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This Issue

This paper examines herding in Dhaka Stock Exchange (DSE) in Bangladesh. Daily and monthly returns for all the stocks listed on DSE for the period of January, 2005 to December, 2011, including the market crash in December, 2010, have been used in this study. Using Cross-Sectional Standard Deviation (CSSD) and Cross-Sectional Absolute Deviation (CSAD) technique, this study did not detect existence of herding in Dhaka Stock Exchange for the above mentioned time period. Absence of herding in Bangladesh depicts that investors in DSE are rational and make investment decisions based on information available in the marketplace rather than following the market consensus.

The study examined the mission statements of six accredited faith-based tertiary institutions in Ghana and the perceived influence of institutional mission on institutional members. Findings indicate that a significant number of respondents attest that they are not familiar with their institutions mission statement and therefore cannot recall the mission statement off-head. More so, the mission statement has not significantly influenced employees' attitudes in terms of emotional commitment to duty and as a source of motivation/inspiration among others.This paper therefore discusses the implications of the findings as regards to the institutional missions and its effect on institutional staff.

The article analyzes a sample of Jamaican private sector establishments, from agribusiness to cosmetics. Evidence shows the main impediments to higher productivity are managerial. We analyzed the most salient shortcomings in nine areas to ascertain their relation to the core problem of inadequate management. These areas were not analyzed mathematically, except for maintenance where the cutting-edge mathematics of the O-Ring Model of productivity was used. We demonstrated that the managerial problems have feasible solutions through technology, education and training.

Training and development of employees has become a core function for most organizations worldwide and has gained center-stage in recent years. The training and development of public sector employees is vital to any country as it affects its bureaucracy and policymaking. Using a case study approach, this study investigates the state of the training function and its effectiveness in eleven Omani government organizations as they aim to build and develop a competent workforce with the localization of the workforce. The study finds that there is a strong need to draw up an integrated HRD and training framework which would be capable of building a training & development architecture in Omani government organizations and fostering flexibility, creativity, team learning and collaboration among their employees at the workplace.

This study investigates the incidence of per capita income convergence in CFA franc countries, using the total average, regional average (West African and Central African countries, separately) and per capita income of France, as benchmarks. Using unit root tests with single structural break, the findings illustrate no conditional convergence towards any of the three benchmarks. The findings further demonstrate that Benin satisfies the catch-up hypothesis towards the total average, while Burkina Faso satisfies the catch-up hypothesis towards the West African average and no country satisfies the catch-up hypothesis towards per capita income of France.

China's reform and opening has had a tremendous impact on economic, social and cultural development. On one hand, with increased incomes, people not only spend more on food, clothes and housing, but also on education, which has a huge market demand due to the large population base. On the other hand, as China's traditional, government-provided education was developed before China's reform and opening and lags behind the market demand growth. As a result a training service market has emerged that is met primarily by private education and training agencies. The paper describes the development of a training service market in China distinct from the degree education system, namely the development of private training service market. It further put forward that although after 20 years of development the private training service market still has problems such as inconsistent and untimely information disclosure and incomplete corporate governance, but some positive trends such as branding, internationalization and capitalization have appeared and the market is of great investment value.

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Herding in Dhaka Stock Exchange

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This paper examines herding in Dhaka Stock Exchange (DSE) in Bangladesh. Daily and monthly returns for all the stocks listed on DSE for the period of January, 2005 to December, 2011, including the market crash in December, 2010, have been used in this study. Using Cross-Sectional Standard Deviation (CSSD) and Cross-Sectional Absolute Deviation (CSAD) technique, this study did not detect existence of herding in Dhaka Stock Exchange for the above mentioned time period. Absence of herding in Bangladesh depicts that investors in DSE are rational and make investment decisions based on information available in the marketplace rather than following the market consensus.

INTRODUCTION

Everyday tons of information gets dumped in the stock market. However, which information investors should use when they make an investment decisions? A common approach is to study what other investors do, and follow the herd. "Herding" takes place when investors imitate the market consensus rather than using their own judgments. Nofsinger and Sias (1999) suggests that herding can be observed when "a group of investors trading in the same direction over a period of time." Banerjee (1992) believes herding exists when "everyone doing what everyone else is doing, even when their information suggests doing something different."

Herding is more likely to form under conditions of market stress. Christie and Huang (1995) believes that in normal conditions, investors act as explained by modern finance theories, i.e., they are rational and make decisions based on available information. However, extreme conditions tend to generate extreme emotions, and investors seem to find reassurance in following the masses. Herding or "following the trend" has frequently been observed in the housing market, in the stock market crash of 1987 (Shiller, 1990) and also in the foreign exchange market (Frankel & Froot, 1986).

Kumar and Prasad (2002) argue that persistent herding in the stock markets may produce excessive inflows or outflows of capital without any accurate estimation of the reliability of coming information. Such behavior is completely contagion. Herding can also lead to mispricing of stocks since decision making is disturbed through the exercise of biased analysis of expected return and systematic risk (Hwang & Salmon, 2004). Furthermore, presence of herding makes diversification difficult for investors. According to Chang, Cheng and Khorana (2000), when investing in a financial market where herding is present, a larger number of securities are needed to achieve the same level of diversification than in an otherwise normal market.

Section 2 of this study lists previous studies related to herding, section 3 describes data collection, section 4 defines models employed in this study, section 5 discusses results of the research and lastly, section 6 provides concluding remark on the study.

LITERATURE REVIEW

Banerjee (1992) develops an analytical model to conclude that costly acquisition and asymmetry of information motivates investors to neglect the fundamental value of the asset and follow the market consensus which in turn leads to market inefficiency.

Christie and Huang (1995) used their own method, Cross-Sectional Standard Deviation (CSSD), and daily returns for stocks listed on the NYSE and Amex during July 1962 to December 1988. Their results show that "herding" takes place under conditions of market stress, when individual investors are likely to suppress their own beliefs and follow the market consensus.

Chang, Cheng and Khorana (2000) also used their own technique, Cross-Sectional Absolute Deviation (CSAD) and studied markets in the U.S., Hong Kong, South Korea, Taiwan and Japan. They found no evidence of herding in the U.S. and Hong Kong, limited evidence of herding in Japan and significant evidence of herding in South Korea and Taiwan.

Hwang and Salmon (2001) found evidence of herding in the U.S., UK, and South Korean stock markets. Contrary to a common belief, they detected herding during normal market conditions rather than market stress.

Kim and Wei (2002) analyzed herding among domestic and foreign investors in the Korea Stock Exchange. The results suggest that foreign investors tend to exhibit herding more comparing to domestic investors. Chen, Rui and Xu (2003) studied A-share and B-share markets to identify whether there is a difference in behavior of foreign and domestic investors. The results also confirm that foreign investors are more likely engaged in herding. These results point to the fact that lack of available reliable information and vague investment environment creates encouragement for investors to be engaged in herding in emerging markets.

Caparrelli, D'Arcangelis and Cassuto (2004) did not found evidence of herding in the Italian stock market for the period September 1988, to January 2001. Gleason, Mathur and Peterson (2004) applied Christie and Huang (1995), Chang et al. (2000) methodology and used intraday data of SPDR and nine sector ETFs traded on the AMEX from April 1, 1999 to September 30, 2002, to study whether traders herd during periods of extreme market movements. Their results illustrate that investors do not herd during periods of extreme market movements.

Demirer and Kutan (2006) used daily firm-level returns as well as sector returns from 1999 to 2002, and found no indication of herding in Chinese stock market. Their findings show that the Asian crisis era did not have significant effect on Cross Sectional Standard Deviations (CCSD). With the Christie and Huang (1995) and the Chang et al. (2000) models on a sample of 160 most actively traded stocks on the Australian Stock Exchange for the period 2001 – 2002, Henker, Henker and Mitsios (2006) found no evidence of herding in Australian Market. Farber, Nam and Hoang (2006) used the Christie and Huang (1995) methodology and confirmed herding in extreme market conditions in Ho Chi Minh City Securities Trading Center (HSTC), Vietnam as expressed by Christie and Huang (1995).

Using dual-listed Chinese A-share and B-share firms from 1996 to 2003, Tan, Chiang, Mason and Nelling (2008) analyzed herding in China. Their findings show existence of herding in both categories of shares (i.e., A & B) in the Shanghai and Shenzhen stock exchange. Their results also shows that evidence of herding over weekly and monthly time intervals is much weaker, revealing the short-term character of the phenomenon. According to their results, herding in A-share in Shanghai market is more intense during periods of rising stock markets, high trading volume, and high volatility. However, no asymmetry in the B-share firms has been observed.

Caporale, Economou and Philippas (2008) examined herding in extreme market conditions using data from the Athens Stock Exchange, and found significant herding behavior for the period 1998-2007.

Kallinterakis and Lodetti (2009) detected no herding in the New Securities Stock Exchange of Montenegro.

Chiang and Zheng (2010) used daily data from May 25, 1988, through April 24, 2009, for industrial stock returns, and studied herding activity for 18 countries: the United States, Australia, France, Germany, Hong Kong, Japan, the United Kingdom, Argentina, Brazil, Chile, Mexico, China, South Korea, Taiwan, Indonesia, Malaysia, Singapore, and Thailand. They found significant indication supporting existence of herding all national markets except the US and Latin America which stands in contrast to the earlier literature that herding in advanced markets (Chang et al. 2000) and in Chinese markets (Demirer & Kutan, 2006) do not exist.

Lao and Singh (2011) using the CSAD approach proposed by Tan et al. (2008) and daily data of top 300 stocks from the Shanghai A-Share index, and 300 stocks from the Bombay Stock Exchange index from 1999 to 2009, detected herding behavior in both the Chinese and Indian stock markets. Similar to Christie and Huang (1995), they found that herding is greater during extreme market conditions in both markets but the pattern is different. In the Chinese market, herding is greater when market is falling, i.e., bear period, and the trading volume is high; on the other hand, in India, herding occurs during upswings in market trends, i.e. bull stage.

Lakshman, Basu, Vaidyanathan, (2011) witnessed that the presence of herding in Indian stock markets is not very severe which depicts that Indian investors are better informed and behave rationally. Contrary to Christie and Huang (1995), they suggested that periods of market crisis can lead markets to equilibrium, and that herding can be more apparent before market stress, rather than during it. Gabsia (2011) found evidence of significant herding behavior in Tunis Stock Exchange, Tunisia, only during downward market cycle.

Prosad, Kapoor and Sengupta (2012) used daily data of Nifty 50 starting from April, 2006 to March, 2011, and also failed to detect herding in the Indian stock market which is in contrast to the findings of Chang et al. (2000) where herding was present in emerging economies like South Korea and Taiwan. However, individual tests for bull and bear phases of markets show that herding is observed in greater magnitude in bull period. These results are in alignment with findings of Lao and Singh (2011).

DATA AND METHODOLOGY

In order to examine herding in Dhaka Stock Exchange in Bangladesh, daily and monthly stock returns for all firms listed on the DSE for 7 years (January 1, 2005 – December 31, 2011) have been used which also includes data of stock market crash in December 2010. After a long bullish trend, on December 6, 2010, DSE started to decline and thus is taken as the beginning of market crash. DSE All Share Price Index (DSI) return has been used as the proxy for the market. DSI Index includes all stocks listed on DSE. All the data have been collected from the Dhaka Stock Exchange library.

HERDING MEASUREMENT

When herding exists, the returns of individual stocks converge towards the market return. In this paper, two measures of dispersion, Cross-Sectional Standard Deviation (CSSD) and Cross-Sectional Absolute Deviation (CSAD), have been used to identify herding behavior in Dhaka Stock Exchange (DSE). The Cross-Sectional Standard Deviation (CSSD) method, recommended by Christie and Huang (1995), is given below:

$$CSSD_t = \sqrt{\frac{\sum_{i=1}^{N}(R_{i,t}-R_{m,t})^2}{N-1}} \quad (1)$$

In equation (1), $R_{i,t}$ is the observed stock return of firm i at time t; $R_{m,t}$ is the return of market index during the same time period t; and N is the number of firms listed in the Dhaka Stock Exchange (DSE)

during time period t. The observed CSSD of returns were then regressed against a constant and two dummies in order to identify the extreme market conditions. Details of regression equation are as follows:

$$CSSD_t = \alpha + \beta^U D_t^U + \beta^L D_t^L + \varepsilon_t \quad (2)$$

Where,

D_t^L=1, if the market return on day t lies in the extreme lower tail of the distribution or equal to zero otherwise; and

D_t^U=1, if the market return on day t lies in the extreme upper tail of the distribution or equal to zero otherwise.

This study adopts 5% to define extreme market upward and downward. The α co-efficient denotes the average dispersion of the sample excluding the regions corresponding to the two dummy variables. If herd exists, $CSSD_t$ will be smaller during periods of market stress. Statistically significant negative values for β_1 and β_2 would indicate the presence of herding.

However, the Cross-Sectional Standard Deviation of returns can be noticeably influenced by the presence of outliers. That is why Chang, Cheng and Khorana (2000) suggested using Cross-Sectional Absolute Deviation (CSAD) as a better measure of dispersion:

$$CSAD_t = \frac{1}{N_t}\sum_{i=1}^{N_t}\left|R_{i,t} - R_{m,t}\right| \quad (3)$$

Here, $R_{i,t}$ is the observed stock return of firm i at time t; $R_{m,t}$ is the return of market index during the same time period t; and N is the number of firms listed on the Exchange during time period t. The equation for the CSAD analogous to Equation (2) is the following:

$$CSAD_t = \alpha + \beta^U D_t^U + \beta^L D_t^L + \varepsilon_t \quad (4)$$

However, under CAPM assumptions, rational asset pricing models predict that the stock return dispersions are not only an increasing function of the market return but also that the relation is linear. In the presence of herding, the relation can become nonlinearly increasing or even decreasing. Thus, alternative to Christie and Huang (1995) method, using the entire distribution of market returns, Chang, et al. (2000) suggested the following first nonlinear model for testing herding:

$$CSAD_t = \alpha + \gamma_1\left|R_{m,t}\right| + \gamma_2 R_{m,t}^2 + \varepsilon_t \quad (5)$$

Even though this nonlinear technique is similar in spirit with Christie and Huang's (1995), they may provide contradictory results with regard to the existence of herding. That is because the Christie and Huang (1995) model is a more stringent test, which requires "a far greater magnitude of nonlinearity" in order to get confirmation of herding (Tan et al., 2008).

A statistically significant negative coefficient γ_2 implies the existence of herding. Presence of herding is expected to raise the correlation among individual asset returns, and the dispersion among asset returns will either increase at a decreasing rate or diminish in the case of serious herding. If investors herd during periods of large price movements, then there should be a less than proportional increase (or decrease) in the CSAD measure. In absence of herding, the relationship is linear and increasing, that is, the dispersion increases proportionately with the increasing returns of the market.

Also, the link between CSAD and market returns may be asymmetric in bull and bear market phases. The generalized relationship mentioned above can be separated into following two equations. A positive or zero market return is labeled as bull phase and, on contrary, a negative market return is marked as bear phase.

$$CSAD_t^{UP} = \propto + \gamma_1^{UP} \left| R_{m,t}^{UP} \right| + \gamma_2^{UP} (R_{m,t}^{UP})^2 + \varepsilon_t \quad \text{if } R_{m,t} \geq 0 \tag{6}$$

$$CSAD_t^{DOWN} = \propto + \gamma_1^{Down} \left| R_{m,t}^{Down} \right| + \gamma_2^{Down} (R_{m,t}^{Down})^2 + \varepsilon_t \quad \text{if } R_{m,t} < 0 \tag{7}$$

Here, $\left| R_{m,t}^{UP} \right|$ and $\left| R_{m,t}^{Down} \right|$ are the absolute values of the average overall sample return when market is up (or down). Like earlier case, here also negative and significant γ_2^{UP} and γ_2^{Down} captures herding in DSE.

However, measures proposed by Christie & Huang (1995) and Chang, Cheng, & Khorana (2000) have some major shortcomings. First, Hwang (2000) documents that there is a positive relationship between cross-sectional volatility of market return and time series volatility. So, reduction in cross-sectional standard deviation of returns does not necessarily imply existence of herding but it may be explained by decrease in uncertainty of market return. Second, these approaches do not account for the effect of changes in fundamental variables, so do not distinguish spurious herding from intentional one (Bikchandani & Sharma, 2001). In addition, there is no hard and fast rules in which values of the market return must be considered as extreme. Also, herding is not necessary observable only in periods of market stress; it might be also recognizable in sufficiently calm periods when herding drives reallocation of funds in the market toward particular industry, which does not reflect in significant change in market index. So, detecting herding only in periods of extreme market movement leads us to ignore some important points about herding behavior.

RESULTS

Empirical results reveal that herding was not present in Dhaka Stock Exchange (DSE) during January, 2005 - December, 2011. Table 1 represents descriptive statistics of DSE All Share Price Index Return, CSSD, and CSAD, both on a daily and monthly basis. Table 2 presents regression results using Christie and Huang (1995) and Chang et al. (2000) method described in equation (2) and equation (4) respectively. Even though, on a daily basis, all the coefficients are negative, they are not statistically significant which is interpreted as absence of herding in DSE during 2005-2011. Even monthly data reveals that herding did not exist in DSE during the described period.

Table 3(A) reports the regression results using the Chang et al. (2000) measure described in equation (5) for DSE. For daily data, the coefficient γ_1 and γ_2 is positive and is not statistically significant. However, for monthly data, the coefficient γ_1 is negative and γ_2 is positive and is not statistically significant. Table 3(B) also states regression results using Chang et al. (2000) technique explained in equation (5), but only for the period of market crash in 2010. Even though coefficient for γ_2 is negative, it is not significant which again points to the fact that herding wasn't present in DSE even during market crash of 2010 which contrasts Christie and Huang's (1995) idea that herding takes place during extreme market movements.

Using Chang et al. (2000) measure described in equation (6) and (7), herding was also tested for bullish and bearish market trend in DSE for the period 2005-2011. In table 4(A) and 4(B), regression results for up market and down market, correspondingly, are provided. For both daily and monthly data, herding was not detected for neither bullish nor the bearish period. Nonexistence of herding in the DSE in the bull and bear phase is in disagreement with Lao and Singh (2011).

Findings from this study are in contradiction with Chang et al. (2000) observation that herding is present in emerging economies like South Korea and Taiwan. Absence of herding in DSE depicts that investors in Bangladesh are rational and make decisions based on information available in the marketplace. The results of the study are in alignment with the findings of Lakshman, Basu & Vaidyanathan (2011).

CONCLUSIONS

Lack of available accurate information and opaque investment environment creates incentive for investors to be engaged in herding behavior in emerging markets (Chen, Rui, & Xu (2003)). Better and clearer information would probably increase the chance of investors disregarding the herd (Andersson, 2009).

Herding was not present in Dhaka Stock Exchange (DSE), Bangladesh, during January, 2005 - December, 2011. The result is opposite of what we hear in popular media in Bangladesh. From the findings it can be inferred that, in the past following market consensus might not have led to encouraging results for the investors. This could have reinforced their belief that following the crowd is a wrong idea due to which they discontinued to herd.

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TABLE 1
DESCRIPTIVE STATISTICS

	Particulars	**Mean**	**Standard Deviation**	**Maximum**	**Minimum**
Daily	DSE All Share Price Index Return	0.000733	0.016928	0.226079	-0.08908
	CSSD	0.054509	0.195214	6.500421	0.012494
	CSAD	0.028911	0.111269	4.519642	0.00741
Monthly	DSE All Share Price Index Return	0.014483	0.094927	0.289796	-0.30343
	CSSD	0.619174	0.982069	8.320518	0.078452
	CSAD	0.17768	0.124749	0.981285	0.054347

TABLE 2
RESULTS OF REGRESSION OF DAILY & MONTHLY CSSD AND CSAD USING DUMMY VARIABLES

	$CSSD_t = \alpha + \beta^U D_t^U + \beta^L D_t^L + \varepsilon_t$			$CSAD_t = \alpha + \beta^U D_t^U + \beta^L D_t^L + \varepsilon_t$		
	Coefficients		***p*-value**	**Coefficients**		***p*-value**
Daily	Constant	0.054668	(<0.00001) ***	Constant	0.02881	(<0.00001) ***
	D_t^U	-0.000909	(0.97366)	D_t^U	0.004944	(0.75276)
	D_t^L	-0.003579	.888838	D_t^L	-0.001438	(0.92116)
Monthly	Constant	0.610305	(<0.00001) ***	Constant	0.167824	(<0.00001) ***
	D_t^U	-0.0193253	(0.96360)	D_t^U	0.074498	(0.16013)
	D_t^L	0.170412	(0.71161)	D_t^L	0.074224	(0.19807)

TABLE 3 (A)
TOTAL MARKET REGRESSION RESULTS USING CHANG, CHENG & KHORANA (2000) TECHNIQUE

Model: $CSAD_t = \alpha + \gamma_1 \lvert R_{m,t} \rvert + \gamma_2 R_{m,t}^2 + \varepsilon_t$			
	Coefficients		***p*-value**
Daily	Constant	0.0267451	(<0.00001) ***
	$\lvert R_{m,t} \rvert$	0.156847	0.63559
	$R_{m,t}^2$	1.58703	0.57328
Monthly	Constant	0.176195	(<0.00001) ***
	$\lvert R_{m,t} \rvert$	-0.257554	0.67210
	$R_{m,t}^2$	2.07597	0.38689

TABLE 3 (B)
TOTAL MARKET REGRESSION RESULTS DURING THE MARKET CRASH IN 2010

Model: $CSAD_t = \alpha + \gamma_1 \lvert R_{m,t} \rvert + \gamma_2 R_{m,t}^2 + \varepsilon_t$			
	Coefficients		***p*-value**
Daily	Constant	0.020738	(<0.00001) ***
	$\lvert R_{m,t} \rvert$	0.233429	0.20146
	$R_{m,t}^2$	-2.67698	0.53523
Monthly	Constant	0.125302	(<0.00001) ***
	$\lvert R_{m,t} \rvert$	0.27529	0.26428
	$R_{m,t}^2$	0.92016	(0.00116) ***

TABLE 4 (A)
UP MARKET REGRESSION RESULTS

Model: $CSAD_t^{UP} = \alpha + \gamma_1^{UP}\left\|R_{m,t}^{UP}\right\| + \gamma_2^{UP}(R_{m,t}^{UP})^2 + \varepsilon_t D_t^L + \varepsilon_t$			
	Coefficients		***p*-value**
Daily	Constant	0.025642	(<0.00001) ***
	γ_1^{UP}	0.029786	0.62242
	γ_2^{UP}	2.63762	(<0.00001) ***
Monthly	Constant	0.153769	(<0.00001) ***
	γ_1^{UP}	-0.054515	0.90185
	γ_2^{UP}	2.08037	0.25078

TABLE 4 (B)
DOWN MARKET REGRESSION RESULTS

Model: $CSAD_t^{DOWN} = \alpha + \gamma_1^{Down}\left\|R_{m,t}^{Down}\right\| + \gamma_2^{Down}(R_{m,t}^{Down})^2 + \varepsilon_t$			
	Coefficients		***p*-value**
Daily	Constant	0.0262446	(0.02547) **
	γ_1^{Down}	1.00149	0.43367
	γ_2^{Down}	-14.0628	0.50306
Monthly	Constant	0.213916	(0.00136) ***
	γ_1^{Down}	-0.669244	0.63185
	γ_2^{Down}	2.56447	0.62644

*** indicates significant at 1 percent level ** indicates significant at 5 percent level
* indicates significant at 10 percent level

Institutional Mission Statements and Attitudinal Outcomes of Selected Faith-Based Tertiary Institutions in Ghana

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The study examined the mission statements of six accredited faith-based tertiary institutions in Ghana and the perceived influence of institutional mission on institutional members. Findings indicate that a significant number of respondents attest that they are not familiar with their institutions mission statement and therefore cannot recall the mission statement off-head. More so, the mission statement has not significantly influenced employees' attitudes in terms of emotional commitment to duty and as a source of motivation/inspiration among others.This paper therefore discusses the implications of the findings as regards to the institutional missions and its effect on institutional staff.

INTRODUCTION

Organizational mission statement is a critical part of an organization's identity. A well conceived mission statement facilitates the communication of the organisation's direction and purpose, provides a control mechanism over the behaviour of employees, and assists the organisation to create a balance between competing interests of various stakeholders as well as focused resource allocation (Bart, 1998; Bart and Baetz, 1998). Thus, mission statements that articulate a firm's mission are critical elements of an organisation's overall strategic management process. They are championed as an important mechanism that provides crucial information to internal and external stakeholders about the purpose and direction of the organization.

A university's mission statement can be one of the most powerful methods for securing success within the educational sector. It is logical to accept that faith-based universities have strong value-based missions that are rooted in stewardship and a commitment to God. Such Schools typically purport to offer a quality education that is based on various tenets of their faith. Consequently, the mission of educational institutions must be clearly defined and well understood by everyone connected with the institution in order for it to serve as a guide and inspiration in creating the desired school climate and culture. The mission statement's influence on all staff is very important since the commitment of the whole staff is needed for the mission statement to be effective (Stovel and Bontis, 2002). It has to be owned by all the employees.

The potential power of meaningful mission statements in enhancing the organisation's success is derived mainly from the fact that the mission statement gives a sense of purpose and direction to the organisation and legitimates its existence. While many organizations employ mission statements to guide their business activities, institutions with religious affiliation put greater emphasis on mission because it not only guides their work, but also creates and sustains it. The development of mission statements can significantly impact on the survival and growth of a business (Analoui and Karami, 2002). The most

common objectives for a mission statement are to communicate direction for an organisation, to guide decision making and to motivate staff.

Many faith-based educational institutions have lost their sense of direction (mission), becoming indistinguishable from any other educational institutions. The relationship between an institution's mission statement and its performance has been assumed by many researchers and managers for years, but the question of whether a formal mission statement is associated with positive behavioural outcomes has not been extensively investigated in the literature. Some researchers have undertaken to test the assumption that the presence of a written mission statement is a positive contributor to performance (Bart, 2000). In contrast, there is another school of thought that has questioned the benefits and usefulness of mission statements (as cited by Alavi & Karami). Those who oppose mission statements argue that they are empty public relations initiatives, that mission statement formulation and implementation are a lot more difficult than the literature makes out, and that organisations with a good mission do not need to compress their aims into a statement. Some previous research has also attempted to study the relationships between financial performance measures and the existence of a formal mission statement (Bart and Baetz, 1998; Bart and Hupfer, 2004; Bart and Tabone, 1998; Bart, Bontis and Taggar, 2001). More so, even though it is widely recognized that the effectiveness of mission statements is contingent upon the extent to which they are communicated to the organization's members, very few studies have been conducted on how organizational members perceive the mission statement, especially in faith-based institutions.

Consequently, the main purpose of the study was to examine institutional mission statements and employee attitudinal outcomes of selected faith-based institutions of higher learning in Ghana. Accordingly, this research was guided by the following objectives: (1) find out if institutional members are familiar with the mission statement; (2) examine how institutional mission is communicated to members; (3) evaluate the characteristics of mission statement of the respondent institutions; and (4) examine the perceived influence of institutional mission on institutional members. By attempting to address these, this study warrants a potential contribution to existing knowledge as far as such endeavour can only be achieved through empirical study. Moreover, previous research has mainly focused on for-profit organisations while other contexts such as the higher educational sector have been less researched (Bart and Tabone, 1998; Bart and Hupfer, 2004; Forbes and Seena, 2006). Therefore the need to empirically examine other organisational contexts justifies the focus on educational sector.

LITERATURE REVIEW

Mission statements are brief documents intended to distil an organization's purpose and function. Mission statements are most often described as an enduring and unique statement of purpose (Bart and Hupfer, 2004). Corporate mission can be defined as "a set of values, beliefs, and norms of behaviour shared by its (a firm's) members that influences employee preferences and behaviors. Mission statement is a tool to articulate management's beliefs, convictions, perspectives and approaches in regard to the firm's purpose, social responsibility and achievable inspiring goals. Thus, mission statement communicates not merely the future desirable state of a firm. Rather, it explicitly expresses the long embedded corporate identity, corporate purpose, and strategic intent in a very succinct form. It is the "cultural glue" which enables an organization to function as a unit by influencing the behaviour of employees via norms and values (Melewar and Jenkins, 2002).

To create this enduring purpose, the first step typically requires that an organization ask itself some difficult questions, such as "Why do we exist?" and "What is our purpose?" When these questions are thoughtfully answered, the resultant document is generally expected to provide two key benefits: (1) a more focused guide for decision making and the allocation of resources and (2) more motivated and inspired employees (Bart and Hupfer, 2004).

They are pervaded in corporate firms and are widely advocated as normative guides for organizational identity and direction. A mission statement is both an organisational cultural symbol and an objective technical element of an organization's strategy. As institutional theory suggests, mission statements and the act of constructing them are not merely a managerial technique but rather are imbued

with meaning, reflecting the assumptions and values of the environments in which they are crafted. The development of mission statements can significantly impact on the survival and growth of a business (Analoui and Karami, 2002. The most common objectives for a mission statement are to communicate direction for an organisation, to guide decision making and to motivate staff. They primarily communicate the strategic direction of the organisation (Bartkus et al., 2004) in order to guide strategic planning. Both Baetz and Bart (1996) and Analoui and Karami (2002) ranked "to establish a common purpose amongst employees" as the third most important rationale of mission statement. In the not-for-profit sector, mission statements act as a surrogate "bottom line". "Providing a common purpose" has been identified as the top driver in this sector (Bart, 1998). Consequently, the commitment of the whole staff is needed for the mission statement to be effective (Stovel and Bontis, 2002).

It has become generally accepted over the years by both academics and practitioners that a vital starting point for these strategic considerations is the formulation of a mission statement, a vision for the future. Pearce (1982) states that a mission statement can serve as an invaluable tool in directing the formulation and implementation of strategy. He believes that it can lead to a heightened sense of purpose in addressing the issues of why the organization exists and whom it serves. Klemm *et al* (1991) state that there are two views regarding the purpose of such statements: first, to enhance the organization's image externally and second to motivate staff. A research by Campbell (1993) indicated that a good mission statement can overcome the rivalry of stakeholder groups.

Previous research has emphasized the benefits that an organisation can achieve by having an effective mission statement. This has led numerous researchers and writers to propose typologies addressing the core elements that should be present in a mission. Yet, the complexity of such effort is noticeable as far as a general lack of consensus exists regarding the identification of mission statements that effectively contribute to the organisation's success. Moreover, contradictory empirical evidence fails to support the link between mission statement and performance. Along these lines, the literature shows a growing consensus on the view that some elements of mission statements do have a greater impact on performance than others (Bart, 1998), and that the exact nature of the link between mission statements and performance remains a controversial issue (Bart, 2007). In this respect, the importance in determining the key mission statements that have a direct impact on performance has been recently highlighted (Sheaffer *et al.*, 2008). Accordingly, the authors assert that the empirical corroboration that exists regarding the association between various mission statement constructs and performance is still involved in ambiguity.

Mission can have a goal-setting effect when it specifies the goals of the firm and makes it easier for employees to make daily decisions (Mullane, 2002 & Sorensen, 2002). Mission has a coordination effect when it reduces communication costs and facilitates coordination among employees (Biloslavo and Lynn, 2007). Research by David (1989) into the content of mission statements revealed nine components: products or services, customers, philosophy, self-concept, public image, location, technology, employees and concern for survival. There is therefore a broad agreement that to be meaningful, mission statements need to include the beliefs, values and aspirations of the organization and its competitive strengths. It should be market driven and thus it should involve the understanding of the needs and wants of customers in the market.

METHODOLOGY

The study utilized a descriptive research design since the study is primarily descriptive. The intent was to capture the relevant issues that surround mission statements and attitudinal outcomes in educational institutions. Data was obtained from six faith-based tertiary institutions in the Greater Accra Region of Ghana; namely, Valley View University, Central University College, Pentecost University College, Methodist University College, Islamic University College and Presbyterian University College**.** The respondent institutions were chosen on the basis of their academic reputation and relationship with their faith tradition. The study also employed quota sampling technique to draw 220 institutional members for the study to ensure that each respondent institution is adequately represented. However, data

were collected from 169 respondents, representing 77% response rate. Respondents include teaching staff (31%); non teaching staff (57%); HODs (9.5%) and Principal Officers (2.4%)

RESULTS

Given their mission and philosophy, universities with religious affiliation should inculcate a 'sense of mission' to its employees which is normally embodied in the content of the organisational mission statement. Consequently, a critical analysis of the mission statements of the respondent institutions indicated that their mission statement consists of the same elements as regards to religious heritage, teaching, research and service. Thus, all six respondent institutions implied that their main reason of existence is to lead their stakeholders to serve God and society. Table 1 presents the mission statements of the respondent institutions.

TABLE 1
MISSION STATEMENTS OF SELECTED TERTIARY INSTITUTIONS IN GHANA

Faith-Based Institutions	Mission Statements*
1. Pentecost University College	The vision of the Pentecost University College is to empower students to serve their own generation and posterity with integrity and the fear of God. Thus, the University's mission is to be on the cutting-edge of the dissemination of knowledge, quality education, research and training for the purpose of producing an excellent human resource base to meet the demands of Ghana's development.
2. Central University College	Central University College is committed to the fulfillment of the great commission of Our Lord Jesus Christ in its multifaceted dimensions. Our aim is to provide an integrated and biblically-based tertiary education with particular reference to the needs of the African continent, to enable men and women to serve in a variety of supportive and leadership roles in the Church and society, and through the training and extension programs, research and advisory services, to help equip the church to effectively serve the society in which it exists.
3. Valley View University	Valley View University, a Seventh – day Adventist institution, emphasizes academic, spiritual vocational and technological excellence in a context that prepares lives for service to God and humanity.
4. Presbyterian University College	The mission of the University derives from the vision and includes the design and implementation of academic and professional programs of teaching, basic and applied research and outreach
5. Methodist University College	To impart knowledge and skills in disciplines relevant to national development within the context of general global development, and at the same time an all-round development of the student mentally, physically and spiritually on the basis of Christian principles.
6. Islamic University College	Islamic University College has been established with the principal mission of training the youth to qualify as professional men and women who will not only meet the highest standards and expectations of the Ministry of Education but will also be imbued with the commitment to serve in deprived areas in general and Muslim communities in particular.

**mission statements were retrieved from institutions' website*

More so, in affirming the institutional missions located on their websites, respondents were asked to assess the degree to which the characteristics outlined in Table 2 are specified in their organisation's mission statements. Analysis of the results generally shows that organisational members are not very sure if their organisation's mission statement exhibits the characteristics outlined in Table 2. The mean scores were based on a five-point rating scale where '5' means 'clearly specified' in the mission statement and '1' means 'not specified at all' in the mission statement. From the results, it appears organisational members are not able to link their institution's mission statement to the overall direction of the institution, the values and the philosophy of their institutions.

TABLE 2
CHARACTERISTICS OF INSTITUTIONAL MISSION STATEMENTS

Characteristics of Organisational mission statement	Mean	Std. Deviation
1. Specifies the fundamental reason(s) of the institution's existence.	2.42	1.18
2. Establishes the scope of the organisation	2.54	1.05
3. Identifies the institution's unique characteristics	2.89	1.04
4. Provides a consistent message to organisational members	2.46	1.13
5. Provides overall policy direction for the organisation	2.16	1.17
6. Indicates statement of values/ beliefs/ philosophy	2.21	1.33
7. Prescribes specific behaviour standards for employees to follow and practice	2.44	1.23

n = 169

Besides, the study probed into whether the respondents are familiar with their institution's mission statement.

TABLE 3
ORGANISATIONAL MEMBERS FAMILIARITY WITH THE MISSION STATEMENT

Familiarity of M/S	Ƒ	%
Yes	74	43.8
No	95	56.2

n = 169

Table 3 shows that approximately 44% of the respondents are not familiar with the mission statement of the institution. According to the results of the study, the institutional mission statements are normally displayed on the university website (82%), university entrance and notice boards (65%), meeting rooms (64%), printed programs (51%), diaries/calendars (37%), and office walls (32%). However, 40% of the respondents indicated that their institutional mission statement is not displayed anywhere. Table 4 depicts the findings.

TABLE 4
MISSION STATEMENT DISPLAY

Display Points	***f***	**%**
Office Walls	55	32.2
Conference Rooms	1	0.6
Meeting Rooms	109	64.5
Notice Boards	110	65.1
University Printed Program	86	50.9
University Entrance	110	65.1
University Website	139	82.2
Desk Diary/Calendars	63	37.3
Nowhere	69	40.8

n = 169

Table 5 below also confirms the previous finding given that members are not familiar with the organisational mission. Thus only 13.6% of the respondents are confident that they can *completely* recall their institution's mission statement; while 11.8% can *mostly* recall, about 30% of the respondents partially recall, and 14% *slightly* recall as well as 38.5% do not recall at all.

TABLE 5
RECALL MISSION STATEMENT FROM MEMORY

Recall Mission Statement Off Head	***f***	**%**
Completely	23	13.6
Mostly	20	11.8
Partially	37	21.9
Slightly	24	14.2
Not at all	65	38.5

n = 169

Communicating Mission Statement to Organisational Members

The study also revealed how respondent institutions convey the mission to institutional members. Thus, analysis of Table 5A shows the various ways respondent institutions use to communicate the organisational mission to its stakeholders. Respondents were asked to rate the extent to which their institutions communicate its mission. The mean scores were based on a five-point rating scale where '5' means 'completely' and '1' means 'not true at all' in their institutions. The results indicated that the organisational mission statement is communicated to organisational members through various means such starting each meeting by reciting mission statement, the mission is pasted at various places on the university campus and the respondent universities also have the habit of incorporating the mission statement into email signature, memos, letters, among other for employees. Furthermore, top administrators and supervisors often mention the mission statement.

