to display feeling of dissatisfaction as they perceive an unfair content of rewards (Cropanzano & Greenberg, 1997).

Administrative staff members in Sri Lankan state universities are generally satisfied with their job. However, satisfaction with opportunity for independent thought, feedback on performance, pay for job, promotion opportunities, benefits received were low among the staff. The study's findings indicate that administrative staff who tend to show positive feelings towards distributive, procedural and interactional justice are likely to report higher level of job satisfaction. These findings support the studies of some scholars in this field (Cohen-Charash & Spector, 2001; Colquitt, et al., 2001; Lambert, 2003; Fernandes & Awamleh, 2006; Suliman, 2007).

Generally, all the administrative staff members have indicated their dissatisfaction with their level of pay. Among them, the administrative staff with more than 25 years of service have shown very low satisfaction with their pay (M =1.43), the next group which is less satisfied with pay is those who have less than 02 years of experience. With respect to supervision, the administrative staff have generally indicated their satisfaction, however, the new recruits of administrative members have shown dissatisfaction (M = 2.81). The most experienced staff members are the most satisfied ones with the supervision facet.

Conclusions and Recommendations

This study explores perceptions of the administrative staff towards organizational justice in the form of distributive justice, procedural justice, and interactional justice. This study was conducted to examine the relationship between organizational justice perceptions and the job satisfaction of the administrative staff in Sri Lankan state universities.

In view of the essential role of administrative staff members in the effective functioning of the universities, one might ask whether administrative staff members' perception of organizational justice and their level of job satisfaction should be an issue of concern to leadership of universities. As the findings of this study revealed, the answer is yes. Interestingly, the use of pay as the main source of motivation to increase the level of job satisfaction among administrative staff members might not work. Through the analysis of this study it can be concluded that the state university administrative employees were generally satisfied with their job. However, satisfaction with opportunity for independent thought, feedback on performance, pay for job, promotion opportunities, benefits received were very low among the staff. The findings of the study showed positive relationship of distributive justice, procedural justice and interactional justice with overall job satisfaction as well as intrinsic and extrinsic satisfaction of administrative staff in Sri Lankan state universities. The findings were consistent with the prior researchers that the organizational justice dimensions foster the overall job satisfaction of the employees (Bakhshi et al., 2009; Zaman et al., 2010; Ramamoorthy & Flood, 2004; Aryee et al., 2002; Najafi et al., 2011). These findings supported the studies of Folger and Konovsky (1989), Colquitt et al., (2001), Folger and Cropanzano (1998), Cohen-Charash and Spector (2001) who found positive and significant association among the dimensions of organizational justice with job satisfaction.

Interactional justice was found to have more overall effect on job satisfaction of administrative staff members serving in state universities. The results of this study support previous researches on the impact of the quality of the supervisor-subordinate relationship on the fairness perceptions of subordinates (Dansereau, Graen, & Haga, 1975; Podsakoff, MacKenzie, Moorman, & Fetter, 1990). Thus, the administrative staff would probably receive more justification for procedural justice as well as distributive justice due to the relative advantage of higher quality interactions and a closer relationship with the higher level management. Administrative staff's perceptions of fairness are enhanced when they feel that they are valued members of the university system.

As this study found perceived fairness as a predictor of job satisfaction, a higher level of perception leads to a high level of job satisfaction, which in turn contribute to individual and organizational performance /

outcomes. With the understanding of the influence of organizational justice perception on job satisfaction, leadership of universities can effectively improve administrative employees' perception of organizational justice through the communication of critical institutional values, needs and expectations and on how these values, needs, and expectations align with that of the administrative staff.

This study would recommend that the top management of the universities and policy makers like University Grants Commission could boost the overall job satisfaction of their administrative staff members by promoting distributive, procedural and interactional justice practices in their respective universities.

Implications of findings

The results of this study provide both theoretical and practical implications. Despite the fact that organizational justice is an important factor as a basic requirement for the effective functioning of organizations, there have been no empirical research of organizational justice in the Sri Lankan university sector. As anticipated, this study revealed the importance of justice perception on job satisfaction in Sri Lankan state universities. Thus, this study provides further support for the past findings on these constructs from the Sri Lankan sample. The present study found that organizational justice emerged as the stronger predictor of the job satisfaction. Therefore, the management concerned with the effectiveness and vitality of their institution, should be concerned with this phenomenon.

Although this study was conducted in a university environment the results are applicable to organizations such as non profit, and business entities, because the issues of justice perception and job satisfaction are relevant to employee and organizational level outcomes in all types of organizations. Policy makers may institute policies or programs to recognize and reward the employees, and increase their overall job satisfaction.

The results have several valuable practical implications for the managers. Managers need to apply rules fairly and consistently to all employees, and reward them based on performance and merit without personal bias in order to create a positive perception of justice. The perceptions of unfairness can result in negative reactions to the organization, due to poor job satisfaction. The present findings suggest that procedural fairness has more effect on their job satisfaction than distributive justice does. Hence, management should pay more attention to the means or the process of decision making for the distribution as it will lead to substantial pay-offs in individual job satisfaction. Therefore, management can influence important work attitudes through creation and maintenance of a procedurally fair climate.

Limitations and Areas for Future Research

As with any research, this study too has some limitations that should be acknowledged. First, the study examined administrative staff members only in Sri Lankan state universities, and therefore the generalizability of the findings is limited to state universities of Sri Lanka coming under the purview of the University Grants Commission. There are many other universities established under various acts and also there are some private universities currently operating in Sri Lanka. Future research should extend covering these universities too. Further, all these factors constrain the ability to make causal statements about the examined relationships, and the exclusive use of self-reported data may create the potential for common method biases. In addition, qualitative data could be collected to provide further explanations for the findings.
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SOCIOPOLITICAL AND ECONOMIC CAUSES FOR CORRUPTION IN DEVELOPING COUNTRIES: A CROSS COUNTRY EMPIRICAL STUDY

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ABSTRACT

Corruption in developing countries has been higher than developed countries. Most important objective of this study is to investigate the impacts of economic and political freedom on corruption in developing countries. This empirical work engages 70 developing countries during 2000-2004 from all regions over the world. It examines the relationship between corruption, measured by corruption perception index and economic political causes of corruption, measured by direct and proxy measures. Results of regression analysis show that economic freedom significantly and positively affects corruption. Even democratic freedom positively affect corruption, it does not have statistical significant. Economic variables, income level of nations, economic freedom, capability of information accesses and tertiary education have negative effects on degree of corruption in developing countries. Corruption reduces income inequality and increase poverty in developing countries. Dependency of agriculture, unemployment and government's long procedure to start economic activities negatively related with corruption in developing countries. Democracy, multi party political system and weak majority of government (unstable regime) reduce the corruption. Human right violations, conflicts and violence and non peace environment increase the corruption. Economic freedom is more powerful determinant in reduction of corruption than democratic freedom. This study concludes that increasing of economic freedom and openness, less control of government's rule and regulations to start business activities and increasing of people's

information capability via extensive development of information accesses such as education, internet, telephones and institutions will leads to reduction of corruption in developing countries. In a political view, even thought more democratization, human security and capacity of peace building environment reduce corruption; democratic freedom has less power to reduce the corruption than economic freedom. However, consequences of these determinants differ country to country based on country's leadership, people's attitudes, sociopolitical institutions and religious and cultural ethos.

Introduction

Corruption is generally regarded as one of the most serious obstacles to development. One of the recent surveys has shown this to be a common perception of developing countries in worldwide. Brunetti surveyed 3600 entrepreneurs from 59 countries, 58 of which considered less developed. Respondents were asked to choose from a menu of fifteen potential obstacles to doing business. Corruption was indicated to be a serious obstacle by a majority of businessman in 35 countries, all less developed. Corruption was second only to "Tax regulation and /or high tax" as an obstacle to do business, outstripping other factors such as lack of infrastructure, financing, and various type of regulation (Robert C A, 2001). Corruption arises from the incentives of public and private agents to conspire in the concealment of information from the government (Keithet al, 2006 and Samia C, 2007).

Definition of corruption is broad. Ed and Cloke (2004) show three types of criteria for definition

of corruption. First, A basic legal definition (ie corruption is defined through the breaking of the law). Second, the articulation of a set of norms for the formal duties of a public role (ie corruption occurs when those norms are broken). Third one is the identification of when the actions of individuals subvert the public interest for private gain. According to Robert C A, (2001), corruption is defined as "Power of some to collect and keep fee for operation of an official business by others". World Bank, (1997) defines corruption is "The abuse of the public office for private gain". It encompasses unilateral abuses by government officials such as embezzlement and nepotism, as well as abuses linking public and private actors such as bribery, extortion, influence peddling, and fraud. Corruption arises in both political and bureaucratic offices and can be petty or grand, organized or unorganized. Though corruption often facilitates criminal activities such as drug trafficking, money laundering, and prostitution, it is not restricted to these activities. For purposes of understanding the problem and devising remedies, it is important to keep crime and corruption analytically distinct. behavior on the part of officials in the public sector, whether politicians or civil servants, in which they improperly and unlawfully enrich themselves, or those close to them, by the misuse of the public power entrusted to them. This would include embezzlement of funds, theft of corporate or public property as well as corrupt practices such as bribery, extortion. These definitions leave out many high- profile corruption phenomena, such as rigged privatization scheme and diversion of foreign aids. Corruption is further defined as "The misuse of public office for private gain"(Linda and Aaron Stern, 2003). Corruption involves behavior on the part of persons in which they improperly enrich themselves or those close to them by misusing power with which they have been entrusted. In short, corruption is a misusing of public power for personal gain. There are two segments of corruption, 'Bureaucratic corruption' and 'political corruption', but, both are interrelated in many cases.

Causes for Corruption

There are many sociopolitical and economic causes for corruption in developing countries.

Political Freedom:

mechanism that increases political Any accountability via political freedom, probably based on democracy, either by encouraging the punishment of corrupt individuals or by reducing the informational problem related to government activities, tends to reduce the incidence of corruption. It can be increased by allowing democratic freedom and development of democratic institutions. The political science and economics literatures have extensively discussed the role of political accountability in generating good governance practices and, particularly, in reducing corruption. According to the Bailey and Valenzuela (1997), Persson et al. (2000), Rose Ackerman (1999), Djankov et al. (2001), and Laffont and Meleu (2001), the countries which have more democratic freedom are able to reduce corruption. The degree of accountability in the system is determined by the specific features of the political system. Three main characteristics can be identified in this respect of political system which are degree of competition in the political system, the existence of checksand-balances mechanisms across different branches of government, and the transparency of the system. Any institution or rule that provides a punishment mechanism for politicians, such as the loss of elections or the possibility of being forced out of office, can induce politicians to improve their behavior by aligning their own interests with those of their constituents. The more the system forces politicians to face the electorate, the higher are their incentives to stick to good governance. This would imply, for example, those political systems that allow for (clean and fair) executive reelections would have less myopic and more electoral conscious politicians, and, therefore, less corruption.

Following Persson and Tabellini (2000) propose the following channel, which shows the way democracy and press freedom may work to combat corruption. The presence of press freedom brings public corruption cases to the voters while voters in a democracy in turn punish corrupt politiciansPress freedom Voters state of knowledge Democracy Selection of political partiesState of corruption Treisman (2000) finds that democracy is associated with less corruption only in countries which have been democratic freedom for decades, which has not been the case in Southeast Asia.. Lederman et al (2001) argue that countries with a British legal tradition tend to be less corrupt disappears once political variables are included in the regression. The economists Ades & Di Tella (1999) find "political rights" consistently had no significant effect on corruption: "If anything, lack of political rights seems to be associated with less corruption" (1999, 987). Alternatively, the political science literature is somewhat more supportive of the influence of democracy in inhibiting corruption (Montinola & Jackman, 2002, Sandholtz & Koetlze, 2000; Treisman, 2000). Monopoly of political power allows the monopolist to exploit his or her position without fear of losing power to a competitor. Conversely, democracy increases uncertainty about which official to corrupt, lowers the incentive to invest in a particular politician, and at the same time increases the accountability of officials to the electorate. Beyond ideological differences, at election time the corrupt practices of the incumbent or the officials for whom the incumbent is accountable, creates an important opportunity for the challenger. Democracy and the consequent accountability raise the costs of corrupt behavior and likely deter bribe giving, therefore limiting the number of opportunities presented for corruption. The concept of democracy and how it is to be measured is a critical issue clarifying in theoretical relationships in empirical analysis. This study measures democracy by index based on two essential dimensions of democracy, electoral participation and competition. The concept of

democracy from the concept of liberalism is different. Democracy is a multidimensional concept, but electoral competition and participation are core elements, theoretically important to the analysis of corruption, and both require empirical analysis.

For a number of reasons, the risk of exposure may also be higher in more democratic, open political systems. Greater civic engagement may lead to closer monitoring. In democratic systems, competitors for office have an incentive to discover and publicize the incumbent's misuse of office whenever an election beckons. Exposure may also be more likely in more economically developed countries. Besides its apparent impact democracy (Lipset, 1960), economic on development increases the spread of education, literacy, and depersonalized relationships — each of which should raise the odds that an abuse will be noticed and challenged

Decentralization of political power leads to greater variety in provision of public goods, which are tailored to better suit local populations. On the other side, Prudhomme (1995) and Tanzi (1996) have argued that there exist many imperfections in the local provision of services that may prevent the realization of benefits from decentralization. For example, local bureaucrats may be poorly trained and thus inefficient in delivering public goods and services. Fisman and Gatti (2000) find a strong negative relationship between decentralization in government expenditure and corruption, that is, more decentralized polities tend to be less corrupt.. But as argued by Pasuk and Baker (2002), and in line with Shleifer and Vishny's (1993) thesis, it may in the longer term reduce corruption by curtailing the power of provincial 'godfathers' to extract rents.

Even democracy negatively affect corruption, it is a debatable issues in empirical literatures. Do people in developing countries utilize their voting power effectively? In the case of developing countries, people do not have information to recognize the behavior of

politicians. People in developing world such as in India, Sri Lanka and Pakistan have interested on a certain politicians and political parties even they have a bad history in their political life. It is not a mater of illiteracy. Instead, educated people also fall into the pork barrel politics. Politicians fill their pockets by giving a less valued and attractive social services to voters. Educated people are misdirected attractive short run policies by corrupted politicians in developing countries. For instances, voters of the Indian state of Tamil Nadu which is one of leading state of India with higher literacy rate elected Miss Jayalalitha Jayaram as Chief Minister though she had several corruption cases against her alleged to have been committed when she was in power during 1991 -1996. Another feature of institutional accountability is related to transparency. Transparency depends crucially on freedom of press and expression, and on the degree of decentralization in the system.

