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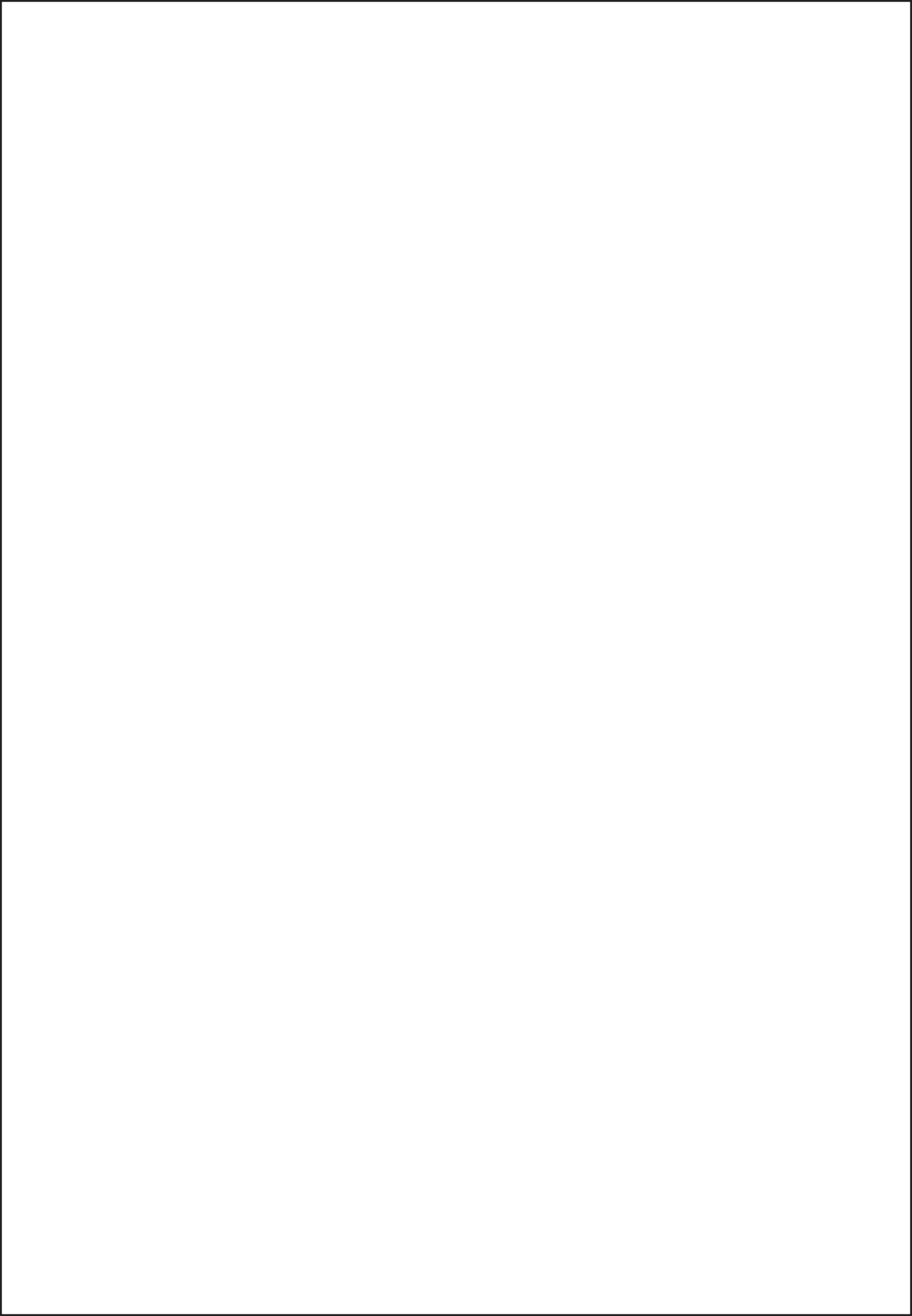