TABLE 5A
COMMUNICATING THE ORGANISATIONAL MISSION

	Means of Communication	Mean	Std. Deviation
1.	Top Administrators and supervisors often bring up and mention the mission statement.	2.97	1.53
2.	We start each meeting by reciting our mission statements	2.53	1.53
3.	The organisational mission statement is pasted at various places on campus	2.79	1.49
4.	The mission is reflected in the way leaders discuss and deal with various organisational issues	2.64	1.09
5.	Top managers/principal officers are role models, their behaviour reflects the organisational mission	2.53	1.21
6.	Top managers/principal officers adopt various methods of communicating the mission	2.68	1.07
7.	Positions/designations in the institution are structured in a way that I can see the connection between the positions and how it works towards the organization's stated mission	2.98	1.07
8.	I can clearly see how department/unit's goals are aligned with the mission statement of the University	2.55	1.10
9.	My institution has a habit of incorporating the mission statement into email signature, memos, letters, etc. for employees.	2.48	1.44
10.	My institution has a documented mission statement	2.78	1.45

n = 169

In order to assess the influence of mission statements on employees, respondents were asked to indicate how the mission had influenced their attitudes. The study revealed that the mission statement influences employees as it 'guides behaviour at the workplace' (122), it is a 'bond between employees and the institutions' (116), and serves as 'shared values among organisational members.

TABLE 6
MISSION STATEMENTS AND ATTITUDINAL OUTCOMES

	Outcome Variables	Yes (*f*)	No (*f*)	Not Applicable (*f*)
1.	Emotional commitment to duty	53	26	71
2.	Common direction in my department/unit/university	57	18	75
3.	Sense of unity among co-workers	50	22	78
4.	Source of motivation and inspiration.	62	19	69
5.	Bond between employees and the institution	116	22	12
6.	Shared values among organizational members	98	25	27
7.	Guides behaviour at the workplace	122	12	16
8.	Guide for decision making and planning	65	13	72
9.	Job satisfaction	23	27	100

n = 169

DISCUSSIONS

From the analysis presented, it is clear that mission statements among the respondent institutions are prevalent and paramount to the respective institutions. However, organizational members are not keen about the mission of their institutions. This is very critical since a mission statement is worthless unless it has the support of the employees in the organization. Thus, commitment to the mission of the institution will only be successful if each employee commits to its success and internalizes it.

The study also showed that more than 50% of the respondents are not familiar with their institution's mission statement although they are displayed on the institutions' websites and other vantage points such as notice boards, meeting rooms and etc. This has serious implications because faith-based institutions, particularly universities, are able to publicize their mission when organizational members are familiar with the institution's mission. Thus, without a critical mass of employees to drive mission-centered institution, faith-based universities will simply be in name only. According to Brown & Yoshioka, (2003), at least three basic principles influence employee attitudes towards the mission: awareness, agreement and alignment. Employees must agree with the expressed purpose and values of the organization in order to perceive a connection between their work and the fulfillment of the mission.

Interestingly, the results revealed that institutional mission per se do not affect employees' attitudes in terms of their affective commitment, job satisfaction and motivation among others. Perhaps the maximum impact of mission is not felt by employees because either they are not familiar with the mission or there is a communication gap.

CONCLUSION

In examining the mission statements of faith-based tertiary institutions, the study concludes that much needs to be done to imbibe the 'mission spirit' into all employees for which the institution was founded. Looking at the results collectively, it can be concluded that though the institutions have documented mission statements, most institutional members are are not in tune with the mission of their institutions and therefore psychologically disengaged.

Accordingly, two pertinent issues that are worthy to address are, first, how religious institutions will be able to maintain a sharp and distinct identity; and second, how they will inculcate the passion of mission in their employees. Organizations should be creative in making employees aware of the mission statement. It is therefore crucial to intensively educate employees to secure their psychological understanding and acceptance of the organisation's mission. Besides, the mission of educational institutions must be clearly defined and well understood by everyone connected with the institution in order for it to serve as a guide and inspiration in creating the desired climate and culture.

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Management: A Key to Development in Jamaica

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The article analyzes a sample of Jamaican private sector establishments, from agribusiness to cosmetics. Evidence shows the main impediments to higher productivity are managerial. We analyzed the most salient shortcomings in nine areas to ascertain their relation to the core problem of inadequate management. These areas were not analyzed mathematically, except for maintenance where the cutting-edge mathematics of the O-Ring Model of productivity was used. We demonstrated that the managerial problems have feasible solutions through technology, education and training.

INTRODUCTION

After visiting some seventeen factories and outlets ranging from agribusiness to cosmetics and probing the needs of the private sector of Jamaica, it was concluded that main problems in reaching higher rates of productivity are in the area of management. Specifically, the most salient and obvious shortcomings are:

1. Communication
2. Decisiveness
3. Accountability
4. Apathy
5. Disdain of Manual labor
6. Interpersonal relations
7. Maintenance: A Spillover of Management
8. Marketing
9. Pricing

We shall analyze each issue under discussion to see how it relates to the core of the problem, which is inadequate management. At the same time, we will come out with some suggestions, as to why and how we feel the problems can be surmounted.

ANALYSIS

The nine sections will be treated non-mathematically with the exception of section seven, maintenance, which will employ relevant cutting edge mathematics--the O-Ring Model of Productivity--in order to illustrate the power of such tools in business analysis. The O-Ring Model of Productivity will also be used to focus on the critical role of maintenance in the business and economic process.

Although the application of the O-Ring theory to economic development is not novel (Basu, 1997),

maintenance within the context of management for development and dependency has not been widely studied and consequently merits our analysis. We hope that our analysis will encourage others to do further research in this area.

Communication

Communication is a process for the replication of memories, and it involves a sender as well as a receiver. It implies cultural affinities and the mutuality of interest. It appears that the case in question is one where there is quite a bit of filtering (distortion), for the manager-supervisor exemplified by the College of Arts, Sciences and Technology (CAST, established in 1958, now U Tech) graduate, who for cultural reasons, wants to disassociate himself from those whom he supervises, i.e. the operative (line) level personnel (Johnson, Freemont, & Rosenzweig, 1964).

Decisiveness

Decisions can only be made when there are alternatives. A traditional society does not give alternatives. Choice is a privilege, in those types of societies, held by the colonial. The colonist does not have a choice, nor is he taught, hypothetically, to make decisions (Simon, 1959). Decision-making not only involves a waste of time as a resource but also the possibility that the colonist would rebel, and at the *very* least *say* like Oliver Twist "**More.**"

It is worth mentioning that in regards to problem solving, which is a very significant aspect of decision-making, we obtained data that corroborates the above alluded problem of decisiveness. Upon interviewing middle managers, as well as operative level personnel, and asking them how they could solve some of their problems, the overwhelming majority of those interviewed, answered that it could be done primarily through outside help. This, coupled with the Jamaican colonial historical background of dependency leads us to believe that decision making related to problem solving is not one of their strong points.

Accountability

"A fair day's pay for a fair day's work" is the conservative motto of incentive for work, the revolutionary being "abolition of the wage system and emancipation of the working class." Although, different governments espouse different political philosophies, in traditional societies the conservative motto prevails for it clearly delineates tasks and leaves decision-making to the proprietors (Scott, 1967). Why should non-owners take responsibility, when it is known that it is never delegated or compensated.

Unlike a developed society, where true responsibility is never delegated, the risk involved in the delegation of authority is compensated by pay, status, or other perks. The interviewees, middle managers as well as operative personnel, felt that having the job that they had was sufficient accomplishment in itself.

Apathy

Apathy is the result of the inability to communicate vertically. Virtually all the interviewees manifested this inability. Their constant mentioning that things in life are not going as well as they should and that things are getting beyond their control further substantiates the existence of apathy.

Disdain for Manual Labor

Love of manual labor is the product of societies that have an artisan tradition. Jamaica, of course, has not had a traditional artisan class. Virtually everyone interviewed accepted this fact.

All the discussed outlined items, lead to the situation in which manual labor is placed in a socially negative context.

Interpersonal Relations

Let us recapitulate. We have a supervisor who has gone to a technical type of school, e.g. College of Arts, Sciences and Technology (CAST); to get out of manual labor related tasks. Yet this person's work

setting is one where he deals directly with individuals whose tasks are virtually totally manual, and supervises their functions and serves as an example.

He is in a situation in which success depends on his ability to communicate with the world from which he is trying to escape.

The supervisee sees this type of supervisor often as pedantic and aloof, not necessarily incapable of understanding his plight, but rather not wanting to understand it. Sometimes this mentioned type of supervisor is capable of communicating with top management or proprietorship, but in most cases **he is not**; since this individual has not had the advantage of appropriate training nor has he had the experience of the top management or that of proprietors. We venture to say this in spite of the fact that Jamaicans are well known for their acquisitiveness and entrepreneurial behavior. (Simon, 1959).

The above discussed shortcomings reveal themselves in conflict-based sociological and psychological processes that, in the particular case of Jamaica, have a strong impact on productivity. Synthesizing, we propose to come out with solutions that will help make the firms more cost-effective and productive.

Maintenance: A Spillover of Management

One of the spillovers of the management problem is Jamaica's current attitude toward the problem of maintenance, being **repair for preservation** (Banks and Wheelwrights, 1983).

We shall use the O-Ring Model of Productivity, in order to illustrate the power of such tools in business and economic analysis, as well as to focus on the critical role of maintenance in the business and economic process.

The basis of the O-Ring Theory or Model rests on complementarily between components and or inputs of a production or distribution process. The theory first proposed by Kremer (1993), is named after the space shuttle Challenger that exploded because of the lack of complementarily of some of its inputs.

To simplify this exposition let us consider that each input consists of a task of the management process involved in the manufacture of a product and that each task is carried out by a single person. We are going to say that the work skill of a task is $\mathbf{q_i}$ **,** where $0 \leq \mathbf{q} \leq 1$. We should see **q** as the probability of completing the task successfully. Let us suppose that for the product to actually materialize, each task has to be completed successfully. Have $\mathbf{q_i}$ be the level of skill or quality needed in activity **i**. Let **B** be the production divided by the number of tasks, when all the tasks are carried out successfully. The workers are of q, where $0 \leq \mathbf{q} \leq 1$. Let us assume that in the Jamaican economy there are **N** workers uniformly distributed in the intervals {0,1}. Therefore the number of workers that have skills less than **Q** is given by **QN**.

Then if **y** denotes the expected volume of production or the expected volume of sales, or any other expected variable, we would have the following situation:

$$Y = q_1 * q_2 * \ldots\ldots\ldots * q_n * n * B, \text{ that is}$$

$$Y = \left(\prod_{i=1}^{n} q_i\right) * n * B$$

Let **w(q)** be the salary for each type of task of **q** skills in competitive equilibrium.

The firm solves its maximization problem as follows:

$$\text{Max} \left[\left(\prod_{i=1}^{n} q_i\right) * n * B - \sum_{i=1}^{n} w(q_i) \right]$$

This gives us the first order conditions for each task/level or input **i**

$$w'(q_i) = \left(\prod_{j \neq i}^{n} q_j\right) * n * B$$

It could be shown that profits maximization is obtained by having $q_1 = q_2 = \ldots\ldots = q_n = q$, then:

$w'(q) = q^{n-1} * n * B$, then integrating we have the following:

$w(q) = q^n * B$

From this expression we gather an almost intuitive conclusion: that the salary or, in a more general manner, that the cost of each input is an increasing function of the quality required of each input. But what is more important for this paper is that the equality of the quality is a condition necessary for optimal performance.

This implies that because the input **manager/supervisor** is incompatible with the input **supervisee,** the quality of the final product is low. It implies, as well, that an input such as a **transitory manufacture conditions** is incompatible with **local labor**. Both of these situations translate into low levels of maintenance.

The requirements for compatibility of input **i** are unequal to the requirements for compatibility of input **j** because the inputs have different vectors. Above we have demonstrated mathematically that heterogeneous vectors of skills and or qualities can never lead to optimality.

Through the O-Ring model/ theory (especially through equation $\mathbf{q_1 = \ldots = q_n)}$ it is explained that in imperfect competition (the real world) increases in technology and education can teach the Jamaican managers to communicate with the supervisees and thus, to substantially reduce maintenance related problems which at their core are managerial problems.

Indeed, any type of training to improve maintenance will have to go to the core of the problem which is **management**. The fact that the interviewees very often sustained that maintenance was virtually an insoluble problem arises from the lack of managerial tradition in Jamaica. This, of course, stems from a colonial, exploitative type of society where enterprises, or any type of enterprise in Jamaica, were established on a temporary basis.

To the colonist inculcating maintenance habits among natives, meant, establishing more degrees of permanency and thus having less dependency on the metropolis. Consequently, training natives in "**the managerial function**" would also mean getting away from the mother country.

Marketing

An area that also needs imminent attention, is the distribution function. Of the 17 companies visited; 14 powerfully cited their need to improve marketing systems. As we all know, agricultural products all over the world have traditionally suffered from a high number of intermediaries, and this same phenomenon is also applicable to Jamaica. Coupled to this- it was gathered from the interviews that Jamaicans are entrepreneurial minded (Gilles, et al, 1996). This attribute, which in most cases is an asset, here is a handicap. However, it is one that can be surmounted by "Gestalic seminars" training, such as Gestalic Approach Seminars on: Merchandizing, Sales, Company's Benefits, Commissions, and Employees Roles.

Pricing

Another area that needs substantial improvement **(**and could benefit from our expertise**)** is the **price mechanism.** It appears that 75 percent of the companies visited had difficulties with pricing. We realize that pricing is not nessari1y done anywhere in the world, by the price setting mechanism of economic textbooks. Rather businesses price on the basis of historical trends, intuition, the foreign exchange cost, and visceral variables. However, in Jamaica, perhaps because of this overly entrepreneurial mentality and a desire for short-range profitability, pricing is made very spontaneously.

There is hardly any visible pricing policy that takes into account maximization of the use of production facilities, inventory levels and cash flows. *Judicious* pricing is another important factor for long-range maximization of the firm's value (Baumol,1972). Marketing seminars with emphasis on pricing would help alleviate the above mentioned situation.

CONCLUSIONS

All of these touched areas are questions that to some extent and in some cases, to a large extent can be resolved through education.

The O-Ring Theory has helped us see that in the long run the skill/capacities of the inputs 1, 2, 3, …… , n utilized in management should increase complementarily. That is, if $\mathbf{q}_i$ is the skill of input **i**, then $q_1 = q_2 = q_3 = \ldots\ldots = q_n$. This proves, mathematically, that the above mentioned managerial problems have feasible solutions in imperfect competition (the real world) with variables such as the dynamism of technology, education and training. Improving managerial skills leads to: better communication, better pricing, decision making, enriched human relations, optimization of productivity, and removing feelings of dependency.

For indeed, by improving the managerial skills of the supervisors--through courses/seminars or on the job training--the manager can learn that finding and accentuating affinities between them and the supervisee leads to a better communication vertically downwards.

Also the supervisor can learn that good vertically upward communication can lead to the amelioration of the alluded to feeling of apathy. Managerial education can also teach that appropriate training and appropriate perks can remove feelings of dependency and enhance Human Relations skills as well as decision-making and accountability.

Management and pricing proficiencies are very educable skills that are to be taught within the context of the local as well as international markets. Skills in all of these areas optimize productivity as well as profitability and should be taught along with all the available modern computer techniques. Training these managers involves a Gestalic approach. A Gestatlic approach translates into actually not only preparing managers for the needs of the particular companies, but for the Jamaican economy/society as well.

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Training and Development Function in Omani Public Sector Organizations: A Critical Evaluation

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Training and development of employees has become a core function for most organizations worldwide and has gained center-stage in recent years. The training and development of public sector employees is vital to any country as it affects its bureaucracy and policymaking. Using a case study approach, this study investigates the state of the training function and its effectiveness in eleven Omani government organizations as they aim to build and develop a competent workforce with the localization of the workforce. The study finds that there is a strong need to draw up an integrated HRD and training framework which would be capable of building a training & development architecture in Omani government organizations and fostering flexibility, creativity, team learning and collaboration among their employees at the workplace.

INTRODUCTION

We are living in the information age where knowledge management has become an important issue in most organizations worldwide. Organizations regularly describe themselves as learning organizations and encourage continuous learning, with employees' training and development emerging as a central part of their people management strategy. Indeed, one key way to evaluate an organization is by examining the way that it views and values its staff; whether it sees them as a commodity whose value should be maximized at a minimum cost or as a resource which should always be developed to its full potential (Mabey & Salaman, 1997). Recent research has shown that the latter approach is most effective in the long term, and organizations today are striving hard to make sustainable investments in their human capital. It enhances their organizational performance and competitiveness, as well as keeps their employees well-developed, productive and engaged. A long-term strategic investment in human capital is required and resorting to quick fixes and gimmicks will not contribute to human resource development. Ulrich and Brockbank (2005) prescribe that HR function has to be a business partner, a role which may have many dimensions like business expert, change agent, knowledge manager, and consultant. There is need for the continued and ongoing strategic collaboration between HR function and key stakeholders to maximize the effectiveness of the HRD strategy (Mankin, 2009). These facts are relevant for all types of organizations, be they public sector, private sector or non-governmental organizations. With this in mind, the present paper attempts to explore the dynamics and efficacy of the training and development system in the public sector in the Sultanate of Oman.

TRAINING AND DEVELOPMENT IN PUBLIC SECTOR: EMERGING ISSUES AND CHALLENGES

The training and development of public sector employees is vital to any country; it affects the quality of its bureaucracy and policy making, as well as the representativeness of its administrative systems (Maor & Stevens, 1997), and in few countries, employment in public sector itself is creating challenges for the concerned governments (Mohammed & Ingo, 2012). Just as training is a core function in private sector organizations, it is also central to the public sector, whose employees need to be trained to face the new challenges and pressures for innovation created by the current atmosphere of increased globalization. One could argue that training and development are even more important in the public sector as they tend to produce mostly intangible services that defy calculation (Kee & Black, 1985). Learning and training have become synonymous and it is essential for organizations to develop a talented, motivated and engaged workforce if they are to respond to today's business challenges.

Centrality of the Training Strategy

Training and development has become a key issue for organizations worldwide, an issue which continues to gain center-stage, being as relevant for the public sector as for the private. The strategies and polices articulated by public or government authorities indicate the degree of importance they give to the provision of human resources training and development. Normally, such strategies aim to upgrade employees' knowledge and raise the level of their performance (Emanuel, 2007; Haslinda, 2009). Establishing a sound training strategy and training policy is vital; it must also involve all the stakeholders of the organization. It is very important to recognize that training and development must be a strategic priority rather than simply a tactical or knee-jerk response. Moreover, training and development strategy and policies must be seen primarily as means of assessing and addressing skill deficiencies in the organization, and must be conceptualized with this in mind (*See also*, Mabey & Salaman, 1997; Maor, 2010). The culture of public sector organizations is very different from that of the private sector, in that the government sector work environment tends to be very rigid and bureaucratic, and training usually takes a back seat (Alan & Mike, 1993). Recently, however, public and government sectors worldwide have faced demands to become more responsive and proactive, and the public sector in Oman is no exception. The government of Oman has chosen to follow the path of E-governance and is working hard to achieve this goal. They now need to bring the same dedication to adopting the management techniques utilized by private organizations. As Bradley and Parker (2001) argue, public sector organizations everywhere are facing pressure to do this, and have no choice but to follow this path. Similarly, Clifford and David (1996) demonstrated that negatively construed personnel policies in the public sector would negatively impact duties of both the practitioners and employees.

Training Policy, its Goals and Objectives

Once the need for a training strategy has been accepted, an organization must carefully create an overall training policy which will provide a framework for training and development activities. This policy must be fully documented and shared across the organization. Clardy (2008), for example, argues that the policy needs to be put in writing if it is to provide an effective mechanism for structuring and governing the training function of the organization. In a large organization, a written policy also helps to communicate key concerns to the whole workforce, integrating them into its efforts and empowering them in its implementation. A second key issue to remember when designing a training policy is that it should emphasize the goals and objectives of the training rather than the methods and procedures. Au et al. (2008) found that training policies which focus on the specific training methods and procedures frequently end up being far less effective than those which focus on the goals and the desired outcomes and effects. This approach is often highly challenging for public sector organizations, who tend to focus on design and curricula and may have minimal flexibility. In addition, public sector organizations often fail to properly evaluate the real effects of their training programmes. For them, simply conducting the

training is seen as success, and they rarely examine what is achieved by the learners and what skills and information are transferred to their job performance (Rinne et al., 2011).

If a training programme wants to motivate its employees, it must make the goals and objectives of the training program clear. Employees can then visualise their career goals and will become interested in the training offered. If, however, they are forced to attend a training program where they see no added value, the effect may actually be counterproductive. As Haslinda (2009) observes, organizational policies which force uninterested employees to attend training courses may lead to negative attitudes and seriously limit the effectiveness of the training; there have been many cases of this in the public sector. Furthermore, as found in Palan's (2007) study, having goals and outcomes helps in evaluating training programs by showing, for example, whether any training activity's failure to achieve its objectives was because a specific action or work duty was neglected or because of a weakness in the whole system. Adopting an appropriate and effective mechanism for controlling and evaluating training will provide such information. This will definitely help to bridge the gap in the realization of the training objectives and ascertain the return on investment (ROI), a key factor in any evaluation in an organization.

Designing Training Programs and Motivation of Employees

As is well known, the training process consists of four basic and consecutive steps which reinforce each other. These are: identifying of training and development needs, designing training and development intervention, its delivery, and the evaluation of the training and development intervention. This is also referred as a systematic training cycle (STC), a generic framework used for many years to guide the design of the formal training and development interventions (Mankin, 2009). Yorks (2005) calls it a cafeteria-style delivery of program, it is referred as ADDIE training model—analysis, design, development, implementation, and evaluation which emerged after the World War II (Allen, 2006) whereas, the STC model emerged in 1960s in UK (Bratton & Gold, 2007, cited by Mankin, 2009).

There are a number of factors which are key to creating a cost-effective and successful training plan. First, it is vital that training programs always be designed in alignment with the firm's business strategy. In reality, however, it has been found that this element is often neglected. This is particularly true in public sector and government organizations, which believe strongly in having a well-defined business mission and vision, but rarely translate this into a proactive HR and training strategy. They need to realize, therefore, that the process of planning work-related training activities requires both a solid understanding of the organization's needs and also a detailed assessment of the capabilities and skills of employees chosen for the training courses (Ferdous & Razzak, 2012). This is particularly important in situations where there are limited resources allocated for training and development but where employees have extensive training needs, with improvement needed in a wide range of skills and other competencies (Ho et al., 2011). In the case of public sector organizations, the bureaucratic and reactive organizational culture creates an additional hurdle for those coordinating and adopting a proactive training intervention. Secondly, it is essential that organizations prioritize their training programs and adopt training agendas for a specific time period, rather than having a piecemeal and *ad hoc* training plan. Palan (2007) recommends the development of an annual training plan based on both a competency analysis and on systematic development plans; if this system is established, *ad hoc* training can be avoided.

Another factor to bear in mind is the need for induction training for the new employees to be included in the overall training plan, as recommended in Ice's study (Ice, 2009). Indeed, orientation or induction training is now seen as forming an important part of any training strategy; it is also referred to as on-boarding. Such training serves to make new employees more quickly aware of the organization’s culture, mission, philosophy and work expectations. Effective induction training usually emphasizes the basic skills and knowledge that new employees need to settle in and start doing their jobs effectively (Ice, 2009). In practice, induction training plans are usually created in reference to development plans and are also used to assess new employees' skills and figure out the further training they need. Indeed, identifying training needs is a prerequisite for all training activities; without an adequate needs analysis, training is likely to result in employees simply going through the motions (Palan, 2007). Such a situation will yield

no positive result and will fail to reach the training goals, a potentially damaging outcome for any organization.

Training Effectiveness

There have been numerous studies suggesting that there is a direct relationship between work environment and practices on the one hand and the effectiveness of training on the other. For instance, Harley et al. (2000) found that establishments that offer many fringe benefits and have innovative workplace practices are more enthusiastic about providing formal training and are likely to spend more on their training programs than other organizations. The research also found that employees in such organizations were receiving more hours of both formal and informal training. Surprisingly, when measuring the effect of transferring training climate to work environment on other measures of training, the results show indirect impact on knowledge acquisition and the transfer of learning to the workplace (Tziner et al., 2007). Other researchers also investigated this phenomenon and concluded that training reputation has a direct influence on the minds of the employees and the perceived training transfer among the trainees. (*See also*, Kally et al., 2005; Sahinidis et al., 2008).

When we talk about the effectiveness of training, management support is a crucial issue in the transference of learning at the workplace and many empirical studies have indicated the importance of the role of management in the training function. Highlighting the strategic objective for public organizations, Rehman et al. (2011) revealed that the continuous support and involvement of management is a prerequisite for achieving the strategic goals of the organization. Clardy (2008) also notes the importance of securing the approval and support of the top management or the board of directors when an organization adopts a training and development policy. In fact, there has been a great deal of research about the importance of such support and involvement hypothesized in training as well (Anvari et al., 2010). The seriousness of the top managers' concern about training and the degree of their support for it can be shown in how well the size of the training budget allocated meets the demands of the organization. Haslinda and Mahyuddin (2009) also feel that the size of the financial budget allocated to any specific training plan can be used as a direct indicator of top management's level of commitment to the training function (*See also*, Haslinda, 2009).

Other factors also help to build a learning climate. For example, many studies emphasize that line managers need to be involved in all stages of the training process if the training effort and initiative is to ensure added value (Palan, 2007). In another study, Au et al. (2008) emphasizes the role of co-workers' support in the workplace in facilitating knowledge transfer after training. Such studies have proved conclusively that establishing management support and providing a conducive work environment where new learning and knowledge can be applied without any fear of reprimand are necessary to provide the employee with a proactive learning environment (*See also*, Ho et al., 2011). This is not only true for the private sector, but is also highly relevant to public sector organizations in Oman and elsewhere (Karim et al., 2012; Karthikeyan et al., 2012).

The Importance of Evaluation

Evaluation of training is the final step in the training process in any organization. Its function is to help to identify and rectify any errors made in the implementation of the training strategy. The success of the entire training process thus depends upon the development of the right kind of metrics and tools for measuring its effectiveness. Moreover, these metrics and tools need to be identified from the beginning, before HR and training professionals start to plan training inputs or activities. The failure to adopt a reliable review system has been reported as the most important reason for the cases of attrition occurring after employee training (Palan, 2007). Haslinda and Mahyuddin (2009) prescribe a useful identification framework to help policy-makers in their assessment of the return on the training investments. Dionne (1996), however, finds that the process of evaluating training activities is highly complex and involves many stakeholders; researchers, trainers, and managers all need to participate in the development of a globally accepted standard for the training evaluation process.

It is in the light of all these issues that our case study was carried out; it evaluates eleven public sector organizations in an attempt to understand the inherent dynamics of training and development in the public sector in Oman. The study always bears in mind that implementing a western-based education and training system in a country like Oman is bound to involve challenges and needs significant modification if it is to be effective (*See also*, Wilkins, 2003).

PRESENT STUDY AND ITS METHODOLOGY

Training and development is an issue taken very seriously by the Government of Oman; its Vision 2020 emphasizes the need for development of the workforce and the effective management of its talents. Public sector organizations in Oman are playing an important role in the Omanization process and it is they who are largely responsible for building the pool of talent who must effectively manage public organizations now and in the future. The present study is an attempt to understand and evaluate the effectiveness of the training and development intervention in public sector in Oman. A case study approach was adopted to study the effectiveness of training function in eleven (11) public sector organizations. The selection of organization was based on the accessibility to these organizations and their importance. The data collection started in March 2011 and lasted for around 10 months. Unstructured interview was conducted with training managers, training directors, HR managers, senior managers, middle level managers, and employees as well. The CAIPO framework (Easterby-Smith, 1986) was used for evaluating the effectiveness of the training which focuses on the context evaluation, the administration of the training strategy, the contents of the training given, how the training process is evaluated, and the outcome of the training intervention. This analysis was reinforced by the content analysis of the data shared by the organizations studied besides few focus group discussions (three) with the training managers, HR managers, and trainers based in Muscat, Oman representing various public sector and educational institutions. The organizations chosen for this study are following (for the purpose of discussion in the study, they are referred to as organizations 1-11 within the text): Ministry of Civil Services (Organization 1), Ministry of Housing (Organization 2), Ministry of Sports Affairs (Organization 3), Ministry of Higher Education (Organization 4), Ministry of Health (Organization 5), Ministry of Regional Municipalities and Water Resources (Organization 6), Ministry of Agriculture (Organization 7), Public Establishment for Industrial Estates (Organization 8), Public Authority of Electricity and Water (Organization 9), Public Authority of Social Insurance (Organization 10), and Public Administration Institute (Organization 11).

SULTANATE OF OMAN: ITS OMANIZATION PROGRAM AND HR DEVELOPMENT

The Sultanate of Oman is a member of the Gulf Cooperation Council (GCC) and occupies a strategic location on the southern corner of the Arabian Peninsula at a junction of Asia, Europe and Africa. It has a total area of approximately 309,500 km^2 and about 1700 kilometers of sea shore from the Strait of Hormuz in the north to the border of the Republic of Yemen. Oman borders the Republic of Yemen to the south west, the Kingdom of Saudi Arabia to the west and the United Arab Emirates to the north and west. Currently, Oman derives 40 percent of its GDP from oil revenues. It is a classic example of a country that built its education system not only to meet the needs of its citizens but also to ensure its ongoing development. Higher education in Oman was privatized only in early 2000. Prior to that, the government had the sole responsibility of providing both secondary and college education. The government has definitely made strides in educating young Omanis, with Omanization (the training and development of Omani nationals) as one of the key parameters of HR planning and training in the country (Budhwar et al., 2002).

The government is making a major investment in the training of young Omanis. In the Eighth Five Year Plan (2011-2015), the government has set aside 100 million Omani riyals (approx. US$260 million) for the country's human resource development program. The grant also included 1,000 external scholarships for Omani students to pursue graduate studies as well as to study in specialized and technical

disciplines in fields like medicine, engineering, accounting and financial analysis, economics and information technology. According to the government sources, these external scholarships will be in addition to the 130 million riyals (approx. US$ 330 million) set aside for study grants in the Eighth Five Year Plan (Ministry of National Economy, Oman, 2012). The government has allotted this massive grant so that it can develop the scientific capabilities of Omani citizens whose training is expected to equip them to play a key role in the development of the country (*See also*, Table 1).

In its plan to foster the economic and social development of the country, Oman is also envisaging greater participation by the private sector and a more proactive role for its government sector. Its vision for the future of the national economy-Oman 2020-was adopted in the light of local and international changes and sets out the features of a new strategic transformation on the path of development. This transformation envisages that, in the coming years, the role of the government will be confined to the direction of strategic plans, while the private sector will have to play larger role. In this scenario, the Government bears social and environmental responsibility as it operates in a stable financial and economic environment (Ministry of National Economy, Oman, 2012). For this to succeed, the role of government agencies and of public sector organizations is critical; they are the ones who must facilitate the required shift in the development of an enabling economic and business environment. If this is to happen successfully, a change in both the mindset and the work practices of government sector organizations will be necessary. The proper training of government sector employees can play an important role in creating such an environment and in facilitating the change of mindset and capabilities that will deliver synergy in the present Omani business scenario. The present study evaluates the existing framework of the training system in a number of government organizations and discusses how it can play a more proactive and catalyzing role in the transformation of the mindset and competencies of their employees.

CASE FINDINGS

Training in Public Sector Organizations in Oman

The government of Oman has long recognized the importance of human resource development in general, and has manifested its commitment through education and many other avenues. Like governments all over the world, it also realizes that without training and development, the public sector cannot maximize its use of human capital. Much emphasis is therefore placed on the training of these employees, who will be able to increase their job skills by attending a variety of training and development programs organized either internally or by outside agencies. The government believes that this will be instrumental in bringing about effective and proactive HRD policies. This nationwide commitment has also been translated into the establishment of the administrative apparatus for formal training; this has been done by creating training departments and sections in every ministry, with positions such as training directors, and by allocating them the resources they need.

Training Policy Framework for Public Sectors in Oman

The training policy and strategy for public sector/government organizations is codified in two important documents: the Civil Service Law (CSL) implemented by the government's Ministry of Civil Service (MOCS), and the Scholarship Law (SL) which is governed by the Ministry of Higher Education (MOHE). These two key documents set out the training policy and strategy for the government sector in Oman. In addition, some public establishments and authorities are governed by different governmental policies designed for each of them individually. However, many of the clauses or terms in these independent policies are similar to those in CSL and SL.

As discussed earlier, the basic elements of a systematic approach to training include identifying training needs, designing the training programs, delivering them and then evaluating the whole process. It is important to look at the organizational benefits of the training given and to develop metrics that will measure the return on the training investment (Lechner et al., 2011). This study finds that the organizations do carry out training needs identification as per the government guidelines and are

endeavoring to put in place a training strategy that will serve their strategic objectives. However, most government organizations lack trained and skilled HR and training managers, a situation that means that they face major challenges from the beginning.

Identification of the Training Needs in Public Sectors in Oman

Our study showed that public sector organizations in Oman must each produce an annual training plan; this must always be done in line with the MOCS guidelines given below. The first step is to use a number of tools and processes to ensure that the work-related skills, learning and knowledge essential for employees' development and growth are correctly identified; the process relates this information to the skills and competencies needed by the overall organization. The most common method used to identify training needs is carrying out a job analysis exercise to determine the skills and learning required. In addition, he organizations' Training and HR managers regularly exchange information with training institutions to determine the training programs and courses which might be available in the coming year.

The MOCS provides a five-step standard guideline for determining the training needs of the member organizations; these are as follows:

- Step 1: Looking at the organization's goals and priorities; this is done by the relevant administrative manager and the supervisors of the organization.
- ep 2: Generating data from the employees on the relevant training inputs for their departments and sections based on the organizational goals and priorities.
- Step 3: Collecting data from the supervisors on the career training needs of their employees.
- Step 4: Generating data on the individual employee's training need by asking employees and their supervisors. This step can be seen as developing a consensus on the training plan for the coming year.
- Step 5: The training department of each member organization aggregates all this data, lists the training needs and formulates the organization's annual training plan.

The study showed that employees' participation in the identification of their training needs had both advantages and disadvantages. It is positive in that it develops the motivation of trainees so that they share the ownership of the learning and its transference to the workplace. However, it was found that this participation sometimes creates problem when individual employees are eager to follow an expensive training program which may not be a priority for the department or the organization as a whole. It is therefore essential for the training department of each organization to carefully analyze the identified needs in order to determine the priorities for each department and to plan an overall training program which will work within its budgetary constraints to meet the most pressing of the needs identified (Olds, 2013).

The findings also indicate that the training function in many public sector organizations tends to focus on the long term and on work-related skills, a fact which means that employees' personal development and acquisition of learning is often neglected. This also means that MOCS matrixes and other relevant approaches are inadequate to provide systematic identification of training and development needs.

Another key factor that determines the training activities of the organization is the allocation of finance for training resources. Each individual organization has an overall budget allocated to it out of the state's budget; obviously, the size of that budget affects the size of the budget of each of the organization's departments. Within an organization, each department submits an individual budget plan which must be approved by the organization; the overall process of budget allocation among different departments is based on this approval. It was found that the agendas of many CFOs and State's Financial Controllers do not give high priority to training and development budgets. Respondents from Organizations 1, 9 and 14 stated that the decision-makers often slashed their suggested budget by up to 50 percent. Because of the paucity of funding, these training managers find themselves handicapped; they cannot fully harness the benefits of the training and development they envisage and plan for. Participants in Organizations 1, 3, 5

and 10 made similar comments, all reporting that these cuts made it difficult, if not impossible, for them to implement their training plans.

Designing Training Plans

Our study found that the training plan of each organization is prepared by its HR/Training Department or a related committee on a yearly basis and in a more or less similar way. Basically, the guidelines issued by the Ministry of Civil Service (MOCS) lay down the ways that government organizations must plan, execute, and assess their annual training activities. Using these guidelines has both a positive and a negative impact. For instance, the positive aspect of such standards is that they provide all member organizations with a systematic and standardized approach to the training function. In addition, this approach provides many tools for analyzing skill-sets and training needs; these help organizations to prioritize their training needs on an annual basis. However, the absence of any clear strategic objectives to inform the process means that these annual plans are often repetitive and short-term. It also hinders the creation of a formal long-term training and development plan aimed at developing employees' competencies and enhancing their overall learning.

Even organizations not governed by the Civil Service Law (CSL) tend to suffer the same limitations, largely because of the prevalence of uncertainty-avoidance within their training culture. As a result, training directors not required to follow the guidelines issued by the Ministry of Civil Service (MOCS) still prefer to apply approaches followed by CSL members in order to avoid any of the potential risks that accompany a heavy investment in long-term training and development plans. Two examples where this trend was observed were the Public Establishment for Industrial Estates and the Public Authority of Electricity and Water Resources. The absence of a long-term training strategy in public sector organizations and the non-connectedness of their training to their vision, mission and strategic goals definitely hinder the development of their employees. This also shows the ambiguity of their HRD objectives. In our view, the organizations urgently need to establish a long-term HRD plan which is linked to their objectives, well spelt-out and able to provide an integrated framework for employees' development and growth.

Delivering Training Activities

As discussed above, the annual training plans are prepared by the member organizations and submitted to the MOCS for their approval. The MOCS carries out a quick review, grants the required approval, then forwards copies of the plans to the Institute of Public Administration (IPA), which is based in Muscat, the capital of Oman. The consultants at IPA are then responsible for designing relevant training courses and programs and delivering them to the client organizations (*refer to* Table 2, showing the areas of training programs conducted by the IPA). The IPA thus plays an important, indeed pivotal, role in imparting training to Oman's public sector employees. More recently, however, the increasing demand for training in the public sectors is not being met by IPA alone (refer to Table 3). Training managers and HRD heads at most of the selected organizations (Organizations 4, 5, and 9 to 11) report that nowadays education colleges, private training providers, and vendors based locally or outside Oman are being widely used as another source of training provision.

Our research also surveyed the types of training methods used, finding that although in theory Oman's public sector organizations have access to a number of effective training methods which would enhance their employees' knowledge and learning, in reality the lecture method seems to be the most widely used. It was reported by the training and HRD managers that most of the training sessions carried out so far favor the traditional 'chalk and talk' method where the instructor uses a top-down lecture to impart training.