Economic Freedom

Economic institutions generating a competitive environment in the provision of the same public service tend to reduce the extraction of rents, thus reducing corruption via economic freedom which makes straightforward economic competitive mechanism. Economic freedom stimulates the competition and quality of public goods with minimizing corruption. When several government agencies provide exactly the same service, and citizens can freely choose where to purchase it hence competition among economic agencies reduce corruption. This is the case when different government agencies compete by providing substitutable or similar services, without any control over the services provided by each other. The other extreme is when agencies different government provide complementary services. This occurs, for example, when several licenses are required for a particular activity or different levels of government legislate over the same activity. In this case, power is shared among different bureaucracies that extract rents from the same

source. This institutional setup increases corruption and the inefficiency of the system.

Sociopolitical Instability

Sociopolitical instability made by sociopolitical causes such as ethnic divisions and language heterogeneity, religion, democracy, culture, ethos of people, history of nations and political system adversely affect corruption in developing countries. War, violation, coups, assassinations and genocides affects corruption.

Government's Size, Rules, Quality of Public Administration

Increasing government size and activity expands the scope of public officials' discretion and increases the likelihood of corruption, because government intervention designed to correct market failures requires the use of bureaucrats to make decisions, it will create opportunities for these employees to be corrupt and demand bribes. The expectation is that the smaller the size of government programs and the narrower the scopes of regulatory activity lead to lower the levels of corruption. More and effective regulations must be minimized to reduce corruption. Common law developed from precedents established by judges, usually allied with the property-owning aristocracy against the Crown, while civil law developed from codes drawn up by jurists at the sovereign's bidding. Greater protections of property against the state embodied in common law systems improve various aspects of government performance, including reducing corruption (Daniel Treisman, 2000). Thus, one might expect countries with different colonial traditions to have different legal cultures — and different degrees of susceptibility to corruption - irrespective of whether they have common law or civil law systems. Legal system and colonial experience are, of course, highly correlated with corruption.

Internationalization and Corruption

External economic factors may influence levels of corruption. Trade and openness reduces the size of government programs and therefore inhibits corruption. In order to encourage trade and investment, governments have an incentive to control the transaction costs of corrupt practices that put their countries at a disadvantage. The international institutions that support global economic integration, such as the World Bank and the World Trade Organization, create anticorruption pressures (Alan and Heather, 2005) Reforms and liberalization in developing countries has positive and negative effects on corruption. But recent study shows that liberalization in politics and economics reduce the corruption. One hand, reforms make politicians accountable to voters as well as introducing more competition, which should decrease corruption. On the other hand, reforms may not be credible, which provides for an incentive for corruption. There are numerous cases of political and economic liberalizations that occurred in the 1980s and 1990s, which had been undertaking both types of reforms in rapid succession leads to a decrease in corruption. Exception of china, many scholars are unable to conclude the relationship between reforms and corruptions since china has not come fully in political reforms Tomas Larsson (2006)demonstrates that three intervening factors comparative advantage, the organization of corruption, and the nature of rent determines the impact of corruption on economic performance for different economic growth in china and Russia with same level of corruption.

While conventional wisdom has it that foreign investment is likely to reduce corruption because of the preferences of foreign investors for transparency and no added 'hidden costs', and their greater efficiency than local competitors burdened with such costs, In the 1990s, however, multilateral aid agencies like the World Bank and Asian Development Bank launched research and assistance programs focused on corruption and governance and, following the financial crisis, foreign donors including the IMF have begun to demand bureaucratic reforms and transparency that should reduce corruption.42 President Bush has also expanded US foreign aid for 'countries with good governance'.43 democracies, parliamentary systems, political stability, and freedom of the press is all associated with lower corruption. They conclude that political accountability reduces corruption.

Economic Development and Corruption

There is evidence to suggest that the relationship between corruption and growth is two-way causal affects. Corruption leads to slow down of development. economic On other hand, development reduces corruption. Bureaucratic malpractice not only influences, but is also influenced by, the level of development. In a thorough and detailed study by Treisman (2000), rich countries are generally rated as having less corruption than poor countries, with as much as 50 to 73 percent of the variations in corruption indices being explained by variations in per capita income levels. A cursory inspection of the data reveals that many of the most poor and corrupt countries in the past are among the most poor and corrupt countries today. This conjures up the idea of poverty traps and the notion that some countries may be drawn into a vicious circle of low growth and high corruption, from which there is no easy escape. Li, Xu and Zou (2000) find a weaker negative relationship between corruption and growth. They also find that 'inequality is low when levels of corruption are high or low, but inequality is high when corruption is intermediate. Keith et al (2006) investigate the effects of corruption on economic development. They show the public corruption economic negative affect development. According to Mauro (1995), the principal mechanism through which corruption affects growth is a change in private investment. An improvement in the corruption index by one standard deviation is estimated to increase investment by as much as 3% of output.

Corruption has a negative effect on economic development. Economic development, through compensation and living standards and perhaps through education and information, has a negative effect on corruption. The use of this measure may bias the estimation of the model as a consequence of the reciprocal relationship between GDP and corruption

Role of Religion, Culture, History in Corruption

A third way in which historical tradition might affect the perceived costs of corrupt actions is through the influence of religion. This might work in at least two ways. Religious traditions have often been thought to condition cultural attitudes towards social hierarchy. Where more 'hierarchical religions' — Catholicism, Eastern Orthodoxy, Islam — dominate, challenges to office-holders might be rarer than in cultures shaped by more egalitarian or individualistic religions, such as Protestantism. Religions may also influence how individuals view their loyalties to family as opposed to other citizens - what Edward Banfield has called 'familism' - which, in turn, may affect the level of nepotism. Second pathway by which religion could affect corruption levels is via the historical pattern of influence that developed in different settings between church and state. In religious traditions such as Protestantism, which arose in some versions as dissenting sects opposed to the state-sponsored religion, institutions of the church may play a role in monitoring and denouncing abuses by state officials. In other traditions — such as Islam — where church and state hierarchies are closely intertwined, such a role may be absent. As La Porta et al. (1999) have found, the percentage of Protestants in the population is a robust predictor of lower corruption. At the same time, long-lived aspects of countries' cultural or institutional traditions affect the level of perceived corruption more significantly than current state policies.

Study and year	Methodology	Main findings
Treisman, D., 2000	Cross developed and developing countries	* Democracy undermines the foundations of corruption.
analysis with OL methods	analysis with OLS and WLS methods	* Openness to foreign trade apparently reduces corruption.
	 * Percentage of Propopulation is a reproduction is a reproduction. * British colonies Process of econor reduces corruption 	* Percentage of Protestants in the population is a robust predictor of lower corruption.
		* British colonies have significantly lower perceived corruption.
		* Process of economic development reduces corruption
		* Corruption does not necessarily prevent growth when other factors are conducive.

Table 1: Causes of corruption and its impacts on economy

Study and year	Methodology	Main findings			
		 * Federal states were robustly perceived to be more corrupt than unitary ones, * More demands for bribes that end up driving many private actors out of the market. * Time length of determinants is important to access the actual effects 			
Robert C A, 2001	Theoretical and mathematical proof	 Inverse U shape relationship between level of corruption and GINI coefficient (inequality) Negative relationship between corruption and Regional decentralization. 			
Besley, T., Burgess, R., 2002	Time series analysis in India	* Democracy and press freedom does have positive effect on public policies			
Brunetti, A., Weder, B., 2003	Cross developed and developing countries analysis	Democracy and press freedom does not have positive effect on public policies			
Persson and Tabellini (2000)	Cross country analysis Cross developed and developing countries analysis	Democracy and press freedom does have positive effect on corruption			
Shyamal K. Chowdhury, 2004	Cross developed and developing countries analysis	Democracy and press freedom significantly reduce corruption Fiscal decentralization in government expenditure is strongly and significantly associated with lower corruption;			
Daniel Lederman et al (2005)	Cross developed and developing countries panel data analysis	Democracies, parliamentary systems, political stability, and freedom of press are all associated with lower corruption.			
Alok K. et al 2004	Cross developed and developing courtiers analysis	 * Federalism increases corruption repetitive participation * Competitive elections increase the control of corruption. 			

Study and year	Methodology	Main findings Competition and Corruption is negatively related. * Corruption effects income distribution in an inverted U- shaped way * Corruption have larger proportion of GINI differential * Corruption negatively affects economic growth. Reforms in rapid succession leads to a decrease in corruption, while countries that liberalized more than 5 years after democratizing experienced an increase in corruption			
Patrick M. 2006	Theoretical and mathematical proof				
Hongyi Li Et al 2000	Cross country analysis (developing and industrialized countries)				
Samia Costa Tavares 2007	Cross countries analysis during 1984-2001				

Hypothesis and Data

According to the literatures review, this study has following hypothesis which are tested with data from selected developing countries.

H1: More democratic freedom will be lower corruption in developing countries.

H2: Higher economic freedom reduce corruption

H3: Higher sociopolitical instability will be higher corruption

H4: Quality of public administration positively affects reduction of corruption.

H5: Property rights and rule-based governance reduce corruption.

H6: More administrative procedure increases corruption

H7: Higher education has more effective in reduction of corruption than literacy.

H8: Capability of information accesses has positive affect in reduction of corruption.

H9: Poverty increases corruption.

H10.Unemployment increases corruption

H11: War increases corruption

H12: Openness reduces corruption.

H13: Corruption will be lower in more economically developed countries within developing countries.

This study selects 70 developing countries from all regions in the world. Data is collected from various world development reports, world fact books and polity iv reports during 2000 to 2004. Averages of each variable of countries are used for estimation except some variables. Democratic freedom is measured by index for democracy, taken from polity iv. This index takes a score from zero to ten. Average score of period 2000-2004 is considered as measure of democratic freedom. Score ten means highest democratic freedom and zero means no democratic freedom. Variables of economic freedom are taken from index for economic freedom, made by heritage foundation. This index is average of ten variables such as trade, fiscal burden, government intervention, monetary policy, foreign investment, banking finance, wages price, property rights, and regulation informal market. The countries with average overall score of 1.99 or less are free economies. The countries with average overall score of 2.00 to 2.99 are mostly free economies. The countries with average score of 3.00 to 3.99 are mostly unfree economies. The countries with average score of 4.00 or higher are repressed economies. Hong Kong is first rank with around 1.5 score and North Korea is last one with 5 score. Index for economic freedom plays two roles in this model. First, it serves as sole objective variables for all measures of economic freedom, second it represents an environmental and control variable for economic growth model by including trade, foreign investment, property rights and monetary and fiscal policy etc. Average score of period 2000-2004 is considered as measure of economic freedom as well as economic policy environmental variable for economic growth. This study selects 63 developing counties (less than US\$ 3000 per capita income in world development report of 2000) from all regions.

causes which are root causes All for sociopolitical stability have not been included into model; instead this study selects one sole measure for instability. Sociopolitical instability is measured through the peace building capacity of selected countries based on sociopolitical causes(1) self determination (2) Discrimination (3) Regime types (4) Durability (5) Social capacity and (6) Neighborhood. . According those sociopolitical causes, Centre for international development conflict management (CIDCM) categorize all countries into the three categories in peace building capacity. From peace and conflict global survey reports 2001, 2003 and 2005, this study takes the peace building capacity of the selected developing countries during 2000-2004 as a sole measure for sociopolitical instability. From each report, zero score is given to more peaceful countries. Two scores are given to more conflict countries. One score is given to countries which have some sociopolitical instability but they are managing sociopolitical conflict without more war. Average of year 2001, 2003 and 2005 is taken as index of sociopolitical instability. The index takes a value between zero and two. Zero mean sociopolitical stability (No instability) and two mean highest sociopolitical instability.(No Stability) One is middle level of instability.

Empirical Analysis and Discussions

Table 2 shows the empirical results. According to the empirical evidence from selected 70 developing countries. overall democratic freedom positively and significantly correlated with corruption. Like previous studies predicted democracy reduces more corruption in countries. developing Within democratic freedom, competition among political parties measured by political parties representing parliament is positively correlated with corruption. Competition among political parties in developing countries reduces the corruption. Countries which have more political parties have less corruption. Higher power of ruling parties in parliament increases the corruption comparatively. Proper policy recommendation for reduction of corruption in political arena is that making political competition among the political parties. However, this idea is debatable in case of some special countries. India has been more political party with liberal democracy. But corruption also is higher. In the case of Singapore, It is very limited democracy with lower corruption. We can not simply conclude that liberal democracy will reduce corruption. For effective functions of democracy and reduction of corruptions, efficient political and economic institutions are important. India and Sri Lanka have more political institutions but they do not function properly due to the lack of information and income for people. Democracy is necessary condition to reduce corruption but it is not sufficient condition for eradication of corruption.

Economic freedom affects corruption positively. Higher economic freedom is associated with lower corruption. Among the all measures, considered in this study as causes for corruption in developing countries, the measure, economic freedom has a strong positive correlation with corruption (Economic freedom has 73% and democratic freedom has 46%). It implies that allowing economic freedom than democratic

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freedom is a more powerful policy strategy to reduce corruption in developing countries. Controlling other variables, following regressions shows the effects of economic and democratic freedom on corruption.

Corruption = f (Democratic freedom, Economic freedom) CPI = f (DF, EF) CPI = 5.653 + 0.005DF - 0.847EF T value (9.26) (0.198) (5.45) P value (0.00) (0.84) (0.00) n = 67, R² = 0.52

Economic freedom significantly reduces the corruption than democratic freedom in developing countries. In comparing China, why India has been more corruption even it has a liberal democracy which around equal to western countries? According our finding, the reasons are: First, China is more economic and less democratic freedom country than India. China has been able charge severe penalties whose involved corruptions including death penalty, but India can not make this penalty since its long standing democracy. Human rights activists, institutions and international community are against severe punishments for corruption. This argument does not mean that China does not have corruption; instead it means that political leaders in China have been corrected from corruption by non- democratic political system. Second, Even India has been a democratic country in text book approach, democracy in

India does not function properly. Corrupted leaders have been maintained their political power via democratic means since a large numbers of people have been living rural without information accesses to use their voting in a productive manners. In this view, China's economic reforms toward the liberalization without political reforms are one of reason to lower corruption than India. If China will come to liberal democracy, it will unable to control corruption and economic development like India has been faced. For maintaining of good governance like Singapore, democracy has been challenge in developing countries. If developing countries follow a blind copy of democratic practices from western without considering ground conditions of people, they can not make not only good government without corruption but also economic development. Finally, India's sociopolitical and ethnic back ground and people's ethos is completely different from China. However, visionary leaderships such as Lee Kuan Yew in Singapore and Mahathir Mohamad in Malaysia are also important factor corruption with to reduce suppressing democracy. In Many developing countries, particularly in Africa, suppression of democracy with economic liberalization has not reduced corruption since they have been non-visionary leadership. A moderate democracy with liberal economic freedom and visionary leadership can lead to reduction of corruption in developing countries.