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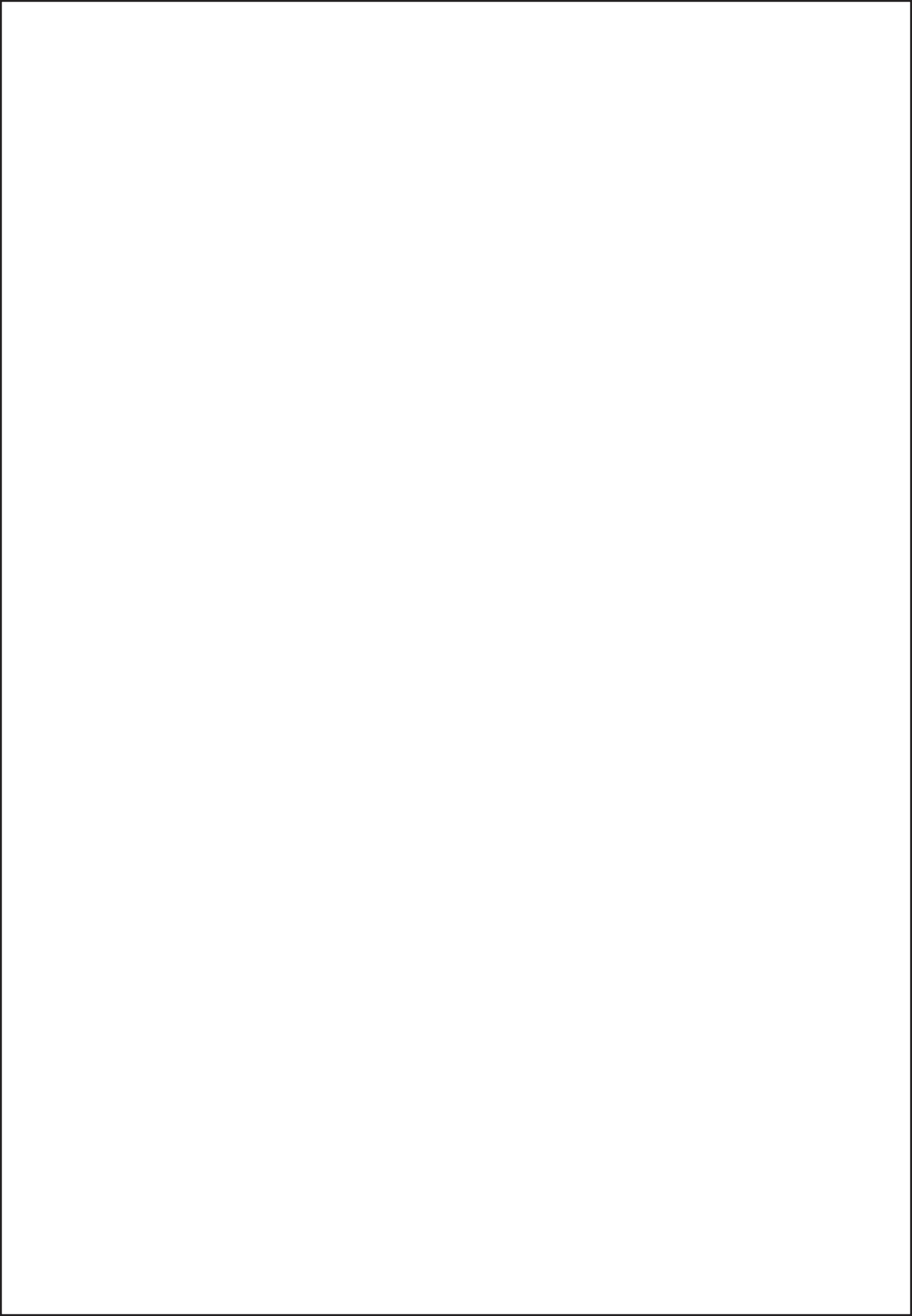