Overall, then, the majority of public sector organizations are not yet ready to effectively apply a wide range of open-learning packages which would cover not only the job-related, but also the interpersonal and developmental needs of the employees. In theory, some of the participant organizations should be able to successfully apply training means such as on-the-job approaches involving employees in managing project teams and assigning them specific task assignments, but at present the lecture seems to

be the predominant training method. However, managers of Organizations 1, 5, 7 and 12 do believe that lectures should be supplemented with other training methods to improve learning outcomes and enhance the quality and effectiveness of the training, so the possibility of change is present.

Evaluation of Training in the Public Sector in Oman

Evaluation is probably the most important part of the training system; without it, one cannot see whether the investment in human capital is producing the right kind of return. Arguably, this step is also the most challenging part of the training process. The challenges are even greater in public sector organizations because of their cumbersome and bureaucratic structure and systems (*See also,* Pineda, 2010). Several of the organizations surveyed saw evaluation as the most important and challenging element in the training cycle in public sectors in Oman, with organizations 1,2,3,9 and 11, describing it as critically important for the functional assessment of the training process itself and also of its alignment with the organization's vision, mission, and objectives. An evaluation of the whole training scenario, including the action plan for training strategy, is indeed essential if public sector organizations in Oman are to fully assess the training process they practice.

The present study revealed that the public sector organizations governed by CSL employed three key elements to evaluate the success of their training activities, namely: its administration, the quality of input and the training process. Evaluation data is obtained from two sources: the trainees themselves and their work supervisors. The reaction of every trainee is recorded in a one-time survey carried out within one week from the end of the training program. Trainees record their viewpoints about the contents of the course, its delivery and what they have learnt from the program. They are also asked to provide feedback on the suitability and relevance of the skills taught, and on the competence of the instructors. The evaluation process also views the transference of learning as a vital element, and therefore seeks to assess how far the new skills and learning are being transferred at the workplace. This information is gleaned from the trainees' work supervisors, who are asked to provide feedback on the impact of their employees' training in the workplace. Sometimes, they fill it three to six months after the completion of the training. While people agree that this aspect of feedback is extremely important, it has proved very difficult in practice to capture the data required. There are a number of reasons for this. The main one is that feedback is requested a long time after the actual training; this makes it difficult for supervisors to assess, and for training management to follow up.

In fact, the study revealed that only one organization received the supervisors' evaluation forms on time; others stated that it takes many follow-ups to obtain them. Some supervisors are even resistant to the training itself. Five organizations reported facing resistance from some supervisors to release their employees for training because of demands of their day-to-day work. They also reported a communications gap between the HR department and others, a gap which creates a serious conflict between those managing the employees' performance in the short term and the HR departments' long-term strategies. These problems indicate that there is a strong need for more effective techniques of following up the transfer of knowledge, both while delegates are taking courses and after they are back at work (Azman et al., 2011). Some of the managers in Organization 2, 3 and 4 suggested that MOCS should design a series of time-interval follow-ups and tests; this would help to improve the evaluation system. Managers in organization 5 also recommended better collaboration between MOCS and the member organizations; they feel that this would definitely lead to a better evaluation of the training process, and make its impact more positive.

Encouragement of the Trainees and the Feedback Process

Encouragement of employees for training is also an important issue which was found missing in this study. Giving constructive feedback to employees both during and after training is vital if organizations are to take full advantages of such activities. Encouraging trainees to learn and perform better is essential to help them transfer their learning to the workplace. It was found that only 3 out of the 11 organizations surveyed take any initiative to recognize and reward employees who achieve excellent grades or otherwise perform well during training, and/or show distinctly improved work performance after their

training course. The recognition that was reported ranges from congratulation letters or small gifts to a financial reward for the completion of a higher degree; the latter is done at the Ministry of Agriculture. However, in other participant organizations, there was neither a verbal congratulation nor even a light pat on the back for an employee who does well in the training.

Another problem that arises affects employees who are awarded scholarships (*See* Table 1) which are governed by the Scholarship Law (SL). While the law identifies clear rewards and recognition for government employees who successfully complete scholarship programs in the allocated time or less, there are serious consequences for those who fail to do so. This puts employees under heavy stress. According to articles 24 and 25 of the SL, the Scholarships Board at the MOHE reserves the right to terminate the scholarship of any employee who fails two consecutive academic years or fails to meet the deadline for completing the program specified by the ministry. In both cases, employees have to reimburse all allowances and tuition fees paid by their employing organization.

Indeed, our study found that the majority of organizations do not perceive employees' failures in training as incidents that need analysis and may have many causes. Instead, the automatic response is to blame the employee; punitive measures are sometimes initiated even before the reasons for the failure are investigated. For the employees concerned, such actions destroy any existing or potential endeavor to keep them positive and keen to succeed in future training programs. This aspect of public sector training and development policy is arguably at odds with the desire to develop individual employees, and with their own motivation to develop.

Lack of Trained HR and Training Staff

In Oman, all human resource manager positions are Omanized; this step was taken before many HR and training managers in the public sector had gained sufficient expertise or qualifications to effectively tackle the challenges involved in developing a training strategy. The most urgent and imperative task facing the public service is to develop the skills of these training managers so that they can successfully fulfill the important role of formulating and managing the entire training function. Many middle managers also lack critical soft skills; the reason is systemic, as many have been promoted into management jobs because of their previously demonstrated technical abilities rather than for their ability to successfully manage people. The current focus is on the development of technical skills for first-line management, but additional training for middle-level managers in these sectors should be a priority. Indeed, enhancing their skills has already been identified as a critical need in the government sector; if this is achieved, it will be a driving force in enabling the transformation of both the workforce and the workplace.

Online Training in Public Sector Organizations in Oman

In recent years, many countries have seen online training becoming very cost-effective and popular (Argiris et al., 2012). It provides many other benefits apart from its low costs. Employees can choose their programs according to the time they have available and the pace of learning is generally more suited to the trainees' lives. This kind of training naturally has particular appeal when budgets are tight. Our survey showed, however, that there was relatively little enthusiasm for online training in the Omani public sector. In most of the selected government organizations, managers, trainers and employees all preferred traditional face-to-face training. They found it more acceptable than on-line methods and felt that it provided the most effective communication and interaction. Their resistance to on-line training is exacerbated by the technological challenges which make it less efficient and less user-friendly than it would ideally be. These challenges include poor network connectivity, lack of Internet connectivity in some cases and the lack of appropriate training facilities.

Despite these challenges, the participating managers generally felt the need to adopt more online learning and provided suggestions to improve its use. Managers in Organization 2 suggested replacing the traditional face-to-face training methods used to teach basic administrative and standardized technical skills with online training. This would reduce the cost and hardship of travel, and would be more convenient and flexible for employees. However, significant problems remain in implementing such changes. Although the public sector in Oman has recently expressed the need for greater use of

information and communication technologies (ICT), it is also true that very few government units have developed reliable e-business infrastructures that could effectively coordinate online training requirements. Thus, despite the keen initiatives undertaken by the Information Technology Authority (ITA), the evolution of e-government has to go a long way before it can work reliably.

Induction Training in Public sector organizations in Oman

Worldwide, induction training has taken on a very important role in the overall training strategy. Its aims are to inculcate right values among new employees, and to help them to get used to a new work setting and find their niche there. However, most organizations in Oman's public and indeed private sectors generally neglect this activity. It was found that the majority of organizations see induction training as an important HR activity but fail to pursue it seriously. In this study, all eleven organizations agreed that a well-defined orientation policy was needed and that it played a significant role in retaining employees, but only three of the eleven reported that they have prepared suitable induction plans for their new employees., There will therefore be a high probability that fresh graduates and the newly recruited staff will start work with only the most basic skills needed for their jobs and many essential skills that training plans have identified as necessary will not be taught.

CONCLUSION AND RECOMMENDATIONS

There is no denying that the Omani government sector is seriously pursuing the issue of training and development, and the government is trying hard to develop its employees through a variety of HRD interventions. Public sector organizations have adopted change and are now thinking in terms of the benefits of training and the return of the investment on their human capital. However, most of the training and development interventions are still regulated and managed by policies initially promulgated by the Ministry of Civil Services (MOCS) as well as by the later directives issued by the Ministry of Higher Education (MOHE). These are all in line with the MOCS guidelines. Inevitably, in this kind of bureaucratic entity, with a centralized training system controlling nodal agencies and fund disbursement, change is difficult to bring about, and initiatives taken by individual organization are often, unfortunately, stifled.

Comparing our research results with factors that are known to guarantee the effectiveness of training and development leads us to make a number of recommendations for Omani public sector organizations. The most vital element of a training system is its alignment with the business strategies, mission and vision of the organization. The Omani government is striving to create a proactive work culture and to stimulate an enabling and learning-oriented work environment, but the absence of a defined strategy for pursuing a coherent, credible and well-aligned set of HR tools is hampering these efforts.

The role of the head of an organization is the key which gives direction to the organization. In most Omani government organizations our research observed a lack of seriousness at this level towards training in general, with evaluation taking a back seat. There is also a pressing need for a greater level of coordination between supervisors, HR managers, training managers and senior managers. This is essential to improve the effectiveness of the training and harness its positive impact. The budget issue must be also addressed urgently; with the training and HRD departments of these organizations being given enough staff and infrastructure. Many organizations were found to be unable to function optimally because of insufficient manpower and lack of office space or other infrastructure.

There is also a strong need to train HR managers, training managers and other line managers to understand what is necessary to create an HR and training system which really works, and the practical steps necessary to achieve this. Equally urgent is the need to create a HRD climate which promotes continuous and team learning at the workplace, but a deep-rooted change will be necessary if these work values are to be adopted throughout the Omani public sector. The top leadership and line managers have to play an active role in reinforcing such a learning environment by rewarding employees and facilitating a support system to promote competency-building and career development for their employees.

As discussed by O'Keefe et al. (2007), employee participation is also key to the success of the training initiative. It was observed that the present archaic and bureaucratic approach to the selection of trainees and the design of training programs have resulted in employees having little interest in learning; nor do they care about the transference of that learning to the workplace. This problem is exacerbated by a "*Shahada* (certificate)" mindset which urgently needs to be rooted out. Employees' prevailing concern was to acquire a *Shahada* (certificate) through training for their promotion and career development rather than the learning that can be used in their jobs. It was evident that this attitude is a major impediment to the transference of knowledge and learning at the workplace. It kills any enthusiasm for the real learning of new skills and seriously reduces the competence of the public sector employees in Oman.

There are a number of other serious flaws in the training system in the Omani public sector. As well as the budgetary constraints discussed below, short-term and *ad hoc* training plans and a highly bureaucratic and administrative-oriented evaluation system are flaws which need to be rectified. Training departments also need to put more emphasis on the induction and socializing of the new employees if they are to inculcate right work values from the outset and better utilize their human capital. Providing feedback is another important part of the employee development process, but only three out eleven participating organizations do this, indicating a lack of interest in reinforcing the right kind of behavior among their employees.

The lack of cooperation between supervisors/line managers and training/HR managers is another issue of major concern. As noted earlier, the study found that very few supervisors sent in the evaluations on time, a fact which shows their lack of concern for and seriousness about training and indicates the weakness of the coordination between the training and the line functions. As studied by McCracken et al. (2012), an environment which creates a harmonious relationship between employees, supervisors/line managers, training/HR managers, trainers, and senior managers is essential to the success of any organization; but this environment was not found in most organizations studied. It was also odd to find that many CFOs and State Financial Controllers in the public sector gave very low priority to allocating the budget for training and development. Despite the government's forceful advocacy of training, these senior bureaucrats are apathetic towards HRD initiatives.

A further concern is that, in the present information age, when the government is strongly advocating for E-governance and many activities and government services have gone online, public service organizations are currently lagging behind in providing online learning and knowledge management for their employees. This situation needs to be remedied. IT-enabled training must be adopted, with a strong support system for online training set up and properly maintained. There are a number of specific causes of this problem which need to be addressed: the reluctance of the senior bureaucrats, a lack of general and especially IT infrastructure, poor internet connectivity and the traditional mindset of employees which resists new learning methods. Paying attention to these areas will help employees face the demands of the twenty-first century and will promote self-paced learning and development where they can play an important role in choosing and developing their competencies. The Information Technology Authority (ITA) also needs to play an active role in fighting the inertia of the government organizations when facing the need to create an enabling IT environment. The ITA must provide a sense of direction and encourage and enable more up-to-date learning pursuits and methods.

In conclusion, it is clear that there is an urgent need to draw up a HRD and training framework for Omani government organizations that will foster flexibility, creativity, team learning and collaboration among their employees. The responsibility for the delivery of the key training & learning objectives (KTLOs) must be set, and a new organizational structure established that will be capable of initiating such an endeavor. The Omani government must provide additional funds to improve the organizations' infrastructure and should develop a mechanism for decentralizing their training and development function. It is important to amend the policy framework adopted many years ago in the form of the Civil Service Law and the Scholarship Law; these need urgent and thorough revision if they are to properly regulate the employment and learning conditions that will meet the demands of the twenty-first century. If this is not done, and if clear and appropriate training and learning objectives are not realized, Omani government organizations may become mired in ignorance and obsolete skills, unable to adapt to and

keep pace with the changing times and technologies, a situation which would be disastrous. All of these changes are dependent on the will and the actions of the leadership; they are the ones who must forge a new path and initiate the desired changes in the public sector in Oman.

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TABLE 1
TRAINING COURSES ATTENDED ABROAD BY THE GOVERNMENT PERSONNEL DURING THE YEARS 2006-2008

Countries	**2006**			**2007**			**2008**		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
GCC Countries	204	47	251	193	80	273	231	69	300
Other Arab Countries	149	25	174	174	15	189	246	31	277
Europe & America	81	24	105	92	19	111	123	27	150
Asia	72	11	83	112	19	131	132	22	154
Others	5	2	7	11	3	14	13	4	17
Total	**511**	**109**	**620**	**582**	**136**	**718**	**745**	**153**	**898**

(Source: Sultanate of Oman, Ministry of National Economy - Statistical Yearbook 2009)

TABLE 2
NUMBER OF PARTICIPANTS IN LOCAL COURSES AT IPA IN VARIOUS TRAINING PROGRAMMES

Fields of Training	Years					
	2006		2007		2008	
	No. of participants	(%)	No. of participants	(%)	No. of participants	(%)
Public Administration	1,285	58.4	1,323	56.7	1,539	66.8
Financial Management	210	9.5	156	6.7	81	3.5
Clerical Training	536	24.4	648	27.8	477	20.7
Computer Science	10	0.5	14	0.6	36	1.6
Library & Documentation	-	-	22	0.9	20	0.9
Statistics	28	1.3	23	1.0	47	2.0
Scientific Research	46	2.1	52	2.2	11	0.5
Law	25	1.1	40	1.7	55	2.4
Information & P R	25	1.1	55	2.4	38	1.6
Economy	28	1.3	-	-	-	-
Tourism	6	0.3	-	-	-	-
Total	**2,199**	**100**	**2,333**	**100**	**2,304**	**100**

(Source: Sultanate of Oman, Ministry of National Economy - Statistical Yearbook 2009)

TABLE 3
ALLOCATION OF SCHOLARSHIPS AT VARIOUS TRAINING CENTRES IN THE SULTANATE DURING 2006-2008

Training Institute	2006			2007			2008		
	M	F	T	M	F	T	M	F	T
Government	7,268	4,518	11,786	7,897	4,005	11,902	7,858	5,039	12,897
IPA	846	154	1,000	639	172	811	779	224	1,003
Private Institutes	2,678	479	3,157	4,021	623	4,644	3,961	623	4,584
Others	536	60	596	251	62	313	981	118	1,099
Total	11,328	5,211	16,539	12,808	4,862	17,670	13,579	6,004	19,583

Key: M =Male, F = Female, T = Total
(Source: Sultanate of Oman, Ministry of National Economy - Statistical Yearbook 2009)

The Psychological Costs of Tax Compliance: Some Evidence from Portugal

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The purpose of this paper is to identify and present some qualitative evidence of compliance related psychological costs in the Portuguese tax system. We address the psychological costs incurred by taxpayers in the process of complying with their tax obligations. We intend to evaluate, through the creation of a qualitative indicator of tax related anxiety, psychological costs of individual taxpayers, as well as to identify the profiles of taxpayers most likely to incur in these costs. This aspect of the study is of particular significance in the international tax compliance literature, since the issue of psychological costs has been a largely neglected area of tax research.

INTRODUCTION

The application of a tax system, or a particular tax, implies a broad and diversified set of costs, such as efficiency costs, administrative costs and compliance costs. Taxpayers also incur in psychological costs, which are the mental and emotional costs, anxiety and stress which taxpayers experience when dealing with tax issues. Those costs do not constitute a direct monetary expense. Therefore, they are very difficult to measure. However, they should be taken into consideration.

Thus, the aim of this paper is to evaluate the psychological costs in the Portuguese tax system, as well as to identify the groups of taxpayers who incur in higher costs of anxiety and stress when dealing with their tax affairs.

The paper is organized as follows: section 2 presents the concept of psychological costs; section 3 highlights some inherent difficulties discussed in the international tax compliance literature in the process of measuring such costs; section 4 presents the methodology; section 5 analyzes the results of our research; and section 6 offers some conclusions.

PSYCHOLOGICAL TAX COMPLIANCE COSTS: CONCEPTS AND DEFINITIONS

There are many definitions of tax compliance costs and most of them are similar. (See for example, Sandford, 1989; Woellner et al, 2001; Slemrod and Bakija, 2004; Evans, 2003; Slemrod, 2007; Woellner et al, 2007). However, the most quoted definition in the literature tax compliance costs is Sanford's definition. According to Sandford (1973; 1989; 1994; 1995; 2000), compliance costs are divided into three groups of costs: time costs, other monetary costs, and psychological costs.

For individual taxpayers, time costs include hours taken to fill tax returns and collect and prepare the necessary tax data. It is particularly difficult to measure time spent on questions and concerns about taxes. This difficulty increases when tax help (v.g., tax law interpretation) is given not by professionals but by family and friends. Monetary costs include payments to tax advisers or tax professionals. Monetary costs also include other general expenses such as telephone, books, equipment, computers and software. Finally, the psychological costs are those such as anxiety, stress and emotional pain, which taxpayers or advisors experience when dealing with tax affairs.

Regarding the psychological costs, there is no generally agreed definition in the tax literature, and to the best of our knowledge no one has yet succeeded in precisely measuring them (Woellner *et al* 2001). The psychological costs were firstly identified by Adam Smith (1776) and taken into account in Sanford's definition of compliance costs. As we noted above, Sandford stated that psychological costs comprise the anxiety, stress and frustration caused by complying with complex legislation.

There are various approaches to defining stress (Woellner *et al*, 2001). The first is to look at the responses of an individual or the "strain" which he undergoes. Selye (1956) described it as consisting of three stages: alarm, resistance and exhaustion.

A second approach to defining stress is to identify it in terms of stimuli or "stressors". Sometimes specific events such as retrenchment, the death of a close family member or a war, are chosen as the stressors. Holms and Rahe (1967) constructed a checklist of events which could precipitate stress responses and asked a sample of participants to rate the amount of readjustment which event would require. Thirdly, Cohen and Hoberman (1983) indicated that positive events may help neutralize distress caused by negative events.

Other research has hypothesized that life`s daily hassles are better predictors of stress than major life events (Kanner et al, 1981). Brown and Harris (1989) further distinguish between "life events" and "difficulties". The first ones are discrete changes in the environment, whereas the second are problems which last for at least four weeks. Events and difficulties both contribute to individual stress. This third approach defines stress in terms of an individual ability to deal with his or her environment.

The complexity of the tax system and the uncertainty in tax law may increase compliance costs for taxpayers, as well as some anxiety in the process of paying taxes. Therefore, as a result of tax complexity, psychological costs have increased. It is thus quite important to include them in the estimative of compliance costs. However, they are difficult to put a price on. Some taxpayers use the services of a tax advisor to reduce their level of concern, and then the psychological costs are transformed into monetary costs.

The stress and anxiety incurred by taxpayers when dealing with tax affairs may have several causes (Woellner *et al*, 2007). Firstly, it could result from the complexity of filling in the tax returns, that increases with the number of categories/schedules of earned income, which obviously complicates the process of complying with taxes. Secondly, all taxpayers, even the most honest of them, suffer the pressure generated by a probable tax inspection. Thirdly, maybe there are also psychological costs sensed by the staff of the Inland Revenue Services, whether they consider their job very complex and difficult, and forward their frustrations to the taxpayers in auditing processes.

Psychological costs are intangible and not a monetary cost. In addition, there is no generally accepted definition or a common method to evaluate them. From one taxpayer to another, psychological costs are difficult if not impossible to quantify. Therefore, the psychological costs are not subject to evaluation in many studies. However, they should not be neglected. In the next section, we will analyze some major problems highlighted by the international tax literature in the assessment and measurement of the psychological costs.

THE MEASUREMENT OF PSYCHOLOGICAL COSTS OF TAXATION IN THE INTERNATIONAL LITERATURE

As noticed above, psychological costs are very difficult, if not impossible, to measure; however, some attempts have been tried for a qualitative assessment of such costs.

In the United Kingdom, Sandford (1973) concluded that a disproportional number of pensioners required professional help with their tax affairs when compared with taxpayers in general. Sandford et al (1989), further noted that the group of taxpayers who incur more anxiety and who suffer most stress in the process of tax compliance is older females, particularly widows.

In Spain, Diaz and Delgado (1995) interviewed Spanish taxpayers when analyzing compliance costs of Spanish personal income tax, and included four attitude indicators: how they perceived the time dedicated to the task; what part of the fiscal obligation was most disliked; their state of mind when the process was completed; and the conversational time occupied by the topic of filling tax returns.

Through personal interviews, Diaz and Delgado (1995) qualitatively measured psychological costs and noted that older and retired taxpayers are the categories of taxpayers with higher psychological costs, since for those groups it is more difficult to understand the tax law. At the same time, the information and advice provided by tax authorities is not sufficient to explain all questions they might have.

In Australia, Woellner *et al* (2001, 2007) conducted a study that evaluated psychological costs in a qualitative way, relating them to behaviour and attitudes of taxpayers. The methodology was based on the use of case studies. The method consisted in the distribution, for the two groups of individuals, of different case studies with different complexity levels. The attitudes and behaviour of participants in solving problems, from oral and body language, were videotaped for subsequent analysis by a psychologist. The authors decided to pursue the original intention of obtaining assistance from a psychologist to best analyze the videotapes for signs of psychological costs.

Results indicated that individuals incurred psychological costs. None of the respondents could correctly solve the presented cases. Moreover, the words "frustration" and "confusion" were very prominent, as were the many bodily gestures which indicate “stress”. As a result, some but not all participants exhibited psychological costs, either verbally or in their body language such as biting lips and wringing hands.

Woellner *et al* (2001; 2007) state that psychological costs are observed in the behavior of the person required to apply the tax law. They can be inferred by behavioral traits such as fidgeting, tapping, hair chewing and so on. Therefore, Woellner *et al* (2001, 2007) added some important conclusions.

Firstly, the definition of Sanford’s` psychological costs only took into account the anxiety and nervousness of the individual taxpayers. Meanwhile, Woellner *et al* (2001, 2007) considered the psychological costs of individual taxpayers and also the costs of the tax professionals. However, in a competitive market, the psychological costs of tax professionals are included in the amount of fees charged to taxpayers. For this reason, according to Evans (2003), referring to the psychological costs of tax professionals may be conceptually complex.

Secondly, these authors concluded that the increase in using of external help decreases psychological costs of individual taxpayers, but increase their direct monetary costs.

Thirdly, they noticed that the absolute evaluation of psychological costs is extremely difficult, if not impossible, but they added that, in most cases, it is sufficient to identify taxpayers who incur this type of costs. To sum up, the psychological costs are observed in the behavior of persons required to complying with the tax law. These reactions have a real impact on the time spent in complying and even on the willingness of taxpayers to comply.

Thus, in this paper, we propose to develop a methodology that enable measuring psychological costs of taxation in the Portuguese tax system. We decided to attempt to evaluate the psychological costs in a qualitative format, which means through the identification of the groups of taxpayers who incur higher psychological costs. Governments and decision-makers currently prefer to identify groups of taxpayers in order to propose measures adequately.

METHODOLOGY

The purpose of this paper is to present an evaluation of compliance costs incurred by individuals subject to the personal income tax in Portugal. We evaluated compliance costs for the year 2007 using a

survey applied in 2008. The reasons for evaluating compliance costs for personal income tax were as follows.

Firstly, the personal income tax represents one of the major sources of tax revenue in Portugal, alongside VAT and social security contributions. Secondly, most of the active population includes potential individual taxpayers. Lastly, major international research on compliance costs has also covered personal income tax. (Wicks, 1965; Wicks, 1966; Sandford, 1973; Slemrod and Sorum, 1984; Vaillancourt, 1989; Sandford *et al*, 1989; Blumenthal and Slemrod 1992; Pope, 1993; Malmer, 1995; Chattopadhyay and Das-Gupta, 2002; and Klun, 2004).

Determining the sample of personal income taxpayers caused some problems, since the tax register is not publicly available, and the current study was not formally supported by the Portuguese Inland Revenue. In fact, tax administrations withheld their support in almost all the countries in which the earliest research projects into compliance costs were carried out. Without support of the Portuguese tax administration, it was difficult to carry out the research but, in our opinion, taxpayers were in favor of the research in the pilot study. Therefore, and given the circumstances, data was collected in the Coimbra district, and 350 taxpayers were interviewed face to face, by direct application of the questionnaire (face - to - face interviews). The interviews were conducted between March and April 2008, when most taxpayers are obligated to fill in their tax forms.

We believe that taxpayers from the district of Coimbra, in Portugal, are no different from taxpayers from other regions of Portugal, since the tax system and their obligations of tax compliance do not differ according to Portuguese regions. However, in some developed tax systems the fiscal system differs from region to region, such as in the USA or in Brazil, and then the tax compliance obligations may differ according to the region or state where the taxpayer is registered (Bertolucci, 2003).

Forty-two questionnaires were excluded because the taxpayers refused to be interviewed. Thus, the evaluation of compliance costs was made on the basis of 308 responses.

The respondents presented the following characteristics: 162 were male; 221 were married; 119 did not have any dependents; 88 taxpayers did not have any help filling in the tax form and 78 had professional consultancy; 173 were employed; 87 were self-employed and 48 did not have a job (unemployed, retired or housewives); 184 had only one source of income (category); 93 had two and 31 had more than two. Only 46 per cent of tax-fillers declared themselves to be competent in completing the income tax form, while the majority (54 per cent) required some kind of outside help to be able to complete it.

The questionnaire sought qualitative and quantitative information on demographic, legal, economic and tax characteristics of respondents. Firstly, it asks about some personal information, in particular, the respondent's gender, age, level of education, income, and employment status. The purpose of the survey is devoted to collecting information about the household's cost of filling in tax returns. Then, the last question of this section asks how the taxpayer fills in the tax form (properly, with unpaid help - family and friends - or with paid help - professional assistance).

Then, for taxpayers without professional assistance, in section 2, we ask how many hours were spent during the year. We divide the hours into various categories with different values in order to calculate compliance costs. In addition, any money spent on tax affairs or otherwise spent in filling in the tax form is solicited, such as on postage and on the Internet. Section 3 is dedicated to the evaluation of the compliance costs of taxpayers with professional assistance. We ask how much taxpayers were paying for the tax professional to help them with the tax form. Finally, some questions on the individual's attitude before the filling in of the form were included, such as a question designed to elicit the level of stress or anxiety (Likert scale) incurred by taxpayers while managing their tax affairs. In this case our goal is to find one way of measuring the psychological costs incurred by taxpayers when dealing with their tax affairs.

At this point, we want to know whether taxpayers, in Portugal, suffer anxiety and stress in the process of tax compliance obligations. If we find a positive response, we are also interested in identifying and characterizing groups of taxpayers who incur psychological costs.

To achieve our objectives we must define the relevant variables and used the questionnaire to collect data. In the psychological variables, to assess the psychological costs, taxpayers were then asked about their emotional state before and after completing the tax return (very calm, calm, neither/nor, stressed, much stressed). In the following section we present the main results of our research.

RESULTS

The evaluation of the psychological costs incurred by Portuguese taxpayers when filling in a tax form was conducted using a qualitative indicator: "emotional costs". This indicator shows the state of mind before and after the completion of a tax form. In the survey, we started by asking taxpayers: "How do you feel before filling in the tax forms?" (Very calm, calm, neither/nor, stressed, much stressed). After finishing the completion of the tax return we asked: "How do you feel after filling in the tax forms?" (Very calm, calm, neither/nor, stressed, much stressed). These reactions have a real impact on time spent on compliance and even on the willingness to comply.

We then created an indicator to measure psychological costs: 1- taxpayers who incur emotional costs; 0- taxpayers who don't incur emotional costs. For example, if taxpayers changed their state of mind from stressed to calm, they incurred psychological costs. If taxpayers didn't change their state of mind but were stressed before filling in the tax form and stressed afterwards, they also incurred psychological costs. However, if taxpayers were calm before and after filling in the tax form, they didn't incur psychological costs.

Consequently, feelings following the completion of the tax return are unequally divided between those taxpayers for whom this task has been a stressful burden and those who have not perceived it as such, as can be seen from on tables 1 and 2.

TABLE 1
PSYCHOLOGICAL COSTS AND AGE (%)

Age	Emotional costs		Total
	Without emotional costs	With emotional costs	
18-24	100,0		100,0
25-35	91,7	8,3	100,0
36-55	85,3	14,7	100,0
56-65	53,6	46,4	100,0
> 65	40,0	60,0	100,0
Total	80,0	20,0	100,0

From table 1, we can conclude that the higher the age of taxpayers the more stressful they felt in the completion of the tax return, with X^2 (4) = 42.135 and *p-value* < 0,001. But not all participants showed psychological costs. The youngest group of taxpayers (18-24 year olds) didn't feel anxiety or any other emotional cost in the process of compliance. One reason for this situation could be due to the definition of tax unit in the Portuguese tax system. In fact, in Portugal, the definition of dependents includes all children up to 25 years old who have no economic independence.

TABLE 2
PSYCHOLOGICAL COSTS AND EDUCATION (%)

Education	Emotional costs		Total
	Without emotional costs	With emotional costs	
Primary School	69,7	30,3	100,0
Secondary school	87,7	12,3	100,0
University degree	85,5	14,5	100,0
Total	80,0	20,0	100,0

In table 2, the percentage of taxpayers with a primary level of education who incurred psychological costs is 30, 0 per cent. The other groups, while suffering from anxiety in the process of compliance, present lower percentages: 12, 3 and 14, 5 per cent for secondary school graduate and university graduate taxpayers, respectively. For taxpayers who are less educated the psychological costs were higher, with $X^2(2) = 9.798$ and *p-value* = 0,007.

We can conclude from tables 1 and 2 that the tax form is obviously a theme which causes concern among Portuguese taxpayers.

In the personal interviews, taxpayers highlighted that the tax system is very complex, and this contributes to increase the psychological costs. Thus, the perception of tax complexity is responsible for higher psychological costs. This perception is quite widespread among taxpayers over 55 years old, with lower educational levels, self-employed, pensioners, receivers of income from movable capital, capital gains and, especially, among taxpayers with high levels of income.

The major difficulties identified by taxpayers in filling in tax returns were: interpretation of tax rules regarding the complexity of deductible tax allowances, tax benefits, number of dependents included in the tax unit, the constant changing of tax rules, and the complexity of tax forms, among others.

Therefore, in the future it seems useful to do a detail research about the determinants and characteristics that introduce complexity in the tax system for these groups of taxpayers, in order to propose measures that will reduce psychological tax compliance costs.

CONCLUSIONS

The psychological costs are intangible, and so they are difficult to put a price on. Nevertheless, in our study we have tried to measure, qualitatively, the stress and anxiety incurred by taxpayers when complying with their tax affairs. We believe this aspect of the study is of particular significance, as the issue of psychological costs has been a largely neglected area of tax compliance costs research, as we have already highlighted before.

To evaluate the psychological costs, our choice focused on the use of interviews by direct application of the questionnaire (face to face interviews) on one hand. This method allows us to collect information and obtain a good level of response rate and, on the other hand, the reliability and quality of results is also ensured.

We conclude, with the creation of an emotional indicator, that taxpayers do incur in psychological costs caused by anxiety and stress and, as far as these are concerned, elderly and less educated taxpayers have higher psychological costs.

We believe that the results here presented further contribute to the research in the field. Firstly, this paper presents new evidence from a country where there is no prior study that analyses the psychological tax compliance costs. Secondly, we inserted a new indicator to measure the psychological costs of taxpayers, the “emotional costs”, an indicator which has been neglected in the international tax

compliance literature. In fact, the psychological costs incurred by taxpayers have received little attention by researchers, except most recently, in Australia, Woellner *et al* (2001) and Woellner *et al* (2007).

However, it is important to highlight that our study was not supported, and so our sample was selected from the district of Coimbra, a convenience sample to the author. Nevertheless, the fiscal system does not differ according to the Portuguese districts or regions. This means that the tax compliance obligation and consequently the tax compliance costs do not differ from taxpayers in one region to others in other regions. Moreover, we think any research that assesses the taxpayers' point of view is important evidence to place before policy-makers. Since compliance costs and the role of taxpayers are important in developed countries, this argument becomes even stronger.

In conclusion, the qualitative evaluation of psychological Portuguese tax compliance costs and the identification of groups of taxpayers with higher psychological costs have been raising some interest among tax academics, practitioners and specially policy makers in Portugal, with the aim of simplifying the tax system and minimizing such costs for individual taxpayers.

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Health insurance determinants in Zimbabwe: Case of Gweru Urban

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This research analysed the determinants of health insurance participation in Gweru Urban. This came in the wake of deteriorating health standards and non participation in health insurance schemes on the part of most Zimbabweans. Given the binary nature of Health Insurance Participation, a PROBIT model was adopted. Regression results show that the household head's level of education, household income, age, family size, and chronic illnesses, are all significant predictors of participation in health insurance schemes. The study argues for the health insurance industry to claim greater involvement in the nation's educational achievements and productivity stimulating endeavours.

INTRODUCTION

The importance of a healthy nation and thus a healthy workforce is undoubtedly key to the survival and wellbeing of any economy. Any hint of deteriorating health standards should thus be expected to be a source of worry for the nation concerned. To this extent, any facilities that guarantee access to health care for the generality of the nation's population may need to be supported. Health insurance schemes are one way of guaranteeing access to health care services. Under such schemes, ideally people should apply for membership and be making monthly contributions so that in the event of any sickness, the health insurer will be able to meet the cost of medical care.

The health insurance market plays an important role in health care services provision. However it should again be noted that the health insurance market also survives on member participation. According to Buntin *et al* (2004), the future of the health insurance market depends on policy interventions to balance supply side and demand side forces. Demand side forces would naturally involve health insurance participation, and for credible policy interventions, it may be important that those factors affecting participation be established. It is in this regard that this research looks at the determinants of health insurance participation in Zimbabwe, and takes the case of Gweru Urban District.

Background to the Study

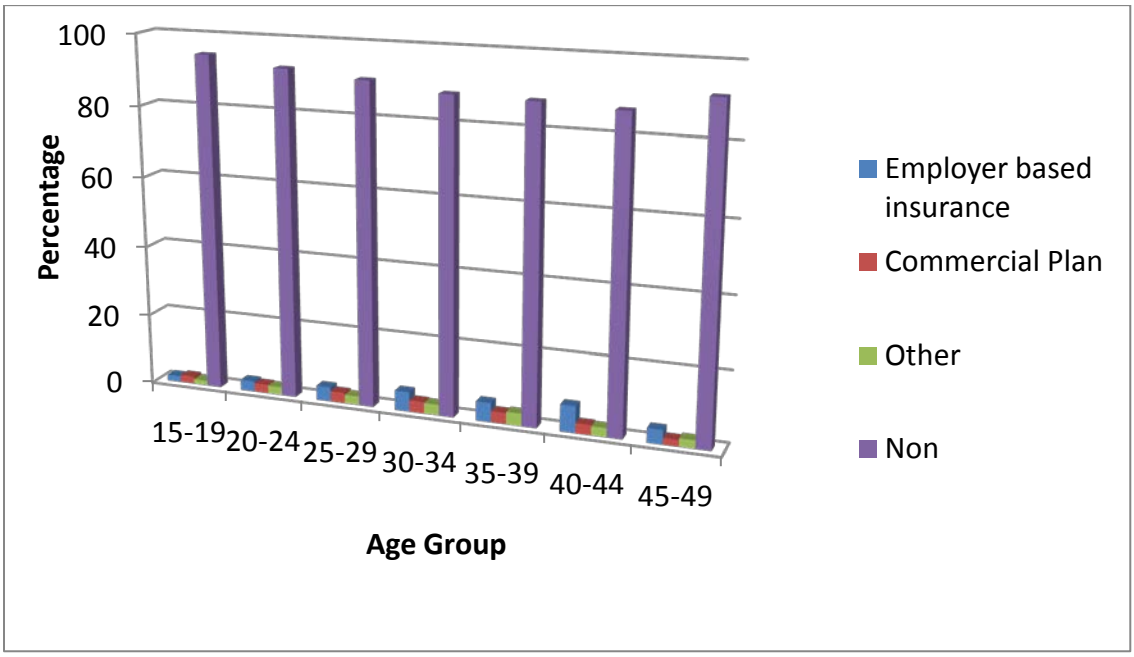
A number of reports on Zimbabwe's health care services point to the deterioration of the health system (USAID 2009; DHS 2005/2006). This situation may be worrisome, given the knock-on effects that poor health standards are bound to have on all macroeconomic variables and on performance of Zimbabwe's economy. A case in point would be, for instance, a report by USAID Zimbabwe (October 2009) in which Zimbabwe's health care system was seen to be characterised by inadequate staffing, reduced accessibility by the general population, shortage of essential drugs and medical supplies, and out-dated and poorly functioning equipment. On the same note, Zimbabwe Demographic and Health Surveys (2006) reported that many health indicators had worsened, and these include nutritional status, proportion

of children orphaned or considered vulnerable, poverty measures, number of births attended by health professionals, availability of most essential drugs, severe proportions of maternal and child mortality rates.