Table 2: Correlations between measures and corruption perception index (CPI)

(One score of CPI means higher corruption and 10 scores means lower corruption)

Measures	Explanation of measures	Pearson's Correlations	No of Observations	
1. Democratic freedom				
Index for overall	One is lower and 10 is higher	0.468**	70	
Democracy	Numbers in 2004	0.356**	66	
No of political parties	Percentage of ruling	- 0.342**	70	
Power of ruling party	Parliamentarians in 2004			
2. Economic freedom				
Index for economic freedom	One score means higher freedom and five score means lower freedom.	- 0.737**	70	
3. Sociopolitical instability				
Peace Building Capacity	Zero score means peace and two scores means war	-0.486**	71	
A Defense expenditures as % GDP	Average defense expenditures as % GDP	-0.142	68	
4. Government's size,				
rules, quality of public administration				
Quality of budgetary and	(1=low to 6=high)	-0.512**	46	
Quality of public administration	(1=low to 6=high) in 2004	0.527**	46	
Property rights and rule- based governance	(1=low to 6=high) in 2004	0. 465**	46	
Time required to start a business	(days) in 2004	-0.198	69	
Start-up procedures to register a business	Numbers	-2.00	69	
Procedures to register	Numbers in 2004	- 0.267*	69	
Budget deficit	As percentage of GDP	-0.275	45	
5. Internationalization				
Openness Average time to clear	Export plus import divided by GDP	0.349**	64	
customs	(days) in 2004	-0.289*	53	
FDI	US \$ Billions in 2004	0.143	69	
Public Debt	Percentage of GDP	0.137	68	

Measures Explanation of measures		Pearson's Correlations	No of Observations
6. Development			
Income level	Per capita income	0.557**	70
Literacy Rate	Percentage	0.227	71
Secondary Education	Percentage of total enrollments	0.208	63
Tertiary Education	Percentage of total enrollments	0.259*	63
Dependence of Agriculture	Percent of agriculture in GDP	-0.358**	71
Poverty	Percentage of people under the national poverty available 2000-04	-0.132	64
Income inequality	Gini Coefficient available 2000-04	0.182	63
Unemployment	Unemployment available 2000-04	-0.161	55
Capability of Information accesses	An index computed from education, TV, Telephones and electronic media	0.354**	71

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

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

Sociopolitical instability negatively affects corruption. Countries which experience huger sociopolitical conflicts, violence and war have more corruption in comparing peace countries. The correlation between war and corruption is around 50 percent. Quality of budgetary, financial management and public administration negatively related with corruption (more than 50%). Property rights and rule-based governance negative related with corruption. Government's long administrative procedures such as time required to start a business, average time to clear customs and procedures to register property positively related with corruption. More openness reduces the corruption in developing countries. Both social and economic development negatively related with corruption. Per capita income, total enrollments of education, literacy and capability of information accesses negatively correlated with corruption. But unemployment and poverty positively related with corruption. For further details is annexed with appendix 1.

Singapore is regarded as model to control corruption. Lim (1998) gives an official explanation of Singapore's anti-corruption strategies that relies heavily on encouraging values, meritocracy, inflexible penalties and institutional efficiency. It has made liberal financial rewards available to public servants vitiate any need for enrichment through corruption. For example, dominant minister's salaries in Singapore are pegged to those of the CEOs in the largest multinational firms in the world. The Singapore Prime Minister's pay is several times that of the United States President's. To quote then-Prime Minister Lee Kuan Yew, 'it's a simple choice. Pay political leaders the top salaries that they deserve and get honest, clean government or underpay them and risk the Third World disease of corruption. Haggard and Low (2002) explain the lack of corruption in Singapore in terms of the relative economic weakness of the local private sector in the post-colonial era. Malaysia and Singapore have ranked among the least corrupt, despite extensive state interventions in the economy .Malaysia and Singapore have also had elected governments since independence, while Thailand, Philippines and Indonesia have experienced more corruption with long periods of military rule followed by more recent democratization. The important issue in the relation to corruption and type of regimes is that characteristics of leadership. No political system in any country is immune from corruption.

Whether a country follows democracy or dictatorship is not important, the most important fact is that leadership's commitment to punish corrupted leaders. It is a constant fight to keep the house clean. As long as the core leadership is clean, any back sliding can be brought under control and the house cleaned up. Constitution also is important for cleaning leadership. Singapore amended the constitution to have the president popularly elected not by parliament but by whole electorate and has a veto power on the spending of the country's reserves by the cabinet. The president now also has the power to overrule any prime minister who stops or holds up an investigation for corruption against any of his ministers or senior officials or himself. The Director of the CPIB (Corrupt Practices Investigation Bureau) has two masters to back him, the elected prime minister, and if he refuses to move, the elected president, who can act independently of the elected prime minister, to order that investigations proceed. The president also has the veto on appointments to important positions like the chief justice, chief of defense force, commissioner of police, the attorney general, auditor general and other key positions that uphold the integrity of the institutions of government. They are key officers, essential for the government to function without being subverted. Lee Kuan Yew allowed prime mister to investigate corruption made by his wife and son in Singapore in 1995. In the case of some developing countries, some politicians never allow to investigate even his/her labors who have been involved in corruptions and illegal activities. To clean up may require some key

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members of the core leadership to be removed. In democratic regime in developing countries, it is impossible to remove third class politicians from regime since he/she has been elected by third class people and getting safety from first class politicians who depends on their supports for forming government In the case of communist countries, cleaning up would lead to a split in the party leadership, a serious problem. The outcome of communist regime depends upon whether the top leader is strong enough to tackle other powerful leaders without disastrous split in the political leadership or a rebellion among party stalwarts who support the offending leader. The fear of a collapse of the government may cause the leader to hold his hand.

A very corrupt country like Indonesia experienced rapid economic growth for three decades under a centralized authoritarian regime, whose nature eventually brought about its own collapse; the subsequent democratization and decentralization has been accompanied by lower growth and no apparent reduction in corruption. Democratization and decentralization in Thailand have also not significantly reduced corruption as vet, and have been accompanied, since the financial crisis. by slower growth. Democratization in the Philippines may have reduced corruption but it remains high and economic growth low, regardless of the degree of centralization of power. Malaysia and Singapore have been good economic performers with 'democratic authoritarian' governments which have been elected to power for over 40 years without liberalizing their political systems; if anything, judicial independence and freedom of the press have declined in Malaysia in recent years, and not changed much in an open direction in Singapore. Perhaps because of the high degree of centralized state power in both countries, control of the state continues to provide channels for legal capital accumulation, without necessitating the illegal acts so common in their neighbors, and apparently without jeopardizing economic growth so long as open trade and investment regimes are maintained. Our (weak) conclusion is that while economic liberalization, democratization and centralization of state power influence the forms of corruption and its impact on national economic performance, and may reduce its extent, they are neither necessary nor sufficient for its decline and disappearance. As Lee Kuan Yew stated successes and failures of anti-corruption activities depend on leaderships and system of the country.

"We have to keep our own house clean. No one else can do it for us" (SGPR, 2005).

Conclusion

Studies on causes of the corruption have been taken placed by various scholars. Apart from such studies, this paper has investigated the sociopolitical and economic causes for corruption in developing countries. Many factors determine the corruption in developing countries. Among them, democratic freedom and economic freedom play an important role in developing countries. Economic freedom is more powerful determinant of corruption in developing countries. More economic freedom with limited democracy leads to reduce and eradicate poverty. Even democracy played an important positive role in reduction of corruption in developing countries; it is more controversial issue in a specific case study in developing countries. Democracy is necessary condition to reduce poverty but it is not sufficient condition. There are many sufficient conditions such as leadership, constitutions, people's capability for information accesses, sociopolitical and economic environment for competition, peace based on ethnic, religious and language homogeneities between and within communities and people's sociopolitical ethos. All anticorruption measures are related with income level of people. Increasing income of the nation depends on various factors. Among them, leadership is playing a predominant role in reduction of corruption as well as achieving economic prosperity. Unfortunately, developing countries have failed to gain visionary and clean leaderships to overcome many sociopolitical obstacles, particularly corruption. They have to suffer by this harmful virus until a pragmatic leader imposes policies which are necessary and sufficient conditions for reduction of corruption and economic development.

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Appendix 1: Selected Countries

As	ia	Europe	Latin& Caribbean
1.	Nepal	14. Russia	26. Bolivia
2.	India	15. Azerbaijan	27. Colombia
3.	Indonesia	16. Georgia	28. Guatemala
4.	Pakistan	17. Tajikistan	29. Peru
5.	Sri Lanka	18. Kyrgyzstan	30. Dominican
6.	Philippines	19. Turkmenistan	31. El Salvador
7.	Cambodia	20. Ukraine	32. Honduras
8.	Bangladesh	21. Uzbekistan	33. Jamaica
9.	China	22. Latvia	34. Nicaragua
10	. Laos	23. Lithuania	35. Ecuador
11	Thailand	24. Romania	36. Haiti
12	. Vietnam	25. Kazakhstan	
13	. Mongolia		

Middle East and Africa 37. Algeria 38. Iran 39. Egypt 40. Jordan 41. Morocco 42. Tunisia 43. Burundi 44. D.R.Congo 45. Angola 46. Eritrea 47. Nigeria 48. Uganda 49. Central 50. Rep.Congo 51. Ethiopia 52. Rwanda 53. Benin 54. Guinea 55. Cameroon 56. Chad 57. Ghana 58. Kenya 59. Lesotho 60. Mozambique 61. Niger 62. Senegal 63. Tanzania 64. Togo 65. Zambia 66. Malawi 67. Mali 68. Namibia 69. Madagascar

70. Mauritania

RELATIONSHIP OF DEMOGRAPHIC FACTORS TO ABILITY UTILIZATION OF JOB SATISFACTION OF GOVERNMENT AND PRIVATE BANK EMPLOYEES IN AMPARA REGION – SRI LANKA

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ABSTRACT

The purpose of this research study is to check the intrinsic factor ability utilization of job satisfaction associate with demographic factors: Gender, Age, Ethnicity, Civil Status, Experience, Educational Qualification and Bank Types in Ampara region government and private bank employees.

Reliability test, Principle Component Analysis, Independent Samples t-test, ANOVA and Mean Comparison test were used for analyzing the data. The independent sample t-test result reveals that, there is no significant different between gender variable (Male & Female) and job ability utilization factor, whereas there is significant different between type of banks (private & government) and job ability utilization factor at 5% level. Furthermore, ANOVA result concludes that, there is no significant different between the demographic factors: Age, Ethnicity, Civil Status and Experience variables and job ability utilization factor. There is significant different between Educational Qualification variable and job ability utilization factor at 10% level. Mean comparison test was used to differentiate the ability utilization associated with educational qualification variable.

Keywords: *Bank employees, Job satisfaction, Ability utilization, ANOVA, Reliability test.*

Introduction

Employee is one of the key factors of the organization success. No organization can succeed without a certain level of satisfaction and effort from its employees. Job satisfaction can be influenced by a variety of factors. Ability utilization is one of the intrinsic job satisfaction factors.

In today's competitive world, management needs to continuously emulate practices that will attract and retain a highly qualified and skilled workforce. Work, when too difficult or easy can lead to dissatisfaction. In order to enhance employees' general ability, manager should give more opportunities for employees to solve work problems with the full support of the bank. This is important as employees could develop their ability better within the bank, would build a loyalty to the bank, since they has gained good experience within the bank.

For the success of banking, it is very important to manage human resource effectively and to find whether its employees are satisfied or not workforce of any bank is responsible to a large extent for its productivity and profitability. According to Thakur (2007), efficient human resource management and maintaining higher job satisfaction level in banks determine not only the performance of the bank but also affect the growth and performance of the entire economy. This research investigates how ability utilization intrinsic job satisfaction involving bank employees demographic factors, in the light of current realities. This research paper is composed into five sections. Section 2 derives review of literature, section 3 describes research methodology, section 4 explains results and discussions and in the last section conclusions are given.

Review of Literature

Many researches have been conducted to analyze the job satisfaction of bank employees with various issues. Some important and very recent research findings are:

Rahman et al., (2009) conducted research for job satisfaction of Bangladesh bank employees. This study found that remuneration and reward, recognition, pride in work and talent utilization are the most important ones for improving job satisfaction and also, factors like job security, relation with colleagues and bureaucracy are not significant for job satisfaction.

Eliyana et al., (2012) conducted a research for employees job satisfaction for production department at JRC. This study concluded that ability utilization, compensation, relationship with co-workers, working conditions, recognition and achievement simultaneously have a significant effect on the organizational commitment.

According to Mallika and Ramesh (2010) higher job satisfaction has been linked with employees who are able to exercise autonomy and with those who have a higher level of job involvement. Women have been found to report significantly higher job satisfaction than men although this gender gap appears to be narrowing. The correlation coefficient shows a positive relationship existing among. Organizational commitment, job involvement, quality of work life, organizational climate, job content, income and job satisfaction perceived by public and private bank employees. Researcher found that private bank employees perceived low level of job satisfaction.

Scott et al., (2012) the results of this study can only be inferred to extension agents in Mississippi. Low relationships were observed between gender and the job satisfaction constructs of growth satisfaction, satisfaction with job security and satisfaction with pay. Females rated all three of these constructs higher than males, indicating a higher level of satisfaction with personal learning and growth opportunities at work, job security, and compensation. Education was not related to any of the job satisfaction constructs for extension agents.

According to Malik (2011) faculty members in University of Balochistan were generally satisfied with their jobs. However, male faculty members were less satisfied than female faculty members. This survey reveals that demographic factors such as age, academic rank, and degree no significant impact on job satisfaction; which implies that based upon age, total years teaching, and academic rank faculty are stable with regard to their overall level of job satisfaction.

According to Shafiq and Ramzan (2013) the study was to investigate the impact of both personal and organizational variables on job satisfaction of employees of an industrial sector within the vicinity of Lahore. t-test results show that there is no evidence of a systematic difference between males, females; single, married; and permanent, contract employees on job satisfaction. However the regression analysis studies show that income and gender are significant predictors of job satisfaction for industrial employees of the studied area.

Research Methodology

Research Problem

Many research have been carried out on the topic of job satisfaction of employees in banking sectors and the impact of various factors were seen on it which affected it both positively and negatively.

Employees' ability utilization is an important intrinsic job satisfaction factor to improve the organization. But less number of research was carried out for job satisfaction factor ability utilization with employees' demographic factors. In this research relationship of demographic factors to ability utilization job satisfactions are analyzed.

Research Objectives

The main objective of this research study is to analyze the relationship between demographic factors (Gender, Age, Ethnicity, Civil Status, Experience, Educational Qualification and Bank Types – Government and Private) and ability utilization job intrinsic satisfaction of bank employees in Ampara region.

Questionnaire and Data Collection

Study area includes all employees of selected branches in Ampara region government and private banks. 180 questionnaires were personally administered among the respondents but received only 105 questionnaires which indicate the 58.33% response of the respondents. Simple random sampling method was used in the study to select the sample.

Respondents provided the required information on a structured questionnaire based on the pertinent research objectives, classified into two sections. The first category consists of demographic information such as respondents' gender, age, marital status...etc. In the second category consists of five-point Likert scale. The structure of the scale was based on the following categories: 1-Highly not satisfied, 2-Not satisfied, 3-Satisfied, 4-Very satisfied and 5-Extremely satisfied.

Data Analysis

For data analysis purpose SPSS-20 was used. The collected likert scale data (qualitative data) were converted into quantitative data using principle component and factor analysis for the purpose of statistical analysis. Reliability test, independent sample t-test, ANOVA and mean comparison test were carried out for the converted data.

Results and Discussion

Descriptive Statistics for Demographic Factors

Frequency distribution table for demographic factors are given below table:

Demogra	Demographic factors		Percent	Marital	Single	47	44.8
Gender	Male	79	75.2	Status	Married	57	54.3
Genuer	Female	26	24.8			[
Type of	Drivete	50	47.6		less than 5	60	57.1
I ype of Bank	Private	50	47.0	Years of	5-10	25	23.8
Dalik	Government	Government 55 52.4 experience	experience	10-15	7	6.7	
	Muslim	54	51.4		15-20	8	7.6
Ethnicity	Tamil	41	39.0		above 20	5	4.8
	Sinhalese	9	8.6		0/1	5	4.8
	below 30	62	59.0		A/L	44	41.9
Age	30-35	22	21.0		Diploma	29	27.6
	35-40	7	6.7	Educational	Degree	19	18.1
	40-45	8	7.6	Quanneation	Post	4	3.8
	45-50	3	2.9		Graduate		
	above 50	3	2.9		Other	4	3.8

 Table 4.1: Frequency distribution table for demographic factors.

Reliability Test

More commonly used measure of reliability is internal consistency, which applies to the consistency among the variables in a summated scale. The rationale for internal consistency is that the individual items or indicators of the scale should all be measuring the same construct and thus be highly inter correlated. Internal reliability of the instrument was checked by using Cronbach's alpha. The generally agreed upon lower limit for Cronbach's alpha is 0.7, although it may decrease to 0.6 in exploratory research (Hair et al., 2008).

The ability utilization sub variables Cronbach's alpha value is shown in table 4.2. The result indicates that the value is more than 0.7 and less than 0.9, so the sub variables are reliable to measure the ability utilization job satisfaction of bank employees.

 Table 4.2: Reliability Statistics

Cronbach's Alpha	N of Items
0.847	5

Principal Component Analysis

To reduce the respondents' responses from 5 items (5 sub factors) to a one important factor was performed using principal component analysis. The proportion of variance explained is 0.7 criterion is used to select the number of principal components retained.

Table 4.3: Eigen analysis of the CovarianceMatrix

Eigen value	2.7	0.5821	0.4442	0.3386	0.2351
Proportion	0.628	0.135	0.103	0.079	0.055
Cumulative	0.628	0.763	0.867	0.945	1

Variable	e ₁	e ₂	e ₃	e ₄	e ₅
X1	0.438	0.407	0.055	-0.799	0.018
X ₂	0.458	0.654	0.105	0.591	-0.042
X ₃	0.403	-0.203	-0.869	0.053	-0.197
X ₄	0.387	-0.299	0.057	0.083	0.867
X ₅	0.535	-0.525	0.477	0.049	-0.456

Table 4.4: Eigen vector

Eigen values and Eigen Vectors are shown in table 4.3 and table 4.4 respectively. According to the eigen value proportion criterion, to explain the ability utilization of job satisfaction only first two principal components are sufficient, and these two principal components extract 76.3% of original information of ability utilization of employees job satisfaction.

The first two principal components are: , i = 1, 2, where, - eigen vector, X-original likert scale data matrix. Hence, the first two principal components are:

 $Y_1 = (0.438X_1) + (0.458X_2) + (0.403X_3) + (0.387X_4) + (0.535X_5)$

 $Y_2 = (0.407X_1) + (0.654X_2) - (0.203X_3) - (0.299X_4) - (0.525X_5)$

These two principal components are reduced to one variable using the equation

$$F = \frac{\sum_{i=1}^{2} Y_i \lambda_i}{\sum_{i=1}^{2} \lambda_i}$$

where, λ = Eigen value, n= number of factor retain.

$$Y = \frac{2.7Y_1 + 0.5821Y_2}{2.7 + 0.5821}$$

Variable Y describes the employees ability utilization factor and it is used for statistical analysis.

t-Test Results and Discussion

The independent samples t-test procedure compares means for two groups of cases. In this research, t-test is used to check whether ability utilization differed based on variables Gender (Male and Female), Types of Bank (Government and Private) and Civil Status (Single and Married).

Gender Variable t-Test Results

Independent Samples Test										
	Levene's for Equa Variance	s Test ality of es	t-test f	z-test for Equality of Means						
	F	Sig.	т	Df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confide of the Differe	nfidence Interval fference	
								Lower	Upper	
Equal variances assumed	1.070	.303	.916	103	.362	.28149982	.30737560	3281072	.8911068	
Equal variances not assumed			.962	46.558	.341	.28149982	.29268446	3074529	.8704525	

Table 4.5: t-Test Results for Gender Variable

The t-test result is shown in table 4.5. From this table the p value is p=0.303, it indicates that Gender variable is not statistically significant. So

it can be concluded that, there is no significant different between male and female ability utilization job satisfaction.

Types of Bank Variable t-Test Results

Table 4.6:	t-Test	Results	for	Types	of	Bank	Variable

Independent Samples Test									
	Levene's for Equa Variance	5 Test ality of 25	t-test for Equality of Means						
	F	Sig.	т	Df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confic of the Differ	lence Interval rence
								Lower	Upper
Equal variances assumed	5.650	.019	3.019	103	.003	.77171615	.2556568	.2646811	1.27875119
Equal variances not assumed			2.985	93.075	.004	.77171615	.2585384	.2583156	1.28511669

According to the t-test results in table 4.6 the probability value is p=0.019, this value says that statistically significant at 2% level. Hence it can be concluded that, there is a significant different

between private and government bank employees ability utilization factor. Further, private bank employees ability utilization job satisfaction if higher than government bank employees.

Civil Status Variable t-Test Results

Independent Samples Test									
	Levene for Equa Varia	's Test ality of nces	t-test for Equality of Means						
	F	Sig.	т	Df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confiden the Diff	ce Interval of erence
								Lower	Upper
Equal variances assumed	1.496	.224	161	102	.873	04289902	.26686486	57222421	.48642617
Equal variances not assumed			158	90.172	.875	04289902	.27132183	58191318	.49611515

Table 4.7: t-Test Results for Civil Status Variable

Civil status t-test result is shown in table 4.7. According to this table the p value is p=0.224, this is not significant. So it can be concluded that, there is no significant different between single and married employees ability utilization job satisfaction.

of sub variables of main variables such as years of experience, educational qualification, ethnicity and age to check the ability utilization factor.

Years of Experience Variable ANOVA Results

One Way ANOVA and Discussion

In this research one way ANOVA is used to test for the differences among three or more means Variable years of experience is categories into five levels (see table 4.1) and one way ANOVA results for this variable is given in table 4.8.

ANOVA									
Sources of Variance	Sum of Squares	df	Mean Square	F	Sig.				
Between Groups	4.221	4	1.055	.562	.691				
Within Groups	187.694	100	1.877						
Total	191.915	104							

 Table 4.8: ANOVA Results for Years of Experience Variable

According to the p value in the above table p=0.691, this is not significant. So it can be concluded that, years of experience all categories are same with ability utilization job satisfaction.

Educational Qualification Variable ANOVA Results

Variable educational qualification is categories into six levels (see table 4.1) and one way ANOVA results for this variable is given in table 4.9.

ANOVA						
	Sum c	of	df	Mean	F	Sig.
	Squares			Square		
Between Groups	18.806		5	3.761	2.151	.066
Within Groups	173.109		99	1.749		
Total	191.915		104			

 Table 4.9: ANOVA Results for Educational Qualification Variable

From the above table p value is p=0.066, this is significant at 10% level. So it can be concluded that, at 10% significant level at least one educational qualification categories are significantly different with ability utilization of job satisfaction. Hence mean seperation test is carried out to check the different.

Mean Separation Analysis for Educational Qualification Variable

In the above ANOVA table 4.9 no information is available to say which category is different from others. Therefore a mean separation is to be followed to find out which educational qualification category is different from others. So mean separation test is used to find which category is different. According to the mean separation test results (O/L and A/L), (O/L and Degree), (O/L and Post Graduate), (A/L and Post Graduate), (Diploma and Post Graduate), (Degree and Post Graduate), (Others and Post Graduate) are different ability utilization job satisfaction.

Age Variable ANOVA Results

Variable age is categories into six levels (see table 4.1) and one way ANOVA results for this variable is given in table 4.10.

ANOVA								
	Sum of	df	Mean Square	F	Sig.			
	Squares							
Between Groups	1.972	5	.394	.206	.959			
Within Groups	189.943	99	1.919					
Total	191.915	104						

Table 4.10: ANOVA Results for Age Variable

According to the p value p=0.959 in the above table, this is not significant. So it can be concluded that, age all categories are same with ability utilization job satisfaction.

4.7 Ethnicity ANOVA Results

Variable ethnicity is categories into three levels (see table 4.1) and one way ANOVA results for this variable is given in table 4.11.

ANOVA									
Sum of df Mean Square F Si									
Between Groups	4.783	2	2.391	1.301	.277				
Within Groups	185.647	101	1.838						
Total	190.430	103							

Table 4.11: ANOVA Results for Ethnicity Variable

According to the p value p=0.277 in the above table, it can be concluded that this is not significant. So ethnicity all categories are same with ability utilization job satisfaction.

Conclusions

The purpose of the study is to identify the relationship between ability utilization job satisfaction and demographic factors in Ampara region government and private bank employees. The t-test result concludes that, there is no significant different between male and female employees ability utilization, single and married employees ability utilization, whereas, there is significant different between private and government bank employees' ability utilization job satisfaction. Moreover, ability utilization job satisfaction of private bank employees is higher than government bank employees in Ampara region.

ANOVA results reveal and concluded that, (i) there is no significant different between years of experience of employees ability utilization job satisfaction (ii) there is no significant different between all age level of employees ability utilization job satisfaction and (iii) there is no significant different between all ethnicity employees ability utilization job satisfaction. But, there is significant different between employees educational qualification level ability utilization job satisfaction. Hence, qualification wise the ability utilization job satisfaction of employees is significantly different in bank employees in Ampara region.

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IMPACT OF POST PURCHASE EXPERIENCES ON CUSTOMER LOYALTY: AN EMPIRICAL INVESTIGATION

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ABSTRACT

The experiences of a customer during the purchase process definitely determine the level of satisfaction/dissatisfaction for the product or service. The towering competition the market place persuaded the marketers for managing the customer interaction even before making their decisions. This view would be more significant in the case of high involvement products such as automobiles. Automobile industry shows extensive competition and every player comes with innovative strategies for acquiring as well as retaining its customer base. Recent marketing thinkers suggested that customers are the most influential advertising weapon in the modern world because they have to negotiate the product with new customers. They might feel that they are not cheated by anyone in the sales channel and should get enough supports even after the purchase of the product. This study becomes important as customers evaluate their post purchase experiences as a criterion for recommending an automobile to their near and dear. The data were collected among the customers of medium segment cars in Kerala and the results of the study states that customers purchase experiences significantly influences post purchase customer loyalty.

Key words: *Purchase Experiences, Customer Loyalty*

Introduction

The experiences of customer during the purchase process have a definite role in determining their level of satisfaction. Earlier studies in consumer behavior stated that customers' experiences with the product during the usage and the after sales services extended by the service people determine their level of satisfaction. The post purchase experiences consists all possible encounters between the customer and marketer after the actual purchase of the car and they are considered as the antecedents and loyalty considered as the consequences of customer satisfaction. The automobile consumers are highly involved for their purchase and their evaluation during the post purchase of the car becomes extremely significant. . Through this study, the researcher explored the influences of post purchase experiences towards customer satisfaction and its impact on customer loyalty. The results of the study states that certain items under post purchase experiences significantly influences customer satisfaction that determines customers loyalty.

Statement of the Problem

Marketing intermediaries generally perform a significant role between the manufacturer and consumers. It was identified that major chunk of the resources in any channel were projected the marketing of goods and services to the ultimate consumer group. The customers' experiences at the suppliers' premises has been given more important and least attention was paid after the customer leaving from the shopping premises. It can be noted in the durable industry, especially in the automobile industry, where customers involvement is very high, sufficient attention should be given to the consumers' experiences after the sale of their products. Several automobile companies are seldom given such attention that leads to diminishing market shares for several players. The current study was

addressed the low responsibility of dealers towards customers during their post-purchase experiences stage.

Research Questions

It has been observed that the channel members or dealers of automobile industry was least considered the relationship with the consumers after the purchase. They offer several influencers for persuading the customers to buy their product but not much of effective in their relation after the purchase of the automobile. The research question studied through this paper was the identification of the importance of post purchase experiences of customers towards the generation of loyalty.

Objectives of the Study

- 1. To identify the role of post purchase experiences for the generation of customer loyalty
- 2. To identify the major items during the post purchase experience stage that determine customer loyalty
- 3. To explore the intervening role of customer satisfaction between the post purchase experience and customer loyalty

Post Purchase Customer Loyalty

Post Purchase Customer Loyalty simply means that the bonding and attachment of a customer towards a specific product after experiencing the value generated from them. Numerous studies have reported that customer loyalty is an important outcome of customer satisfaction (Oliver, 1999, Lee et al., 2001, Fornell, 1992). It is a desire to continue the relationship with an organization that can be viewed through repeat patronage of a customer (Neal 1999, Czepiel & Gilmore 1987). Earlier studies imply the importance of loyalty for the survival of business organization that highlights companies' should

work for beyond customer satisfaction (Reicheld & Schefter 2000, Anderson & Mittal 2000). There are several dimensions for customer loyalty and most of the researchers discussed the behavioral as well as attitudinal evaluations The behavioral (Jacoby & Kyner 1973). dimension conceptualizes the repeat purchasing behavior and the attitudinal dimension focuses the future intention to purchase from the same shop that reflects in the cognitive and emotional attachment (Jacoby & Chestnut 1978, Dick & Basu 1994). Loyal customers are treated as the real asset of any organization that should be maintained like any other tangible asset because such customers may have resistance to switching (Cronin & Taylor 1992) and ready to pay premium (Zeithaml et al 1996) and recommend the brand to peers (Feick et al 2001) and minimize the evaluation of alternatives during the purchase (Reichheld 1996). For the current study, the researcher used the standardized scale developed by Harris and Goode (2004) for the measurement of action based loyalty. This scale consists of four items based on seven-point Likert type response intended to measure the degree to which a person express his intention to continue with the same company/product (Oliver 1997).