In the light of deteriorating health standards in Zimbabwe, Tren and Bate (2005) note that in spite of the Zimbabwean government's massive financial commitment and investments into improving health care delivery within the first 10 years of attaining independence in 1980, most of the gains have since been undone, and life expectancy which had initially risen to 63 years by 1990, dropped to 33 years by 2003. Admittedly there are about 30 medical aid societies in Zimbabwe and both public and private employers provide medical insurance through participation in medical aid societies.

Health insurance coverage is generally on the low side in Zimbabwe. According to Zimbabwe demographic and health survey (2006), 91% of women do not have health insurance. Of the 9% that are covered, 4% have insurance through their employer, 3% are covered under a privately covered commercial plan and the remaining 2% are covered through some other mechanism. This can be shown by way of a bar chart in figure 1.

FIGURE 1
HEALTH INSURANCE COVERAGE IN ZIMBABWE



Source: ZDHS 2005 - 06 (2006)

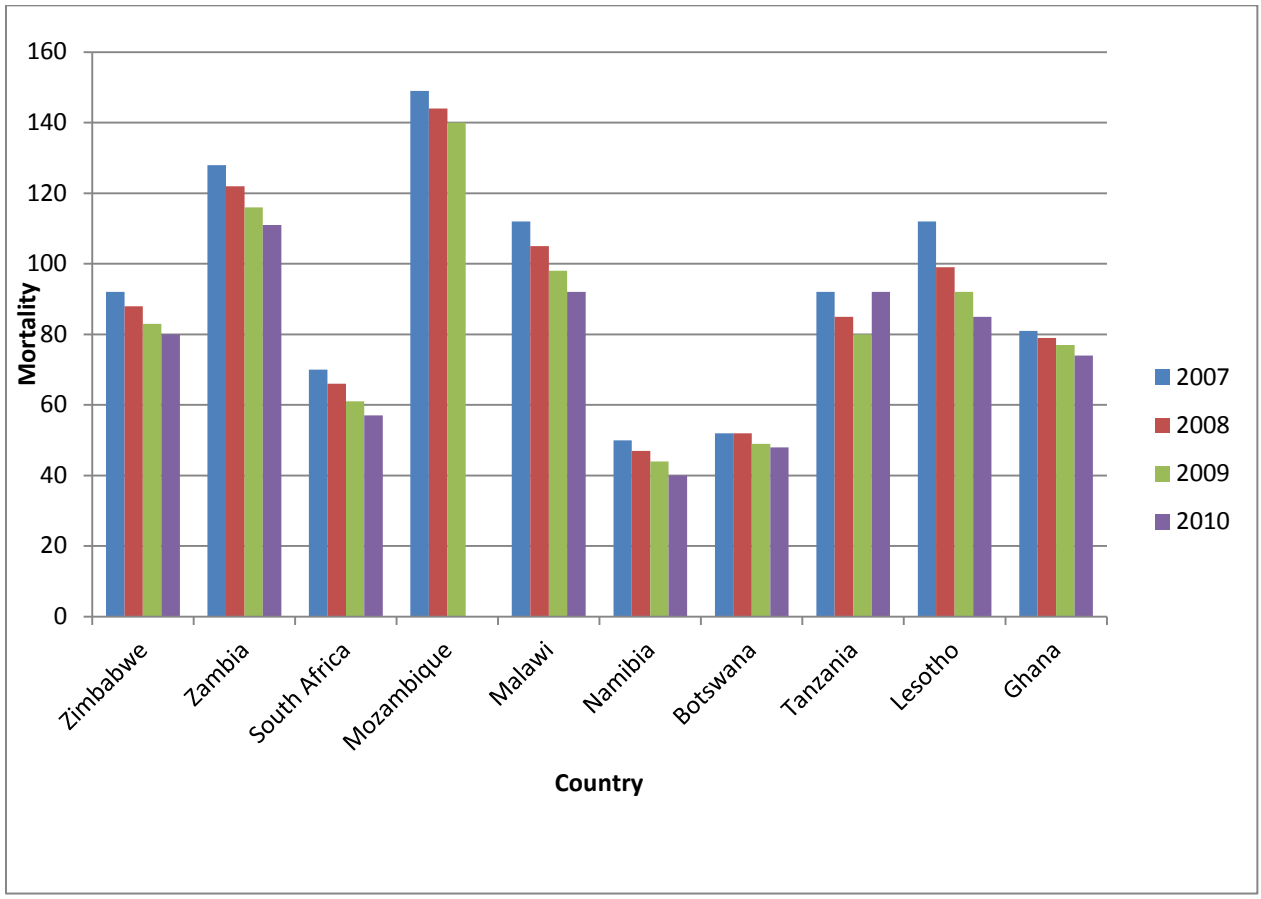
The unavailability of health insurance cover to a significant proportion of the Zimbabwean population, as shown in figure 1, may be seen as precarious, given the report by the National Child Survival Strategy for Zimbabwe (2010), in which the situation around equipment and essential drugs was reported to remain dire. This can be linked to health insurance in that such shortages tend to balloon the cost of medical services and hence call for the need for health insurance as affordability becomes a problem. Common challenges include low capacity of surgical and laboratory services, problems with maintenance of available equipment and obsolescence of some, severe shortages of blood and blood products at district and hospital levels, autoclave machines and oxygen cylinders either absent or non functional, resulting in increased numbers of referrals requiring caesarean sections, neonatal units in central and provincial hospitals without functional resuscitation equipment and incubators. Such

challenges would normally be expected to exert some strain on the nation's resources and make health services expensive or unavailable. Health insurance thus becomes indispensable.

A number of health indicators can be looked at in a bid to see the need for improving health services provision and thus to consider health insurance as an inevitable option. Infant and child mortality rates for instance, could be an important health indicator. Figure 2 below, thus makes a comparison of trends in under 5 mortality rates for selected countries in Africa. From figure 2, one can quickly note that over the period under review, from 2007 to 2010, the under 5 mortality rates are falling for all countries. What may probably be of concern is the rate of decline of mortality rates. For Ghana and Botswana, for instance, it can be noted that the rate of decline is relatively low, though of cause one can argue that the countries concerned have enjoyed low mortality rates compared to their counterparts in SADC over the period from 2007 to 2010.

Measuring the performance of the health sector on the basis of the under 5 mortality rate as an indicator, Zimbabwe does not come out as the worst. Like all other countries within SADC, she is doing well and experiencing a decline in the under 5 mortality rates. It is however key to note that, whilst there is that improvement as shown by that favourable movement in the indicator, the mortality rates are still relatively high. For instance one may want to compare Zimbabwe with South Africa, Botswana, and Namibia.

FIGURE 2
UNDER 5 MORTALITY RATES FOR SELECTED AFRICAN COUNTRIES



Source: *World Bank (2012)*

It may again be noteworthy that the Zimbabwe Demographic and Health Survey (2012) established an upward surge in this indicator in the latest survey. Thus from 2010 to 2011 there appears to be an upward swing in the under 5 mortality rate from 80 deaths per every 1000 births to 84 deaths per every 1000 births.

According to ZDHS 2010-2011 (2012), trends in early childhood can be explored by examining the mortality results from successive rounds of DHS surveys in Zimbabwe. An examination of mortality rates in successive surveys starting with 1988 up to 2011 shows that, whilst the health situation was worsening from 1988 to about the beginning of year 2000, it seems there was some improvement thereafter, especially judging from declining mortality rates from a high of 102 in 1999 to a rate of 82 deaths per every 1000 live births gotten from the 2005-06 survey.

The trends in health indicators like for instance, the under 5 mortality rates which this study relied heavily on, may show a not so good performance of the country's health sector. And, this, coupled with the trends in the nation's uptake of health insurance as illustrated in figure 1, may hint on encouraging the uptake of health insurance as part of the nation's solution. However, for the policy formulation process to take on board such issues in a bid to improve the performance of the nation's health system, it becomes key that a research on the determinants of health insurance participation be conducted.

Theoretical Literature

The conventional theory of demand for health insurance and Nyman's access theory of demand for private health insurance seem to dominate the health insurance literature. According to Santerre and Neun (2010), many of the choices individuals make as health care consumers and providers involve a substantial level of uncertainty. This uncertainty stems from illnesses occurring randomly, unpredictable timing and amount of medical expenses, and therefore patient load and types of treatment also become unpredictable. Santerre and Neun (2010) further argue that people generally dislike risk and are willing to pay some amount of money to avoid it. Consumers thus gain from entering into some risk pooling arrangements as this reduces the variability of the expected losses.

The conventional theory explains factors affecting demand and the uptake of health insurance on the basis of the expected utility model. Santerre and Neun (2010) maintain that the price of insurance, one's degree of risk aversion, the preferential tax treatment of health insurance premiums, and government subsidy on the purchase of health insurance, are all key determinants of health insurance participation. They further underline that the subjective probability of an illness occurring affects the amount of health insurance demanded. Feldstein (2005) tends to concur with Santerre and Neun (2010) in underlining the tax exempt aspect of health insurance premiums and the price effect of health insurance on medical care as key in the consideration to purchase health insurance coverage. It is thus possible to deduce from such assertions that the uptake of health insurance itself may be motivated by the perceived decline in the cost of medical services and the subsidy component from government.

Feldstein (2005) touches on the elasticity of demand for medical care, and argues that differences from premiums resulting from the price elasticity of the demand curve may be great enough for some individuals to prefer self insurance.

On the other hand, Nyman's access theory of demand for private health insurance suggests that people value medical insurance because they desire an income transfer from those who remain healthy in the event they become seriously ill (Nyman 2003). According to Nyman (2003), his access theory of demand for health insurance holds that people purchase health insurance to obtain additional income when they become ill. Insurance companies thus merely transfer insurance premiums from those remaining healthy to those becoming ill. The new theory appears to present a departure from the conventional theory's emphasis on risk avoidance as the major drive in health insurance participation, to the income transfer, as a desired objective when deciding to take up health insurance cover.

Eisenhauer (2006) traces health insurance back to Arrow (1963) who argued for governmental provision of health insurance, through Pauly (1968), who, five years later observed that health insurance often induces moral hazard, resulting in an inefficient reallocation of resources. Pauly (1968) argued that institutionalising such inefficiencies through government regulations was welfare decreasing. Pauly's

thinking dominated the conventional theory of health insurance demand. Especially in emphasising the aspect of moral hazard and adverse selection as well as risk transfer as a major driving force stimulating the uptake of health insurance coverage. Eisenhauer (2006), shows that Nyman's work reconsiders moral hazard. It offers a new perspective on the reasons for consumers to buy medical insurance in the first place.

According to Osei-Akoto (2011), health insurance is widely believed to be one of the most viable and authentic health financing systems. It does not only help in meeting the needs of the health system, but also provides less hurting health payment systems for households. To this extent it is preferable to cost recovery strategies and user fees in much of the developing world. Much of the literature on demand for health insurance, tend to subdivide between the conventional theory, originally explained by Pauly (1968) and the new theory, for which John A. Nyman is one of the proponents. Whilst the conventional theory places emphasis on the price effect of insurance with moral hazard and adverse selection as key challenges of the insurance market and hence welfare decreasing, the new theory looks at insurance as a process facilitating income transfers from those who remain healthy after subscribing to a pool of central finds, to those who become ill. Nyman (2001) suggests that health insurance is thus purchased to obtain that transfer, which is the difference between the payoff and the premium.

The conventional theory according to Nyman (2003) holds that people purchase insurance because they prefer the certainty of paying a small premium to the risk of getting sick and paying a large medical bill. One can quickly see that according to this conventional theory, risks and certainties are an important explanatory variable in the demand for health insurance. People are thus compelled to participate in health insurance because they do not want to get stranded in the event of unforeseen need to pay large health care bills.

As seen by Newhouse (1978), for the purpose of studying the relationship between health insurance and demand, the important point is that insurance is like a subsidy to purchase medical care. It lowers the per unit price of care. This thinking is also in line with Nyman (2001) who argues that the conventional theory of health insurance has held that becoming insured acts like a reduction in the price of health care, just as if the price reduction had occurred exogenously in the market.

Parkin *et al* (2000) noted that everyone demands healthcare at some point in their life, but the people with the largest demands are the elderly, the very young and the chronically sick. They further assert that the costs for most people are high though the frequency of use is low. They emphasise that it is the uncertainties about future incomes that make planning healthcare expenditures difficult, hence in a purely private market system most people choose to finance their health care by insurance. It should thus be evident from the foregoing discussion that uncertainties, age and one's health status feature as key determinants of participation in health insurance.

Related to uncertainties as a determinant of health insurance participation are health risks. According to Parkin *et al* (2000) health insurance markets have the problems of moral hazard and adverse selection. Moral hazard is the tendency for people who are covered by health insurance to use more health service or to be less careful about avoiding health risks than they otherwise could. It can thus be deduced that people get insured because they want to avoid shouldering such risks. On the same note Parkin *et al* (2000) argue that because of adverse selection in the insurance market, those people who know they have a greater chance of falling ill than the average, are the ones more likely to buy health insurance. Insurance companies are thus expected to attract profitable business from low risk customers as they tend to give preference to healthy and employed people. It is thus normal to find that at times some people are not covered because of the extent of risk regarding their health status or because of their payment abilities.

The issue of health risks as a determinant to health insurance participation is underlined by Morris *et al* (2007). They hold that the role of health insurance in addressing uncertainty in the demand for healthcare depends on attitude to risk. They maintain that an individual will pay for insurance as long as the utility it yields is at least as high as the utility they would achieve if they did not buy insurance. They see health insurance as a vehicle to remove uncertainty facing individuals with respect to the timing and magnitude of healthcare expenditure. To this extent people will be prepared to pay a given amount, say R^t plus a risk premium that depends on their degree of risk aversion.

Morris *et al* (2007) further explore the risks concept and argue that any individual who feels that their probability of illness is greater than the community rate will have an added incentive to insure, and that those with a lower than average probability may choose not to insure unless they are sufficiently risk averse. The community rate, they argue, is normally unacceptable to the low risk group because it is more than what they are prepare to pay. Such people are likely to drop out of the insurance market and will be uninsured.

According to Cutler and Zeckhouser (1998) higher health expenditures arising out of low health status give rise to higher chances of purchasing health insurance. Examples would be for people who are prone to cancerous infections or those with heart related illnesses and therefore who are likely to undergo some costly heart surgery. Other things remaining constant, they may be more likely to purchase health insurance as the costs they are likely to incur should they fall ill are exorbitant, and in most cases, beyond reach. Wang *et al* (2010) looks at the socio cultural dimensions of a society as a possible explanatory variable, arguing that the feasibility of a particular health insurance design is likely to depend on the society's socio cultural dimensions. Here, for instance, a community – based health insurance scheme is more likely to be feasible in a country where ethnic groups demonstrate high social cohesion.

Empirical Literature

The numerous health challenges faced by the Zimbabwean health sector and those of other developing economies resulted in several studies being carried out. For instance, Normand *et al* (1996) suggest that options for additional resources in health services provision come from higher levels of user fees, and wider availability of private insurance. On the same note Savedoff and Sekhri (2004) explored the implications of private health insurance for developing economies and argue that health insurance plays a large and increasing role around the world.

There has not been a lot of debate regarding the importance and relevance of health insurance. In fact, it seems several scholars are in consensus on the important aspects, and debate seems to be on how health insurance coverage can be promoted and, on ways to boost health status of nationals in any nation. Dey and Flinn (2003) developed an equilibrium model of health insurance provision and wage determination. From their study, they established a strong connection between employment decisions and health insurance coverage. Here one can quickly note that if health insurance coverage, in any way, affects employment decisions, then it is bound to impact notably on the nation's wellbeing.

According to Rajeev Ahuja and Jutting (2008), participation can actually be boosted through the manipulation of institutional rigidities such as credit constraints. To them appropriate public interventions are necessary to generate demand for insurance. They saw easing credit as a way out, and their study emphasised the importance of the poor having appropriate saving and borrowing instruments. These sentiments may be closely related to those raised by Sparrow *et al* (2010). Their study focused on the Indonesian case in which the introduction of subsidies was an important step towards meeting Indonesia's ambition for universal health insurance. Public health insurance was seen to improve access to health care through increasing utilization of outpatient health care among the poor.

On the other hand Pauly (2004) carried out a study that focused specifically on developing countries and came up with interesting insights. From his study, the level of out of pocket payments for medical services and the affordability of such health insurance play a crucial role in the demand for insurance. He emphasized that a household unwilling to pay a high but rare out of pocket expense may still be willing to pay the affordable lower annual premium to cover the expense. In this respect it is then the high burden of out of pocket spending that provokes the need for health insurance.

Other scholars have attributed the uptake of health insurance to the consumer's risk assessment. For instance Giesbert (2010) conducted a study that sought to estimate the cross sectional determinants of households' decisions to take up a micro life insurance. He used survey data, and evidence from the study suggested an outstanding role of trust and social networks for the probability of purchasing a micro life insurance. He attributed this to the strongly negative association of the idiosyncratic risk assessment within the household, with the uptake of micro life insurance and underlined that households view the

micro insurance policy itself as a risky option. In this respect the major determinants of participation in health insurance would be the prospect variability of risk and initial wealth.

The aspect of risk aversion can be linked to the findings of Pollack and Kronebusch (2008). Here it was established that in the United States a person's vulnerability to illness and disease makes health insurance necessary and possible. Examples were given of rural areas residents, residents of inner city communities, individuals with chronic illnesses, the disabled poor , the elderly and near elderly, and children with special health care needs.

In a study carried out by Lin Liyne and Zhu Yu (2006), a multi level analysis was carried out on the determinants of social insurance participation in some of China's cities. It came out that at times participation is affected by social policies of the cities and the effects were seen to be significant. Enterprise characteristics were seen to have a relatively vague impact on participation and without obvious regularity on social insurance participation. It is also possible that participation may be determined by a combination of family level pre disposing, perceived need and enabling or disabling factors, as came out of a study by Kincheloe *et al* (2007). In addition to such factors they also underline the key role played by country level enabling or disabling factors, and from their study the strongest predictors of participation in California's Medicaid and SCHIP programs were immigration status, ethnicity, income, age, number of hours a parent worked, and urban residents.

According to Jutting (2003) household income, religion, village characteristics and ethnicity exerted the strongest influence on the probability of participation in community based health insurance schemes in rural Senegal. He noted that whilst the schemes reached the poor in general, the poorest of the poor within the villages found participation financially difficult. He again noted the persistence of social exclusion due to religion or ethnic groups. On the other hand Savedoff and Sekhri (2004) studied the implications of private health insurance for developing countries in which they reviewed the international experiences of several countries. The study showed that private health insurance was significant in countries with widely different levels of income and health system structures. One's employment status was also seen to have a significant effect on health insurance participation, as came out from a study by Bhandari (2002). Unemployed people were most likely to be uninsured. It was established that workers do not participate in employment based health insurance for a number of reasons that include ineligibility, getting denied the opportunity, and one's own choice. The likelihood of having health insurance was again seen to increase with one's level of education. From a log linear analysis of factors affecting the usage of Nigeria's national health insurance scheme (NHIS) carried out by Ibiwoye and Adeleke (2009), It was found that income, occupation, gender, age group, marital status and family size all play some explanatory role in the slow pace of usage of NHIS.

Some interesting insights may be drawn from Gonzalez (2009) who carried out a three part analysis of the impact of acculturation, self rated health, and years of US residency on Latino's take up of health insurance. He established that Latinos often lack Health insurance coverage as a result of the industries in which they work, type of occupations they hold, type of employment status they are granted. From his study it came out that some of the major industries that provide significant employment opportunities for US Latino labour force include agriculture, manufacturing, construction and services. These industries are less likely to provide health insurance coverage and other employer sponsored benefits for their employees. They are less likely to employ on a full time basis, and they are more likely to provide minimal wages, seasonal employment and day labour type of employment arrangements. His study thus confirms that some types of employment arrangements impede the likelihood of certain classes of people to obtain health insurance coverage compared to other classes. The role of cognitive ability and risk aversion was emphasised by Chatterjee and Nielsen (2010). They used an adapted behavioural framework to predict health insurance coverage among employed workers. They established that consumers in the higher quartiles of intelligence are increasingly more likely to have enrolled in an employer's health insurance policy or purchased insurance in the individual market. The research again found out that respondents with a higher tolerance for risk are less likely to be insured than those less risk tolerant.

Household poverty was seen to affect household's health and insurance decisions significantly (Hu Hong – Wei Zhang Lu, 2008). It was established from this study that the poorer the household the higher

the chances of bad health situations and negative will to join in the rural basic social insurance. Solutions were thus seen to involve raising peasants' incomes, enhancing the level of rural social insurance, and to develop a variety of insurance in rural China.

Sikosana (2005) tends to allude to government policy as a key determinant of health insurance participation. He notes that in 2001, Mozambique, Zambia, Tanzania, South Africa and Zimbabwe had developed proposals to introduce compulsory health insurance schemes. Thus where participation is a matter of policy, then it is normal that the level of participation is higher compared to situations in which there is no compulsory government policy regarding health insurance schemes. Sikosana (2005) again discusses the implications of the existence of publicly provided health services on health insurance especially where they are provided for free at the point of delivery. In such cases willingness to pay for health insurance is likely to be compromised, and so participation in health insurance is expected to be low.

According to Sikosana (2005) the expansion of health insurance beyond the formal sector of the economy may not be immediately feasible in most countries in sub – Saharan Africa. This particularly owes to increasing poverty in these countries. This brings in poverty and the existence of non formal sector as possible explanatory variables to health insurance participation. He argues that there seem to be some absence of an adequate population of people in the formal employment necessary to support the health insurance market.

Buntin *et al* (2004) carried out a study on the role of the individual health insurance market, in which they used census data from US census bureau. They found out that at least 45 million Americans remained uninsured, of which most were employed but either could not afford employer sponsored health insurance, or were not offered. The same study again showed that almost 30% of unemployed Americans lacked health insurance. Among the uninsured are entrepreneurs, consultants, small business owners and their employees, as well as most young and often single people. Such findings seem to be in line with those of Ho Jin Lee and Wei-Hua Tian (2004) who maintained that in spite of US health reforms, millions of children remained uninsured in America, a situation that led to the enactment of the State Children's Health Insurance Programme (SCHIP) in an effort to improve the situation.

The Chinese experience as investigated by Bingquin Li (2007) point to the self exclusive "small farmer's attitude" which prevented rural to urban migrant workers from foreseeing the risks that urban life might have, and so recommendations were suggested to improve migrant workers' understanding of the social insurance system.

A research carried out by Bennefield (1996) on the dynamics of economic well being suggested that young adults ranging between 18 and 24 years of age were the most likely of any age group to lack insurance. The same research found out that work experience had a significant effect on health insurance coverage. In this regard, 86.5% of people who worked continuously, and on a full time basis for the period studied, had continuous health insurance coverage. This is unlike part time workers and those who had one or two job interruptions over the period. Those who were poor and the near poor were less likely to have continuous health insurance coverage than others. He found out from his study that health insurance coverage was associated with other life circumstances like employment, retirement, government programme participation, etc. Participation was thus bound to change over time. Women were also more likely to have health insurance coverage as compared to their male counterparts, and this, he attributed to their economic status. Other key determinants from his study included the type of residence and religion, level of education, as well as employment status.

According to Nketiah (2009), access to health insurance is crucial especially to those women in the fertility bracket, as they should meet their health needs and those of their children. He holds that this kind of thinking is encapsulated in the Millennium Development Goals 4 and 5 which resonate around the health of children and women. He thus argues that ownership of health insurance for mothers has the potential of reducing child and maternal mortalities. Nketiah (2009) used a binary logit model and established that key variables in determining participation are income, age, religion, access to health information via television sets and the media. He saw these as significant predictors for women's

participation. He however saw distance to the nearest health facility as inversely related to insurance demand.

Kimani *et al* (2012) used descriptive statistics and multivariate logistic regression analysis to describe the sample characteristics and to identify factors affecting participation in health insurance programme in Nairobi. Females were found to be more likely to participate in health insurance programmes. Those respondents who were formerly in a union and those who were never in a union were less likely to have public insurance coverage. Working in the formal sector was also positively related to enrolment.

Evidence from Sri Lanka as pointed out by Bending and Arun (2011) show that household's experience of family related shocks as well as level of education of the household head are strong determinants of health insurance participation. Here they used probit models on household survey data from Sri Lanka, and specifically, multivariate probit regressions to analyse factors affecting participation in different types of insurance

RESEARCH METHODOLOGY

Model Specification

Quite a number of researches that deal with similar issues of participation have so far been conducted and this research borrows much from such authorities as Weinberger and Jütting (2001), as well as Jütting (2003) who have adopted probit models in their studies. This study adopts almost the same PROBIT procedure which was developed from the need to analyse qualitative (dichotomous or polytomous) dependent variables within the regression framework. It suits well in cases where responses are binary in nature, for instance, yes/no responses, or where response variables are measured ordinally rather than continuously. Probit analysis is more appropriate in cases where the dependent variables are discrete rather than continuous. When the response Y is binary, with the values 0 and 1, the probit equation is

$$P = Pr(Y = 1/X) = \Phi(X'\beta) \quad \text{.....(1)}$$

Where: Pr = probability
Φ = cumulative distribution function (CDF) of the normal distribution
β = vector of unknown parameters
X = vector of known regressors
Y = sequence of independent binary variables that take values of 1 and 0.

The characteristics of X are taken at average and regressed against Y to determine the influence of each of the variables on the probability of an individual or household to make a decision to participate in health insurance or not to participate.

In a study by Jutting (2003), participation depends on current household income (Y), characteristics of the household head (H), household characteristics (Z), community characteristics (C) and the error term ų.

Similarly in this study health insurance participation (HIP) can be presented as a function of a number of variables like the level of income, level of education, age, family size, sex, marital status, one's employment status as well as whether one has a white or blue collar job. This can be shown thus:

$$HIP = f(L_i; L_e; A; A^2; S_f; S; M; J; E_s; C) \quad \text{.....(2)}$$

Where:

HIP: Health Insurance Participation

L_i:	Level of Income	(expected sign: +)
L_e:	Level of Education	(expected sign: +)
A:	Age of Participant	(expected sign: +)
A^2:	Age as the participant grows older	(expected sign: -)

S_f:	Size of Family	(expected sign: +)
S:	Sex	(expected sign: +)
M:	Marital Status	(expected sign: +)
J:	Nature of job, i.e white or blue collar	(expected sign: -)
E_s:	Employment status	(expected sign: -)
C:	Chronic illness	(expected sign: -)

From the above specification, HIP is a binary variable and it takes the values of either 0 or 1. Data shall be collected through interviews, administration of questionnaires as well as observations. To this extent the study will heavily rely on primary data. The population under study shall be that of Gweru Urban district of Zimbabwe and a number of sampling techniques shall be used and these include stratified random sampling as well as convenience sampling. The probit model can then be stated as:

$$HIP = \beta 0 + \beta 1 L_i + \beta 2 L_e + \beta 3 A + \beta 4 S_f + \beta 5 S + \beta 6 J + \beta 7 E_s + \beta 8 Ci + \beta 9 A^2 + \varepsilon_i \quad \text{.....(3)}$$

Data Types and Sources

The study relies on primary data. The data shall be gotten by way of questionnaires administered on the sample. The area covered by the research is Gweru urban, in the Midlands province of Zimbabwe. According to the Parliament of Zimbabwe (2011) this constituency has a population of 48959 people who are housed in 12642 households. Each household is assumed to have an average of 3 people. Following a sample size criteria designed by Bartlett *et al* (2001) an ideal sample size will be at least 5% of the households population. Stratified random sampling technique shall be used for this research. This sampling method is ideal for ensuring that most sections of the population are represented. It takes representative households from each stratum in the population.

Data Collection and Coding

Given the size of the geographical area covered by this study, the laborious nature of the data collection process, as well as the limited time within which this study is conducted, a minimum of 5 research assistants will be engaged for the purpose of questionnaire administration. They will be inducted and be acquainted with the basic skills needed in data collection before they embark on the exercise. The primary instrument shall be a questionnaire whose questions shall require binary choice responses as well as continuous responses. For binary choices, coding shall be used, for instance the response (No) shall generally be coded as (0) while the response (Yes) shall be coded as (1)

Estimation

Stata probit function shall be used for estimation. The data collected shall be tested for Multicolinearity. The existence of Multicolinearity means that some explanatory variables have the same effects on the dependent variable, and this complicates analysis. When high Multicolinearity exists, confidence intervals for coefficients tend to be very wide, and t-statistics tend to be very small. In the event that multicollinearity exists, some variables will have to be dropped as a way of dealing with the problem. Variance inflation factors (VIF) shall be used to detect the problem of multicollinearity.

The data shall also be tested for Heteroscedasticity. This problem occurs when the assumption of constant variance of the error term is violated. The Breusch-Pagan test shall be used to detect the problem of Heteroscedasticity. It is designed to detect any linear form of Heteroscedasticity and it is an option built into Stata. In the event of its presence, robust standard errors will be used to correct the problem of Heteroscedasticity.

After the necessary diagnostic tests a probit regression shall be performed to generate the probit parameters and estimate the health insurance participation model (HIP). Analysis and interpretation shall be on the basis of the marginal effects (MEs). Considering several empirical studies that have been

explored in which most of the variables in the econometrical model adopted for this study have been used, this study should produce dependable and credible outcomes.

Data Presentation and Analysis

Descriptive Statistics

The study involved the use of 10 research assistants who had to be equipped with the basic tenets of questionnaire administration before embarking on the process. 1200 questionnaires were sent out for administration, of which 703 were returned. This gives a response rate of 58.6%. The study focused on the adult population of Gweru urban district in the Midlands province of Zimbabwe. This area comprises 12642 households, according to Parliament of Zimbabwe (2011). The study thus focused on household heads, which could either be female or male. The 703 respondents were in line with recommendations by Bartlett et al (2001) who put forward 5% as an ideal sample size. The statistics are summarised in table 1 below:

TABLE 1
SUMMARY OF STATISTICS

Variable	Observation	Mean	std dev	Minimum	Max
Hip	703	0.516359	0.5000881	0	1
Age	703	34.7	11.01845	17	65
Sex	703	0.3	0.4592641	0	1
Marst	703	0.73	0.4641537	0	1
Famsz	703	4.8	2.836702	1	13
Levledu	703	15.4	1.728799	13	18
Empstat	703	0.85	0.3524448	0	1
JobTyp	703	0.54	0.4988223	0	1
Income	703	490.6	507.6964	100	2800
Empspon	703	0.3	0.4604846	0	1
Chronils	703	0.26	0.4391178	0	1

Of the 703 households sampled, 491 were male headed and 212 were female headed. All the respondents fell in the 17 to 65 age range, with 34,734 years being the mean age. The survey showed that family sizes were ranging from 1 member to 13 members per family. The average family size was 4.8, which may translate into 4 members per family since a person cannot be halved. The average education level was a diploma or certificate, and this had to be measured in terms of years of schooling. For instance a diploma would take 16 years of schooling right from Primary school, whilst a degree would take 17 years and then 18 years for one to have acquired post graduate qualification.

The household income was another key variable considered. This had to be income from employment, self employment, or any other activities that one may undertake on a casual basis. Most of those respondents who were neither self- employed nor employed could at least afford to get a $100 from part time activities per month. The income range was between $100 and $2800 per month.

Diagnostic Test Results

The diagnostic tests that were found to be necessary for the data in this study are testing for multicollinearity and testing for Heteroscedasticity.

Multicollinearity Test Results

The data was subjected to some tests for multicollinearity. According to Gujarati (2004), whether multicollinearity is perfect or less than perfect, the effect is such that the coefficients of explanatory variables cannot be estimated with great precision or accuracy. There are a number of ways of detecting multicollinearity in a model. For instance large changes in the estimated regression coefficients after removing or adding more predictor variables should be indicative of multicollinearity existing in the model. In this study **Variance Inflation Factors (VIF)** for multicollinearity was used to test for it and the mean VIF of 1.44 was found (see appendix 5) which is way below the rule of thumb of 5. The VIF test results showed that there is no problem of multicollinearity in the model.

Heteroscedasticity Test Results

The problem of Heteroscedasticity occurs when the OLS assumption that variance of the error term is constant is violated. If error terms do not have constant variance then they are heteroscedastic, and such a problem may need to be corrected. In this study, the Breusch – Pagan test for Heteroscedasticity was used and the following results were obtained:

Ho: Constant variance
Variables: fitted values of HIP
chi2 (1) = 53.13
Prob > chi2 = 0.0000

From the test results, it should be noted that the P – value is significant and we therefore reject the null hypothesis (H_0) that there is constant variance of the error terms and accept the alternative hypothesis of Heteroscedasticity. The problem of Heteroscedasticity detected had to be corrected by way of regressing using robust standard errors.

The Probit Model Regression Results

TABLE 2
PARAMETER ESTIMATES USING STATA

Variable	Coef.	Robust St.Err.	Z	P > z
Chronils	**0.3560405**	0.1845715	1,93	0.054
Lincome	0.3803951	0.1098858	3.46	0.001
Jobtype	-0.0681736	0.1828244	-0.37	0.709
Employsta	-0.2966358	0.2426876	-1.22	0.222
Levledu	0.3327336	0.0480996	6.92	0
Famsize	-0.0531369	0.0270896	-1.96	0.05
Age	0.333369	0.064565	2.07	0.039
Agesq	-0.0019041	0.0007912	-2.41	0.016
_cons	-9.50439	1.38899	-6.84	0

Number of obs = 703, $x^2(8)$ = 124.24, P < 0.0000

In the light of the Probit regression results in table 2 above, the estimated model for health insurance participation can be presented thus:

$$\mathbf{HIP = -9.5 + 0.38L_i + 0.33\ L_e + 0.33A - 0.05S_f - 0.68J - 0.3E_s + 0.36C_i - 0.02A^2}$$

Some variables like Sex (S), marital status (M) and employer sponsorship of health insurance had to be dropped from the regression owing to colinearity. On the other hand the problem of Heteroscedasticity had to be corrected through the use of robust standard errors.

Employment status of the household head, as well as the type of job one works, as in white or blue collar job, were seen to be insignificant. The respondent's level of education came out to have a significant impact on their health insurance participation. This was in line with the expected sign of the coefficient, which is positive. It could well be that as people get more educated, they get better enlightened regarding most aspects penitent to the well being of their families. More so people may tend to look at their efforts in education as some kind of investment for their families, and so getting reckless with their lives and taking chances when it comes to health matters may not be plausible. It may again be the case that as part of their learning, some may have included in their programmes some aspects of health care, and possibly health insurance too.

The other important variable was the respondent's level of income. Again the positive sign of the coefficient was expected, and the variable was quite significant at 5%. Higher incomes make for affordability. It is thus not surprising that respondents whose household incomes are high tend to have a positive uptake of health insurance, and thus higher chances of participating.

Age as a determinant of health insurance participation was a significant variable at 5%. It emerged that the older one gets, the higher the chances of enrolling for health insurance schemes. It is possible that age comes with a sense of responsibility as well as getting more knowledgeable. With age, people seem to develop a stronger sense of purpose for life and for living, in general. Thus, apart from having acquired some earthly treasures that one may want to enjoy along with their families and loved ones, they are psychologically aiming at self actualisation and want to become the best they can be. This may trigger in them some sense of responsibility, including the need to take care of their health needs. Age (A^2) was however seen to have a negative sign albeit still being significant at 5%. This again was expected. It may be normal that as one gets older, especially as they get beyond their productive years, they may become less and less careful about where they step and how they take care of themselves. In fact they may be a tendency to have one's grown up children taking over most responsibilities in the home including healthcare needs.

It is again possible that the negativity of Age squared owes to the fact that with age some families may have acquired large amounts of wealth to the extent that they are financially fit to rise up to the challenges of most travails likely to befall an average family. As a result the risk of any family member falling sick and therefore requiring large sums in hospital bills may not be as serious to such families as it may be to an average household in Zimbabwe.

The existence of a person with some chronic illnesses in the family like cancer, anaemia, asthma, diabetes, coronary heart disease and many others, was seen to have a positive coefficient. Chronic illnesses are significant at 10%. It could be possible that household heads that have such illnesses in their families are more attentive to health insurance issues than those with no history of chronic illnesses in the family. They probably look at their chances of having to make exorbitant payments towards healthcare expenditure and prefer to trade such possibilities with a stream of affordable healthcare premiums.

Family size was significant at 10% though the negative sign was not to be expected. One would have thought that as the size of the household grows, so do the risks, and so health insurance participation would increase with growth in the size of the household. The negativity may be explained on the basis of the large payments that growing families may have to make towards health insurance premiums. At times this may turn out to be unaffordable and hence a family may end up deciding not to participate at all. This may be seen as ideal especially when there are no chronic illnesses in the family and yet family income is low.

Results Interpretation

TABLE 3
MARGINAL EFFECTS

Variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
Chroni~s*|	.1142573	.05968	1.91	0.056	-.002715	.23123	.271984
Lincome		.1157169	.03416	3.39	0.001	.048758	.182675	5.5507
Jobtype*|	-.0208884	.05621	-0.37	0.710	-.131056	.08928	.646217
Employ~a*|	-.0956067	.08175	-1.17	0.242	-.255826	.064612	.791411
Levledu		.1012182	.01371	7.38	0.000	.074344	.128092	15.1288
Famsize		-.0161644	.00833	-1.94	0.052	-.0325	.000171	4.9182
Age		.0405613	.01875	2.16	0.031	.003815	.077308	33.8466
Agesq		-.0005792	.00023	-2.54	0.011	-.001027	-.000132	1285.13

(*) dy/dx is for discrete change of dummy variable from 0 to 1

The availability of a chronic illness in the family increases the household's probability of participating in health insurance schemes by 11%. On the other hand a unit increase in household income increases the household's chances of participation by 0.12.

Education of the household head was seen to have a positive sign. Thus an additional year of schooling on the part of the household head increases the household's chances of participation by 0.1. The size of the household was negatively related to health insurance participation. An addition to the household by one more member reduces the household's chances of enrolling for a health insurance scheme by 0.02.

Age was seen to be positively related to health insurance participation, except in one's later years in life when the relationship becomes negative. Thus a unit increase in age of the household head increases the probability that the household enrols for health insurance by 0.04. However as one approaches old age, each additional year reduces the household's probability of participating in health insurance by 0.0006.