Customer Satisfaction

Customer satisfaction simply means an evaluation of the surprise inherent in a product acquisition and/or consumption experience. It is an evaluation rendered that the experience was at least as good as it was supposed to be (Hunt 1977, p. 459-460). The ultimate evaluation of the customer could include the performance of the real product (Anderson & Mittal, 2000). It is clear that market and consumer segments are the important factors to consider while measuring customer satisfaction (Anderson & Mittal 2000, Mittal & Kamakura 2001) and valuable from both customer goodwill perspective and organization's financial perspective (Malthouse et al 2003). Consumer satisfaction is an ongoing process and it never ends (Peters & Waterman 1982) that leads positive consequences such as re-patronage intention and loyalty (Anderson et al 1997, 1994, Reichheld & Sasser 1990). A consumer can be both satisfied and dissatisfied with different aspects of the same product and thus can have complaints and appraisals for the same (Mittal 1998, Chan et al 2003). If an organization focuses on its most demanding customers and/or most demanding market expectations, it is likely to exceed all other customers and expectations (Sheth & Kellstadt 1992). It is the marketers' duty to recognize the most influential aspects determining customers' satisfaction and through this study, a list of post purchase encounters and its impact on customer satisfaction and loyalty were hypothesized.

Purchase Experience

The expectancy confirmation paradigm became an important criterion for customers purchase experiences evaluation (Khalifa & Liu 2003, LaTour & Peat, 1979). Customer approaches any product or organization with certain expectations and they started to evaluate their expectation with actual performance or encounter (Cohen & Goldberg 1970, Olshavsky & Miller 1972). On the basis of these comparisons, the customer decided himself whether he is satisfied or not. So the post purchase experience evaluation becomes an important determinant or antecedent of customer satisfaction that ultimately determine customer loyalty (Ulaga 2001, Bower & Garda 1985, Jones & Sasser, 1995).

The marketer's job does not end with the sale of the product but continue even after and should monitor purchase evaluation of their customers. Sometime customer may rethink about the considered foregone alternative before purchasing the existing product (Sugden 1985), or rethink about the other possibilities that could have been chosen (Zeelenberg & Pieters 2006). Customers' affective mental status also determines their satisfaction evaluations. Holbrook and Zirlin (1985) states that sensory experiences during the purchase process

influence the customer significantly and they impact directly to customer emotions (Pham 2004). Likewise shopping enjoyment influences positive behavior changes in customers (Jarvenppa and Todd 1997, Novak et al 2000, Koufaris 2002) that motivates them to purchases (Dennis, Newman & Marsland 2005, Batra & Ahtola 1991).

The determinants of customers' evaluation definitely affect customer satisfaction and thereby customer loyalty, a clear understanding of such determinants becomes highly important for effective marketing of products. The consumers' behavior is highly sensitive to context and cultures, so the researcher developed the items under post purchase experiences through in-depth interview.

Methodology

The population for the study consists of medium segment car users in the state of Kerala. As per the wordings from the Transport Department, it is registered around 42000-48000 medium segment cars were registered in Kerala during 2013. The medium segment car means any car whose basic model's cost lay between 4.5 lakhs to 6.5 lakhs Indian rupee. The researcher assumed that criteria under post purchase experience evaluations are context specific and varying as per the culture and geographical region, a list of such items are developed through in-depth interview with selected automobiles customers and based on content analysis, a list of 27 criteria was developed as the items under post purchase experiences. An instrument was developed consisting of the items under post purchase experiences, scale for measuring customer satisfaction and customer loyalty, and used the same for data collection. Initial reliability and validity of the instrument has ensured before starting the detailed data About 300 questionnaires were collection. distributed and among them, 228 questionnaires are filled completely and used for further data analysis.

Item Generation and Validation of the Instrument

The instrument consists of three scales such as Post Purchase Experiences (PPE), Customer Satisfaction and Loyalty. The PPE scale was developed by the researcher and the remaining was adapted from standardized scales. The details of the instrument development were stated below:

The items under Post Purchase Experiences (PPE) were developed through in-depth interview and a content analysis was followed. The same kind of items giving identical meaning were removed and based on the 'item to total statistics', it has shortlisted 27 items under PPE. Three factors were generated through confirmatory factor analysis that represents the entire 27 item and named as Experiences with Car (7 items), Experiences with Service Station (12 items) and Experiences with Dealer (7 The following figure shows the items). hypothesized confirmatory representation of various items under each factor of PPE.

Figure : Confirmatory Factor Analysis



The items in the PPE scale has undergone for face and content validity and undergone essential revisions and rewordings before the final data collection. The reliability coefficients of the PPE scale shows an acceptable statistical reliability for the instrument as per the literature such as Cronbach's Alpha (0.715), Spearman-Brown Coefficient (0.765) and Guttman Split-Half Coefficient (0.812).

Table 1	1:	Reliability	Statistics ((Scale-I)
		•/		(/

Cronbach's Alpha	Part 1	Value	.761	
		N of Items	14 ^a	
	Part 2	Value	.785	
		N of Items	13 ^b	
	Total N of	Total N of Items		
Correlation Between	Forms		.715	
Spearman-Brown	Equal Lenç	gth	.799	
Coefficient	Unequal Le	ength	.765	
Cronbach's Alpha			.715	
Guttman Split-Half Coefficient			.812	

Below mentioned are the list of items under PPE scale and their respect latent variables. There are 27 measurement items and 3 latent variables representing each items was listed for the study and details are given below.

Items in PPE Scale							
Sl.No.	Measurement Variable	Latent Variable					
1	Reliability	About the car					
2	Riding comfort	About the car					
3	Safety features	About the car					
4	Future resale value	About the car					
5	Working condition of the car	About the car					
6	Ease of handling	About the car					
7	Overall opinion	About the car					
8	Promptness in attention	About the dealer					
9	Facilities available at the office	About the dealer					
10	Explanation of car's features	About the dealer					
11	Feeling of pricing practices of seller	About the dealer					
12	Vehicle display	About the dealer					
13	Speedy arrangement of finance and other documents	About the dealer					
14	Overall opinion	About the dealer					
15	Explanation of problems and repairs	About service station					
16	Cordiality, friendliness and trustworthiness	About service station					
17	Quality of work done	About service station					
18	Response to telephone calls	About service station					
19	Facilities at the waiting lounge	About service station					
20	Facilities to watch the maintenance work	About service station					
21	Fairness of service charges	About service station					
22	General handling of cars	About service station					
23	Service employees caring during complains, if any	About service station					
24	Service personnel's responsiveness during complains, if any	About service station					
25	Service personnel's knowledge for servicing the product	About service station					
26	Waiting time for service or appointments	About service station					
27	Responses to unawareness of the customers by the sales people	About service station					

Table 2 : Items under PPE

The items used for measuring customer satisfaction with the car (Scale II) were based on the standardized scale developed by Gaski & Etgar (1986). The scale was adapted for the current study, and the reliability and validity were ensured before data analysis. The reliability coefficients are greater than 0.7 and considered for further analysis (Gaur & Gaur, 2008).

For the current study, the researcher used the standardized scale developed by Harris and Goode (2004) for the measurement of action based loyalty (Scale III). This scale consists of four items based on seven-point Likert type response intended to measure the degree to which a person express his intention to continue with the same company/product (Oliver 1997). The items were adapted for the current study and

Table 3: Reliability Statistics (Scale II)

Reliability	Statistics	s (Scale II: Satisfa	iction)
Cronbach's Alpha	Part 1	Value	.861
		N of Items	2 ^a
	Part 2	Value	.822
		N of Items	1 ^b
	Total N of It	ems	3
Correlation Between F	orms		.867
Spearman-Brown	Equal Lengi	th	.869
Coefficient	efficient Unequal Length	.836	
Cronbach's Alpha			.845
Guttman Split-Half Co	efficient		.873

the reliability and validity were ensured before further analysis.

Reliability	Statistics	(Scale III : Log	yalty)
Cronbach's Alpha	Part 1	Value	.728
		N of Items	2 ^a
	Part 2	Value	.769
		N of Items	2 ^b
	Tota⊢N of		4
Correlation Between Fo	rhems		.796
Spearman-Brown	Equal Length	.745	
Coefficient	Unequal		.745
Cronbach's Alpha	Length		.708
Guttman Split-Half Coef	ficient	-	.728

Table 4 : Reliability Statistics (Scale III) III)

The items in the scales were measured with 7 point from highly disagree to highly agree. All the items in the scale show an acceptable reliability and validity for the entire measuring instrument. So the researcher considered the data for further analysis.

Customer Satisfaction as an Intervening Variable

An intervening variable is a qualitative or quantitative variable that links the relationship between an independent variable and dependent variable (Barron and Kenney 1986, Mohr et al 2005, Cooper et al 1990). Mediation means the effect of an independent variable on a dependent variable is transmitted through a third variable (Alwin & Hauser, 1975) called mediating variable, and for this study, customer satisfaction has considered as the mediating variable (Barron and Kenney, 1986). Several studies have reported the customer satisfaction as a mediator between the antecedents and consequences (Anderson and Sullivan 1993, Fornell 1992, Oliver 1980, Bolton and Drew 1991, Szymanski and Henard 2001) and the researcher interested to study its role in the context of the current study.

Hypothesis of the Study

H1: There is a positive relationship between Favorable Experiences with the Car and Customer Satisfaction.

H2: There is a positive relationship between Favorable Experiences with the Service Station and Customer Satisfaction.

H3: There is a positive relationship between Favorable Experiences with the Dealer and Customer Satisfaction.

H4: There is a positive relationship between Customer Satisfaction and Customer Loyalty.

H5: Customer Satisfaction mediates Post Purchase Experiences (PPE) towards Customer Loyalty.

H5a: Customer Satisfaction mediates Experiences with the Car towards Customer Loyalty.

H5b: Customer Satisfaction mediates Experiences with the Service Station towards Customer Loyalty.

H5c: Customer Satisfaction mediates Experience with Dealer towards Customer Loyalty.

Data Analysis

The following table shows the results of the initial 4 hypothesis. The first hypothesis explains that Experiences with the Car positively influences Customer Satisfaction (b=0. 281, t=3.06) and proved through the study. The results of the second hypothesis shows that Experiences with the Service Station influences Customer Satisfaction (b=0.155, t=2.06) and the third hypothesis stated to measure the influences of Experiences with the Dealer towards Customer Satisfaction also significant (b=0.406, t=2.47). The influences of customer satisfaction towards customer loyalty also proved (b=0.339, t=2.94) and accepted the alternative hypothesis. Altogether, the data analysis shows that Post Purchase Experiences significantly influences customer satisfaction that leads to customer loyalty.

The hypothesis 5 has been stated to test the mediation role of customer satisfaction between the Purchase Evaluation and Customer Loyalty. The PPE consists of three dimensions and the mediation role of customer satisfaction between individual dimensions towards customer loyalty Sobel (1982) gives an has been tested. approximate test of significance for the indirect effect of the independent variable on the dependent variable through the mediator. This test is based on 't' statistic that determine whether the changes in the effect of the independent variable such as Experiences with the car, Experiences with the service station and Experiences with the dealer, shows a significant change and therefore whether the mediation effect is statistically significant towards customer loyalty.

Table	5	:	Results	of	the	Anal	lysis
							•/

DISCRIMINANT VALIDITY & SIGNIFICANCE OF THE HYPOTHESIZED PATH								
	AVE1	AVE 2	r	r2	AVE1>r2	2 AVE2>r2	Discr.	T Stat.
Exp. with the Car> Cust.Sati.	0.69553	0.72605	0.6258	0.39163	sig.	sig.	yes	3.06
Exp. with Ser. Stan> Cust.Sati.	0.70316	0.73368	0.5124	0.26255	sig.	sig.	yes	2.06
Exp. with the Dealer> Cust.Sati.	0.71079	0.74131	0.4869	0.23707	sig.	sig.	yes	2.47
Cust.Sati> Cust.Loyalty.	0.71842	0.74894	0.6521	0.42523	sig.	sig.	yes	2.94





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Baron and Kenney (1986) suggested that a variable is function as a mediator when it meets the conditions such as variation in levels of the independent variable significantly account for variation in the presumed mediator, variations in the mediator significantly accounts for variations in the dependent variable, and when the mediation path is controlled, a previously significant relation between the independent and dependent variable is no longer significant.

The following figure explains the results of hypothesis 5. The direct influences of Exp. with the Car towards loyalty show beta value of 0.4215 with a significant t statistic of 3.258. After introducing the customer satisfaction as a mediator, the direct influences between Exp. with the Car towards loyalty become insignificant with beta value of -0.105 and t statistic of 0.351. Likewise, the influences of Exp. with the Service

becomes insignificant with beta value of 0.2351 and t statistic of 1.004. In the case of Experiences with Dealer towards Loyalty, the customer satisfaction plays a significant role as a mediator. The direct relation between Exp. With Dlr. towards loyalty is significant with a beta coefficient of 0.1083 with t statistic of 2.553. If the customer satisfaction has introduced as a mediator, the original relationship between Exp. with Dealer towards Loyalty becomes insignificant. The result of the Sobel test also shows that the mediation path in the hypothesized influence is significant as the coefficient is greater 1.96.

On the basis of the test result and analysis, it can be concluded that PPE significantly influences customer satisfaction that leads to customer loyalty. The occurrence of loyalty is based on the extent of customer satisfaction. It can also be

H5(a)		Н	5(b)		H5	(C)
Items	Coefficients t Stat.	Items	Coefficients	t Stat.	Items	Coefficients t Stat.
Exp.Car>CL	-0.105 6.351	Exp.SS>CL	0.4072	1.991	Exp.Dlr>CL	0.1083 2.553
Exp.Car>CL(M)	-0.114 1.37	Exp.SS>CL(M)	0.2351	1.004	Exp.Dlr>CL(M)	0.0754 0.865
Exp.Car>CS	0.3125	Exp.SS>CS	0.5063		Exp.Dlr>CS	0.4061
CS>CL	0.3391	CS>CL	0.5377		CS>CL	0.3394
Exp.Car>CS (SE)	0.0341	Exp.SS>CS (SE	0.0341		Exp.Dlr>CS (SE	0.0468
CS>CL (SE)	0.1547	CS>CL (SE)	0.1834		CS>CL (SE)	0.1458
Sobel statistic:	2.13184943	Sobel statistic:	2.876302	94	Sobel statistic:	2.24834822
Probability	0.03301923	Probability	0.004023	63	Probability	0.02455399

Figure 3 : Results of the Hypothesis (Mediation Effect)

Station towards loyalty show beta coefficient of 0.4072 with a significant t statistic of 1.991. After introducing the mediator variable of customer satisfaction, the direct influences of Exp. with the Service Station towards loyalty

noted that purchase evaluation doesn't influences or generate loyalty but affects customer satisfaction. As per the literature, it can be seen that satisfied customers becomes loyal to the organization.

Discussion and Conclusion

This study has discussed the influences of customers purchase evaluations with respect to car, to the dealer and to the service station towards customer satisfaction and its impact on customer loyalty. The result shows that purchase evaluations significantly determine customers' satisfaction. A positive and favorable evaluation by the customer about their post purchase experiences with respect to their car purchase definitely ensures customer satisfaction. This study conceptualizes that purchase evaluations doesn't generate loyal customers but only satisfied customers are more tend to become loyal to the firm. This theoretical observation suggests that post purchase evaluation doesn't influences customer loyalty but determine customer satisfaction that mediates the influence towards loyalty.

The results of the study are highly significant to the automobile industry as it forms the base of customer retention. The responsibility of the marketers will not end by merely selling the car but proper maintenance and post purchase monitoring should be ensured. The extensive competition and entry of new players in the automobile industry persuaded the marketers for inventing new strategies. This study upholds the importance of post purchase experiences of customer as it becomes the determinants of their satisfaction evaluation. As far as a marketer is concerned, a clear knowledge about the various encounters that each customers faces after the purchase of their car help to make them satisfied customers and by the way loyal to the product and firm. So the marketers of medium segment automobile cars should consider the above stated encounters under PPE as the means to ensure customer satisfaction and loyalty.

Further Research Scope

This study conceptualizes the intervening role of customer satisfaction between post purchase experiences and customer loyalty. It states that the influences can be possible only through customer satisfaction and not supported the The intervention of other direct relation. psychological variables such as customer value perception, expectation, etc. can also play a significant role for setting satisfaction level. These influences can be studied in order to get more insight to the theoretical relations. In such a way, the research topic can be taken to a new height with other industry of varying nature as the customer evaluation process become different that depends up on the industry.

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MODELLING COLOMBO CONSUMER PRICE INDEX: A VECTOR AUTOREGRESSIVE APPROACH

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ABSTRACT

The consumer price index measures changes in the price level of consumer goods and services purchased by households, which reflect inflation. Various studies have been conducted to modelling and forecasting Consumer Price Index (CPI) by developed countries .However, such studies have not been reported in Sri Lanka. This paper is an attempt to modelling the Colombo Consumer Price Index (CCPI) by using monthly CCPI data from January 2003 to May 2011. For this purpose, Stepwise Regression, Principal Component Analysis and Vector Autoregressive (VAR) approach were used. The VAR model with the first principal component of selected CCPI components was identified the best fitted model for the CCPI series. The model was also tested to an independent data set using CCPI from February 2010 to May 2011.

Keywords: CCPI, Inflation, Modelling, VAR

Introduction

The Consumer Price Index (CPI) is an indicator to measure the average change in the prices paid by consumers for a specific basket of goods and services over time in a country. This "shopping basket" represents a different items consist of common consumer goods and services which are purchased by an average household. The weights for each item in the shopping basket are determined based by the amount spent on these items by households in a given country.

Some international standards for economic statistics have evolved primarily in order to enable internationally comparable statistics to be

compiled. However, individual countries also stand to benefit from international standards. The CPI standards described in this manual draw upon the collective experience and expertise accumulated in many countries. All countries can benefit by having easy access to this experience and expertise. In many countries, the CPIs were first compiled mainly in order to adjust wages to compensate for the loss of purchasing power which is caused by inflation. (Sylvester Young, 2008).

The CCPI was introduced by the Department of Census and Statistics (DCS), in 2007, which is based on the Household Income and Expenditure Survey (HIES) conducted by the DCS in 2002.The HIES data represents more up to date consumer patterns for a much larger sample size, as well as an increased coverage area within Colombo for price collection.

The CCPI is based on prices of food and nonalcoholic beverages, cloth and footwear, housing, water, electricity, gas and other fuels, furnishing, household equipment and routine maintenance of the house, health, transport, communication, recreation and culture, education, miscellaneous and goods and services that people buy for their daily living.

The modelling and forecasting is usually carried out in order to provide an aid to decision making and planning the future. Forecasting CCPI are importantinputs for government, businesses sector, policy makers, investors, workers and various individuals for various applications.

The objective of this study is to modelling CCPI by applying a vector auto regressive (VAR) model.The VAR model was introduced by Sims (1980) and this model is the most successful,flexible, and easy to use models for the analysis of multivariate time series. It is a natural extension of the univariate autoregressive model to dynamic multivariate time series. The VAR model has proven to be especially useful fordescribing the dynamic behavior of economic andfinancial time series andfor forecasting.

on issue of CCPI Economic literature modellingand forecasting is concerned with the positive relation of inflation level. Kenny et al. (1998) conducted a study to develop a multiple time series models for forecasting Irish Inflation. For this purpose, the Bayesian approaches to the estimation of VAR models were employed. A large selection of inflation indicators is assessed as potential candidates for inclusion in a VAR model. The results of this study confirm that the significant improvement in forecasting performance, which can be obtained by the use of Bayesian techniques.

Genberg and Chang (2007) conducted a study to develop a multivariate time series model to forecast output growth and inflation in the Hong Kong economy. For this purpose, the three types of VAR (unrestricted VAR, Bayesian VAR and conditional VAR) models were used. Based on their study, the results suggest that the Bayesian VAR framework incorporating external influences provide a useful tool to produce more accurate forecasts relative to the unrestricted VARs and univariate time series models, and conditional forecasts have the potential to further improve upon the Bayesian models.

Enders (2004), Fritzer et al. (2002), Lutkepol (2001) and many other authors suggest that for the calculation of forecasts of economic indicators VAR models should be applied because all variables in these models are endogenous, and,therefore, not a single variable may be removed when explanations for the behaviour of other variables areoffered. For the forecasting of economic indicators two types of VAR models may be applied: simple, or unrestricted, VAR models and models with certain restrictions on exogenous indicators present in them, or restricted VAR models.

Materials and Methods

Data: The secondary data on monthly CCPI data from January 2003 to May 2011 were considered for the analysis and it was collected from Department of Census and Statistics. The collected monthly CCPI data from January 2003 to January 2010 ('training set') is used for model fitting and data from February 2010 to May 2011 ('validation set') is used for validation of the model.

Vector Autoregressive Models (VAR)

VARis an econometric model has been used primarily in macroeconomics to capture the relationship and independencies between important economic variables. They do not rely heavily on economic theory except for selecting variables to be included in the VARs. The VAR can be considered as a means of conducting causality tests, or more specifically Granger causality tests.

VAR can be used to test the Causality as Granger-Causality requires that lagged values of variable 'X' are related to subsequent values in variable 'Y', keeping constant the lagged values of variable 'Y' and any other explanatory variables. In connection with Granger causality, VAR model provides a natural framework to test the Granger causality between each set of variables. VAR model estimates and describe the relationships and dynamics of a set of endogenous variables. For a set of 'n' time series variables $y_t = (y_{1t}, y_{2t}, \dots, y_{nt})$, a VAR model with exogenous variables of order p (VARX (p)) can be written as:

$$y_t = A_0 + \sum_{i=1}^p A_i y_{t-i} + \sum_{j=1}^m B_j X_j + \varepsilon_t \quad \longrightarrow \quad (1)$$

Where ε_t - error term

Model Selection Criteria: The following statistical measures were used to find an appropriate model for CCPI.

$$AIC = \log\left(\frac{rss}{n}\right) + \left(\log(n) * \frac{k}{n}\right) \qquad (2)$$
$$BIC = \log\left(\frac{rss}{n}\right) + \left(2 * \frac{k}{n}\right) \qquad (3)$$

Where;k = number of coefficient estimated, rss = residual sum of

square, n = number of observations

Results and Discussions

The objective of this study is modelling CCPI series with VAR models.For this purpose two different approach were used.

- 1. VAR model with some Components of CCPI were selected by using stepwise regression method.
- 2. VAR model with common value for all CCPI componets by using principal component techniques.

VAR Model between CCPI versus Its Selected Components

The stepwise regression method was used to find suitable variables among ten components of CCPI series taking one lag behind. Both the probabillity of entry a variable and to remove a variable was set as 0.05. The results of stepwise regression are tabulated in table 1.

Step	1	2	3	4	VIF
Constant β_0	23.064	17.406	-2.324	-7.647	-
$FD(-1)\beta_1$	0.847	0.641	0.541	0.551	
t-Value	100.17	48.95	32.76	34.12	29.667
p-Value	0.000	0.000	0.000	0.000	
HO (-1) β ₂		0.214	0.194	0.186	
t-Value	-	16.60	18.88	18.37	11.978
p-Value		0.000	0.000	0.000	
MS (-1) β ₃			0.284	0.554	
t-Value	-	-	7.63	5.64	203.717
p-Value			0.000	0.000	
FU (-1)β ₄				-0.242	
t-value	-	-	-	-2.95	186.991
p-value				0.004	
S	3.44	1.65	1.26	1.21	
R-sq(adj)	99.18	99.81	99.89	99.90	
Mallows Cp	629.2	83.1	17.2	10.0	

Table 1: Output of the stepwise regression analysis on CCPI versus FD (-1),CL (-1),..., MS (-1)Alpha-to-Enter: 0.05 Alpha-to-Removes: 0.05

Based on the above results, the selected regression equation can be written as:

$$CCPI_{t} = -7.647 + 0.551FD_{t-1} + 0.186HO_{t-1} - 0.242FU_{t-1} + 0.554MS_{t-1}$$
(A)

Results in table1 indicates that four indices can be selected from ten indices and thesefour indices are significant at 5% significance level. The selected indices are Food (FD), Housing (HO), Furnishing (FU) and Miscellaneous (MS). It should be noted that VIF of each varaible is very high confirming the excisatnce of highly significant multicollinearity among the four explantory varaibles and consequently the above model is not recommended to forecast. It is also found that the constant term in the model is significantly different from zero. The time series plot of the four selected indices and CCPI series are shown in figure 1. It indicates that the CCPI and selected four indices show upward trends and these all series are non-stationary.



Figure 1: The time series plot of selected four indices and CCPIseries.

Identification of Lag Order of VAR Model Selection Criteria

Results in table 2 indicates that the minimum values of Schwarz Information Criteria (SIC) and Hannan-Quinn (HQ) statistic were obtained at lag 1. Therefore, it can be concluded that the optimal lag length of this model is one. Thus, Granger Causality test was carried out for CCPI, FD, HO, FU and MS and the results are shown in table 3.

Table 2: Values of SIC and HQ statistics at
various lag orders

Lag	SIC	HQ
0	30.84	30.75
1	17.84*	17.30*
2	18.47	17.48
3	18.90	17.49
4	19.54	17.46
5	20.37	18.01

Null Hypothesis	F-Statistics	P-Value
FD does not Granger Cause CCPI	3.90	0.041
CCPI does not Granger Cause FD	2.70	0.103
HO does not Granger Cause CCPI	14.08	0.000
CCPI does not Granger Cause HO	6.25	0.014
FU does not Granger Cause CCPI	12.40	0.000
CCPI does not Granger Cause FU	28.02	0.000
MS does not Granger Cause CCPI	4.31	0.032
CCPI does not Granger Cause MS	8.16	0.001

 Table 3:

 Results of Granger Causality test between CCPI and its components

Table 3 indicates that thesevennull hypotheses are rejected at 5% significance level (p-value < 0.05). The F-Statistic values are significant and provide strong evidence for the argument that there is bi-directional linear granger causality between CCPI and selected indices of CCPI (HO, FU and MS) but FD and CCPI has only unidirectional granger causality relationship.

VAR Model with FD, HO, FU and MS

The parameter estimates of VAR model for CCPI versus FD, HO, FU and MS are shown in table 4.

model with components of CCPI can be wrriten as:

$$CCPI_{t} = 0.329CCPI_{t-1} + 0.391FD_{t-1} + 0.140HO_{t-1} - 0.183FU_{t-1}$$
$$+ 0.313MS_{t-1} \longrightarrow (B)$$

The suitable Principal Component (PC) for all components of CCPI

It is obvious that the correlations between all components of CCPI are interrelated and fairly large. Also, there is significant multicollinearity exists among the components of CCPI, the data set can be used to reach the possibility of

Table 4:

Results of parameter	estimation	of identified	VAR	model
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Variables	Coefficients	Stand. Error	t-value	P-value
CCPI (-1)	0.329	0.115	2.859	0.005
FD (-1)	0.391	0.065	6.062	0.000
HO (-1)	0.140	0.021	6.692	0.000
FU (-1)	-0.183	0.069	-2.649	0.008
MS (-1)	0.313	0.056	5.606	0.000

Table 4 indicates that the estimates of all parameters are significant at 5% significance level (p-value < 0.05). As the constant term was not significant in this model and model without constant term was considered. The final VAR

dimensional reduction among indices. The results of communalities of CCPI components are tabulated in table5.

Variable	Initial	Extraction
Food	1.000	0.974
Clothing	1.000	0.979
Housing	1.000	0.885
Furnishing	1.000	0.995
Health	1.000	0.887
Transport	1.000	0.942
Communication	1.000	0.269
Recreation	1.000	0.859
Education	1.000	0.960
Miscellaneous	1.000	0.992

Table 5: Results of communalities of CCPI components

Table 5 indicates that the maximum of 99.5% the variance in furnishing and the minimum of 26.9% of the variance in communication index are accounted by the extracted factors. Hence, the communication index can be dropped to find the principal component because it has less communality value. The results of communalities of nine components of CCPI are tabulated in table 6.

Table 6:	Results	of	communalities	of	nine
	compo	ne	nts of CCPI.		

Variable	Initial	Extraction
Food	1.000	0.968
Clothing	1.000	0.984
Housing	1.000	0.895
Furnishing	1.000	0.996
Health	1.000	0.874
Transport	1.000	0.940
Recreation	1.000	0.867
Education	1.000	0.974
Miscellaneous	1.000	0.998

Table 6 indicates that the maximum of 99.8% of the variance in miscellaneous and the minimum of 86.7% of the variance in recreation index are accounted by the extracted factors.

Table 7: Eigen values of the correlationmatrix of CCPI components

consumer goods and services purchased by households, which retlect inflation. Various studies have been conducted to modelling and forecasting Consumer Price Index (CPI) by developed countries . However, such studies have not been reported in Sri Lanka. This paper is an attempt to modelling the Colombo Consumer Price Index (CCPI) by using monthly CCPI data from January 2003 to May 2011. For this purpose, Stepwise Regression, Principal Component Analysis and Vector Autoregressive (VAR) approach were used. The VAR model with the first principal component of selected CCPI components was identified the best fitted model for the CCPI series. The model was also tested to an independent data set using CCPI from February 2010 to May 2011.

Keywords: CCPI, Inflation, Modelling, VAR

Table 7 indicates that the first component accounts for 94.399 % of the variance. All remaining components are not significant. Hence, the first component has been chosen.