Interpretation of Pseudo R^2

Pseudo R^2 gives information relating to the overall significance of the model. It shows how well the explanatory variables explain the dependent variable. In the case of this study, R^2 is 0.2572 and the P value is significant. The immediate implication is that the relationship seen between HIP and the explanatory variables which are: Marst, Famsz, Levledu, Empstat Jobtyp, Empspon and Chronils, cannot be by chance, but indeed these factors influence 25% of health insurance participation.

Policy Recommendations

Of all the explanatory variables of health insurance participation, the household head's level of education is the most significant at the 5% level. It has a strongly positive coefficient. This should be

important in guiding policy formulation and implementation processes on the part of both health care sector authorities and health insurance providers. Most Governments have, as part of their macroeconomic policy objectives, the desire to realise stable and sustainable economic growth and development, as well as increasing the productivity of the nation's resources. These may feature as some of the most important policy objectives, and yet their attainment largely depends on the quality of the nation's factors of production including the labour force. It thus becomes key, that as many nationals as possible are accorded access to health care facilities. It is in this light that factors affecting health insurance participation should be seen as intermediate targets in the pursuit of the objective to have a healthy labour force needed for sustainable economic growth and development.

Policies may be crafted and implemented to ensure that education is promoted and supported, as a way of getting at wider health insurance coverage and hence a healthy nation and labour force.

The Zimbabwean Government has played a significant role in ensuring access to education by the generality of the Zimbabwean population. This, it has achieved with a lot of support from various sectors of the economy and the international community by way of donor funds channelled towards the education system. The health insurance sector in Zimbabwe may want to take a more involved position in this regard.

This may not be only because directing its corporate responsibility initiatives towards education compliments government's efforts in boosting the nation's productive capacity, but most importantly because this paves way to a prosperous future of the health insurance sector in terms of its own viability.

Income and age are both positively related to the probability of a household participating in health insurance schemes. Again they are highly significant at 5% level. This may be seen to have obvious policy implications. For instance income is in most cases explained by productivity. There are various ways of enhancing productivity of the labour force, and players in the health insurance market may be interested in exploring them as a way of getting at higher incomes for their potential clients. The positive relationship that obtains between household income and the household's chances of enrolling for a health insurance scheme should hint on the health insurance market's perception of medical aid. The market sees this product as a normal good. For instance, with higher incomes households opt for more comprehensive medical aid packages. It is in this regard that the thrust on the part of health insurance providers should be to get involved in productivity stimulating endeavours.

Areas for Further Studies

This study considered the determinants of health insurance participation and adopted the case of Gweru urban district in Zimbabwe. It should be noted that Gweru Urban district is just one of Zimbabwe's 59 districts and thus there is still need to study wider populations to make for wider generalisability of research findings.

CONCLUSIONS

This research looked at the determinants of health insurance participation in the Gweru urban district of Zimbabwe. The probit model was used to analyse data since the dependent variable was dichotomous in nature. The household head's age and level of education as well as household income were seen to be positively related to the probability of a household enrolling for a health insurance scheme. Households with at least one member with a chronic illness were also seen to have their chances to seek cover increased by their circumstances. The study essentially argues for a more involved stance on the part of health insurance service providers as they work together with authorities in the health system to get at wider health insurance participation through intermediate targets like educational attainments and labour productivity.

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Development and Problems: Chambers of Commerce in China

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Contemporary chambers of commerce have come into being with the development of the market economy and they play an increasingly important role in economic development. This paper aims to introduce the nature, history, governance and related research into China's chambers of commerce. The paper also analyzes the problems in the development of contemporary chambers of commerce. Finally, this paper sums up some new changes in the practice of contemporary China's chambers of commerce and makes some suggestions for the future development, operation and innovation of chambers of commerce in China.

INTRODUCTION

Chambers of commerce are products of history whose development derives from the historical evolution and the constraints of the socio-economic environment. Contemporary chambers of commerce, as intermediary service organizations between government and business, have emerged and developed with the emergence and development of the market economy. They play an important role for the maintenance of legitimate market competition and good market order, and they have become an indispensable intermediate link in the normal operation of the entire market economy. The more mature and more developed the market economy is, and the more developed the market economy system is, the greater need there is for chambers of commerce to play an intermediary role（Huang 2005）.

Since China's accession into the WTO, especially in the 21st century, China has become the country which has received the most international counter-dumping complaints. Chambers of commerce plays an irreplaceable role in helping enterprises deal with trade disputes, providing assistance to member companies, protecting the legitimate interests of member companies, and assisting the macroeconomic management of government. Dating back to November 1993, the "Decision of the CCP Central Committee on Several Issues in Building the Socialist Market Economy" approved by the Forth Plenary Session of the 14th CPC Central Committee, the decision stresses that "we must nurture and develop the market system, develop market intermediary organizations, and fully use the service function, communication function, notary function and supervision function of the market intermediary organizations such as industry associations and chambers of commerce."

On October 11, 2006, the Sixth Plenary Session of the 16th CPC Central Committee adopted the "Decision on Some Major Issues Concerning Building a Socialist Harmonious Society" and again pointed out that China should "give play to the social function of industry associations, societies, associations and other social groups in promoting economic and social development. The status and function of chambers of commerce are so important that it is undoubtedly necessary to gain further insight into the nature, function, history, existing problems in development and innovation path of chambers of commerce. However, the research on chambers of commerce from the management and economic angle has not gained enough attention in China and abroad. Studies of chambers of commerce have not been very satisfactory and have not yet constituted a complete research system.

CHARACTERISTICS AND CLASSIFICATION OF CHAMBERS OF COMMERCE

Chambers of commerce are also known as guilds, halls and clubs. At present, academia has not unified the points of view related to the definition, characteristics and classification of chambers of commerce. There are two main types of chambers of commerce: one is the chamber of commerce, which is built on the foundation of a close relation of clan, lineage and geography. It is also known as a regional comprehensive chamber of commerce. The other type of chamber of commerce is the one established by the merchants of the same industry, aiming to coordinate internal competition, strengthen power and reduce transaction costs. This second type of chamber of commerce is also known as an industry association. Their functions are similar, but there still exists some differences (see Table 1). At present, the

TABLE 1
COMPARISON BETWEEN INDUSTRY ASSOCIATIONS AND REGIONAL COMPREHENSIVE CHAMBERS OF COMMERCE

Item	Regional comprehensive chambers of commerce	Industry association
Distinguishing mark	Most members come from the same region or have the same ancestral home, native place, similar kinship and culture	Most members belong to a certain industry
Main function	Policy recommendations to relevant government departments are mainly related to their locations and native places	Develop some industrial compliance systems; put forward policy recommendations and views in the interest of the industry to relevant government departments
Protect member's interest	Protect the legitimate rights and interests of member companies regionally, nationally, and even globally	Protect the legitimate rights and interests of the member companies of the industry
Common names	Chamber of commerce	Industry association, trade association
Example	SHENZHEN CHAOSHAN CHAMBER OF COMMERCE	China's Auction Industry Associations

most commonly used definition of a chamber of commerce is a "non-governmental industry organization formed by city industrialists and merchants." Accordingly, we can divide them into two categories: one refers to the industry organization built by city merchants according to their business goods; the other one refers to the cross-industry coordination organization formed by many industry-based chambers of commerce. In recent years, the concept of an "off-site chamber of commerce" has emerged. It refers to the non-governmental chamber of commerce built by enterprises and businessmen with the same ancestral home. These enterprises and businessmen have similar cultural practices and kinship. They establish chambers of commerce outside their ancestral home to satisfy the needs of business development and to protect their own interests. Unless specifically noted, the chamber of commerce this paper refers to is the generalized chambers of commerce with those two types mentioned above.

DEVELOPMENT OF CHINA'S CHAMBERS OF COMMERCE

In China, the first chambers of commerce emerged as clan gangs and industrial guilds. The modern chamber of commerce is developed based on merchant guildhalls and clubs along with the emergence of early Chinese capitalism and the invasion of the Western powers. Chinese chambers of commerce were born around the "Boxer Incident". They had existed for half a century until the Federation of Industry and Commerce lead by the Communist Party replaced it. In 1902, the commercial treaty negotiation minister of the Qing government Sheng Xuanhuai petitioned to the traditional Qing court that "China's business is underdeveloped because of underdeveloped commercial theory, undeveloped commercial laws and undeveloped chambers of commerce. Setting up chambers of commerce is the most important method to change this situation." After that, Shanghai officials and businessmen set up the Shanghai Commercial Club in 1902, which was China's first new-style chamber of commerce. In the same year, Yuan Shikai founded the Tianjin Commercial Club and Zhang Zhidong founded the Hankou Commercial Club in Wuhan.

In 1904, the Qing government promulgated "Authorized Regulations for Setting up Chambers of Commerce" which required that all the "commercial clubs" should be renamed as "Chambers of Commerce" and which advocated the establishment of headquarters in places with a prosperous economy, and which suggested placing branches in places with a less prosperous economy. Then, the Shanghai Commercial Club was renamed the Shanghai Chamber of Commerce, and the cascade began. Chinese chambers of commerce were formally established. By 1912, there were 998 chambers of commerce, 23,795 councils and more than 200,000 members all over the country. In 1913, the "All-China Federation of Chambers of Commerce" was founded. In 1915, the Beiyang government promulgated the "Chamber of Commerce Law", making specific provisions concerning the organizational structure and legal status of the local chamber of commerce. The organizational form of China's chambers of commerce became more and more standard. In August 1929, the "Chamber of Commerce Law" promulgated by the Republic of China made detailed provisions for the functions of Chinese chambers of commerce. During the War of Resistance against Japan and the War of Liberation, as the government adopted a wartime economic system, much industry and commerce was destroyed and the number of chambers of commerce declined.

After the founding of New China, chambers of commerce experienced a brief recovery. Subsequently, the All-China Federation of Industry and Commerce for a United Front was founded in 1953. Because of the influence of the state-private partnership movement and the socialist transformation of China, the non-governmental chambers of commerce with market economy characteristics disappeared in the planned economy which had been created in China. After China's reform and opening up, chambers of commerce ushered in a renaissance again in China's transition from a planned economy to a market economy. Especially after entering the 1990s, China's original sector management system had come to an end. The government carried out political reforms actively to change the function of government and establish the development goals of "small government, big society". As a result, chambers of commerce developed extraordinarily rapidly. The chambers of commerce in and out the system were established during this period. A large part of the chambers of commerce came from the reorganization of party and government institutions.

In 1993, some industry management departments were reorganized into industry councils (for example, the Ministry of the Textile Industry was reorganized as the China National Textile Industry Council). In 1996, the experimental work of trade associations was carried out in Shanghai, Xiamen, Guangzhou and Wenzhou. By the end of 2000, China had 292 national trade associations and 208 industry trade associations (Jia Xijin). According to the "China Civil Affairs Statistics Yearbook 2007," by the end of 2006, China had more than 60,000 industrial groups with an annual growth rate of above 10% for years. The statistics released by the All-China Federation of Industry and Commerce in November 7, 2011, showed that there were 41,551 various chambers of commerce in China. In February 19, 2011, the "Study on China's Off-site Chambers of Commerce" released by Zhongzi Research Group, which was one of the world's leading investment and financial institutions, showed that by the end of December 2010, the number of off-site chambers of commerce registered in the local civil administration department had been over 9,103.

CHINESE SCHOLARS' STUDIES ON CHAMBERS OF COMMERCE

Chinese studies on chambers of commerce are mainly carried out from four perspectives.

The first perspective is the application of the historical research method to do a systematic study of the history of chambers of commerce, by investigating areas with relatively intact chambers of commerce, and performing case studies on the chambers of commerce within these areas. Hu (1999) conducted an empirical analysis of the changes of chambers of commerce in Tianjin and North China during the occupation as well as an analysis of the Tianjin Chamber of Commerce and Industry Association before the fall of the Kuomintang regime, on the basis of abundant archival material. Ding (1999) thought the Wuhan Chamber of Commerce made some innovations in the Buy-local campaigns by establishing a specialized agency "Buy-local Goods Special Committee" which promoted goods made in China. Song (2001) took the Tianjin Chamber of Commerce in the early 20th century as an example to discuss the domestic network system of chambers of commerce, thinking that the network of the Tianjin Chamber of Commerce consisted of two organizational networks: a trade association network, also known as a network of vertical organizations and, in addition, a network of social organization, also known as a network of affiliated organizations. Through a number of historical materials, Zhu (2004) discussed the emergence, development and changing process of guilds, trade associations and industry associations. He analyzed their internal governance structure and described their social function during their respective historical periods. Xu (1991)has done much research on the Shanghai Chamber of Commerce. In one paper, he pointed out that, before the reorganization of the Shanghai General Chamber of Commerce in August 1920, that organization was organized under the leadership of businessmen who were not only the leading force but who also decided the direction of development and the actions of the Shanghai Chamber of Commerce.

The second perspective of Chinese studies on Chambers of Commerce is to investigate the nature, function and reform of chambers of commerce. Zhang (1981) believed that chambers of commerce with modern characteristics were still subject to the constraints of feudal guildhalls. Song (2001) adopted transaction cost theory to explain the intermediary function of the Tianjin Chamber of Commerce in modern China's market economy and discussed the irreplaceable function of chambers of commerce as non-governmental economic organizations in a market economy. Jin (2003) adopted a comparative research method and case study to analyze industry associations' outstanding problems and their reasons. He described how to build a suitable legal system containing chambers of commerce for China's market economy, putting forward that China should establish chambers of commerce with democracy. What's more, he also designed a method of election which takes government's and members' intentions into account. Liu (2005) thought chambers of commerce were a kind of economic organization and institutional arrangement with some specific public functions which were built by manufacturers for self-interest. Wu (2006) summarized the viewpoints on the nature of chambers of commerce in early literature and pointed out that there were mainly three perspectives. The first perspective thought that chambers of commerce were industry management institutions authorized by the government; the second perspective

thought that chambers of commerce were intermediary; the third perspective thought chambers of commerce were not governmental organizations but a voluntary self-governing organization established by firms. Hou (2006) conducted research on the efforts of the Tianjin Chamber of Commerce, together with the government, in supervising and managing the food industry in order to guarantee the food supply for the Beijing-Tianjin region.

The third perspective of Chinese studies on chambers of commerce is the extensive research on the relationship between the chambers of commerce and the government, and research on legal statutes, political activities and functions of the chambers of commerce during China's early modernization of chambers of commerce. Zheng (2003) analyzed the relation between chambers of commerce and the national government during 1927 to 1936, pointing out that this relation was not constant but rather changed with social evolution. It was likely one-sided to ascribe the change to political interaction regardless of the economy. Zhu (2003) found that the Kuomintang government abandoned the early strategy of dismantling chambers of commerce, then admitted the coexistence of chambers of commerce and business associations, and finally decided to dismantle business associations and to allow the existence of chambers of commerce after reorganization. Yu (2004) analyzed the relationship between chambers of commerce and China's early modernization from the aspects of "chambers of commerce and modernization of bourgeoisie" and "the function of chambers of commerce in China's early modernization". Chen (2006) and other researchers pointed out that a Chinese chamber of commerce should be categorized as a business social legal entity by using analysis from the perspective of legal person theory and from the viewpoint of the practical function of chambers of commerce.

The forth perspective on Chinese studies of chambers of commerce is to explore their internal governance and organizational structure. Chen Shengyong and Ma (2003) carefully analyzed how to effectively supervise the leaders and members of chambers of commerce to guarantee the achievement of the chambers' goals. Based on the statistics collected from a questionnaire survey, Yu and Huang (2004) explained the self-governance problem of the Wenzhou Chamber of Commerce from the aspect of creating organizational forms, writing association articles, establishing decision-making methods and functions, thinking that the Wenzhou Chamber of Commerce had a certain ability of self-organization and independence. Tan (2006) explored the relationship between government and members of chambers of commerce and the gaming industry association's control power. She pointed out that the purpose of governance was to protect members' interests, because when the government controlled an industry association, it may not regard the members' interests as the fundamental objective. Wu (2006) thought self-governance of chambers of commerce was an internal governance issue. As chambers of commerce and industry associations were a body of corporate organizations organized by many companies and individuals, it was important that they solve internal governance problems well, so as to operate effectively. Zhang Jie (2010) constructed an analysis structure of the governance of chambers of commerce according to their non-profit nature, with reference to the Western system of corporate governance. He regarded property rights as the premise of the governance of chambers of commerce. He also considered that an agency relationship was the basis for governance, and that the internal governance structure and the external governance environment were very important factors if governance.

OVERSEAS SCHOLARS STUDIES ON CHAMBERS OF COMMERCE

Many foreign scholars have done many studies on chambers of commerce from the aspects of nature, history, functional roles, relations with government and internal governance. The Japanese scholar Kurabashi Masano (1984) argued that China's chambers of commerce were a government organization and a product of official intentions. American scholar Edward Roz thought China's chambers of commerce, whose main function was to represent businessmen's official positions, was composed of businessmen authorized by the government. They had a semi-official nature between a guild without formal status and government. American scholar Susan Mann Jones analyzed the leadership problem of the Shanghai Chamber of Commerce during the establishment period of the Kuomintang regime from 1912 to 1928, thinking that Ningbo actually controlled the leadership of Shanghai Chamber of

Commerce. Wolfgang Streeck(1994) adopted transaction cost theory to analyze the production mechanism of industry associations. He regarded industry associations as the fifth economic system or fifth social order, together with markets, companies, the nation and informal networks. Furthermore, he considered chambers of commerce as a way to participate in the governance of the capitalist economy. Weingast (1994) regarded chambers of commerce as a third-party mechanism for implementation, which had arbitration and coordination functions, as well as a governance characteristic of impersonal transaction. Francesca Recanatini and Randi Ryterman (2001) thought that in transition economies with confusing market orders and high transaction costs, chambers of commerce played a role in improving market efficiency and business performance by providing a relatively stable environment, and by providing adequate information.

CHARACTERISTICS OF CHAMBER OF COMMERCE GOVERNANCE - DRAWING LESSONS FROM INTERNATIONAL MODELS

Scholars generally agree that the chambers of commerce provide a governance mechanism. The Global Governance Committee of the United Nations defines governance as the sum of a variety of methods to manage affairs in various public or private individuals and institutions. Governance has four characteristics: (1) governance is not a set of rules, nor an activity, but a process; (2) the governance process is not based on control but co-ordination; (3) the governance process not only involves public sectors, but also private sectors; (4) governance is not a formal system, but constant interaction.

Characteristics of China's Chambers of Commerce

Since reform and opening up, China's chambers of commerce have developed rapidly. Not only have the number and size of chambers of commerce increased significantly, but also their functions have become more and more diverse and their service capacity has become stronger. However, China's chambers of commerce are still facing the problems of lacking the capacity of self-governance, because of confusing governance structures and inadequate governance ability. Therefore, studies on the governance of chambers of commerce have considerable significance and urgency.

Compared with corporate governance, chambers of commerce have weak governance. This so-called weak governance refers to the governance mode, which relies on moral constraint, an informal system arrangement and relatively weak governance strength, compared with the governance mode, which relies on economic incentives and enforcement of formal rules. This is because the governance characteristics of chambers of commerce are formed under the influence of property characteristics, agency relationships, governance structure and the external environment. As a non-profit intermediary organization, the assets of chambers of commerce were originally from membership dues, as well as government funding, social donations and income from paid service and the operation of assets. Because the members cannot transfer their membership dues, because they cannot get dividends, because they cannot quit, and because the contribution of most members account for a relatively small percentage of the total funding, there exists confusing property relationships, loose agency relationships, and a predisposition towards weak governance in the minds of members of chambers of commerce.

Governance structure is the systematic arrangement of interests which creates a balanced system in organization and the implementation of governance. The governance structure of China's chambers of commerce generally includes a General Assembly, a Council and a Secretariat; working as authoritative, decision making and executive agencies respectively. Some chambers of commerce also have a board of supervisors. However, most supervisory authorities are useless due to the lack of supervisory power. In chambers of commerce, core members generally nominate council members, and the General Assembly votes on them, and the Secretary-General is decided by the Council and the president. Actually, as members of chambers of commerce do not have management rights, their enthusiasm is not high, and constitutional and decision-making mechanisms seldom can be implemented effectively. As a result, several core members determine the affairs, and the General Assembly has essentially become a wine party. Chambers of commerce are far from operating in accordance with proper governance mechanisms.

As China has not yet established comprehensive, holistic legislation for social groups, it lacks laws and regulations related to the external governance environment of chambers of commerce. What's more, China's chambers of commerce mostly are the derivatives of governmental functions in the process of economic reform. The governance of chambers of commerce is influenced by government significantly and lacks complete independence, which reinforce the weak governance characteristics of chambers of commerce.

Chambers of Commerce Governance Mode in Other Countries

Different governance modes of chambers of commerce can be formed in different political and economic systems, and under different national history and circumstances. According to different relationships between government and chambers of commerce, at present, there are three different chambers of commerce governance modes in the world: the government-led mode represented by Germany and France; the market-driven mode represented by the United Kingdom and the United States; and the cooperation with government mode represented by Japan and South Korea.

A. Germany-France Mode

Chambers of commerce in Germany and France are representative of chambers of commerce in civil law countries whose chambers of commerce have the characteristics of public representative bodies, as well as the characteristic of industrial and commercial administrative bodies. They are typically government-led chambers of commerce which are established on the basis of governmental leadership and funding. This kind of chamber of commerce has the following characteristics: (1) establishment and participation is compulsory, and does not entirely depend on the members' autonomous wishes; (2) income mainly comes from governmental funding, except for membership dues and revenue for paid service; (3) the government gives some guidance and supervision to chamber of commerce affairs; (4) there is an establishment principle of "one chamber of commerce in one place", which means that only one chamber of commerce of one type is allowed to be set up in one area. Areas at different levels set up chambers of commerce at different levels, and the higher-level chambers of commerce do not have leadership power over subordinate levels. (5) Chambers of commerce have certain administrative functions.

B. Anglo-American Mode

The governmental control of chambers of commerce in countries operating under the Anglo-American legal system is fairly relaxed. In law, chambers of commerce are juridical persons established on the basis of private law. Chambers of commerce of the Anglo-American mode are typically autonomous chambers of commerce which mainly have the following characteristics: (1) the establishment of the chamber of commerce is voluntary. Companies can voluntarily choose to join or not to join a certain chamber of commerce; (3) the chamber of commerce is funded by membership dues or revenues for paid service; the government generally does not provide financial aid; (4) chambers of commerce have complete autonomy - the government does not interfere with the internal affairs of chambers of commerce; (5) the country generally does not adopt specific laws to regulate chambers of commerce. Chambers of commerce are generally set up in accordance with the terms of the non-profit company in "Company Law".

C. Japan-South Korea Mode

Chambers of commerce constructed according to the Japan and South Korea Mode are different from the Anglo-American mode and Germany-France Mode. They have been established after learning and absorbing the advantages and successful experiences of the other two modes. Chambers of commerce of the Japan-South Korea type have the following characteristics: (1) some of these chambers of commerce adopt a mandatory membership system; most of the others adopt a voluntary membership system; (2) funding comes from membership dues, revenue for paid service and a small amount of government funding; (3) these chambers of commerce have the autonomy to deal with internal affairs under government guidance. When necessary, the government can guide and supervise the internal affairs of the chamber of commerce.

PROBLEMS OF CONTEMPORARY CHINA'S CHAMBERS OF COMMERCE

As an important part of today's market economy, chambers of commerce constitute a link between company and market, company and government, and company and company. As an institution, the development of chambers of commerce has become a sign of a market system maturity. They have a more and more important position in the modern market economy. Although the Chinese government and society have realized the importance of chambers of commerce, at present, chambers of commerce have not produced notable effects. They still face many problems in their development, some of which are listed below:

Low Independence and Governmental Interference

Chambers of commerce are non-governmental, autonomous, and nonprofit community organizations which are established by businessmen in order to safeguard the members' interests. As an intermediate organization, a chamber of commerce plays an important role in offsetting market failures and governmental deficiencies. Independence and freedom from government interference are important features of chambers of commerce which ensure their proper function. After the reform and opening up period, China has experienced a transformation period from a planned economy to socialist market economy, during which chambers of commerce recovered and developed rapidly. However, the industry associations and chambers of commerce recovered and developed in this period inevitably had various relations with the executive branches. The revival of the chambers of commerce broadly followed three paths: a top-down official path, also known as path within the system; a bottom-up non-governmental path, also known as "path outside the system" and a middle path known as "combination of internal and external, government supervision and company implementation". The first path is used most (See table 2). Chambers of commerce have not fundamentally changed their position as the appendage of party and government agencies. Because of the deep historical relationship between government and the chambers of commerce, government has excessively interfered with the development of chambers of commerce. This has led to concentrated power, a useless General Assembly and meaningless elections thereto, members' low level of participation, and high degree of dependence on government. As the chambers of commerce fail to serve their function, some activities of chambers of commerce subordinate members' interest to government's interest.

TABLE 2
GENERATION MECHANISM AND STRUCTURE OF CHAMBERS OF COMMERCE

Generation mechanism of industry association	Initiated by the competent business unit	Derived from party and government agencies	Initiated by leading comrade	Generated by non-government organization	Others
Proportion of the total industry associations (%)	69.1	2.7	9.6	14.2	4.4

Internal Governance and Self-Construction Problems of Chambers of Commerce

The function of chambers of commerce cannot be separated from their organizational structure and governance mechanisms. Moreover, effective governance of chambers of commerce is the key in order for them to function effectively. However, in reality, the governance and construction of China's chambers of commerce still have many problems, some of which are listed below:

A. Agency setting is incomplete, and some institutions fail to play their due role

Effective governance depends on a sound organizational structure. In general, public organizations of modern society should be constituted of at least three types of organs: a decision-making body, the executive agency, and the supervisory authority, in order to achieve a proper balance of power and effective functioning. At present, most China's chambers of commerce have set up a General Assembly and a Council as the decision-making body and a Secretariat as the executive agency, but most of them haven't set up a supervisory authority. The supervisory function of the chambers of commerce, accomplished with supervisory bodies, has not been implemented.

B. Membership rights are unequal, the chamber of commerce is controlled by a few people and the enthusiasm of medium-sized and small enterprises to participate in chambers of commerce affairs is very low

At the present time non-government chambers of commerce basically have abolished the old rules which decide the right to vote and the right to be elected according to the amount of membership dues and donation; they rather adopt the democratic governance principle "one person one vote". Actually, "the rights of each member have been decided when they pay their membership dues". Leaders of chambers of commerce used to be the leaders of the large powerful companies which paid more membership dues. The rights of members varied according to their position in the chamber of commerce. What's more, because of the imperfect system, information asymmetry and low enthusiasm of medium-sized and small enterprises, some chambers of commerce were under control of the management especially the Secretary-General, in a covert manner.

C. Rules of chambers of commerce haven't been implemented effectively

Each chamber of commerce has its own rules that regulate the number of members in the General Assembly, the Council, the Board of Supervisor, and the leadership's electoral system and the term of office. However, in reality, many chambers of commerce do not perform strictly in accordance with the rules. They do not hold a General Assembly or elect new leadership on time. And the General Assembly has become a place to announce the decision of new leadership or a place to have a party, instead of discussing problems.

D. Chambers of commerce governance lacks guidance and innovation

"Concept and mission is the soul of the survival and development of non-profit organizations." "No concept, no non-profit organization." Without a clear governance concept, a chamber of commerce will lose its direction of development. At present, many chambers of commerce have the problem of unclear governance concepts. On one hand, they declare that they serve members, on the other hand, they want to be government's assistant. They do not know how to keep a balance between the two. Besides, most management of chambers of commerce is very rigid and simple. They just hold General Assembly and Council meetings on time, mostly without preparation for the content. The participation rate of members is very low. The meeting often has no effect, let alone perfects the function and service content of the chamber of commerce. Lacking management and service innovation, the development of chambers of commerce is out of step with the times and society.

E. The lack of laws

The slow development of China's chambers of commerce is because the legal environment is suboptimal. Chambers of commerce span nearly a century of history, and the New China has been established for more than 60 years; however, the laws of the chambers of commerce have not yet been worked out. There is no specific provision in the existing laws and regulations for chambers of commerce to determine their legal status. At present, there are only three interim regulations, namely "interim regulations for the administration of registration of social organizations", "interim regulation for the administration of registration of non-government and non-enterprise units" and "interim regulation for the administration of registration of institutions". These provisions are too broad. As a result, the chambers of commerce have

no corresponding laws to rely on when carrying out activities, to deal with relations with government, and to deal with other chambers of commerce and social organizations. It hinders the normal functioning of the chamber of commerce.

F. Small scale, incomplete coverage, weak strength and weak effect of chambers of commerce

At present, the scale of China's chambers of commerce and industry associations has not met the requirement of WTO rules. The coverage of non-governmental chambers of commerce is obviously too small. Some industries, especially those effected by China's accession to the WTO, such as finance, medicine, real estate, education, retail and agriculture, have not yet established chambers of commerce. So far, this situation has not yet been fundamentally changed. Since China's accession to the WTO, China has become the country that receives the most international counter-dumping complaints. Most of these complaints come from foreign chambers of commerce and foreign industry associations. Due to the short history of development, narrow coverage, weak strength, poor knowledge of international law and low member protection awareness, etc., it brings heavy losses to the development of Chinese enterprises.

G. Chambers of commerce lack professional and managerial talents which constrains its management level and innovation ability

Human resources are the core of the governance mechanism. No matter how sound a governance structure and system is, it still needs excellent management personnel to execute and innovate to ensure the further development of the chamber of commerce. However, at present, most chambers of commerce have become an important channel for the officials in party and government organs to look for new positions after retirement. Take the Wenzhou Chamber of Commerce as an example. There, the Secretary-General who is responsible for daily work, as well as most directors of the office, are retirees. Some Wenzhou Chamber of Commerce members complain that staff welfare cannot be well protected because of the small amount of activity expenses, thereby reducing the attractiveness to young staff. And society does not provide enough education and training concerning chamber of commerce management, which leads to the scarcity of experienced managerial talent. The professional team for chamber of commerce management has yet to be formed. As a result, it heavily restricts the management level and functioning of chambers of commerce. The lack of injection of new concepts and new ideas is not conductive to the subsequent development and innovation of chambers of commerce.

NEW DEVELOPMENT TRENDS OF CHAMBER OF COMMERCE

Innovation is the soul of an organization's production and development. Function, service, management and operation of chambers of commerce need innovation. Traditional chambers of commerce mainly played the role of a bridge linking business and government. Internally, they provided various services to members; externally, they acted as a link between business and government or other social organizations, by expressing members' concerns and demands, by assisting government to formulate market regulations, and by participating in social charities. Since China's accession to the WTO, especially in the 21st century, with the deepening of market competition, the growth in demand for financial services and with changes in the Chinese market and financial environment, the function, management and service of China's chambers of commerce has changed. The Wenzhou Chamber of Commerce in Xinjiang, which walked in the forefront of China's private economy, established the Xinjiang Xuanyue Investment Company in March 2003, to provide financial support for Wenzhou medium-sized and small enterprises in Xinjiang. After that in 2005 and 2007, Wenzhou chambers of commerce in Hefei and Guilin established local bonding companies, mainly aimed at providing financial guarantees for member companies. Thereafter the Zhejiang Chambers of Commerce in Kunshan, and the Hong Kong and Macao Chambers of Commerce in Chongqing set up or were ready to set up their own bonding companies. As one of the most powerful chambers of commerce in China, the Chaozhou-Shantou Chamber of Commerce in Shenzhen not only established bonding companies and small loan companies, but also established the "Shenzhen Chow Merchants Investment Fund Co., Ltd.," and

"Shenzhen Chow Merchants Fund Management Co. Ltd.," in January 16, 2011. Moreover, the Investment Group of Chaozhou Merchants, which is currently being formed, is committed to create an investment and cooperation platform for millions of Chaozhou merchants in Shenzhen. This indicates that China's chambers of commerce have sought a new road of economic entity operation and have started to enter the era of capital operation, creating a new chamber of commerce operation mode against the new international background. And the "International Economic Cooperation Organization of Chaozhou Merchants" which is being prepared by the International Chaozhou Sodality makes the trend of great alliances between enterprises and chambers of commerce more evident.

CONCLUSION AND SUGGESTIONS

Until now, China's reform and opening up have been in progress for over 30 years and the first stages of the socialist market economy have taken shape. China is facing a new round of political and economic transformations. In the future, the invisible hand of the market will play a more and more important role in the allocation of social resources and in the process of economic development. China will continue to move forward on the way of "small government, big society". The society needs all types of non-governmental intermediary organizations to play a role. No doubt, the chamber of commerce is the most important non-governmental intermediary organization. Chambers of commerce not only face new development opportunities but also have taken on more social responsibility and have performed more social functions, which requires chambers of commerce to keep developing, innovating, and improving. The authors make a few suggestions:

Strengthen the Non-Governmental and Independent Features

As a non-governmental economic intermediary organization, a chamber of commerce is independent, is free from government control, and is autonomous. On one hand, the government should further transform government functions, and entrust some management functions to chambers of commerce and to minimize the interference in the internal affairs of chamber. On the other hand, the government should increase efforts to support the chambers of commerce to improve the administrative management system and to streamline review procedures for the establishment of a chamber of commerce. At the same time, the government should build up the external evaluation system and monitoring mechanism to effectively implement the demand of "Government Work Report" in the third meeting of the Tenth National People's Congress, which is "to hasten the transformation of government functions; further promote the separation of enterprise and government, government and capital, and government and public affairs.

Improve the Organizational Structure and System

The full functional operation of chambers of commerce relies on their sound organizational and systematic structure. The transformation of governmental functions is an affair of a chambers of commerce and calls for the utilization of its capacity to undertake the transformation. So the chambers of commerce should keep improving their strength continuously by perfecting their decision-making bodies, executive bodies and especially their oversight authority. What's more, chambers of commerce should carry out activities in accordance with their regulations, and they should build up a practical meeting system, an information disclosure system, and an electoral system as well as an accountability system.

Cultivate Management Expertise of Chambers of Commerce, and Establish a Specific Pay and Benefits System

Talent is not only the most important asset of enterprises, but also the key to improving the management of chambers of commerce. Chambers of commerce should provide business knowledge training to improve the quality of the professional management staff and, under a non-profit premise, establish pay and benefits systems to motivate managers to work effectively, as well as attract more new talents.

Accelerate the Introduction of "National Chambers of Commerce Act" and Related Laws and Promote "Civil Legislation"

The laws of each market-economy country clearly state that chambers of commerce are a social autonomy organization with a clear legal status operating on the behalf of the business sector's interest. As an important part of today's market economy and intermediary economic organization, chambers of commerce need the protection and regulation of well-functioning laws, to promote their development. Therefore, the government should introduce a uniform "Chamber of Commerce Act" as soon as possible to clarify the legal status, functions and responsibilities of chambers of commerce. As it has taken so long to make the law, it is recommended that the chambers of commerce and the member companies should sign valid contracts to safeguard the management work of chambers of commerce.

Strengthen Communication and Cooperation Between Chambers

Regional economic development is very important. China has three big economic belts including Pan-Yangtze River Delta economic region, Pan-Pearl River Delta economic region and Bohai economic region, and many small and medium-sized urban economic zones. They constitute the regional economy and shore up the entire national economy. The close communication and cooperation between the chambers of commerce in different regions plays a major role in promoting the development of regional economies, and ultimately, the development of the national economy. Therefore, it is recommended that different regions should establish regional permanent joint bodies of chambers of commerce as soon as possible, to accelerate the process of regional integration and promoting regional economic development.

Innovate the Function and Management of Chambers of Commerce

In recent years, there have been some changes in the operation of chambers of commerce. Some powerful chambers of commerce with advanced management have set up guaranty companies, small loan companies and investment groups to promote capital joint operation of member companies. The Chaozhou-Shantou Chamber of Commerce has been planning a joint capital-"Chaozhou International Economic Cooperation Organization", expecting to create a global economic platform for the Chaozhou-Shantou Chamber of Commerce. In March 28, the executive meeting chaired by Premier Wen Jiabao decided to establish a comprehensive financial reform pilot in Wenzhou, which would lead in the development of non-governmental financing. This pilot program would aid in the development of regulation; furthermore, it would improve the ability of non-government organization in providing financial services, and it would offer an example for national financial reform. All of these facts show that the spring of China's private financing is coming. China's chambers of commerce should seize this historical opportunity. They should hasten the innovation of their mode of operations, and they should explore methods of capital management suitable to them. What's more, the chambers of commerce should provide more service in order to promote member companies' development to increase their strength and influence.

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Systems Theory Application to Risk Management in Environmental and Human Health Areas

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Many of the epistemological and methodological issues confronting risk assessment have been explored in the general systems theory, however, the use of systems theory and systems analysis tools is still not widespread in the risk management area. Therefore, in this study, the author proposes the application of the original two-stage multidisciplinary qualitative-comparative analysis and systems theory methods for the holistic assessment and management of risk in environmental and health issues.

INTRODUCTION

Risk assessment provides a systematic approach for characterising the nature and magnitude of the risks associated with environmental and health hazards, while risk management can be defined as implementing risk controls. All activities, processes and products of human activities have some degree of risk. The ultimate aim of risk assessment and management is to provide the best possible scientific, social, and practical information about the risks, so that the best decisions are made as to how to control them.

To manage something, however, one first needs to measure it. There is an old management axiom: You cannot manage what you do not measure. Yet many organizations and/or countries do a not very good job (or no job at all) of measuring the risk and therefore control of environment factors on human health. Traditional approaches tend to simplify the situation in order to isolate the main variables. In doing so, they lose many of the important interactions between variables that play a significant role in risk minimization efforts. By employing a consistent, repeatable, comprehensive methodology that measures projected risk value as well as the actual risk of countries, however, can signifcantly improve both the assessment and management of environmental and health risk in the complex world of developing nations. In this study, the author proposes the application of the original two-stage multidimensional Qualitative-Comparative Analysis (QCA) and Systems Theory Methods (STM) to better understand and manage risk in the developing country context.

- The first complementary method is Qualitative-Comparative Analysis (QCA) and its formal language, Boolean algebra, which can be used to develop the risk factors, followed by
- System Theory Methods (STM), which have the capacity to evaluate the complex and dynamic interactions between factors (found in the first QCA stage) within the organisation/society, users, and external environment contexts.