Table	8:	Eigen scores of the first Principal
		Component (PC)

Variable	Eigen scores
Food(FD)	0.338
Clothing(CL)	0.340
Housing(HO)	0.325
Furnishing(FU)	0.342
Health(HL)	0.321
Transport(TR)	0.333
Recreation(RE)	0.319
Education(ED)	0.339
Misc(MS)	0.343

According to the table 8, the nine components can be reduced to single Principal Component (PC) and a new variable is denoted by PCand it can be written as:

$$PC = 0.338 FD + 0.340 CL + 0.325 HO + 0.342 FU + 0.321 HL$$

+ 0.333TR + 0.319 RE + 0.339 ED + 0.343 MS \longrightarrow (C)

VAR model between CCPI versus first PC

VAR Lag Order Selection Criteria

Table 9: Results of lag order selection

Lag	SIC	HQ
0	17.38	17.34
1	8.45	8.34
2	8.44*	8.27*
3	8.54	8.28
4	8.68	8.35
5	8.73	8.34

Results in table 9indicates that the minimum values of SIC and HQ statistic were obtained at lag 2. Therefore, it can be concluded that the optimal lag length of this model is two. Thus, Granger Causality test was carried out for CCPI and PC and the results are shown in table 10.

Table 10: Results of Granger Causality testbetween CCPI and PC

Null Hypothesis	F_Value	P_Value
CCPI (N) does not Granger Cause PC	15.268	0.000
PC does not Granger Cause CCPI (N)	9.141	0.000

Table 10 indicates that both the null hypotheses are rejected at 5% significance level (p-value < 0.05). The F-Statistic values are significant and provide strong evidence for the argument that there is a bi-directional linear Granger causality between CCPI and PC.

VAR Model with PC

The parameter estimates of VAR model for CCPI versus PC are shown in table 11.

Table 11: Results of parameter estimation

Variables	Coefficients	Stand. Error	t-value	P-value
CCPI (-1)	1.762	0.132	13.346	0.000
CCPI (-2)	-0.623	0.146	-4.279	0.000
PC (-1)	-0.258	0.063	-4.080	0.000
PC (-2)	0.201	0.059	3.426	0.001
С	4.377	1.712	2.556	0.012

Table 11 indicates that the estimates of all parameters are significant at 5% significance level (p-value < 0.05). The fitted VAR model can be wrriten as:

$$CCPI_{t} = 1.762 CCPI_{t-1} - 0.623 CCPI_{t-2} - 0.258 PC_{t-1} + 0.201 PC_{t-2} + 4.377 \qquad \longrightarrow \qquad (D)$$

Comparisons between Fitted two VAR Models

In the model estimation, the AIC and SIC values from each estimated models are computed. AIC and SIC values will be used in order to estimate which model is a better model for CCPI. For this purpose, the model with the lowest AIC and SIC values are concluded to be a better model. The results are reported in table 12.

Table 12: Comparison of the fitted two VARmodels

Model	Log likelihood	AIC	SIC
В	-144.67	3.51	3.60
D	-136.44	3.41	3.55

The results indicate that the both AIC and SIC values from modelD is the lowest compared with modelB. Also, log likelihood value is high for modelD. Therefore, it shows that the modelD is the best model for forecasting monthly CCPI series.

3.5.4 Forecasting Performance of the Selected VAR Models

Table 13: Results of forecast performancestatistics

Model	Data set	MAPE
D	Training set	0.61
В	Validation set	0.81
D	Training set	0.59
D	Validation set	0.62

Table 13 indicates that the mean of percentage error (MAPE) for validation set of the modelDis lower than the modelB. Therefore, it can be concluded that the modelDis a better forecast model for monthly CCPI series.

Conclusions and Recommendations

This study aimed to modelling CCPI series using VAR approach. Two types of VAR models were estimated and model was also tested to an independent data set using CCPI from February 2010 to May 2011. The comparative performance of these VAR models have checked and verified by using the model selection procedure (AIC and SIC). The comparison indicates that the VAR model with the first principal component of selected CCPI components was identified the best fitted model to forecast the CCPI series. The error series of the fitted model was found to be a white noise process.

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STUDENTS' ATTITUDES TOWARDS INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) EDUCATION (SPECIAL REFERENCE TO ADVANCED LEVEL STUDENTS OF 1AB SCHOOLS IN TRINCOMALEE DIVISION.)

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ABSTRACT

Information and communication technologies (ICT) have become ordinary entities in all aspects of life. In Trincomalee zone, according to the pass level rate below 50% of students are passed in ICT education in 2011. Based on that researcher want to be identify factors influencing towards ICT education or not. The objectives are to identify the factors affecting the ICT education, to identify which factor has highly influenced towards ICT education, to identify the impact of social group influence on ICT education and to provide the suggestion to develop towards ICT Education. Conceptual variables are resource availability, personal Interest, global Trend on ICT, outcomes and impact of ICT education.200 Advance Level students were taken as sample from all seven 1AB schools in the Trincomalee zonal division. The findings of the research are all the variables are moderately supported in the research. Suggestion are proper trainings should be provided to the existing teachers to get better outcomes and impact.

Key words: ICT education, Attitudes, Trend

Background

IT refers to an entire industry that uses computers, networking, software and other equipment to manage information. Generally, IT departments are responsible for storing, processing, retrieving and protecting digital information of the company. For achieving these tasks, they are equipped with computers, DBMS, servers and security mechanisms, etc. Professionals working in IT departments range from administrators, system database administrators programmers, network to engineers and IT managers. When executing a business, IT facilitates the business by providing four sets of core services. These core services are providing information, providing tools to improve productivity, business process automation and providing means to connect with customers. Currently, IT has become an essential part in business operations and has provided lot of job opportunities worldwide. Knowledge in IT has become essential to succeed in the workplace. Typically, IT professionals are responsible for a range of duties including simple tasks such as installing software to complex tasks such as designing and building networks and managing databases. ICT is a term widely used in the context of education. Even though there is no universally accepted definition for ICT, it mainly refers to utilizing digital technologies such as computers, television, email, etc to help individuals or organizations to work with digital information. ICT can be seen as an extended synonym for IT. Therefore, ICT can be seen as an integration of IT with media broadcasting technologies, audio/ video processing and transmission and telephony.

Introduction of Information Technology into the secondary school curriculum in Sri Lanka is a very recent development. The subject General Information Technology (GIT) was included for G.C.E. Advanced Level Examination in 2005 while plans are afoot to introduce Information Technology as a subject for G.C.E. Ordinary Level from 2008. The results of the first GIT examination held in 2005 clearly show poor performance by students. Considering the large amount of money spent for Information Technology education in schools and the aspirations of students in acquiring a sound knowledge in Information Technology while in school, it is essential that an analysis is done to evaluate the merits and demerits of Information Technology education in schools.

In Sri Lanka Schools are being divided as 1AB, 1C, Type I, and Type II schools. According to National Standards they can be categorized as National Schools and Provincial Schools.In this study 1AB Schools are being selected. learning and teaching. Such research insights have shown that advances in technology have opened up new possibilities for the way in which teachers educate their classes, giving potential for innovative ways to encourage students to become more engaged in their schooling. To enable the best possible outcomes for their students it is vital that schools are able to keep up with this progress. The 2008 Melbourne Declaration on Education Goals for Young Australians (MCEETYA, 2008: 6) affirmed the importance of ICT literacy within the classroom, stating that: rapid and continuing advances in information and communication technologies (ICT) are changing the ways people share, use, develop and process information and technology. In this digital age, young people need to be highly skilled in the use of ICT. While schools already employ these technologies in learning, there is a need to increase their effectiveness significantly over the next decade.

Currently Sri Lanka has a concept of being "ICT literate". However, although this is important in its own right, it usually refers to a facility with hardware and software rather than to anything we would more normally identify as literacy. Yet ICT has becomean element of functional literacy. This is not a futuristic vision. It is becoming an

		Pass Level percentage						
Name of Schools	2005	2006	2007	2008	2009	2010	2011	2012
T/K. Hindu College	55%	34%	36%	45%	43%	NR	NR	NR
T/St Mary's College	52%	46%	51&	42%	46%	NR	NR	NR
T/ShanmugaCollege	49%	45%	42%	43%	50%	NR	NR	NR
T/St Joseph College	51%	48%	40%	39%	41%	NR	NR	NR
T/Orr's Hill Viv.	-	-	30%	44%	32%	NR	NR	NR
T/Vipulanada college	-	-	40%	39%	41%	NR	NR	NR
T/Methodist College	-	-	30%	44%	32%	NR	NR	NR

• NR - Result still not release

Source – Zonal Education- Trincomalee/2012

Literature Review

Information and Communication Technology

ICT has been used in educational settings since its inception, but recent empirical research has affirmed that it plays a vital role in high-quality everyday reality. People read text on screen rather than on paper, for example, when we receive emails and access the Internet. (Report of household Computer Literacy Survey of Sri Lanka – 2004).In certain offices and homes, a computer with a word-processing package is frequently used as the principal writing tool. ICT as a means for both producing and accessing texts, and indeed as the medium in which some of those texts will exist, is already commonplace. ICT is not something we need to add on to literacy. It must be an integral part of what we mean by being literate.According to the Household Survey on Computer Literacy of Sri Lanka – 2004, the target population was all those in the age group of 5 – 69 years. Of this population only 9.7 percent was found to be computer literate (Household Computer Literacy Survey of Sri Lanka – 2004).

ICT Education in South Asia

The World Bank supported InfoDev is coordinating a survey of the use of information and communication technology for education in India and South Asia. The purpose of this survey is to gather together in a single resource the most relevant and useful information on ICT in education activities in India and South Asia.It is envisioned that data collected as part of this survey process can help to form a set of baseline data, against which future survey work and research could be compared. This data can be combined with data from other regions already surveyed or to be surveyed to help form a global database of information related to ICTs in education in developing regions. Information and communication technologies (ICTs) are widely believed to be important potential levers to introduce and sustain educational reform efforts, as well as useful aids to both teaching and learning. However, despite evidence of increasingly widespread use of ICTs in education initiatives around the world, there is little guidance available for policy-makers and donor staff specifically targeted at developing countries contemplating the increased use of ICTs in education.

ICT Education in Sri Lanka

G.C.E O/L Syllabus

Information & Communication Technology (ICT) has become the state of the art technology of the contemporary world. Every sector of the

economy is forced to use this technology to make their work effective and efficient and thereby maintain a competitive edge. This has changed the types of skills and knowledge needed in the world of work.Since Sri Lanka is in the early stages of introducing ICT to lower grades, the present syllabus does not demand any ICT knowledge as an entry requirement. Therefore, this syllabus is intended to introduce ICT /computer science as a technical subject to be offered at the G.C.E (O/L). The objectives of this syllabus are to develop the competencies to utilize the ICT tools and to build a basic theoretical base for the student to act as a foundation to pursue higher studies in ICT. The present infrastructure and human resource development (teacher training) facilities are not sufficient to introduce this ICT syllabus. However, it is supposed that the required facilities for schools will be fulfilled in the near future by various donor agencies like Asian Development Bank, World Bank, etc. Sustainability of this syllabus depends on the continuous working conditions of ICT laboratories and the frequent provision of updated knowledge of the ICT teachers. The content of this syllabus has to be updated regularly to match the requirements of the rapidly changing technological world. The teaching/learning of this syllabus could partly be carried out in the English medium. However, a bilingual method should be used so that the terms of new ICT concepts are given in the media, the mother tongue and English. The minimum proficiency expected could be assessed and evaluated throughout the course of study. The practical components of this ICT syllabus provide a good opportunity for school based assessment. At the same time a fair percentage of content could be incorporated at national level evaluation.

ICT in G.C.E A/L

Information Communication Technology (ICT) will be included as a subject in the Advanced Level examination curriculum from 2009, said Secretary to the Ministry of Education AriyarathneHewage. He said approval for the ICT policy for education will be obtained soon

and it will help develop capacity, train teachers, set up ICT centers and build private public partnerships. Ariyarathne was addressing the academia career guidance pre meet organized by the Information Communication Technology Agency (ICTA) which will host the National ICT Capacity Summit and National ICT Career Fair (NICS 2007) from September 1 - 2in Colombo.Ariyarathne said information technology and computer science has grown at a phenomenal rate to a US\$ 1 trillion industry, but the country has not been able to keep pace with developments due to the lack of skilled IT personnel. The challenge today is to get IT professionals in the market. The IT workforce grew by 10,000 during 2004-2006.Over 14,000 IT workers are required to meet the industry needs in the next two years. This year 5,755 graduates are needed for the industry, he said. The attrition rate of the IT workforce in the country has doubled from 6.6 percent in 2004 to 13 percent in 2006. Fixation is an obstacle to the growth of the IT industry. Parents and teachers want their students to become doctors and engineers and not IT professionals. Students are directed to sit for examinations to enter universities without providing them career guidance. Microsoft Chairman Bill Gates has volunteered to support Sri Lanka to develop capacity building in Information Communication Technology (ICT) by setting up a Microsoft center for excellence in the country. The Ministry of Education has introduced several programs to develop IT in the country and the e-village concept is one such program to bridge the digital divide. The village program was launched in Mahawilachchiya, Nihiluwa, Mahalakotuwa, Pitakumbura, Nikawewa and Dhamana.General Manager Virtusa, MaduRatnayake said with the shift from an industry based economy to a knowledge based economy world dependence on IT has grown tremendously. The BPO industry in Asia is growing at a rapid pace. According to a survey by AT Kearney Global Service Ltd. Sri Lanka is ranked 29 among the top 50 countries in outsourcing. India, which is ranked first has a vibrant IT industry, which contributes 5-6 percent of the GDP. ICT will be the next growth

wave for jobs and wealth creation in the country, he said. *Source: Sunday observer on 2007/06/17/*

Improve teaching and learning quality

As Lowther et al. (2008) have stated that there are three important characteristics are needed to develop good quality teaching and learning with ICT: autonomy, capability, and creativity. Autonomy means that students take control of their learning through their use of ICT. In this way, they become more capable of working by themselves and with others. Teachers can also authorize students to complete certain tasks with peers or in groups. Through collaborative learning with ICT, the students have more opportunity to build the new knowledge onto their background knowledge, and become more confident to take risks and learn from their mistakes. Further, Serhan (2009) concluded that ICT fosters autonomy by allowing educators to create their own material, thus providing more control over course content than is possible in a traditional classroom setting. With regard to capability, once students are more confident in learning processes, they can develop the capability to apply and transfer knowledge while using new technology with efficiency and effectiveness. By using ICT, students' creativity can be optimized. They may discover new multimedia tools and create materials in the styles readily available to them through games (Gee 2007, 2011), CDs, and television. With a combination of students' autonomy, capability, and creativity, the use of ICT can improve both teaching and learning quality.