Environmental and human health in this context is understood as a complex adaptive system (CAS). A complex adaptive system is a collection of individual agents with freedom to act in ways that are not always totally predictable and whose actions are interconnected. Central to a complex adaptive system is

the notion that groups of living beings or organizations, whether they are businesses or soccer clubs, can be described as complex adaptive systems.

To better understand the concept of complex adaptive systems, one can find the following evolutionary brief useful. The first transformation of this scientific revolution emerged in the early 1900's, when German physicist M. Planck noticed significant flaw in Newtonian physics by demonstrating that "*the electron in orbit around the nucleus accelerates. Acceleration means a changing electric field (the electron has charge), when means photons should be emitted. But, then the electron would lose energy and fall into the nucleus. Therefore, atoms shouldn't exist*!" This discovery was a turning point in the contemporary science which Einstein s described it as science (in Newtonian sense of word) losing its foothold. In fact, traditional physics has had no explanation for the atom's behaviour at the sub-atomic level. To resolve this problem, Planck made a wild assumption that energy, at the sub-atomic level, can only be transferred in small units, called quanta. The quantisation, or 'jumpiness' of action as depicted in quantum physics differs sharply from classical physics, which represented motion as smooth, continuous change (Skoko, 2006, p.9). In exploring the subatomic world, scientists discovered: matter is not the hard mass that operates from the principles of gravity and Newtonian physics. Indeed, at the subatomic level, matter can take varying forms, either waves or particles or both at the same time. And what determines whether an electron is a wave or a particle depends upon the electron's relationship with other subatomic particles (Capra 1982). Quantum theory determined that particles can only be understood in terms of their movements and the resulting dynamics that occur as molecules interact.

That astonishing far-reaching development of quanta physics was one of the most exciting periods in the human scientific history. It has had a great influence not only on scientific inquiry but also in all others areas of human exploration – art, architecture, music, philosophy, medicine, socio-economic development, etc. of the 20th century. These discoveries set the foundations for the development of kibernetics and complex system theory, as well.

One of the major contributors to complexity science was a seminal work of physicist, Ilya Prigogine, who identified that the second law of thermodynamics of inexorable decay and random disorder (Holden, 2005). Prigogine and others in the 1960s identified that in the real world atoms and molecules are almost never left to themselves; if enough energy flows from the outside, the tendency to degrade is partially reversed, and indeed, a new pattern of complex structures will spontaneously organize (Waldrop 1992, Capra 1996). Prigogine drew on the work of French physicist Henri Benard who discovered that heating a thin layer of liquid resulted in an organization of new structures. (Capra 1996). This process of increasing heat was described as moving the system far from equilibrium, meaning far from uniform temperature throughout the liquid, and into a '*critical point of instability, at which the ordered hexagonal pattern emerges*' (Capra 1996, p. 87). This process of self-organizing is not limited to laboratory experiments. Building on Prigogine's work on non-equilibrium thermodynamics and the principle of self-organization, other scientists have noted a particular characteristic of self organization (Holden, 2005). Cilliers (1998), philosopher and research engineer in computer modelling, explained self-organization from the biological perspective. He noted that a system not only must receive, process, and retain information; it also must respond and produce some form of output as well. This process can result in a form of internal structure that is the result of complex interactions between the environment and the system's history and present state.

The final scientific layer that provided the foundation of complexity science involved that of non-linear relationships and actions. In 1963, Edward Lorenz, meteorologist at the Massachusetts Institute of Technology, identified the impact of changing only a few decimals in weather modelling on the overall result. Lorenz ran his computer model of weather in the middle rather than at the beginning, and he used six decimals instead of three. These seemingly small changes had a large effect on the results and laid the groundwork for the mapping of chaos mathematically (Holden, 2005). The discovery was characterized as the fact that small changes in the initial characteristics of an active system can dramatically affect the long-term behaviour of that system. This is often referred to as the 'butterfly effect'. (Haigh, 2002).

This concept of non-linear relationships has been a large component of the application of this emerging science of complexity in economics, biology, meteorology, etc. However, although

mathematical descriptions of non-linear relationships are quite valuable, they do not capture the structure and organization that is characteristic of complexity science in general and complex adaptive systems in particular. That was the rationale behind our proposal to apply the QCA and STM methodology to the particular case of environmental and human health in developing countries.

The attributes of a complex adaptive system are further elucidated by Cilliers (1998, p. 3–5) to include the following:

- A large number of elements interact in a dynamic way with large exchanges of information.
- These interactions are rich, non-linear, and have a limited range because there is no over-arching framework that controls the flow of information.
- Complex systems are open systems with feedback loops, both enhancing, stimulating (positive) or detracting, inhibiting (negative). Both kinds are necessary.
- Complex adaptive systems operate under conditions far from equilibrium, which means there is continual change and response to the constant flow of energy into the system. 'Equilibrium is another word for death' (p. 4).
- Complex systems are embedded in the context of their own histories, and no single element or agent can know, comprehend, or predict actions and effects that are operating within the system as a whole.
- Complexity in the system is as a result of the patterns of interaction between the elements.

Based on the above, the author build a complex adaptive model - a general risk factors model, with empirical validity and relevance for the environmental and human health risk management being tested by the Systems Theory Methods.

In the model I recognise that human participants are an integral part of the system having no 'system's value attributes' per se, but only through their interaction with other factors. Therefore, many aspects of risk need to be assessed not just as isolated factors but also as a nexus of interaction with other parts of the system and the society itself to fully understand how they influence individual risk factors and the complex system as a whole. Thus, this research method and applying a holistic/systemic approach (STM) on a case study, would enable practitioners to comprehensively answer the following questions:

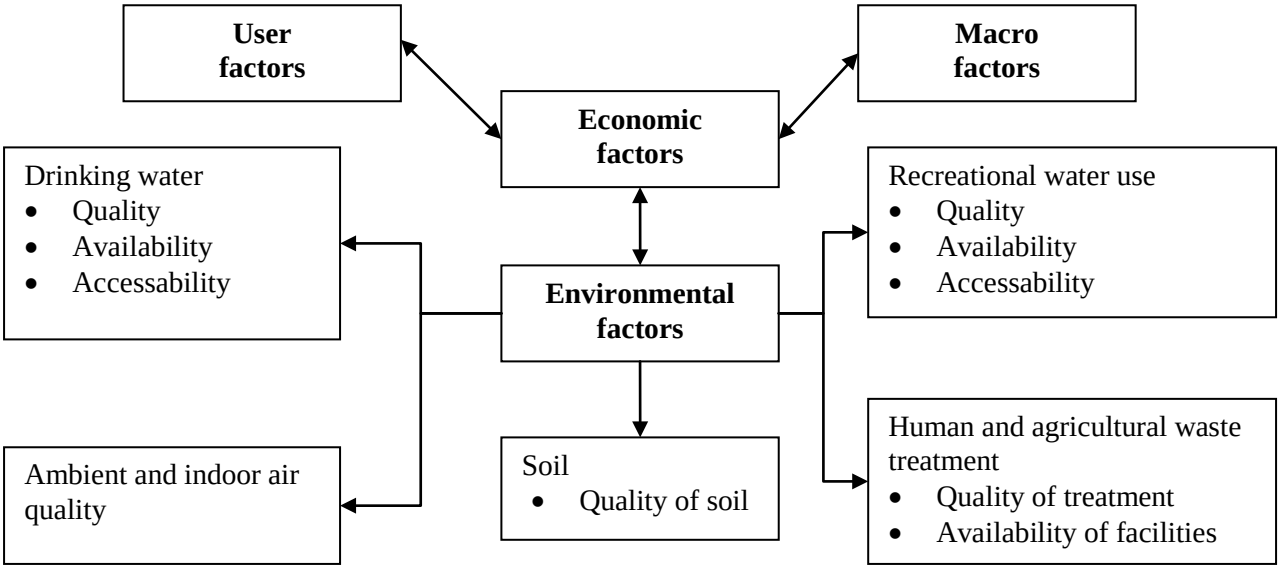
- How do the interactions between risk factors impact environmental and human health, and
- What are the outcomes of a particular system created by these interactions?

CONCEPTUAL FRAMEWORK

The most recent literature examining risk assessment and control factors forms the basis for the conceptual component of this study (see Figure 1).

Environmental and human health can be impacted on three different levels: individualistic or user/participant level, macro level and environmental level. In addition, the economic context is of great importance in facilitating macro decision regarding which management strategy to adopt, and how to implement it. Therefore, influencing risk factors examined across a range of contexts suggested by the literature can be organised within four contexts: Environmental (Drinking Water, Soil, Recreational Water, Human and Agricultural Waste Treatment, Ambient and Indor Air Quality), Users, Macro and Economic context.

FIGURE 1
FACTORS AND CONTEXTS OF ENVIRONMENTAL AND HUMAN HEALTH



Using this model as a departure point, I extend the investigation process of finding the risk factors to exploring interactions among them and their causal outcomes. That means that the risk factors must be evaluated and considered as a dynamic part of a complex system, which can be characterised as non-linear, co-evolving, self-organising and which is on the edge of chaos. That is, considering environmental and human health, as a complex adaptive system requires mixed, multidimensional, multi-stakeholder, explicitly value-based assessment approaches which are provided by the QCA and STM. Environmental and human health depends on many factors and their effects are different for every society, since the system is socially constructed. As a result, the system (environmental and human health) needs to be taken into account together with its interactions with people, organization/society and processes. Hence, many authors argue that the only way to consider its effects is to use systemic approach. Following this lead, I employ the QCA first, then systemic approach with their tools as outlined in the following sections.

QUALITATIVE COMPARATIVE ANALYSIS (QCA)

This section (based on Krivokapic-Skoko, 2002 and 2003) outlines the basic features of the Qualitative Comparative Analysis (QCA) and its formal language - Boolean algebra. The purpose is to present the epistemological and technical features of the method.

The Qualitative Comparative Analysis (QCA) is a relatively new method for providing causal explanations in social science. It is essentially case-oriented comparative research that provides a systematic, holistic analysis of a moderate number of cases. The method is designed to draw causal inferences from comparing configurations of the selected causal variables across cases included in an analysis. QCA holistically compares these configurations to discover necessary and sufficient conditions for the emergence of an outcome. In terms of technical procedure, QCA systematises and transforms empirical evidence into algebraic forms, and then uses Boolean algebra to do comparisons. Moreover, QCA is based on an epistemology that allows for evaluating theoretical propositions, particularly contextual, or combinatorial causal arguments.

Charles Ragin introduced the QCA in 1987 as a bridge between qualitative and quantitative research strategies in comparative research in social science. Typically, qualitative research methods discuss many

features of a relatively small number of cases. Quantitative methods on the other hand analyse the variations of small numbers of features across many cases. While qualitative methods see cases as complex configurations of elements and structures, quantitative methods examine relationships among variables and patterns of variation across cases, rather than how different features fit together within a particular case. Ragin argued that features of both strategies could be combined in a complementary way. Introduced by Ragin as a synthetic strategy, QCA combined some of the features of the case-oriented modes of research that are typically intensive, holistic and deterministic, and some features of the variable-oriented, extensive and probabilistic research strategy in comparative social science.

In the view of Ragin (1987) and other authors who applied QCA (Hicks, 1994; Biggert, 1997; Coverdill et al., 1994, Krivokapic-Skoko, 2002 and 2003), this method complements qualitative and quantitative analyses by providing a more complex approach than most quantitative research methods, and by being more systematic than most qualitative research methods. QCA also brings additional rigour and a variable concept of quantitative methods to qualitative ones, and also some of the causal complexity and in-depth analysis of qualitative to quantitative research methods.

QCA systematises empirical evidence are usually gathered from intensive case studies. This systematisation is based on data reduction logic rooted in Boolean algebra, the algebra of logic and sets. Based on Boolean algebra, QCA measures and transforms both independent and dependent variables into dichotomous forms. QCA uses what social scientists would call presence-absence dichotomies. This means that causal conditions and outcomes are either present or absent in each case.

Configurations of selected causal conditions or independent variables are first presented as nominal data with a yes/no or presence/absent dichotomy, and then holistically compared by using Boolean procedures. Put simply, these procedures involve comparing groups of cases based on the presence or absence of an outcome and the presence or absence of theoretically or empirically derived causal factors. In comparing the cases, the point is to identify the similarities among the cases with the same outcome and differences between cases conforming to different outcomes.

QCA appears to be of a substantial utility in research sites with contextual and multiple causal relations. The method assumes that causal variables are effective only when operating in conjunction with each other, and consequently the impact of each causal variable should be discussed only in a particular context. QCA also accepts that more than one configuration of causal variables may generate the same outcome. Accordingly, QCA locates different paths to the emergence of an outcome and therefore enables the analyst to classify the outcomes based on different configurations of the causal variables. Apart from deriving the patterns of causal factors leading towards the emergence of outcomes, QCA also identifies the causal conditions related to the 'negative outcomes', thus to the absence of the phenomena of interest.

In conclusion, QCA may be summarised in the following key points.

QCA:

1. Is a comparative analysis with an explicit goal to explain
2. Is a case-oriented approach
3. Focuses on the cases as wholes
4. Examines cases as the configuration of selected causal/independent variables and outcomes/ dependent variables
5. Works with the presence/absence dichotomy, and presents it in the algebra forms of presence (1) and absence (0)
6. Considers both causes (independent variables) and outcomes (dependent variables) as qualitative phenomena, such as the presence or absence of events, processes or structures
7. Focuses on the combination and the interaction amongst the various factors as responsible for the emergence of outcome
8. Assumes that different combinations of causes may produce a single outcome

9. Explains both positive and negative outcomes and considers them equally important for causal analysis
10. Employs a concept of necessary and sufficient causal conditions
11. Offers deterministic, not probabilistic explanations for the emergence of an outcome.

There are certain steps and analytic tools in using QCA. The analytic tools in carrying out QCA are: truth tables, primitive equations, prime implicants, and logically minimal Boolean functions.

The actual implementation of the method starts from selecting causal variables. The method requires considerable care in deciding on the number of causal variables to be included and how to choose those variables. Selecting causal variables is followed by the operationalisation of the outcome using the existing theoretical perspectives and empirical literature on the topic. As Boolean algebra operates only with dichotomous measures an analyst has to specify all causal variables and the outcomes using a presence/absence dichotomy. What is needed in this data reduction phase of the method implementation are very clear criteria in the categorisation of variables. Furthermore, the coding system and the procedure should be outlined before the data gathering process actually starts.

After selecting causal and outcome variables and deciding upon coding procedure, the analyst starts with building a truth table. A truth table is a raw data matrix, which comprises causal conditions and outcomes across a number of cases. Each row in a truth table represents either a logical or a real combination of values of causal variables. Each row of a truth table also sets an output value on the dependent variable. The truth table is completed when all the cases and codes on the causal and outcome conditions are displayed using binary mathematical forms.

This matrix of binary data (presence/absence dichotomies) is then subjected to a procedure of Boolean minimisation. The procedure involves comparing groups of the cases based on the presence/absence of the outcome conditions and the presence/absence of the selected causal conditions. These combinations are compared with each other and then logically simplified through a bottom-up process of paired combinations. In carrying out a bottom-up comparison, through two steps of minimisation, the comparison ends up with a logically minimal Boolean expression as an output of the analysis. This provides logically minimal configurations which account for the emergence of particular outcomes.

QCA provides additional features for carrying out causal analyses. As the logically minimal Boolean expression may locate different paths to the emergence of an outcome, it becomes possible to do a classification of the outcomes based on different configurations of the causes. Accordingly, the analyst may carry out a further interpretation using a more detailed account of the phenomenon in question. Furthermore, by factoring Boolean equations it is possible to interpret results in terms of necessary and sufficient causal conditions. One aspect of the method's utility is the possibility of writing down final equations with a negative outcome that can help in explaining the conditions accounting for failure of a particular event.

There are some specific issues and additional steps in using QCA to evaluate theoretical arguments. These are outlined below.

In evaluating theoretical arguments, QCA maps the areas of agreement and disagreement between the theoretical propositions (T) and the results of minimisation of the truth table (R). In assessing theories by using QCA it is not appropriate to make a strict parallel with the classical approach in testing hypotheses. QCA does not, as a rule, reject theories in the same way that classical statistical analysis does. Typically, the end result of QCA is a statement of the explanatory limits of the causal variables identified with different theories, not their mechanical rejection or acceptance.

In introducing QCA, Ragin (1987, Chapter 7) outlined how theoretical arguments about causal combinations may be incorporated into QCA and also showed the compatibility of the method with the goals of theory testing. Ragin also illustrated how to evaluate theoretical models/arguments by calculating the intersection between the final Boolean equation (R) and the hypotheses formulated in Boolean terms (T). By calculating these intersections it is possible to derive three subsets of causal combinations: both

hypothesised and empirically confirmed, hypothesised but not detected within the empirical evidence, and finally causal configurations empirically found but not hypothesised. Ragin also argued that this third intersection of theoretical explanations and empirical evidence would demonstrate shortcomings of a theory/model.

Thus, the steps in using QCA for evaluating theoretical arguments are:

Step 1: To express theoretical arguments in Boolean terms and to write down Boolean equations that explain the concept of the proposed composite/combinatorial models;

Step 2: To select and define causal conditions and outcome variables;

Step 3: To decide upon coding systems to transform both outcomes and causal conditions into the presence-absence dichotomy;

Step 4: To systematise empirical evidence and to construct the 'real' truth table;

Step 5: To address the problem of contradictions (if appropriate), and then to check if there are too many cases with the same causal configurations and different outcomes;

Step 6: To address diversity of causal combinations (if appropriate) and to decide on how to treat non-existent combinations of causal conditions;

Step 7: To write down primitive equations emerging from every row of the truth table and accordingly the 'sums of the products';

Step 8: To carry out the process of Boolean minimisation, and to write down prime implicants and a prime implicants chart (if appropriate) showing the convergence of primitive equations towards the final minimal equation;

Step 9: To calculate the Boolean intersections (if appropriate) between the function representing theoretical expectations and the functions derived from the truth table;

Step 10: To derive three types of causal combinations (both hypothesised and found in empirical evidence; hypothesised but not found in empirical evidence; found in empirical evidence but not hypothesised) and to outline possible shortcomings of the proposed model.

Having sketched the steps in using QCA, the next section provides a short review of the Boolean Algebra and the QCA formal language.

Ragin (1987, 1994a) identified ten aspects of Boolean logic that are essential to use in social science. These are as follows.

1. Use of binary data

   There are two conditions or states in Boolean logic, and these are generally referred as 1 indicating presence, and 0 indicating absence. Thus, in Boolean logic all variables, independent and dependent, are dichotomous forms and hence presented by nominal-scale measurements. There is also the convention that upper-case letters indicate the presence of a condition and lower-case letters indicate the absence of condition.

2. Boolean addition

   In Boolean logic addition is equivalent to the logical operation 'or'.

3. Boolean multiplication

   In Boolean logic multiplication is equivalent to the logical operator 'and' , where a product is a specific combination of causal conditions. For instance, Boolean expression Abc => Y means that the presence of variable A, combined with the absence of variable B and the absence of variable C produces the presence of the outcome Y.

4. Use of truth table to represent data

   A truth table is a data matrix where each row represents a logical combination of values on causal conditions and outcomes. Each row gets an output value of either 1 or 0. In Boolean logic a number of causal conditions determine the number of combinations of causal condition that are logically possible. Accordingly, the number of the rows in the truth tables is an exponential function of a number of independent variables (2n).

Table 1 is a representative truth table with three independent variables (n =3, 8 rows in the truth table). Each case is described as a joint influence of independent variables (A, B, C) with the logical operator 'and' marked as 'x' to produce the outcome variable Y. Again, upper-case letters indicate the presence of a causal condition of outcome, and lower-case letters indicate the absence of a causal condition or outcome. The table includes all logically possible combinations of causal factors, which may or may not occur in reality.

TABLE 1
REPRESENTATIVE TRUTH TABLE

Row No. (type of cases)	No. of Cases	Variables Independent/Causal		Dependent/Outcome
1	3	A x B x C	=	Y
2	3	A x B x c	=	Y
3	2	a x B x C	=	Y
4	1	a x b x C	=	Y
5	6	A x b x C	=	y
6	8	A x b x c	=	y
7	3	a x B x c	=	y
8	4	a x b x c	=	y

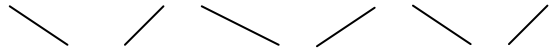
5. Combinatorial logic

   Boolean logic gives the same status to the absence and the presence of causal conditions/variables. Thus, the absence of a cause has the same logical status as the presence of a cause. Moreover, a cause is not viewed in isolation but always within the contexts of the presence/ absence of other causal factors.

6. Boolean minimisation

   The rule of Boolean minimisation is: if two Boolean primitive expressions, i.e. one of the lines in the truth table differ only in one causal condition, yet produce the same outcome, we can remove the condition that is different, accepting it as irrelevant. This minimisation is based on two subsequent procedures. First, all rows of a truth table having the same value of X for the dependent variable are combined into one equation but joined with the logical operator 'or' as marked with '+' . Correspondingly, the first four original configurations, or primitive equations as taken from a representative truth table (Table A2.1), may be simplified using Boolean minimisation as:

Original causal configurations: A x B x c + A x B x C + a x B x C + a x b x C => Y



Minimised causal configurations: A x B + B x C + a x C => Y

Minimised causal configurations are also referred to as prime implicants, which is the last line illustrated above, and the second minimisation procedure involves a construction of prime implicant chart map.

7. The use of 'prime implicants'

   Boolean logic uses prime implicant chart map as a link between primitive, original equations, and prime implicants as obtained after the first phase of minimisation. The point is to write down a chart showing convergence of primitive equations towards the final minimal equation.

TABLE 2
PRIME IMPLICANTS

Primitive Expressions /Original Configurations

Prime Implicants/ Minimised Configurations	Abc	ABC	aBC	abC
AB	x	x		
BC	x		x	
aC			x	x

Thus, in two causal configuration - AB and aC, prime implicants cover all four original configurations, and the logically minimal Boolean equation is AB + a C => Y.

A prime implicant chart is a table of rows, columns and cells that shows the relationship between prime implicants and the configurations from which they were derived. QCA displays a prime implicant chart by listing configurations across the top of the table (columns in the table) and prime implicants down the left hand side of the table (rows of the chart). An 'x' symbol in a cell of the chart indicates that the prime implicant in the row covers the configurations in the column. The basic goal of the chart is to select the minimum number of prime implicants needed to cover all configurations in the chart. QCA further simplifies a prime implicant chart to arrive at the final Boolean minimal function.

Furthermore, there are some optional steps involved in carrying out QCA. These are:

8. Use of De Morgan's law

   It is possible to write a minimal Boolean expression for the presence (1) of an outcome, and its logical compliment for the absence (0) of an outcome using De Morgan's Law. Thus, applying De Morgan's Law to the Boolean equation derived for the positive outcome, that is AB + aC = Y, it is possible to derive a Boolean equation for negative outcome, that is A b + a c + b c = y.

9. Necessary and sufficient conditions

   The results of Boolean analysis may be interpreted in terms of necessary conditions (must be present for a certain phenomenon to occur) and sufficient conditions (by itself can produce a certain phenomena). Some patterns of necessary and sufficient causation expressed in Boolean equations are: AC + BC (C is necessary but not sufficient causal factor); A + Bc (A is sufficient but not necessary) , B (B is both necessary and sufficient).

10. Factoring Boolean expressions

    In Boolean logic it is possible to do factoring in order to find which causal conditions are necessary and which are causally equivalent. A hypothetical Boolean equation AB+ AC + AD = Y can be factored to show that A is necessary condition A (B + C + D) = Y and that B, C, and D are causally equivalent (in combination with A) with respect to outcome Y.

In conclusion, as noted elsewhere QCA is seen as a suitable method to establish risk factors, especially those derived from combinatorial models. QCA is considered to be the appropriate method to empirically prove specified, deterministic relations between a set of hypothesised causal variables (risk factors conceptualised in the framework Figure 1) and possible outcomes. Upon applying QCA and its formal language – Boolean Algebra, one finds risk factors and possible outcomes by conducting in-depth interviews in the field making it possible to compare the hypothesised with factors derived from the 'truth table'. The next step would be to evaluate interaction intenstities amongst established factors and outcomes to create the Map of Interactions to develop the risk management strategy. This can be done by applying the Systems Theory Methods (STMs) explained in the following section.

SYSTEMS THEORY METHODS (STMs)

Once the risk factors are identified and their causal outcomes established by applying QCA, systems theory methods can be used to assess factor interactions intensity. That is, STM can be used for assessing risk and implementing risk management. This section describes systems theory method and its tools, as the second stage in assessing the risk factors and their interactions and control.

According to Buerki, 2006, the systems theory methods consists of five stages each with two sub - stages (Table 3).

TABLE 3
METHODS FOR EACH STAGE USED FOR THE FIVE-STAGE SYSTEMS THEORY METHODS

Stages	Methods	Description
Stage 1 A	Brainstorming, 'brain writing', method 635, rich picture, PAT-mirror, Synectic, progressive abstraction	Stage 1 (a and b): Discover and identify opportunities and problems The first contact with a complex phenomenon is done by first describing fuzzy statements or set of factors (1a and b). In this stage different roles and different key players are identified. There are no solutions or interpretations in this stage.
Stage 1 B	Concentrate data to cluster and clear statements: Mindmap, set of factor, role settings, syntegration, dialoguing	
Stage 2 A	Holistic test, holistic potential test, holistic environmental turbulence score, gap-analysis	Stage 2 (a and b): Reflect wholeness, analyse interactions and tensions The goal in this stage is to test the data on wholeness (2a), and then to define and analyse the interactions between the factors (2b). Different tests (from holistic test to double-cross-impact analysis) are completed in order to find the interactions which are normally not seen and therefore left out.
Stage 2 B	Double-cross-impact analysis, loop diagrams, family constellations	
Stage 3 A	Interpretation of systems dynamic, critical systems heuristics, systemics goal definition, Presencing	Stage 3 (a and b): Work out possibilities of design and steering, understand dynamics In this stage information that transforms into knowledge is reflected. Double-cross-impact analysis is interpreted, results are reflected and the goal is (re)defined (3a). From dynamic interpretation to four drive method we achieve a generic playground for new solutions. It is important to stay open for new information in this stage and to ask in order to make statements.
Stage 3 B	10 points for viability, sensitivity analysis, risk analysis, Neuro-Linguistic programming (NLP), four drive method	
Stage 4 A	Synectic, morphology, the six thinking Hats method, precise destroying, Osborn-Checklist	Stage 4 (a and b): Develop causal solutions and sustainable decisions In this stage new knowledge is produced for solutions (4a) and making decisions (4b). These insights are crucial for recognising that all scientific concepts and theories are limited and approximate. Solutions are seen as emerging opportunities.
Stage 4 B	Simulation, scenario technique, holistic value-benefit analysis, four force field reflection	
Stage 5 A	Project management, process couching, balanced scorecard, consultancy, coaching, portfolio of activities	Stage 5 (a and b): Consolidate commitment and realise viable processes In this stage action is being taken (5a), followed by the feedback from the environment. Shift from isolated positions to networks as a metaphor for sustainable solutions: there is no signal "right thing to do", as the strategy includes a network of parallel processing.
Stage 5 B	Micro-article, knowledge management, Network, Lessons learned, EFQM quality model, reflecting groups	

Adopted from Buerki 2006

TABLE 4
TOOLS OF STMS

Tool	Description	
Holistic structure test	Using the holistic structure test enables a quick holistic check of any description or analysis by pointing out the blind spots. The distribution of the factors gives valuable information about the structure of the system and reveals the blind spots.	
Holistic potential test – four basic drives	Following Buerki, 2006, factors are tested by four drives: drive to acquire; to bond; to learn; and to defend. This test is basically grouping the factors under appropriate drivers, according to the content of the factor that strengthens specific drives (D1, D2, D3 or D4).	
Holistic environmental turbulence score	This test measures turbulence in the relevant environment to indicate how fast and how much the system needs to change its strategy or products.	
Systemic gap-analysis	At this stage, factors should be described in relation to the real situation in the company. Then they are evaluated on a scale from 1–5 and the variation from the line which present the holistic environmental turbulence score is measured	
Double-cross-impact analysis	After factors for ICT adoption are established from the literature, and tested with holistic tests, their impact on the company in the post-adoption period will be evaluated. The tool for evaluation of those factors on company's goals and performance is called the double-cross-impact analysis. It was developed by Vester and Hesler (1980) in order to analyse dynamic systems, and was successful in evaluating key factors for explaining and improving all variety of systems. Double-cross-impact analysis consists of assessing all interrelations between the different factors for ICT adoption. It is based on ADVIAN (Advanced Input Analysis) method developed by Messerli, 2000, were the impact factors are identified and connected. The impact strength of each factor on each other factor is estimated. (see figure 2)	
	The basic steps of the Double-cross-impact analysis are	Firstly, the system was reduced to a set of relevant key factors for ICT adoption (conceptual framework), An assessment of interrelations between selected key factors was carried out by means of matrices in order to understand the influence exerted and received by each key factor, and Interpretation and discussion of each key factor to identify its potential to influence the entire system. In fact the double-cross-impact analysis is a matrix that facilitates systematic assessment of every single interrelation and of its intensity. In order to take into account the positive and negative interrelations, two matrices are used - one for all the stimulating interrelations and one for the inhibiting interrelations. The interrelations are assessed qualitatively.
	In addition, double-cross-impact analysis provides other important information	The active sum - the sum of each line of each key factor. It represents the total influence the factor exerts on the system (stimulation or inhibition). The passive sum - the sum of each column of each key factor. It represents the total influence of the system on the factor (stimulation or inhibition). The degree of interrelation which is the product of the active sum multiplied by the passive sum. The higher the value, the more the factor is interrelated within the system. The degree of activity of each factor - the quotient that is the result of dividing the active sum by the passive sum. A small quotient means that the influence the factor undergoes is greater than the influence the factor exerts on other components. The opposite applies for high quotients. (see figure 2 Impact Matrix).

Adopted from Buerki 2006

Tools of the five-stage systemic approach are explained in the next table (4). Those tools can be used to check the relevance of the conceptual framework factors in influencing risk management, as well as the interaction of the factors. Following the STM rules and its tools, as well as applying systemic data gathering strategies [focus group meetings, the landscape of the mind (LoM), reflect back workshops, in-depth semi-structured interviews, mapping of email connectivity (NetMap), and participant observation].

With adjusted factors it is possible to construct the stimulating and inhibiting interrelations (respectively) impact matrices of factors for risk factor interaction intensities as presented below.

TABLE 5
IMPACT MATRIX

							activity
	impact	on IF1	on IF2	on IF3	on IF4	on IF5	direct sum
	of IF1	**0**	1	0	0	0	**1**
	of IF2	0	**0**	1	0	0	**1**
	of IF3	0	0	**0**	1	0	**1**
	of IF4	0	0	0	**0**	1	**1**
	of IF5	0	0	0	0	**0**	**0**
passivity	direct sum	**0**	**1**	**1**	**1**	**1**	

After constructing two matrices (for inhibiting and enabling factors) of interactions and their intensities it is possible to construct the Map of Interactions.

This map's (of interactions) goal is to transform the highly concentrated knowledge of the 'Double-cross-impact analysis' to the right brain-hemisphere's way of thinking, in order to create a picture of different dimensions of the system.

The horizontal axis of the map of interactions represents the degree of activity of risk factors in the system while the vertical axis represents the degree of dynamics (interactions). For the interpretation purposes this map can be also divided into four quadrants.

TABLE 6
QUADRANTS OF THE MAP OF INTERACTION

Passive and highly interactive factors These factors are influenced by and interact with the rest of the system	**Active and highly interactive factors** These factors influence and interact with the rest of the system
Passive and less interactive factors These factors are influenced by and are less interactive with the rest of the system	**Active and less interactive factors** These factors influence but have less interaction with the rest of the system

ILLUSTRATIVE EXAMPLE

In this section I will illustrate an application of STMs. First, by applying the QCA I have found the following dissagregated risk factors:

TABLE 7
RISKS FACTORS

Factor 1	Environmental factors: Drinking water - quality
Factor 2	Environmental factors: Drinking water - availability
Factor 3	Environmental factors: Drinking water - access
Factor 4	Environmental factors: Recreational water use - quality
Factor 5	Environmental factors: Recreational water use - availability
Factor 6	Environmental factors: Recreational water use - access
Factor 7	Environmental factors: Ambient and indoor air quality
Factor 8	Environmental factors: Human and agri waste treatment - availability
Factor 9	Environmental factors: Human and agri waste treatment - quality
Factor 10	Environmental factors: Soil - quality
Factor 11	User factors - Education
Factor 12	User factors - Culture
Factor 13	User factors - Tradition
Factor 14	Economic factors - Costs
Factor 15	Economic factors - Human resources
Factor 16	Economic factors - Infrastructure
Factor 17	Macro factors - Political stability
Factor 18	Macro factors - Economic development
Factor 19	Macro factors - Educational policy
Factor 20	Macro factors - Health policy
Factor 21	Macro factors - Environmental policy
Factor 22	Other
Factor 23	Other
Factor 24	Other

Further let's assume that by applying STMs tools we have established interactions intensities amongst factors represented by the following impact matrices:

FIGURE 2
STIMULATING FACTORS IMPACT MATRIX

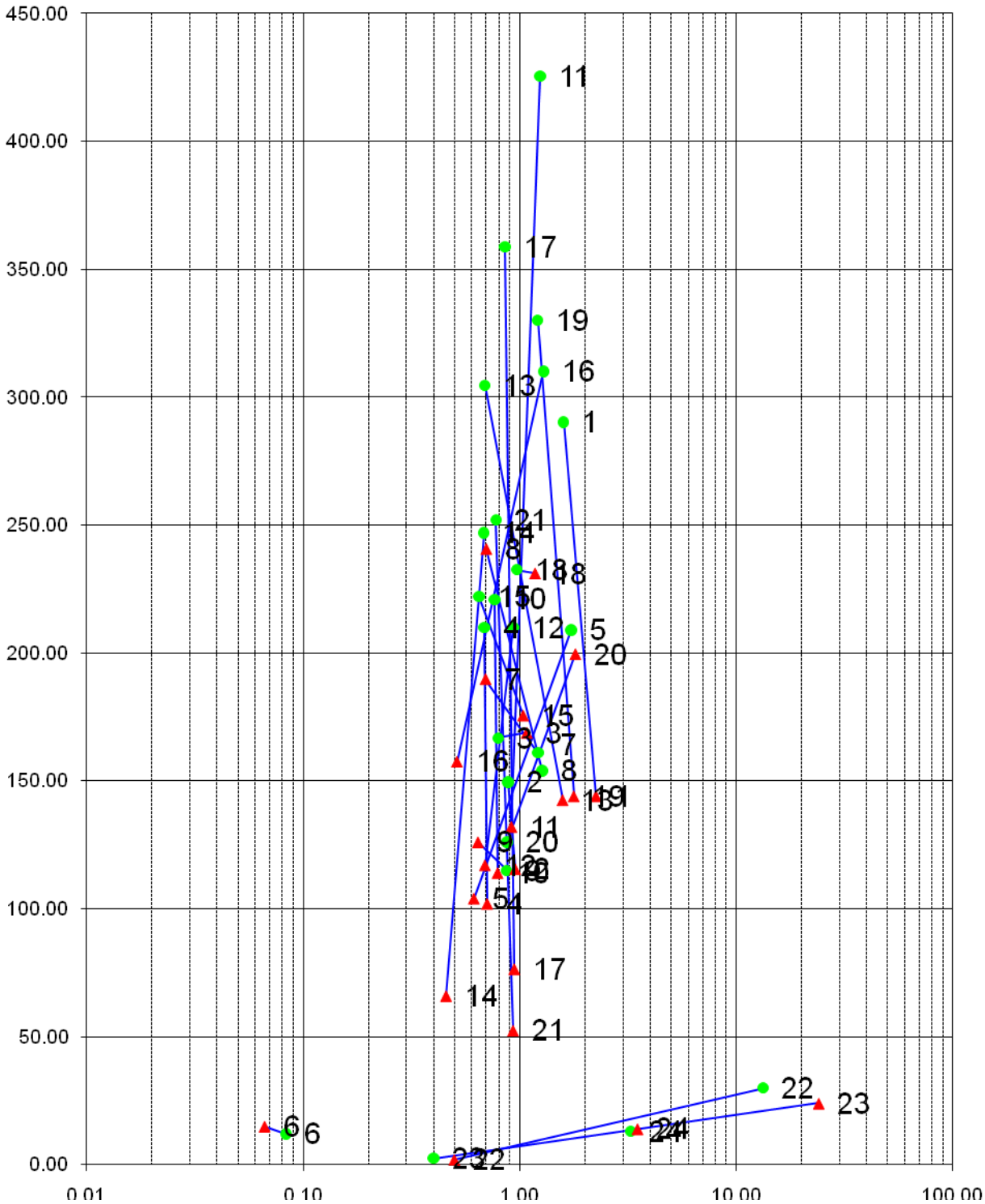
Wirkungsmatrix - fördernde Wechselwirkungen																									Aktiv-summe	Fördernd Quotient	Fördernd Produkt
		Wirkung auf Variable —>						Wirkung auf Variable —>						Wirkung auf Variable —>						Wirkung auf Variable —>							
Wirkung von Variable		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**AS**	Q = AS/PS	P = AS*PS
Enviromental factors: Drinking water - quality	**1**	1.0	1.0	0.5	2.0	1.0	0.5	1.0	0.5	0.5	1.0	1.0	1.0	2.0	0.5	1.0	0.5	1.0	2.0	1.0	0.5	2.0				**21.5**	**1.59**	**290.25**
Enviromental factors: Drinking water - availability	**2**	1.0	1.0	1.0				1.0	1.0			1.0			1.0	2.0		2.0			0.5					**11.5**	**0.88**	**149.50**
Enviromental factors: Drinking water - access	**3**	0.5		1.0			1.0				2.0		0.5	1.0	0.5	1.0	1.0	1.0	1.0		1.0					**11.5**	**0.79**	**166.75**
Enviromental factors: Rekreational water use - qu	**4**		1.0		1.0	1.0	1.0	0.5			0.5		0.5	1.0	1.0	1.0	2.0			1.0		0.5				**12.0**	**0.69**	**210.00**
Enviromental factors: Rekreational water use - av	**5**	1.0	1.0	1.0	1.0	1.0			0.5	2.0	0.5	1.0	1.0	1.0	2.0	1.0		2.0		1.0	1.0	1.0				**19.0**	**1.73**	**209.00**
Enviromental factors: Rekreational water use - ac	**6**						1.0																			**1.0**	**0.08**	**12.00**
Enviromental factors: Ambient and indoor air qual	**7**	1.0	1.0	2.0	2.0			1.0			1.0	1.0	1.0	1.0				1.0	1.0		0.5	0.5				**14.0**	**1.22**	**161.00**
Enviromental factors: Human and agri waste treat	**8**	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0			2.0	2.0					1.0		1.0				**14.0**	**1.27**	**154.00**
Enviromental factors: Human and agri waste treat	**9**			1.0	1.0	1.0	1.0			1.0		0.5	0.5	0.5	0.5			1.0		1.0		1.0				**10.0**	**0.87**	**115.00**
Enviromental factors: Soil - quality	**10**	1.0	1.0	2.0	2.0	0.5	0.5	0.5			1.0		0.5		0.5	0.5		0.5	0.5			2.0				**13.0**	**0.76**	**221.00**
Users faktors - Education	**11**	1.0	1.0	1.0	2.0	2.0	2.0		2.0		1.0	1.0		2.0		1.0		2.0	2.0	2.0	1.0					**23.0**	**1.24**	**425.50**
Users faktors - Culture	**12**											2.0	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0				**14.0**	**0.93**	**210.00**
Users faktors - Tradition	**13**	2.0	2.0				2.0				1.0	1.0	1.0	1.0			2.0	1.0		0.5	0.5	0.5				**14.5**	**0.69**	**304.50**
Economic factors - Costs	**14**				0.5	0.5	0.5	0.5				1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0				**13.0**	**0.68**	**247.00**
Economic factors - Human resources	**15**	1.0						2.0	2.0	2.0	2.0					1.0	1.0				0.5	0.5				**12.0**	**0.65**	**222.00**
Economic factors - Infrastructure	**16**							1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0		2.0				**20.0**	**1.29**	**310.00**
Macro factors - Political stability	**17**		1.0	1.0	2.0			2.0		1.0	1.0	1.0	1.0	0.5		1.0	1.0	1.0	1.0	0.5	0.5	2.0				**17.5**	**0.85**	**358.75**
Macro factors - Economic development	**18**								2.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0			1.0		0.5	0.5				**15.0**	**0.97**	**232.50**
Macro factors - Educational policy	**19**	1.0	1.0	1.0	1.0					1.0	1.0	1.0		2.0	2.0	1.0	2.0	2.0	1.0	1.0	1.0	1.0				**20.0**	**1.21**	**330.00**
Macro factors - Health policy	**20**	0.5	0.5	0.5	0.5	0.5					2.0	1.0			1.0	1.0	1.0			1.0	1.0					**10.5**	**0.88**	**126.00**
Macro factors - Enviromental policy	**21**	1.0		1.0	1.0	1.0						1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0				**14.0**	**0.78**	**252.00**
Other	**22**					1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**20.0**	**13.33**	**30.00**
Other	**23**																							1.0		**1.0**	**0.40**	**2.50**
Other	**24**	0.5	0.5	0.5	0.5	0.5	0.5													0.5	0.5	0.5	0.5	0.5	1.0	**6.5**	**3.25**	**13.00**
Passivsumme PS:		**13.5**	**13.0**	**14.5**	**17.5**	**11.0**	**12.0**	**11.5**	**11.0**	**11.5**	**17.0**	**18.5**	**15.0**	**21.0**	**19.0**	**18.5**	**15.5**	**20.5**	**15.5**	**16.5**	**12.0**	**18.0**	**1.5**	**2.5**	**2.0**	**328.5**		

FIGURE 3
INHIBITING FACTORS IMPACT MATRIX

Wirkungsmatrix - hemmende Wechselwirkungen																									Aktiv-summe	Hemmend Quotient	Hemmend Produkt
		Wirkung auf Variable —>						Wirkung auf Variable —>						Wirkung auf Variable —>						Wirkung auf Variable —>							
Wirkung von Variable		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**AS**	Q = AS/PS	P = AS*PS
Enviromental factors: Drinking water - quality	**1**	1.0	0.5	1.0	1.0	0.5	0.5	0.5	1.0	0.5	1.0	0.5	1.0	1.0	2.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5				**18.0**	**2.25**	**144.00**
Enviromental factors: Drinking water - availability	**2**	1.0	1.0			1.0			1.0				1.0		1.0		2.0			2.0		0.5				**10.5**	**0.95**	**115.50**
Enviromental factors: Drinking water - access	**3**		1.0	1.0	1.0			2.0	2.0			1.0	1.0	0.5					1.0	1.0		2.0				**13.5**	**1.08**	**168.75**
Enviromental factors: Rekreational water use - qu	**4**	0.5		2.0	1.0				0.5	0.5		0.5		0.5				1.0	1.0		1.0					**8.5**	**0.71**	**102.00**
Enviromental factors: Rekreational water use - av	**5**					1.0	0.5	0.5		0.5	0.5			2.0			2.0		1.0							**8.0**	**0.62**	**104.00**
Enviromental factors: Rekreational water use - ac	**6**						1.0																			**1.0**	**0.07**	**15.00**
Enviromental factors: Ambient and indoor air qual	**7**					2.0	2.0	1.0	2.0	0.5	0.5				1.0	1.0	1.0			0.5						**11.5**	**0.70**	**189.75**
Enviromental factors: Human and agri waste treat	**8**								1.0		1.0	1.0	1.0			2.0	2.0	2.0	2.0		0.5	0.5				**13.0**	**0.70**	**240.50**
Enviromental factors: Human and agri waste treat	**9**	1.0	1.0	1.0			0.5	0.5	0.5	1.0	0.5					0.5	0.5		1.0		1.0					**9.0**	**0.64**	**126.00**
Enviromental factors: Soil - quality	**10**								0.5	0.5	1.0	0.5		0.5			0.5		2.0	2.0	2.0					**9.5**	**0.79**	**114.00**
Users faktors - Education	**11**						1.0	1.0		2.0		1.0	1.0		2.0		2.0					1.0				**11.0**	**0.92**	**132.00**
Users faktors - Culture	**12**							2.0	2.0	2.0	2.0		1.0													**9.0**	**0.69**	**117.00**
Users faktors - Tradition	**13**			2.0	2.0	2.0		1.0	1.0	1.0				1.0	2.0	2.0			1.0							**15.0**	**1.58**	**142.50**
Economic factors - Costs	**14**	0.5	0.5	0.5					1.0	1.0	1.0				1.0											**5.5**	**0.46**	**66.00**
Economic factors - Human resources	**15**		1.0	1.0	1.0	1.0	1.0					2.0	2.0	1.0	1.0	1.0		0.5	0.5	0.5						**13.5**	**1.04**	**175.50**
Economic factors - Infrastructure	**16**	1.0	1.0	1.0	1.0	1.0	1.0										1.0				2.0					**9.0**	**0.51**	**157.50**
Macro factors - Political stability	**17**				2.0	0.5	0.5	0.5	0.5				0.5	0.5	0.5	1.0	1.0	1.0								**8.5**	**0.94**	**76.50**
Macro factors - Economic development	**18**		2.0	2.0	2.0	2.0	2.0	2.0								1.0	1.0	1.0	1.0	0.5						**16.5**	**1.18**	**231.00**
Macro factors - Educational policy	**19**	2.0	2.0			1.0	1.0	1.0	1.0			2.0	2.0			2.0	1.0			1.0						**16.0**	**1.78**	**144.00**
Macro factors - Health policy	**20**						2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0			1.0	1.0	1.0		1.0	1.0				**19.0**	**1.81**	**199.50**
Macro factors - Enviromental policy	**21**						1.0	1.0	1.0	1.0	1.0										1.0	1.0				**7.0**	**0.93**	**52.50**
Other	**22**																						1.0			**1.0**	**0.50**	**2.00**
Other	**23**	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**24.0**	**24.00**	**24.00**
Other	**24**							0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5						1.0	**7.0**	**3.50**	**14.00**
Passivsumme PS:		**8.0**	**11.0**	**12.5**	**12.0**	**13.0**	**15.0**	**16.5**	**18.5**	**14.0**	**12.0**	**12.0**	**13.0**	**9.5**	**12.0**	**13.0**	**17.5**	**9.0**	**14.0**	**9.0**	**10.5**	**7.5**	**2.0**	**1.0**	**2.0**	**264.5**		

The results of the systemic analysis of this example are presented in the following 'Map of Interaction'.

FIGURE 4
MAP OF INTERACTION



As earlier mentioned, the horizontal axis of the map of interactions represents the degree of activity of risk factors in the system while the vertical axis represents the degree of dynamics (interactions). This map is then divided into four quadrants (see Table 6 above) to easy its interpretation.

INTERPRETATION OF THE EXAMPLE'S RESULT

In our double cross impact analysis, factors in the top circle of the map of interaction factors 1, 13, 16, 17, and 19 are the components that are the most connected factors in the system. The majority of factors in the middle circle are less interactive factors within the system. The rest of the analysed factors interact very little. They have still roles in the system, although they are 'moving slower', particularly factors 22, 23, and 24.

The striking characteristic of the double-cross-impact analysis is that there is actually the only one real activating factor for creating a positive dynamic in the system – factor (11) – ,which should be given priority in a efforts facilitate the problem solving process.

An innovative approach to the system would be to pay attention to the factors in the middle circle. To achieve that goal, one would have to find solutions to influence the activities of factors 12 and 20. In doing so, the degree of interaction would be reduced and the system would become more passive. In that case factor (12) would 'move' into the field of 'goals' (the middle circle), (goals depend on firm's goals and/or society's goal; for example if a firm's goal is improved performance then the goal would be to impact factors driving changes). In reality that could mean that the influence of culture, in my example, could become less intensive, e.g. culture could become subject to 'other influences'. Similarly, factor (20) would change from a 'transformation key player' that policy makers rely on to a 'quality indicator', which can be steered and supported.

In the Map of Interaction I can look at different areas of interactions between the risk factors, which can be summarised in the following six points.

Factors grouped around the axis 150 describe the system as a whole, which is well differentiated by the degree of interaction. However, it is less differentiated in the degree of transformation. It means that I have identified the key factors in the system. Apparently, the system has only a small negative feedback, meaning the system is a dynamic one – it can be influenced either by enforcing the positive development or lowering the negative one.

The most recognised factors in the system – passive outcome or symptom – are factors (11, 17, and 19). These factors could be fields of actions for the fast solutions and achieving results. However, those factors would be only an indication of success, since they do not really change the system as whole. I can use those factors for 'symptomatic solutions', only in the case of 'crisis' or if the system needs to get recognition in order to continue to operate and to survive. Therefore, I should not be tempted to act upon those kinds of factors. Instead, the management should focus on factors that are stable in the active part in the system. However, those three factors should be measured and controlled regularly, as the best indicators of transformation processes.

Factors that are maintaining the processes of transformation are: (1, 13, 16, 18, and 8); having them in the system would mean that they could be problematic in transforming new ideas into new solutions. However, without that transformation area any initiative would not succeed in the way it is expected.

The only fast driver within the system is factor (11). This factor (Education) is absolutely crucial and has to be part of the solutions in all scenarios. However, as with all dominant factors, factor (11) could foster good, as well as bad developments. Fortunately for the system it is possible to find other factors in the system that can be acted upon for long term solutions, like factors (12, 18 and 19).

The challenge to develop sustainable solutions is therefore to put factor (11) in a creative and adaptive interaction with (13), (16), (18) and (8) in order to get more successful solutions of the project.

The actual identified structure – without changing factors and interactions – is focused on the goals or to foster 'Other" factors (22, 23 and 24), whatever, they might be in the real case study.

The final reflection on our illustrative system is almost a 'painting of dynamical information'. For example, if the system/organisation/country wants to change the 'field of goals' then it would have to

change the structure in the both active and the passive parts of the system. Or, if the firm would want to make the system more sensitive to changes, then they must find new ways of interactions of factor (12 - Culture) with other factors in the system.

The final principal participant observations and recommendations would be to the system/organisation/country to build on a high commitment with all involved in the project in this example. So, the management/policy makers should be more creative and not fixed on the 'actual structure' of the system, for what it necessary to understand the wholeness and decide on what to keep and what to change in the actual situation.

CONCLUDING REMARKS

In this section, the authors have used STMs and its tools to identify the key factors and their interactions and influence on the system. The results of the double cross impact analysis revealed six dimensions that can influence the performance of the system. Although those dimensions were for illustrative purposes and thus kept at a very general level, they still can be instructive for an organisation wanting to utilise better control and risk management and consequently improve the performance of the system.

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Convergence or Divergence in CFA FRANC Countries: A Time Series Analysis

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This study investigates the incidence of per capita income convergence in CFA franc countries, using the total average, regional average (West African and Central African countries, separately) and per capita income of France, as benchmarks. Using unit root tests with single structural break, the findings illustrate no conditional convergence towards any of the three benchmarks. The findings further demonstrate that Benin satisfies the catch-up hypothesis towards the total average, while Burkina Faso satisfies the catch-up hypothesis towards the West African average and no country satisfies the catch-up hypothesis towards per capita income of France.

INTRODUCTION

Among the practical implications of neoclassical theory is convergence of per capita income- poor countries are likely to catch up with rich ones. Neoclassical growth model predicts that the difference in per capita income of countries will tend to diminish overtime. The prediction is premised on the assumption of diminishing marginal productivity of capital, which means that the rate of return on capital will be stronger in poorer economies. Therefore, capital will flow from rich countries to poor countries, propelling the world economy in the direction of convergence. With economic integration, the rate of capital mobility is enhanced, as most regional economic integrations liberalized capital movement among member countries. Hence, economic integration is a means of achieving neoclassical prediction of convergence. Moreover, beyond capital mobility, economic integration is believed to improve labour mobility, increase volume of trade, boost macroeconomic stability and performance (such as price stability- see, Rogoff and Reinhart, 2003), and aid diffusion of technology among the countries within the regional blocs. Collectively, the likely implication of the changes in these factors is once again, convergence of income among the countries partaking in the integration efforts. Therefore, determining the level of convergence among countries, especially within a regional economic grouping, is an important task, which on the one hand, will verify neoclassical theory and on the other hand, will unravel the extent of the success of economic integration. Surveying past literatures, testing existence of convergence hypothesis has attracted considerable attention, though substantially without much regional inclination.

Starting with Baumol (1986), the first generation of literatures investigates convergence of income using cross-sectional techniques of comparing several countries average growths with their respective

initial incomes (see also DeLong, 1988; Dowrick and Nguyen, 1989; Sala-i-Martin, 1996). The use of cross-sectional approach in investigating income convergence has been criticised by Friedman (1992), Bernard and Durlauf (1996), and Quah (1993) in many respects. Consequently, the second generation of literatures on convergence of income, which considers convergence as a stochastic process and uses the properties of time series emerged over the years (see Bernard and Durlauf, 1995; Carlino and Mills, 1993; Datta, 2003; Durlauf and Johnson, 1995; Greasley and Oxley, 1997; Strazicich, Lee and Day, 2004; Dawson and Strazicich, 2010).

Beyond the similarity of methodology, the preceding time series studies focused on industrialised countries and mostly found evidence in favour of convergence. Studies on developing countries are not as widespread as literatures on developed countries. Case studies are even relatively scarce for African countries which includes McCoskey (2002); Cunado and Perez de Gracia (2006), and Charles, Darne and Hoarau (2009). Omitted from the foregoing analysis is the sample exclusive to CFA franc countries in Africa, which is the only form of monetary union in all economic integrations in Africa[1]. In light of the above, the present study examines the extent of convergence among CFA franc countries utilising the time series procedures of testing for stationarity (stochastic convergence test), which includes Lee and Strazicich (2003) test that is free of spurious rejections in the presence of a unit root with break (Dawson and Strazicich, 2010)[2]. There are several important reasons for choosing CFA franc countries including the fact that monetary union is probably the most advanced form of regional economic integration, as other blocs in the continent view such union as one of the ultimate objectives of their integration efforts, albeit without much success. For example, "The Eco" (name for the proposed common currency for six West African Countries i.e. Gambia, Ghana, Guinea, Nigeria, Liberia and Sierra Leone) circulation was initially scheduled to start in December, 2009 but has been changed to 2015. Another economic grouping, Common Market for Eastern and Southern Africa (COMESA) aims at establishing a currency union by 2025 (Carmignani, 2006).

The rest of this study is organised as follows. Section 2 presents the literature review. Section 3 briefly reviews the trend of monetary union of CFA countries, structural changes and criteria for convergence. Section 4 sets out the data and methodology used in this study. Section 5 discusses the empirical findings and Section 6 reports the conclusion and policy implications of this study.

LITERATURE REVIEW

The earliest contributions to the debate of convergence of income were in the form of cross-sectional framework. A cross section of countries in a regression is set to exhibit convergence if the coefficient linking initial income and economic growth is negative. Generally, in cross-sectional framework, convergence can be categorised into two types. Convergence is conditional with the inclusion of control variables, while it is absolute (unconditional) without controlling for additional variables in the cross-sectional regression. In the case of conditional convergence, each country is assumed to converge to its own steady state and the speed is faster, the further the country is from its own steady state, whereas with unconditional convergence countries are assumed to converge to a common steady-state. Comparing the two, conditional convergence is closer to reality relative to unconditional convergence, especially when considering more homogenous groups of countries or regions (Cunado and Perez de Gracia, 2006).

Studies with cross-sectional approach include Baumol (1986) and Delong (1988) that consider the question of absolute (unconditional) convergence with sample of 16 and 23 countries respectively, for the period dating 1870-1979. Their findings generally illustrate the existence of convergence among the mostly industrialised countries (with the exception of Chile and East Germany). Considering conditional convergence, Barro (1991), Mankiw, Romer and Weil (1992) and Sala-i-Martin (1996) demonstrate support for convergence among relatively homogeneous developed countries such as US and European countries. In particular, Mankiw, Romer and Weil (1992) controlled for population growth, human and physical capital.

The utilisation of cross sectional techniques has been widely criticized in the literature. For instance, Friedman (1992) emphasize that convergence is a concept closely related to dispersion and a negative

relationship between cross-sectional distribution of income and growth rate does not adequately represent such dispersion. Bernard and Durlauf (1996) illustrate that the cross-section procedures cannot distinguish between local and global convergence hypotheses. Moreover, most cross-section procedures require homogeneity assumptions (similar first-order autoregressive dynamic and structures; and no permanent cross-economy differences) and arbitrary inclusion of condition variables which are sometimes endogenous as they are correlated with economic growth. An inverse interaction between growth rate and the initial level of income, required in a cross-sectional framework for the justification of convergence, may imply numerous behaviours inclusive of a static cross-section distribution of incomes (Quah, 1993).

Reacting to criticisms of cross-sectional framework, recent works are increasingly adopting time series methods in investigating convergence of incomes, among countries. Specifically, non-stationarity tests are often utilised to verify the existence of stochastic convergence. Using time series approach, Carlino and Mills (1993) examine stochastic convergence across U.S. regions during the 1929-1990 period and allowing for an exogenous trend break at 1946. The findings provide evidence for convergence in three of the eight U.S. regions, after allowing for structural break, without which the findings indicate no evidence for convergence for the sampled period. In another study dealing with convergence on same U.S. regions, Loewy and Papell (1996) adopt techniques that permit endogenising both break date (which includes Zivot and Andrews, 1992) and lag length. With the endogeneity techniques, Loewy and Papell (1996) establish evidence for convergence in seven out of the eight U.S. regions with higher degrees of significance.

Bernard and Durlauf (1995) examine income convergence in a sample of 15 Organisation for Economic Co-operation and Development (OECD) countries for 1900-1987 period. Employing Cointegration tests in a framework of no structural breaks, results demonstrate little evidence of conditional convergence but substantial evidence for common trends. Greasly and Oxley (1997) investigate the presence of convergence among several OECD countries using annual time series data dating 1900–1987. Based on time series unit root tests such as ADF approaches and Zivot and Andrews (1992), Greasly and Oxley (1997) identify bilateral convergence within: Australia and the United Kingdom; Italy and France; Belgium and the Netherlands; and Denmark and Sweden. Li and Papell (1999) employ (an endogenously determined) one-break unit root test of Perron (1997) to assess the possibility of stochastic convergence among 16 OECD countries for the period length of 1990-1991. Evidence supports convergence in 14 of 16 OECD countries and the findings further reveal that World War II is a major cause of structural shifts in relative per capita output.

Strazicich, Lee and Day (2004) utilise the two-break unit roots test of Lee and Strazicich (2003) to test for convergence in 15 OECD countries for the period dating 1870-1994. Findings reveal the rejection of null hypothesis of unit root in eleven of the fifteen countries, thus proving the presence of stochastic convergence among the countries. Dawson and Strazicich (2010) increase the sample size to 29 countries (to include non-OECD countries). The paper reveals evidence showing convergence of income in 23 of the 29 countries. Similar to the findings of Li and Papell (1999), World War II is revealed to be a major reason for structural changes in incomes of the countries.

Due to the problems associated with cross sectional framework as enumerated above, papers on African studies have largely apply panel unit root techniques in implementing their investigations of convergence in Africa, with the exception of Carmignani (2006). Among the studies on Africa with panel unit root approach is McCoskey (2002) who assess convergence of income for 37 Sub-Saharan African countries, using six proxies of well being. With panel unit root test, McCoskey (2002) fails to establish evidence of convergence across the whole sample for the real GDP-based variables. The findings remain same even for more homogeneous groupings such as Southern African Development Community (SADC) and the Southern African Customs Union (SACU).

In a more comprehensive study, Carmignani (2007) assess the magnitude of income convergence in 28 regional integration initiatives, which include few regional groupings in Eastern and Southern Africa such as SADC, COMESA and SACU. The results indicate no evidence for convergence among COMESA countries, but weak convergence in the case of SADC and SACU. Guetat and Serranito (2007) consider few African countries in testing for convergence hypothesis in MENA region using new panel

unit root tests. The findings basically reveal that the absolute and conditional hypotheses are not rejected for most groups of countries, even when allowing for breaks in the panel unit root tests. Charles, Darne and Hoarau (2010) explore the possibility of absolute and conditional convergence COMESA for the period 1950-2003. Using several panel data unit root tests, the paper concludes with no evidence supporting the existence of convergence process for the income in the COMESA. Utilising panel unit root approach, Dufrenot and Sanon (2005) assess the existence of convergence in ECOWAS countries but fail to establish any real convergence among the countries.

Literatures have questioned the use of panel unit root tests (especially the so-called first generation unit root tests). For example, strict assumption of cross-unit independence in Levine, Lin and Chu (2002) panel unit root test may resort into acute size distortions (Breitung and Das, 2008). Panel unit root procedures also suffer from lack of power when the alternative hypotheses are local to the null hypothesis of one-for-one restriction. In addition, cross-correlation and variations along the size of the panel affect size distortion that is not even resolved with demeaning procedures (Strauss and Yigit, 2003).

Averting problems related with panel unit roots procedures, Cunado and Perez de Gracia (2006) examine convergence hypothesis in 43 African countries using time series stationarity tests with and without unit roots. Adopting group (African) average and U.S. income as benchmarks, Cunado and Perez de Gracia (2006) utilise unit roots with structural breaks and without structural breaks. The findings show Benin and Cameroon as converging towards African average while countries such as Egypt, Cape Verde, Seychelles, Mauritius and Tunisia are converging towards the U.S. economy.

MONETARY UNION IN CFA FRANC COUNTRIES

Circulation of CFA franc began in 1945, replacing French Equatorial African franc used in some colonies of France for the period dating 1917 to 1945. Currently, the CFA franc is essentially composed of two different currencies, the West African CFA franc currency and Central African CFA franc currency. The West African CFA franc currency is used by eight countries viz. Benin, Burkina Faso, Cote D'Ivoire, Mali, Niger Senegal, Togo and Guinea Bissau, which is the only non-French former colony in the currency arrangement. Central African CFA franc currency users are Cameroon, Central African Republic, Chad, Congo, Gabon and Equatorial Guinea, which is the only non-French former colony in the currency arrangement. Although the two currencies are intrinsically different and not accepted in the other sub-region, they have always been at parity and underwent changes at nearly similar periods.

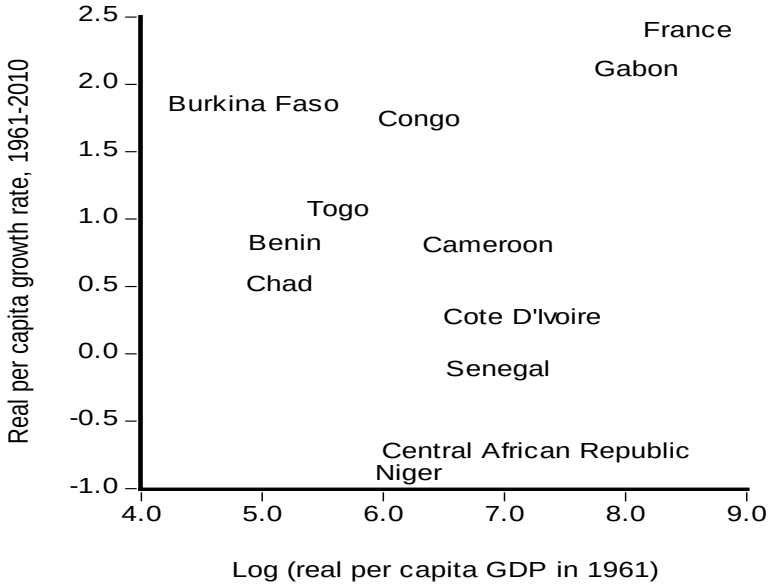
Since its inception in 1945, CFA franc has undergone various structural changes. For instance, formal monetary co-operation among the countries was agreed in the early 1970s in order to enhance integration among the participating countries. Specifically, treaty of monetary co-operation was signed in November 1972 among the Central African countries and with France in the same period. For West African countries, treaty of monetary co-operation was signed in November 1973 among the countries and with France in December, 1973. Respectively, the Bank of Central African States (BEAC) and Central Bank of West African States (BCEAO) were created to serve as central banks for these countries. In the 1980s, CFA franc countries suffered from recurring budget deficits and unfavourable current account balances, attributed to relatively strong franc (as few other West Africa and Central Africa countries had devalued their currencies such as Nigeria in 1986). On January 13, 1994, the response was devaluation of CFA by 50% for the first time, since being initially pegged in 1948. Upon the introduction of Euro on January 1 1999, the benchmark currency changed from FF to euro with the agreement of other members of euro.

Sequent to Articles 63 to 75 of West African Economic and Monetary Union (WAEMU) treaty of 1994, members of the West African franc countries were expected to meet some set indicators of convergence, which were further divided into two-level criteria. The first-level criteria include the ratio of budget balance to nominal GDP; inflation criterion, which stipulates that inflation rate must not exceed 3% per year; a prohibition on accumulating internal and external arrears; and a debt ratio limiting the proportion of domestic and foreign debt outstanding to nominal GDP to 70%. The second level criteria also involves four aspects, which stipulates that wage bill must not go beyond 35% of tax revenues, public investment financed with internal resources must be at least 20% of tax revenues, current external

deficit excluding donations must not go beyond 5% of nominal GDP, and tax revenues must be at least 17% of nominal GDP (Banque De France, 2010).

In 2006, the regional convergence process remains insufficient in the Franc Area. No Economic Community of Central African States (ECCAS) country was successful in meeting the four first-level criteria. For WAEMU countries, only Niger was able to achieve the four first-level criteria of WAEMU. The condition improved in 2007 as two countries (Cameroon in ECCAS and Benin in WAEMU) were able to attain the four first-level criteria. In 2009, Gabon and Mali met the four first-level criteria set by ECCAS and WAEMU, respectively. From the foregoing, it is obvious that based on the two-level criteria, convergence is slowly improving among Franc countries in the midst of various structural changes that the regional setting had undergone (Banque De France, 2006; 2007; 2009). Beyond the two-level criteria, the degree of convergence can also be examined by various techniques such as graphical presentation and in a time series settings.

FIGURE 1
DIVERGENCE AMONG THE CFA COUNTRIES AND FRANCE



Source: Authors estimation from World Bank Database

We relate the initial year real per capita income as at 1961 with the subsequent growth rate of real per capita income for 11 CFA countries and France in Fig. 1. Initial year real per capita income is plotted on the x-axis, (in our case, 1961), while the average growth rate of real per capita income is plotted on the y-axis (in our case, over the subsequent 50 years). To imply convergence, the graph must be negatively sloped to indicate that the lower income countries are growing faster in the subsequent period. However, the line is positively sloped (at +0.434), which means the poorer countries grow more slowly than the rich ones. Hence, this is an indication that the countries are not converging[3]. This is logically true as Burkina Faso with the lowest initial year real per capita income at USD 125.227 recorded average growth rate of real per capita at 1.690%, while Gabon with the highest initial year real per capita income at USD 2085.016 recorded average growth rate of real per capita at 2.133% (provided France is excluded).

METHOD, DATA AND METHODOLOGY

Method

The study basically adopts two models in assessing the convergence of income among Franc countries. In accordance with Carlino and Mills (1993), the study initially investigates the existence of stochastic convergence among the CFA franc countries both as a total and region with the beneath equation:

$$y_{it} = \ln\left[GDP_{it} / \left(\sum_{i=1}^{I} GDP_{it} / I \right) \right] \tag{1}$$

Here the relative income of country y_{it} is defined as the ratio of per capita real GDP of country i to the group average. I is the number of countries in the sample. According to Carlino and Mills (1993), stochastic convergence is present if the y_{it} is stationary, which means that any shock to the relative income will be non-permanent. Secondly, we follow the procedures of Bernard and Durlauf (1996) that regard convergence as equality of long term forecasts at a fixed time, such that for pair wise countries i and j, convergence is present, once equality of long term forecasts of (log) per capita output for both countries are obtainable at a fixed time t.

$$\lim_{k\to\infty} E(GDP_{i,t+k} - GDP_{j,t+k} / S_t) = 0 \tag{2}$$

Here, S is the information set at period t. According to Bernard and Durlauf (1996), convergence of income is violated for a set of such pair wise, if the (log of the) difference between the per capita outputs of the two countries is non-stationary or has a zero mean.

$$\ln(GDP_i) - \ln(GDP_j) = 0 \tag{3}$$

From the preceding, it is noticeable that while Carlino and Mills (1993) method is relevant in a multivariate system, Bernard and Durlauf (1996) proposition is compatible to bivariate study. In this paper, the methods are applied. To evaluate convergence of CFA countries in a total and regional dimension, the paper utilises Carlino and Mills (1993) approach, while Bernard and Durlauf (1996) procedure is employed to check the convergence of each country's per capita income with per capita income of France.

Data

The study utilises annual real per capita income of six West African CFA countries- Benin, Burkina Faso, Cote D'Ivoire, Niger, Senegal and Togo-and five Central African countries- Cameroon, Central African Republic, Chad, Congo and Gabon- for the 1961-2010 period. The omitted West African CFA countries from the sample include Mali (which left the common currency arrangement in 1962 and rejoined in 1984); and Guinea Bissau (which only joined the common currency arrangement in 1997). Equatorial Guinea is the only Central African country omitted from the sample (because she joined the common currency in 1985). All the data were obtained from World Bank *World Development Indicators* (World Bank, 2011).

Methodology

In testing for stochastic convergence in equation (1) and (3), there are several stationary tests available in the literature, which include the popular Augmented Dickey Fuller (ADF) unit root test. However, Perron (1989) demonstrates that the presence of structural breaks in the constant or the deterministic trend function distorts the power unit root tests such as ADF. Providing for structural break(s) helps in establishing convergence across countries (Cellini and Scorcu, 2000). As an antidote, Perron (1989) introduce exogenous method of selecting break in unit root tests. Perron (1989) approach has been in turn criticised on the basis of arbitrarily selection of structural break date, which can only be resolved with methods that endogenously determine structural breaks. Among the endogenous structural break unit root methods include Zivot and Andrews (1992) that provide for break in constant or trend. Although Zivot and Andrews (1992) tests are more robust and powerful than ADF in the presence of structural break, the method has been criticised on several bases. Zivot and Andrews (1992) derive their critical values assuming no breaks under the null, which causes size distortions such that the null of unit root hypothesis is rejected too often, if a break exists under the null of unit root. Moreover, Lee and Strazicich (2001) note that Zivot and Andrews (1992) tests tend to estimate the break point incorrectly at one period behind the true break and as the magnitude of the break increases. In a bid to resolve some of the pitfalls of Zivot and Andrews (1992), Lee and Strazicich (2004) introduce an alternative method unit root with an endogenous structural break which is unaffected by breaks under the null.

$$\Delta y_t = \partial' \Delta Z_t + \phi \bar{S}_{t-1} + \sum_{i=1}^{p} \gamma \Delta \bar{S}_{t-i} + \mu_t \qquad (6)$$

Where $\bar{S}_t = y_t - \hat{\psi}_x - Z_t \hat{\delta}_t, t = 2.....,T,\hat{\delta}$ denotes the coefficients in the regression of Δy_t on ΔZ_t, $\hat{\psi}_x$ is given by $y_t - Z_t \partial$, in which y_1 and Z_1 represent the first observations of y_t and Z_t, respectively. μ_t is error term that is assumed to satisfy the classical properties of being independent and identically distributed with zero mean and finite variance. In order to account for a single change in level, Z_t is defined as $[1, t, D]'$ where $\mathrm{D} = 1$ if $\mathrm{t} \geq T_B + 1$, and zero otherwise. For a single change in both level and trend, Z_t is $[1, t, D, DT]'$ where $DT = t$ if $\mathrm{t} \geq T_B + 1$, and zero otherwise (and the same condition for D remains as in the case of shift in level). T_B is the break date. The testing of the null hypothesis of unit root ($\phi = 0$) is conducted by (LM) t-statistic. To be precise, the break point is determined by endogenously locating the value that minimizes the *t*-test statistic. The augmented terms of $\Delta \bar{S}_t$ are included to provide for the likelihood of serial correlation in errors[4].

The preceding will provide us the capacity to verify existence of stochastic convergence, a gateway to further test for three forms of convergence, which are conditional convergence, unconditional convergence and catch-up convergence[5]. This first, unconditional convergence implies that the difference of per capita income among (or between) countries is stationary around zero (or zero-mean convergence see Bernard and Durlauf, 1996). In other words, when there is clear rejection of null hypothesis of unit roots in the absence of intercept and trend, then there is unconditional convergence. Secondly, conditional convergence implies that the difference of per capita income among (or between) countries is stationary around a constant level different from zero, while the trend may be zero (see Li and Papell, 1999). Thirdly, catch-up convergence requires that the difference of per capita income among (or between) countries is stationary around both constant level and trend different from zero i.e trend stationary. While conditional convergence and unconditional convergence do not require much additional exercise beyond the initial unit root tests (especially when the specification does not involve structural breaks), this is not true for catch-up hypothesis. Recent papers such as Tomljanovich and Vogelsang (2002), Nieswiadomy and Strazicich (2004) and Cunado and Perez de Gracia (2006) propose a method in which catch-up convergence may be verified based on the unit root test:

$$y_{it} = \tau_1 + \tau_2 + \beta_1 t_1 + \beta_2 t_2 + \varepsilon_t \quad (7)^6$$

τ_1 and β_1 are intercept and slope before break and τ_2 and β_2 are intercept and slope after break and ε is error term, which satisfies the classical properties with zero mean and finite variance. For catch-up convergence to exist, τ_2 and β_2 must be significant and produce opposite signs[7].

EMPIRICAL FINDINGS

The outcomes of ADF and Lee and Strazicich (2004) unit root tests of each countries relative income to average income of all the countries using CFA franc are presented in Table 1. Results for West African countries are reported in the upper panel, while the results of East African countries are reported in the lower panel. Subjecting the West African countries to ADF test, we cannot reject the null hypothesis of unit root for any of the cases when neither intercept nor trend is included in the equation. This is an evidence of no unconditional convergence among the countries. Upon the specification inclusive of an intercept only, we cannot reject the null hypothesis of unit root, as well. However, when an intercept and a trend are included; we reject this hypothesis for the case of Cote D'Ivoire at the 10% level. In other words, Cote D'Ivoire converges with the group's steady per-capita income. The failure to find much evidence for convergence among these countries might be due to the existence of different convergence speeds in the process of convergence or the situation in which countries shift from convergence to nonconvergence processes (or vice versa), which can only be resolved by inculcating structural breaks into the model (Cunado and Gracia, 2006). Progressing to Lee and Strazicich (2004) test, the results suggest rejection of null hypothesis of unit root for any of the countries, when only an intercept is included, which implies no country satisfies conditional convergence criteria. With the inclusion of intercept and a trend, we reject this hypothesis for Benin, Cote D'Ivoire and Niger. The result is not surprising as Niger was the only successful West African country to meet the four first-level criteria of convergence in 2006 (Banque De France, 2006).

Findings for Central African countries are reported in the lower panel of Table 1. For the ADF test case, we cannot reject the null hypothesis of unit root for any of the cases. Finally for Central African countries, Lee and Strazicich (2004) test are presented, which suggest that we cannot reject the null hypothesis of unit root for any of the cases when only an intercept is included. In other words, no Central African country conditionally converges with the CFA franc countries' average. Upon the inclusion of an intercept and a trend, we reject this hypothesis for only Central African Republic at 5% level. Generally, most of the break dates are located in the 1970s, which coincidentally, was a period of oil-price rise, austerity measures and political upheavals in Africa.