Student Perspective

Frederick, Schweizer and Lowe (2006) showed that student mobility, special needs, and anxiety over standardized test results are the main challenges associated with ICT use. These challenges can be solved by providing more authentic group- and problem-based learning activities, and adequate learning support (Whelan 2008). Whelan (2008) also identified more barriers from the student perspective, including: subpar technical skills that reduce access to ICT

in classroom; an insufficient number of academic advisors and lack of timely feedback from instructors; and reduced interaction with peers and instructors. Therefore, the author recommends the following strategies to facilitate the learning process: more induction, orientation, and training for students; an increased emphasis on the importance of instructor access and effective administration; and the expansion of podcasting and online conferencing tools. In general, capacity building. curriculum development, infrastructure, policy, and government support are required in order to lower student barriers and improve the effectiveness of ICT use in the classroom. In addition, Castro Sánchez and Alemán (2011) encourage students to acquire specific technical skills to facilitate learning in ICT environments. Provide adequate technical support (Liu and Szabo 2009; Tezci 2011a; Yildirim 2007). Technology should be used for more than just support of traditional teaching methods (Tezci, 2011a). According to Tezci (2011a), teachers should learn not only how to use technology to enhance traditional teaching or increase productivity, but also should learn from a student centered perspective how ICT can be integrated into classroom activities in order to promote student learning. This means that teachers need to use ICT in more creative and productive ways in order to create more engaging and rewarding activities and more effective lessons (Birch and Irvine 2009; Honan 2008). Hence, Castro Sánchez and Alemán (2011) suggested that teachers keep an open mind about ICT integration in classroom. It is imperative that teachers learn new teaching strategies to adapt to the new instruments when teaching with technology. However, Yildirim (2007) found that teachers use ICT more frequently for the preparation of handouts and tests than to promote critical thinking. Similarly, Palak and Walls (2009) found that teachers mainly use technology to support their existing teaching approaches and rarely to foster student-centered learning. According to the authors, one possible explanation is a lack of models for how to use

technology to facilitate learning, and limitations related to contextual factors such as class size and student ability. Further, Brush, Glazewski and Hew (2008) found that pre service teacher preparation does not provide sufficient ICT knowledge to support technology based instruction, nor does it successfully demonstrate appropriate methods for integrating technology within a curriculum. More training should be provided in pre-service teachers' curricula, and ICT skills must be applied in the classroom in order to integrate effective technology strategies (Supon and Ruffini 2009). To help teachers cope with these difficulties, Chen (2008) suggested that rather than only providing education theories, ICT researchers should also document examples of how teachers accomplish meaningful and effective technology integration to meet their pedagogical goals and needs.

Problem Statement

Nowadays ICT education is the most essential one and there are plenty of opportunities for the students who have completed their school education up to Advanced level, to get a higher education qualification through different ICT educational programs. In Trincomalee zone, according to the pass level rate below 50% of students are passed in ICT education in 2009. Based on that researcher want to be identifiedstudents' attitudes influence on ICT education or not?

Research Questions

The main research questions are identified as mentioned below

- * What are the attitudes of students towards ICT education after school education?
- * What are the factors affecting the students' attitudes on ICT education?
- * What are the impacts of Social group influence?

Objectives

- To identify the factors affecting the students' attitudes towards ICT education.
- * To identify which factor highly influences on attitudes towards ICT education.
- * To identify the impact of social group influence on attitudes of student towards ICT education.
- * To provide the suggestion to reduce the negative attitudes of ICT Education.

Scope of the Study

This research mainly focuses on Advance Level students' attitudes towards ICT education. Even if they get through their A/L what is their attitude towards ICT education, the students of 2012 batch will be selected for this study.

Significance of the study

ICT education has been taken for this research because this has been one of the major tools in one person's skills and knowledge development. The main purpose of this research is to find out the major influence for the attitude of the students of the Trincomalee Zonal area. Educate the student to use the opportunities with cheap and secure manner to get an ICT educational qualification.

Limitations

- Data collection and research are restricted to only 2012 Advance Level students.
- The survey restricted to only 1AB Schools for Tamil medium in the Trincomalee Zonal Division.

Assumption of the Research

- * All the questions and statements are clearly understood by the respondents.
- * The collected data are true and fair and unbiased.

Conceptualization

As illustrated below (in figure 1), the conceptual framework is developed using four groups of variable which have mainly influenced the attitudes of Advance Level students towards ICT Education.

Figure 1: Conceptual framework



Source : Develop for research purpose

Conceptual framework is formulated based on the following theories.Factors influencing the use of ICT can be divided into external factors and internal factors. The two types of factors are related to each other and to ICT usage level (Tezci 2011a). A variety of external factors have been identified that influence the progression or effectiveness of technology integration in schools. These include technology availability, accessibility of ICT equipment, time to plan for instruction, technical and administrative support, school curriculum, school climate and culture, faculty teaching load and management routine, and pressure to prepare students for national entrance exams (Al-Ruz and Khasawneh 2011; Lin, Wang and Lin 2012; Tezci 2011a). Among these external factors, the most common are lack of access to computers and software, insufficient time for course planning, and inadequate technical and administrative support (Chen, 2008). Several internal factors also influence technology integration outcomes (Sang et al. 2011). Internal factors related to teachers include: understanding of ICT use; beliefs, which may conflict with the application of ICT; attitudes toward technology integration; perceptions, including intention or motivation to use ICT; self-confidence and knowledge; technology skills; readiness to use ICT; and technology selfefficacy (Al-Ruz and Khasawneh 2011; Chen 2008; Lin, Wang and Lin 2012; Sang et al. 2011; Tezci 2011a).

Operationalization

Details of the operationalization are given below.

Table 1: Operationalization

Variables	Indicator	Measurement	
	Financial support		
Resource Availability	Recognized Teachers & Trainings	Questionnaire	
	Recognized Subjects		
Personal Interests	Perception on ICT courses.		
	Family influences / Social Group	Questionnaire	
	Knowledge/ Skills	1	
Global Trend on ICT	Awareness on importance of ICT		
	Extent of ICT usage. Questionnaire		
	Job Market needs		
ICT Education	Performance		
Outcomes and Impact	Expectation	Questionnaire	
	Satisfaction		
	Affective		
Attitudes	Cognitive	Questionnaire	
	Behavioral	1	

Source: Developed for the research purpose

Sampling

A sampling is the collection of samples from the population in the area where the research has been done. From the researcher's point of view, the population includes 2012 batch A/L students from 1AB schools in the Trincomalee Zonal Division. Identified the systematic random sampling technique for research purpose.

Table 2: Sample selection detail

Name of the School	Total Population	Percentage	Selected
			Sample
T/Konneswara. Hindu college	178	36.70	37
T/St Joseph College	141	29.07	29
T/St Mary's College	169	34.84	35
T/Orr's Hill Vivekananda	152	31.34	31
T/Sri Shanmuga Hindu ladies	102	21.03	21
T/St Methodist College	116	23.91	24
T/Vipulananda college	112	23.09	23
TOTAL	970		200

Source: Zonal Education Department Trincomalee/2012

Data analysis

The collected data have been analyzed by Mean, Correlation method and regression analysis.

Methods of Measurement

In this study, measurement was carried out by five point Likert scale. The collected data from the questionnaires were analyzed based on the positive effect on the students' attitudes on ICT education by analyzing variables as mentioned below.

Strongly disagree-1/ disagree-2/ neutral-3/ agree-4/ strongly agree-5

Data evaluation

Each variable is given a scale from 1-5 to show the extent of importance based on response univariate measures are calculated for each of the variables. For calculating the univariate measures, the Microsoft Excel 2007 and SPSS 17 windows have been used.

Resource Availability:

Resource availability of students and schools are in moderately level that is the mean value is 3.06. Financial Support: In the research area majority students are coming under middle class. Therefore, most of the families are unable to spend money to buy computers and accessories. This may be the main reason for the above result of the research on financial support.

Recognized Teachers & Training: According to the result of the research, the indicator of recognized teachers and training are not in satisfactory level. The main reason could be insufficient number of well trained, specialized teachers in IT in the school system. On the other hand, the extent of providing training to Advance Level students is not at the required level.Recognized Subject: Recognized subject is not coming under satisfactory level. It reason could be according to the ICT syllabus, some useful subjects don't include in the ICT syllabus such as computer programs, Web designing, CAD, etc.

Table 3: Decision criteria and rule

Decision Criteria	Decision Rule
$1 \le xi \le 2.5$	Low level of impact on attitudes on ICT Education
2.5 < xi ≤ 3.5	Moderate level of impact on attitudes on ICT Education
$3.5 < xi \le 5$	High level of impact on attitudes on ICT Education

Discussion of the Results

Table-4Univariate analysis

Variables	Mean	Standard Deviation
Resource Availability	3.06	0.588
Personal Interest	3.49	0.712
Global Trend on ICT	3.39	0.715
Outcomes and impact of ICT	3.36	0.658
education		

Source: survey data

Personal Interest

The second factor 'Personal interest' also moderately affects the students' attitudes on ICT education. Perception on ICT courses: Here the good sign is that the mean value of perception on ICT courses is in higher level. That means the students in the research area is well aware about the benefits and importance of ICT courses and very interested to follow such courses.

Family Influence/Social groups: According to the Advance level education system the three main subjects are only considered in the calculation of Z score other than ICT Education. Therefore, parents and social groups are not showing much interest to support on ICT education.

Knowledge & Skills: the last indicator of the personal interest, the medium of ICT examination was English, while the majority of schools in research area still uses native languages, i.e. Sinhalese or Tamil, for teaching.

Global Trend on ICT

Global Trend on ICT is another variable which moderately influences the students' attitudes on ICT Education. Awareness on importance of ICT: According to the above research results the students almost have consciousness and understanding about the awareness on the importance of ICT.

Extent of ICT usage: according to the result the indicator of Extent of ICT usage is moderate level, the reason for teachers and social groups are couldn't be instructed of usage of ICT education for every day to day student's activities.

Job market needs: according to the result of the research, the mean value of that indicator is 2.99. The main reason for Students' could be understood get the job from his university study.

Outcomes and impact of ICT education

Outcomes and impact of ICT education also moderately affect the students' attitudes. Performance: The indicator of performance level is moderate. The main reason could be some schools are not provided special ICT training programs and inter school ICT education competitions for students.

Expectation: Expectation is the second indicator of outcome & impact of ICT education. According to the research, analysis the mean value is 3.14 and It's also moderately level, the reason for the ICT education is not compulsory for university entrances, further students' expectation of ICT education in Advance level is not better than other subjects.

Satisfaction: Satisfaction is the last indicator of the outcome & impact of ICT education. According to the ICT examination system, examination result will be released about after two years from the examination date. In that system could be the impact of students' satisfaction about ICT education.

Correlation analysis

The table 5 gives details of the correlation between each pair if variables. The values here are acceptable.

		Resource Availability	Personal Interest	Global Trend	Outcome & Impact	Attitudes
Resource	Pearson Correlation	1	.739**	.731**	.681**	.702**
Availability	Sig. (2-tailed)		.000	.000	.000	.000
	Ν	200	200	200	200	200
Personal	Pearson Correlation	.739**	1	.745**	.818**	.749**
Interest	Sig. (2-tailed)	.000		.000	.000	.000
	Ν	200	200	200	200	200
	Pearson Correlation	.731**	.745**	1	.821**	.806**
Trend	Sig. (2-tailed)	.000	.000		.000	.000
	N	200	200	200	200	200
Outcome &	Pearson Correlation	.681**	.818**	.821**	1	.800**
Impact	Sig. (2-tailed)	.000	.000	.000		.000
_	Ν	200	200	200	200	200
	Pearson Correlation	.702**	.749**	.806**	.800**	1
Attitudes	Sig. (2-tailed)	.000	.000	.000	.000	
	Ν	200	200	200	200	200

Table 5 Correlations

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

There is a positive relationship between the conceptual variables and attitudes.

Data Reliability

Reliability of the variables, Cronbach's coefficient alpha was calculated to evaluate the reliability of the measures. An alpha level of 0.70 or above is generally considered to be accepted (Cronbach, 1951). All the measures in survey exceed this threshold. Resource availability (alpha= 0.841), personal interest (alpha=0.861), global trend (alpha = 0.803) and outcome and impact (alpha= 0.854).

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	В	Std. Error	Beta		_	
(Constant)	0.15	0.155		0.965	0.036	
Resource Availability	0.164	0.075	0.133	2.195	0.029	
Personal Interest	0.138	0.073	0.136	1.884	0.051	
Global Trend	0.361	0.073	0.356	4.935	0.043	
Outcome & Impact	0.336	0.086	0.305	3.902	0.042	

Source: survey data

Regression Analysis

R, R Square and Adjusted R Square Analysis

 Table 7:

 R, R Square and Adjusted R Square Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.852 ^a	.726	.721	.383

Adjusted R Square value is calculated which takes into account the number of variable in the model and the number of respondents our model is based on. This R Square value gives the most useful measure of the success of our model. We have adjusted R Square value of 0.721, therefore we can say that our model has accounted for 72% of the variance in the dependent variable.

Conclusions

The results of the survey indicate that the students' attitudes towards ICT education is in the moderate level. The result of the research indicates that ICT related resources are fairly available in the research area. But the availability of recognized / qualified teachers and the training method are not in the positive level. As Personal interest of students towards ICT education is comparable in higher level, there are some opportunities to develop of ICT education in the area.

The students are aware of Global trend on ICT and its importance. Even though it has been identified from the result of the research that most of the students are not properly trained or guided to meet the job market requirement. Therefore the outputs and impact of ICT education is not in a good position in the research area.

Recommendation

Resource Availability

- Department of education has to take action to appoint new qualified IT teachers to the schools to provide better trainings to Advance Level students. Further, it is recommended to the Zonal education department has to provide necessary trainings to existing IT teachers to develop their skills.
- Schools have to provide useful special ICT training program for students in every ICT subject.
- Ministry of education has to focus to redesign the IT syllabus according to the global trend and to meet the job market requirements. Some subjects are included in IT syllabus such as Program languages, web designing, AutoCAD, etc.

Personal Interest

- Parents and social groups' area should be so much interesting to support on ICT education for the students. Further, they should encourage the ICT subject likely other three compulsory subjects.
- The Department of Education should be announcing an ICT subject is compulsory for university entrance.
- Further Department of Education should be change the medium of ICT examination is the native language. i.e. Sinhalese or Tamil.
- The recognized ICT institutes are should be provide special offer for school students, further should be given an international recognized certificate.

Global Trend on ICT education

- Proper guidance should be given to the students to follow the right course at the right time and right way by social groups.
- Trincomalee Zonal school computer labs are should be connect under the one network system and conduct the inter schools ICT competition via online.

- The department of education should providea valid ICT certificate for students get the great job.
- Proper guidance should be given by teachers for the students to need of ICT when facing the any job interview.

Outcome & impact of ICT education

- The department of examination should release the ICT examination result within three months from the examination date.
- The schools should introduce a day for ICT (like English day, Science day etc.)
- The zonal Education department also has to introduce inter school competition in ICT education give a valuable prize to the winner.

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