The OLS estimates relating to the catch-up convergence hypothesis are reported in Table 2. Based on the preceding ADF test, Cote D'Ivoire is examined for catch-up convergence hypothesis. Cote D'Ivoire meets the requirement of opposite signs of the intercept and trend. However, premised on the preceding Lee and Strazicich (2004) test, it is observed that Benin (though Cote D'Ivoire is present) is the only country to satisfy catch-up convergence criteria of opposite signs of the intercept (positive sign) and trend (negative sign) after the break. Since Lee and Strazicich (2004) test is superior to ADF test, we conclude that Benin appears as the only country to satisfy the catch-up convergence hypothesis in regards to all CFA countries as a whole. In general, the countries are linked because the two CFA francs are similar not just because both CFA francs are guaranteed by the French treasury, but also for the fact that they have same exchange rate i.e. fixed to euro. These may lead to the assumption that both currencies are universally identical and more importantly, the above results are conclusive. However, the Central African CFA franc are not legal tender in West African countries and the West African CFA franc cannot be utilised in Central African countries as the two CFA francs are generically dissimilar. Hence, it is pertinent at this stage to consider convergence at a regional level.

TABLE 1
CFA COUNTRIES UNIT ROOT TESTS

Country	ADF	ADF	ADF	L-S (1-break)		L-S (1-break)	
	None	(Intercept)	(Intercept & Trend)	(Intercept)		(Intercept & Trend)	
	T-Stat	T-Stat	T-Stat	T-Stat	T_B	T-Stat	T_B
West Africa							
Benin	-0.241	-1.700	-2.018	-1.993	1977	-4.360*	1977
Burkina Faso	-0.905	-0.116	-1.771	-1.527	1978	-3.898	1974
Cote D'Ivoire	-0.657	-1.200	-3.347*	-3.870	1979	-4.206*	1982
Niger	0.674	-2.443	-1.835	-2.339	1975	-4.439**	1973
Senegal	-0.250	-2.457	-1.743	-1.291	1968	-3.697	1974
Togo	-0.172	-2.478	-2.815	-3.596	1975	-4.053	1973
Central Africa							
Cameroon	-1.142	-2.037	-2.308	-2.205	1978	-2.732	1980
Central African Republic	0.911	-2.075	-2.335	-2.189	1975	-4.962**	1981
Chad	0.016	-1.949	-1.678	-1.481	1978	-2.805	1983
Congo	-0.830	-1.833	-2.869	-3.033	1986	-3.395	1980
Gabon	0.333	-2.542	-2.154	-2.040	1978	-3.480	1978

ADF is Augmented Dickey-Fuller test, L-S depicts Lee and Strazicich test with break (intercept and trend). The optimal lag is selected based on Schwarz Bayesian criterion. *, **, *** implies significance at 10, 5 and 1%, respectively. Critical values used in ADF are from Mackinnon (1996); and for L-S (1-break) tests are from Lee and Strazicich (2004).

TABLE 2
β- CONVERGENCE FOR AVERAGE CFA COUNTRIES

	ADF		L-S(1-break)	
Country	τ	β	τ_2	β_2
West Africa				
Benin			-1.396***	0.014***
Cote D'Ivoire	6.742***	-0.007**	-0.033	-0.005***
Niger			-1.283***	-0.005***
Central Africa				
Central African Republic			-0.957***	-0.005***

*, **, *** implies significance at 10, 5 and 1%, respectively. The Newey-West estimator is applied to correct for possible serial correlation and heteroscedasticity. τ_1 and β_1 are the coefficients of intercept and trend before the break, while τ_2 and β_2 are the coefficient of the intercept and trend after the break.

In Table 3, we present the results of ADF and Lee and Strazicich (2004) unit root tests of each country's relative income to each region's average income. The findings of West African region are displayed in the upper panel. Utilising the ADF test, we can only reject the null hypothesis for Burkina Faso at 5%, when no intercept and trend are specified. This is an evidence for unconditional convergence of Burkina Faso to the West African franc's per capita income. With the inclusion of intercept, we cannot reject the null hypothesis of unit root for any of the countries, with the exception of Togo at the 5% level. Upon the specification of an intercept and a trend, we reject this hypothesis for Burkina Faso and Togo at the 5% and 10% level, respectively. Considering, Lee and Strazicich (2004) test, the findings suggest that we cannot reject the null hypothesis of unit root for any of the countries. In other words, there is no

conditional convergence among the West African francs countries. On the other hand, when an intercept and trend are included, we reject this hypothesis for Benin and Burkina Faso at 10% and 5% level, respectively. In practice, Benin was among the two countries to meet the four first-level criteria of convergence in 2007 (Banque De France, 2007).

The findings of Central African countries are presented in the lower panel of Table 3. Considering ADF test, we cannot reject the null hypothesis of unit root for any of the countries. For Lee and Strazicich (2004) test on Central African countries, the results indicate that we cannot reject the null hypothesis of unit root for any of the countries, when only an intercept is included. However, with the inclusion of an intercept and a trend, we reject this hypothesis for only Central African Republic at 5% level. Generally, most of the break dates are located in the 1970s, a period of oil prices rise, austerity measures and political upheavals in most African countries.

The OLS estimates relating to the catch-up convergence hypothesis are presented in Table 2. Based on the preceding ADF test, Burkina Faso and Togo are examined for catch-up convergence hypothesis of which the OLS results suggest that they are converging to the West African average per capita income. However, premised on the preceding Lee and Strazicich (2004) test, it is observed that Burkina Faso (though Benin and Central African Republic are present) is the only country to satisfy catch-up convergence criteria of opposite signs of the intercept (positive sign) and trend (negative sign) after the break. Since Lee and Strazicich (2004) test is better than ADF test, it is concluded that Burkina Faso is the only country to satisfy the catch-up convergence hypothesis in respect to the regional average.

TABLE 3
WEST AND CENTRAL AFRICAN CFA COUNTRIES UNIT ROOT TESTS

Country	ADF	ADF	ADF	L-S (1-break)		L-S (1-break)	
	None	(Intercept)	(Intercept & Trend)	(Intercept)		(Intercept & Trend)	
	T-Stat	T-Stat	T-Stat	T-Stat	T_B	T-Stat	T_B
West Africa							
Benin	-1.438	-0.732	-2.391	-1.935	1983	-4.224*	1980
Burkina Faso	-2.318**	1.276	-4.041**	-1.635	1990	-5.000**	1981
Cote D'Ivoire	-0.292	-0.839	-2.898	-1.402	1980	-2.969	1980
Niger	0.971	-2.157	-1.850	-2.812	1972	-3.552	1973
Senegal	-1.215	-2.771	-3.076	-1.387	1968	-3.651	1981
Togo	-1.740	-3.829**	-3.342*	-2.413	1992	-3.976	1977
Central Africa							
Cameroon	-0.312	-2.441	-2.472	-2.440	1978	-2.914	1980
Central African Republic	0.955	-2.159	-1.990	-2.068	1978	-4.767**	1974
Chad	0.155	-2.028	-1.579	-1.515	1978	-2.829	1975
Congo	-1.335	-2.055	-2.784	-2.963	1978	-3.498	1980
Gabon	0.078	-2.414	-2.370	-1.898	1978	-2.922	1980

ADF is Augmented Dickey-Fuller test, L-S depicts Lee and Strazicich test with break (intercept and trend). The optimal lag is selected based on Schwarz Bayesian Criterion. *, **, *** implies significance at 10, 5 and 1%, respectively. Critical values used in ADF are from Mackinnon (1996); and for L-S (1-break) tests are from Lee and Strazicich (2004).

TABLE 4
β-CONVERGENCE FOR REGIONAL CFA COUNTRIES

Country	ADF		L-S(1-break)	
	τ	β	τ_2	β_2
West Africa				
Benin			-0.420***	-0.009***
Burkina Faso	-1.216***	0.018***	-1.346***	0.021***
Togo	-0.347***	0.003*		
Central Africa				
Central African Republic			-1.481***	-0.005***

*, **, *** implies significance at 10, 5 and 1%, respectively. The Newey-West estimator is applied to correct for possible serial correlation and heteroscedasticity. τ_1 and β_1 are the coefficients of intercept and trend before the break, while τ_2 and β_2 are the coefficient of the intercept and trend after the break.

TABLE 5
FRANCE AND CFA COUNTRIES UNIT ROOT TESTS

Country	ADF	ADF	ADF	L-S (1-break)		L-S (1-break)	
	None	(Intercept)	(Intercept & Trend)	(Intercept)		(Intercept & Trend)	
	T-Stat	T-Stat	T-Stat	T-Stat	T_B	T-Stat	T_B
West Africa							
Benin	1.657	-2.055	-0.900	-1.151	1970	-3.300	1973
Burkina Faso	0.740	-3.090**	-1.288	-1.398	1972	-2.760	1987
Cote D'Ivoire	-1.997	-0.477	-1.997	-1.674	1980	-3.237	1982
Niger	2.557	-2.368	-0.701	-1.846	1972	-2.693	1990
Senegal	2.662	-4.164***	-0.713	-0.906	1968	-1.982	1981
Togo	1.685	-0.631	-2.861	-2.056	1978	-3.494	1984
Central Africa							
Cameroon	0.466	-1.996	-3.337*	-3.565	1974	-3.904	1987
Central African Republic	3.336	-2.190	-0.996	-2.177	1982	-3.052	1998
Chad	0.946	-2.702	-1.544	-1.766	1972	-3.010	1984
Congo	0.178	-1.915	-2.396	-2.818	1986	-2.845	1986
Gabon	-2.434	-1.147	-2.434	-2.547	1978	-4.201*	1978

ADF is Augmented Dickey-Fuller test, L-S depicts Lee and Strazicich test with break (intercept and trend). The optimal lag is selected based on Schwarz Bayesian Criterion. *, **, *** implies significance at 10, 5 and 1%, respectively. Critical values used in ADF are from Mackinnon (1996); and for L-S (1-break) tests are from Lee and Strazicich (2004).

TABLE 6
β- CONVERGENCE FOR FRANCE AND CFA COUNTRIES

	ADF		L-S(1-break)	
Country	τ	β	τ_2	β_2
Central Africa				
Cameroon	2.859***	0.014***		
Gabon			0.632***	0.024***

*, **, *** implies significance at 10, 5 and 1%, respectively. The Newey-West estimator is applied to correct for possible serial correlation and heteroscedasticity. τ_1 and β_1 are the coefficients of intercept and trend before the break, while τ_2 and β_2 are the coefficient of the intercept and trend after the break.

Similar to the work of Dawson and Strazicich (2010) that employs the U.S. income as a benchmark for relative income rather than the group mean, the study presents the result with income of France as the benchmark in Table 5. This is due to the fact that the common currency arrangement is essentially linked to the legal tender of France and also the common currency is guaranteed by the French treasury. The outcome of ADF and Lee and Strazicich (2004) unit root tests of each West African country's relative income to France's income is displayed in the upper panel of Table 5. Considering the ADF test, we cannot reject the null hypothesis of unit root for any of the countries, when only an intercept is specified, with the exception of Burkina Faso and Senegal at 5% and 1% significance level, respectively. In the specification of an intercept and a trend, we cannot reject the null hypothesis for any of the countries. Similarly, Lee and Strazicich (2004) tests suggest that we cannot reject the null hypothesis of unit root for any of the countries.

The outcomes of Central African countries are reported in the lower panel of Table 5. Considering ADF test, we cannot reject the null hypothesis of unit root for any of the cases, when only an intercept is specified. This is evidence of no conditional convergence between France and any of the West African CFA franc country. Aside Cameroon, we cannot reject the null hypothesis of unit root for any of the cases, when including an intercept and a trend. Reporting Lee and Strazicich (2004) test, we cannot reject the null hypothesis of unit root for any of the countries, when only an intercept is included. This is evidence of no conditional convergence between France and any of the Central African CFA franc country. Upon the inclusion of an intercept and trend, we reject this hypothesis for only Gabon, at 10% level. Coincidentally, Gabon was among the two countries to meet the four first-level criteria of convergence in 2009 (Banque De France, 2009). Moreover, Gabon recorded the highest average growth rate of real per capita at 2.133%, which is very similar to France with 2.300% average growth rate of real per capita for the 1961-2010 period.

The OLS estimates relating to the testing of catch-up convergence hypothesis are reported in Table 6. Based on the preceding ADF test, Cameroon is tested for catch-up convergence hypothesis and unfortunately does not satisfy the requirement of opposite signs of the intercept and trend. Similarly, sequent to the preceding Lee and Strazicich (2004) test, it is also observed that Gabon does not satisfy catch-up convergence criteria of opposite signs of the intercept (positive sign) and trend (negative sign) after the break. These results illustrate no country satisfies catch-up convergence hypothesis, when per capita income of France is the benchmark.

CONCLUSION

Due to the fact that monetary union is often the ultimate aim of various regional integrations, this study examines the rate of per capita income convergence in 11 CFA francs countries (the only monetary union in Africa). Utilising time series procedures of ADF and Lee and Strazicich (2004), which allows structural breaks, we assess convergence process regards to the total average, regional average (West

African and Central African countries, separately) and per capita income of France as benchmarks. The findings illustrate unconditional convergence for Burkina Faso towards the West African average, but lack of unconditional convergence in regards to the total average and France. No conditional convergence is found towards the three benchmarks. The findings further reveal that Benin satisfies the catch-up hypothesis towards the total average; Burkina Faso satisfies the catch-up hypothesis towards the West African average and no countries satisfies the catch-up hypothesis towards France. In general, there is a little convergence among the CFA francs countries and virtually no convergence with France, despite being in a monetary union arrangement.

This is not surprising as most countries in the regional groupings have over the years failed to achieve different criteria for convergence such as the external deficit criteria, inflation criteria and the wage bill criteria. Beyond the non-fulfilment of the convergence criteria, other factors which are likely to be responsible for non-convergence in the currency union include concentration of foreign capital inflow in few selected countries; low intra and inter regional trade; and slow accumulation of factors of production and low total factor productivity (Hammouda et al., 2007). However, the current exercise has not conducted a detailed study of these additional factors. Future works may consider the extent at which each of these elements may slower the pace of convergence.

ENDNOTES

[1]CFA originally stood for "French colonies of Africa" between 1945 and 1958 after which the acronym was regarded as "French Community of Africa", until the independence of most French colonies. Since independence, CFA has been taken to mean "African Financial Community" of France. In all of these time periods, all the economies are essentially link to France.

[2]The term implies that permanent movements in one country's per capita output are connected with permanent movements in other countries' output. In other words, stochastic convergence means that income differences among economies cannot contain unit roots

[3]Excluding France from the data set, we observe that the line is still positively sloped at +0.256.

[4]There is two-break version of Lee and Strazicich (2004) i.e Lee and Strazicich (2003). However, most dummies for two-break in intercept and trend are insignificant, unlike the dummies for one-break that are mostly significant. Moreover, Cunado and Perez de Gracia (2006) note that graphical analysis of the relative per capita incomes do not seem to justify the inclusion of two breaks for African case.

[5]Catch-up convergence, which implies a tendency for per capita income levels to converge (Dowrick and Nguyen, 1989). This occurs due to a high rate of investment as the capital stock grows towards its postulated steady-state level (which depends on the savings rate) as against conditional convergence that occurs when a country's capital stock and output are lower than their steady-state levels (see Bloom, Canning and Sevilla, 2002 for details).

[6]This is relevant for unit root test with structural break. For unit root test without structural break such as ADF the specification is simply $y_{it} = \tau + \beta t + \varepsilon_t$ which requires that coefficients of the constant and trend must be opposite.

[7]There are other specifications, but we limit our scope to this specification of "an intercept and a linear time trend" because the original data shows that series have both intercept and trend

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Development Trends of Training Service Market in China

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China's reform and opening has had a tremendous impact on economic, social and cultural development. On one hand, with increased incomes, people not only spend more on food, clothes and housing, but also on education, which has a huge market demand due to the large population base. On the other hand, as China's traditional, government-provided education was developed before China's reform and opening and lags behind the market demand growth. As a result a training service market has emerged that is met primarily by private education and training agencies. The paper describes the development of a training service market in China distinct from the degree education system, namely the development of private training service market. It further put forward that although after 20 years of development the private training service market still has problems such as inconsistent and untimely information disclosure and incomplete corporate governance, but some positive trends such as branding, internationalization and capitalization have appeared and the market is of great investment value.

INTRODUCTION

The development of China's training service market refers to the non-degree education market, namely the development of the private training service market. China's education system is comprised of the non-market degree education and market-oriented non-degree education, i.e. training services.

Two major players in China's training service market include, first, the government-owned and government-operated agencies, such as the training colleges of the public universities and training centers run by government ministries. Second, the privately owned and operated agencies, such as New Oriental Education & Technology Group, Global Education & Technology Co., Ltd, and other listed companies.

The first group of players is confined by the system they belong to and cannot become a major force of change to push forward China's non-degree training education market. Therefore, the market development of China's non-degree training education has to rely on the development of China's private training service providers. In this paper, the discussion over China's training service market mainly focuses on that provided by the private agencies.

In China, the emergence of private agencies providing non-degree training services started in the 1990s and such businesses began to flourish in 2004, after the central government issued the "Private Education Promotion Law Implementation Regulations". Its total market value has maintained an average double-digit growth over the past years. International Data Group (China) estimates that China's private spending on education totaled RMB 560.8 billion in 2008. China's education and training industry reports show that education and training market value exceeded RMB 680 billion in 2009 and that it could reach RMB960 billion in 2012. Driven by strong market demand, China's private training institutions have mushroomed across China. Currently, China has nearly 120,000 such organizations, of which 13 have

successfully listed in overseas capital markets. Among these 13 listed companies, 85% of them are listed in the United States and they include New Oriental Education & Technology Group, TAL Education Group, Xueda Education Group, Global Education & Technology Co., Ambow Education Holding Ltd., China Distance Education Holdings Limited, ATA, ChinaCast Education, ChinaEdu Corporation, Noah Education Holding, and China Education Alliance Inc.

Although China's private training service market is still in its primary stage, with characteristics such as "big market, small players", lack of supervision, and disorderly competition, we have observed some positive and valuable trends and characteristics in their booming business, especially those led by the 13 listed industry leaders. These deserve our attention: their lessons could be applied to guide the rational and regulated development of China's private education market, and they could help international and domestic investors make well-informed investment decisions. This paper on private training service development in China presents the three major trends demonstrated by this market in recent years, i.e. branding, internationalization, and capitalization, as well as some major existing problems.

BRANDING

The first trend presented in the development of the Chinese private training service market is branding. During the past two decades, the early players in this market, especially those that offer high-quality services and experienced rapid growth and those that are already listed or seeking IPO, have evolved from small workshops, to intermediary agencies, and now to a brand names. These players have led the entire industry into a new era that highlights the importance of brand names and branding.

The connotation of the brand development of Chinese private training service institutions is first differentiation, second, quality improvement, and finally developing chain or franchise stores. The development of the 13 overseas-listed industry leaders is not exceptional. Based on customers' age group, we could classify China's private training service industry into four sub-segments, i.e. early childhood education, primary and secondary school tutoring, training for overseas studies and vocational education. In addition, based on the ways that the training services are delivered to the customers, we could also classify it as face-to-face training and long-distance training, i.e. offline and online training.

The Beginning of Differentiation

Each of China's listed training agencies is the leader in a sub-segment of the market. Take the private training service giant New Oriental as an example. It led the early childhood education sub-segment with its POP Kids program, it lead the high-end primary and secondary school tutoring with Neolink Secondary Education and MaxEn Education and it excelled in overseas study training programs on GRE and TOEFL. TAL specializes in classroom teaching and Xueda specializes in one-on-one teaching, and both are competitive in primary and secondary school tutoring. Global Education has been focusing on IELTS training over the past decade. Ambow focuses on building a lifelong education platform for further studies and on-the-job training.

China Distance Education Holdings worked hard to build the remote training platform, especially the China Accounting Web, and has recently extended its remote training courses to 15 subjects, such as law, medicine, postgraduate qualification exam and higher-education self-study exam. ATA aims to become the world's biggest exam training provider that focuses on government, industry, company and personal exam businesses. ChinaCast focuses in the acquisition and operation of some of the independent colleges of the universities in recent years. Beida Jade Bird is a flagship IT professional training organization. Wan Guo is a leading brand name in China's judicial examination training.

In addition, a number of private training institutions are beginning to explore the blue ocean market of China's training service market, such as specialized international schools, private schools and home schools. This reflects the demand for internationalized, traditional, and personalized training programs in the contemporary education market. The revenue generated by the specialized education business is very impressive.

According to the annual financial reports of listed companies, revenues of the primary and secondary

education segment of Xueda, TAL, New Oriental and Ambow all exceeded USD 100mn in 2010. In 2011, revenue of New Oriental's POP Kids program achieved a 49% year-over-year increase to USD 77 million, and the number of students increased 29% year-over-year; the contribution of the POP Kids program to New Oriental's total revenue increased from 12.7% in 2010 to 13.4% in 2011. Gross profit margins of Kid's English and POP Kids program reached 53% and 55%, respectively.

As the indisputable market leader, New Oriental registered a total revenue of USD 835 million in 2012, the same as the total of the rest of the top five players, i.e. Xueda, Ambow, TAL and ATA. Each of Xueda, Ambow and TAL achieved USD 200 million in revenue in 2012, and their revenues are USD 281 million, USD 265 million, and USD 210 million respectively.

Quality Improvement

A training service institution which offers characteristic services may not become a brand name organization, which requires years of experience to sufficiently improve quality. In the meantime, the company founders must first develop a sense of mission and responsibility and internalize it and reflect it in corporate strategy and culture. Secondly, the company founders use the management team and corporate culture as the core to establish cohesion and the backbone of the business. Thirdly, the company focuses on product R&D and relies on their core team and corporate culture to ensure its ability to grow sustainably. These are the common characteristics and experiences of all leading Chinese private training service companies.

Branding

Companies provide tailored products and services in order to survive, improve product and service quality to grow into the fittest companies, and establish a good brand name to ensure expansion. The sign of successful branding is acquiring other industry players and setting up chain or franchise stores to replicate successful business model to become the industry leader.

Chinese private training service enterprises started to adopt the franchising business model in 2000, with pioneers like the IT training provider Beida Jade Bird, English training providers such as EF and Wall Street English. Now they have adopted the chain store and direct selling business model, which have been adopted industry-wide now. Take the primary and secondary school tutoring market as an example, Xueda first introduced the business model in 2004 and its application reached a peak in 2008.

In the first half of 2008 only, Xueda has established 80 branches all over China, and now its service is available in 256 branches in 61 cities. Even for the low-profile Pyramid Education, the number of its branches has recently reached more than 300. Ambow caught up with the early movers by aggressively acquiring and merging the regional brand names, which offer competitive services and products. In recent years, New Oriental is expanding aggressively by adding 100 new training schools to their portfolio every year. In the fourth quarter of 2012 only, it added 238 training schools (Zhu, 2013). At present, a few brand name institutions, such as TAL, Xueda, Ambow, Juren and Elite Education, mainly serve the primary and secondary school tutoring market in China's three major cities i.e. Beijing, Shanghai and Guangzhou.

During the process of scale-up and post-M&A restructuring, the private training institutions with brand names did not give up the features and quality of products and services (Ma1, 2011). In the third quarter of 2012, New Oriental closed its bar exam and Certified Public Accountant (CPA) examination training program, neither of which were relevant to its core English training business. Previously it had also divested the businesses to train students to retake the college entrance exams and to train software development professionals, as these non-core businesses all offer deteriorating profit margins.

In 2012, a few listed companies, such as New Oriental, TAL and Xueda, slowed down from expansion to promote internal control and improve efficiency, so that the companies can grow at a healthy and sustainable pace. In addition, non-listed companies such as Longwen Education, which set up 1,000 schools in China within the first two years of business, made an announcement in 2012 to adjust its expansion strategy, which now only allows expansion at a slow pace, but also pays more attention to internal management.

In 2012, after China's private training institutions developed their brand names, they started to focus more on the second and third tier cities in their expansion. As at August 31, 2012, TAL had entered 15 cities, now mainly focusing on opening new schools in cities other than Beijing and Shanghai. In the first quarter of 2012, it entered Shenyang; in the second quarter, it focused on opening new schools in Wuhan, Shenzhen, Xi'an, etc. In the most recent quarter, New Oriental's revenue growth in Beijing and Shanghai was only 12%, while that of other regions reached 35%. In addition, New Oriental highlighted in its acquisition strategy that in the future it only adds new schools in second and third-tier cities.

INTERNATIONALIZATION

The second trend presented by the current development of private training services in China is internationalization. International development of China's private training service is demonstrated in the following three aspects, first, the business, second, private placement, and third, public offering.

Internationalization of the Business

The internationalization of China's private training service is reflected in three aspects. Firstly, internationalization of the high quality products; secondly, scale-up of international business of the industry; thirdly, investment in overseas education. To leverage its expertise in overseas study training and foreign language teaching business and the current market trend of younger students going to study abroad, New Oriental announced in November 2011 that it would set up the joint venture MaxEn Education with McGraw-Hill Education, the largest listed education company in the US, to provide high-end education and training for Chinese teenagers aged between 4 to 17.

In October 2010, TAL set up the joint venture "Mobby" with McGraw-Hill Education. Shenzhen Pengyuan Credit Service Co., Ltd. and BPP, one of the world's largest financial services training company, signed a cooperation agreement to bring in two international financial training and education certifications, i.e. International Certificate in Financial Advice (ICFA) and Chinese Certified Accounting Technician (CCAT), both of which aim to provide employment assistance to job seekers. Similar cases are abundant.

The size of China's overseas study training market has continued to expand in recent years. According to a 2012 Survey Report on the Overseas Study Market in China, the number of people who went to study overseas grew from 179,800 in 2009 to 229,300 in 2010 and to 354,700 in 2011. As a result, revenue from the training programs that help Chinese students to study abroad and in international schools grew at a remarkable speed of 30% every year. Also, according to the Open Doors Report released by the US Education Association in late 2012, the number of students who went to US universities for undergraduate degrees increased by 31% year-over-year in 2012, marking the first time in 12 years that the number of students going to the US for undergraduate degrees exceeding those going for postgraduate degrees.

According to the 2012 Overseas Study Report published by China Education Online, the number of Chinese students who study in the US high schools increased by 10 times compared to 2005 (Wan, 2012). Now in some first tier cities, such as Beijing, Shanghai and Guangzhou, there is a strong demand for "study tours" where training institutions take students to undertake short study tours in foreign countries during a summer or winter vacation for one or two weeks or one month. If students find a good opportunity to study abroad during their tour, the training organization will help them become full-time students. EF is a market leader in this market.

High-quality private training service institutions in China have been experimenting to set up schools overseas. New Route International Education Group Limited opened branches in Japan, Canada and the US, while New Oriental has opened branches in Canada and other countries. China's investment in overseas education markets is mainly focused on Singapore, South Korea and Hong Kong in Southeast Asia, as well as the US in North America. 80% of the projects and 100% of the investments are concentrated in Southeast Asia. It is reported that in 2011, Mr. Ding Furu acquired a 50% stake in the Singapore-based Value Vantage with USD 37 million.

Private Equity Going International

Of the 10 private financed projects with China's top-quality private training service institutions from 2007 to 2010, overseas financing accounted for 70%, and the average deal size grew from USD 24 million in 2008-2009 to USD 35.6 million in 2010-2011. In 2011, the UK-based Pearson PLC, USD invested 289.6 million to acquire a 100% stake in Global IELTS. So far, private equity investors in the US, Europe and Southeast Asia, such as Baring Asia, ARC Capital, the Carlyle Group and Actis Capital have shown particular interests in China's private training service sector. In 2012, a few more US and UK-based private equity funds started to focus on private training service schools in China, especially those in foreign language teaching business.

International IPO

All of the 13 Chinese private training service institutions are listed in overseas stock markets. Oriental Century Limited is the first such company seeking public offering and it was listed in Singapore on June 1, 2006. Modern Education launched the most recent IPO and it was listed in the Hong Kong Stock Exchange on July 4, 2011. The remaining 11 are listed in the US.

The constraint of China's domestic capital market is part of the reason why China's private training service institutions were seeking IPO in overseas markets. If a company is seeking IPO in China's capital market, then the listing applicant has to be a legal entity. However, the provisions of Article 3 of the "Private Education Promotion Laws" defines private education as "public service" and therefore most of the Chinese private training service institutions registered with the Civil Affairs Department as non-corporate legal entities.

The natural attributes of the private training service institutions as nonprofit and non-corporate legal entities become the barrier that makes it difficult for them to get listed in China's stock market. In addition, China's Education Act also prohibits any organizations or individuals from setting up for-profit schools and educational institutions. As a result, the earnings of China's private educational institutions can only be reinvested in the business and cannot be used to pay dividends to the investors. In addition, property rights of private schools belong to legal entity, not the investors. Therefore, it is not possible for China's private training service institutions to seek IPO in China, especially on China's main board, such as the Shanghai Stock Exchange and Shenzhen Stock Exchange.

Going international is the right path that China's private training service institutions picked in order to become global players. It helps them to reduce the cost of innovation, to expand market, to narrow the gap between emerging markets and developed economies and to put them at the forefront of the industry.

CAPITALIZATION

The third trend presented by the development of private training service in China is capitalization. For companies, the capital markets not only provide them with capital but also provide a platform to improve management and to advertise brand names. Therefore, capitalization is a major theme and a natural choice to be undertaken by the Chinese private training service institutions. Of course, the favor and attention from the investors and the capital markets would bring them exposure to advertise their brand names.

The capitalization process of China's private training service institutions was initiated by venture capitalists and it further reached a peak when companies sought IPOs. The final destination is M&A and post-M&A integration. Among the 120,000 private training service institutions in China, 13 companies have gone through the three stages and they are the true forces that are pushing forward the capitalization process of the entire industry.

Introducing in Venture Capital

Based on public information, we made the following timeline that captured this trend:

In the period 2000-2003, online education and IT training brought VC and PE into China's education and training industry. During this period, three such cases were disclosed, with total financing totaling to USD 6.5 million.

In 2004, in addition to Noah Education Holdings, traditional education and training provider New Oriental and postgraduate degree application training provider Wanxue also got investment from venture capitalists. Total financing of the three companies reached USD 66.5 million.

In 2005, four companies, including China Training Network, Feloon Training Network, WebEdu and Saybot, received venture capital totaling USD 24.15 million.

The public listing of New Oriental in 2006 is by far the most successful investment case in China's education industry and it has greatly stimulated the interests of the overseas VC in China's private education industry. The 13 investment cases in this industry in 2006 helped to raise a total of USD 92.12 million. Eight companies received Series A financing and five received Series B financing.

2007 was another boom year. From January to October 2007, 13 venture investment cases brought in a total of USD 166.7 million. Seven companies received Series A financing, four received Series B financing and two received Series C and D financing.

In 2006 and 2007, venture capitalists mainly focused on China's private education companies that were in the expansion stage and that serve several sub-segment markets. In 2006, seven companies under the expansion stage received venture investment, accounting for 53.8% of the total number of cases in that year. In 2007, nine companies in the expansion stage received venture investment, accounting for 69.2% of the total number of cases in that year. These companies offered not only online training for high school and primary school students and foreign language learners, but also offline foreign language instruction, primary and secondary school tutoring, IT professional training, and corporate management training.

In 2011, 24 projects in China's private education industry received venture investment, totaling USD 528 million.

After receiving venture investment, private education companies can rapidly expand their business and benefit from the first mover advantage. Yin Xiong, president of Giant Education Group, revealed that after the company received venture investment, it quickly increased the number of branches from 100 in 2007 to 500-1000 in 2010, before it was listed.

Most overseas venture capitalists were richly rewarded by investing in China's private education industry. The average price-to-earnings ratio of education companies is as high as 22, while it was only 16.3 for other industries (Jiang, 2012; Ji, 2011; Ma2, 2011).

Public Offering

Below we provide a list the Chinese private training service companies that were listed in overseas market in chronological order (Yu, 2012; Wang & Zhang, 2005; Anonymous, 2012):

In 2006, Oriental Century and New Oriental became the two pioneers to get listed; in 2007, Noah Education Holding, ChinaCast Education, and ChinaEdu became the immediate followers. In 2008, despite the financial crisis, ATA and China Distance Education Holdings went public. In 2009, only China Education Alliance made an IPO. In 2010, with the recovery of the economy and capital market, four companies went public; Ambow, Global Education Group, TAL and Xueda. In 2011, Modern Education got listed.

From 2006 to the end of 2011, 13 private education companies in China got listed in overseas stock markets. Among them, only ChinaCast Education and China Education Alliance resorted to backdoor listing, and the other eleven made an IPO. At present, 10 of them are operating successfully. Oriental Century got delisted in 2009 due to financial issues, China Education Alliance was delisted in 2011 because their stock price was too low and Global Education was delisted in the second year after it was acquired by the UK-based Pearson.

Recently, the private education company Beihai Education was listed in the Tianjin Equity Exchange in April 2011. This shows that Chinese private training service institutions can raise funds not only in overseas capital markets, but also in some primary domestic capital markets.

Mergers and Acquisitions

The ultimate goal for Chinese private education company to seek external funding is to improve and grow their business, and therefore mergers and acquisitions are the ultimate destination.

In September 2006, Global IELTS received RMB 200 million of investment from SAIF. It used the money to set up Global Education & Technology Group and in 2007 it invested RMB 100 million in business expansion and consolidation.

After a series of successful public offerings, M&A activities of China's private training service institutions peaked in the period from 2007 to 2009. Ambow, Global IELTS and Giant Education Group all achieved large-scale expansion through mergers and acquisitions. For example, after Ambow received USD 54 million of financing in September 2007, it used the capital to expand its core business and to consolidate China's quality vocational schools and training centers through M&A.

During 2007 to 2010, ChinaCast Education made two investments, USD 64.97 million and USD 66.18 million, to acquire certain businesses of Chongqing Normal University and Hubei University of Technology.

In 2011, M&A-related investment in China's private training service sector reached a record high: a total of 24 M&A deals with total investment of up to USD 528 million. The trading volume increased 4% year-over-year, while the transaction value increased by an alarming 29% **(**Chuanguowuhen, 2013; Nan & Luo, 2006; Ren, 2011**,**Tian & Zhou, 2012; Tian & Dai, 2012).

INVESTMENT RISKS

China's private training service market has experienced significant growth in the past two decades, but it is still in the early stages of development and has a lot of problems. The most important issue is that investors are exposed to risks. I will elaborate on this in the following chapter (Philip L., 2010).

Stockholders Equity Protection

For foreign investors who invested in China's private training service market, in some cases, their investments cannot be effectively protected. Below we will use ChinaCast Education as an example to make an analysis.

Management of ChinaCast Education and the US investors have been battling for control from the end of 2011. They fought for that during the shareholders' meeting in January 2012. After Ned Sherwood and his referee were elected to join the Board of Directors, they replaced a large proportion of management team in the following three months. Chan Tze Ngon, Chairman and CEO, resigned in March 2012 saying he could not get along with Ned Sherwood and other directors who controlled the Board.

On April 2, 2011, ChinaCast Education failed to file its Form 20F for 2011 on time and was suspended for trading on NASDAQ. On May 9, 2011, ChinaCast received a notification from the NASDAQ saying it has made a determination to delist the company's securities in view of its significant losses, the inability to control bank account because of the disappearance of official chop, and the inability to provide audited financial reports of the previous fiscal year on time. On June 21, 2011, after further consideration and taking into account its ongoing investigations into various matters involving former management and its continuing delay in reporting its financial results, the company withdrew its request to appeal this delisting determination. After being delisted from NASDAQ, ChinaCast commenced trading on OTC Markets on June 25, 2011, with the company's shares plunged to USD0.82/share on the first day of being traded on the pink sheet market.

The then CFO of ChinaCast Education Group revealed in March 2012 that former chairman Chan Tze Ngon pilfered the company's coffers of RMB 510 million from July 1 to December 28, 2012 through 12 transactions and that the money was mostly from the two most profitable subsidiaries of the company. After his resignation, he took with him the business licenses of the two subsidiaries, the official chop and financial books. In addition, Chan Tze Ngon had transferred the core assets of ChinaCast Education Group to several natural persons.

The Application of Professional Manager System

Some failed investment cases in China's private training service sector revealed the problem that the professional manager system is not well received in China. Xueda offers a good example.

After CDH Venture Investment invested in Xueda, it assigned its employee Wang Jun as the director of Xueda. Wang Jun was actively involved in Xueda's strategy development, team building and operations management and made positive contribution to Xueda's development. In 2010, Xueda hired Wang Jun as its president and at the same time hired a large number of professional managers.

On January 12, 2012, Xueda announced that Wang Jun resigned from the positions as company president and board director for personal reasons. CIO Yang Hai, who also resigned for personal reasons, followed Wang's resignation. After that, Xueda dismissed more than 200 employees, including a Vice President, 15 directors, five senior managers and 35 managers.

This marks Xueda's failure in attempting to introduce the professional managers into the company. It also shows that it is not easy for some private training service institutions to accept professional management systems.

Policy Risk

Government policies have played an important role in the development of China's private training service market. TAL offers a good example.

On August 18, 2012, China Central Television news channel reported on the "Mathematical Olympiads training" phenomenon in China. On August 20, the Beijing Education Commission issued a notice to prohibit secondary and high schools to use Mathematical Olympiads scores as a benchmark to select applicants. On August 26, CCTV news exposed TAL's Mathematical Olympiads training courses. On August 27, a number of agencies were notified to stop providing Mathematical Olympiads training courses, and the Education Commissions of Beijing Fengtai District and Haidian District both introduced guidelines to regulate this market. On August 28, China's Ministry of Education released 30 supervision orders that ban middle schools from selecting students based on their performance in math competitions and other academic competitions, as well as talent competitions. Primary schools are also banned from setting up classes for the top students.

Mathematical Olympiads training is TAL's core business and Beijing is its most important source of its income. The crackdown on Math Olympiads training in Beijing had negative impact on TAL's business. As a result, TAL adjusted its fiscal income target for 2013 from USD 230.8-239.7 million down to USD 227.2 -232.6 million. On August 29, 2012, TAL's shares tumbled by 13% to USD 7.3 per share, with a record intraday low of USD 6.97 per share.

In addition, China's private training service institutions have other problems such as inconsistent and untimely information disclosure and incomplete corporate governance structures. However, China's private training service industry is set on the right track to pursuit branding, internationalization and capitalization. This comes naturally, as the industry develops and the external world develops. The companies, the education industry, and China, as well as the rest of the world could all benefit from this trend. It is almost certain that the three trends are irreversible and will continue to evolve in China, although the process may be difficult and painful.

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