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Editorial

Business and society appears to be an integral part of each other in extant academic literature. East West Journal of Business and Social Studies seeks out novel scholarly contributions that engender unique insights and propositions for policy and practices. The contributions of this issue include multidisciplinary and collaborative efforts of researchers and academics from diverse cultural contexts. That gives this journal a global, multi-layered and trans-disciplinary lens.

The articles of this volume of EWJBSS include mainstream contemporary socioeconomic issues such as waste management system, work life balance, organizational crisis management preparedness of SMEs and tax revenue forecasting. Moreover, one article explores socio-political differences depicted in an African song with reference to an important restrictive barrier to the free movement of goods, services and people across the Anglo-French spheres of the Cameroons. The research contexts vary across a range of cultures—from Southeast Asia to Africa and a range of disciplines. Thus, the value proposition of the current issue of EWJBSS is to serve as a reference point that allows policy makers and strategic decision makers in society and business organisations to look at contemporary issues across disciplines to envision and anticipate futures with greater certainty and action ability.

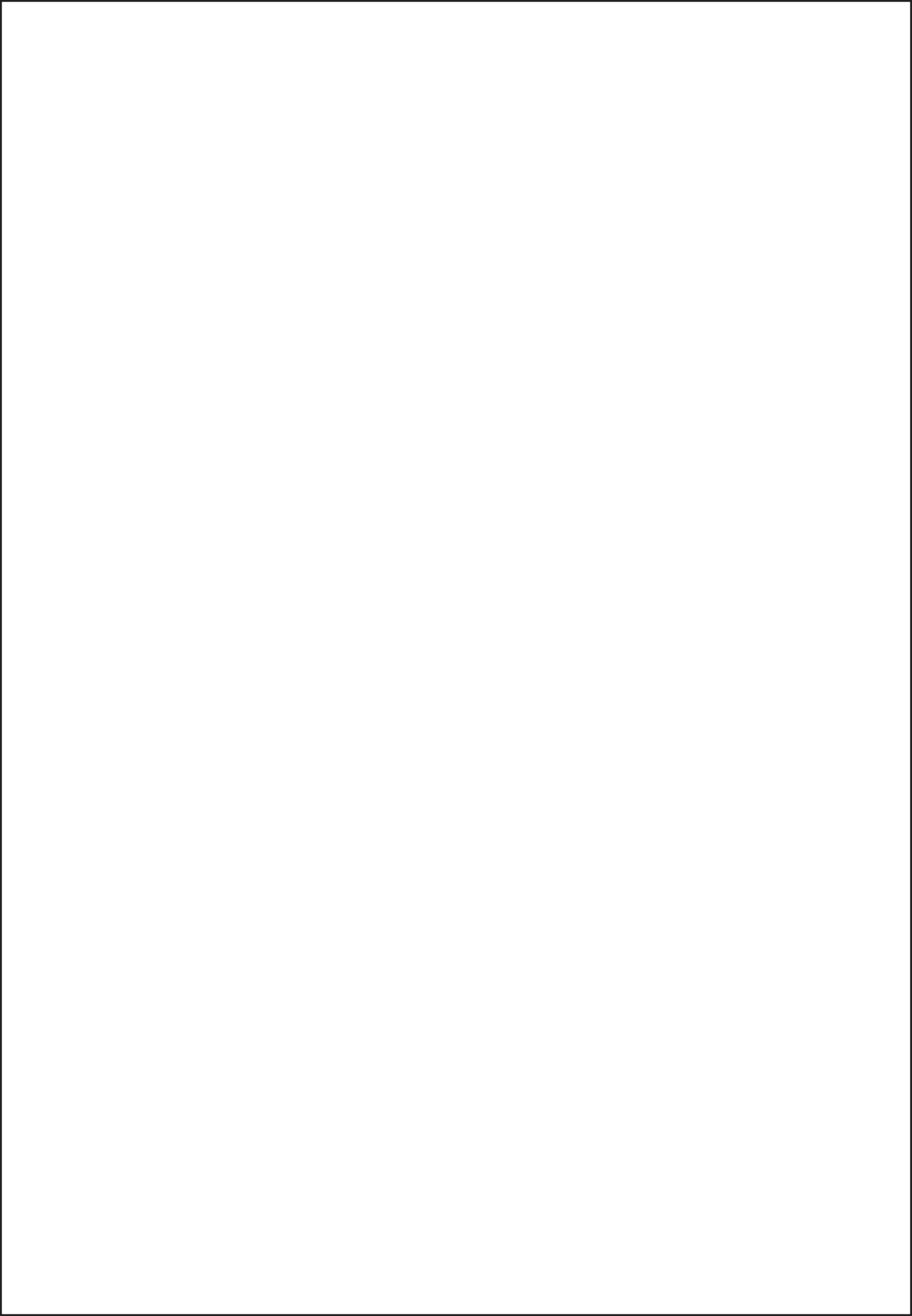
I would like to acknowledge the special contribution of Dr. Rafiqul Huda Chaudhury, Chairperson of East West University Center for Research and Training, for his relentless support to this journal.



Dr. Sardana Islam Khan

Assistant Editor

East West Journal of Business and Social Studies (EWJBSS)



Univariate Time Series Forecasting: A Study on Monthly Tax Revenue of Bangladesh

Biplob Kumar Nandi¹ , Muntasir Chaudhury² , Gazi Quamrul Hasan³

Abstract

In recent years, Bangladesh has taken various steps to modernize tax system in order to enhance tax effort. Due to subsequent increase in financial constraints globally, economy's reliance on domestic resource mobilization continues to intensify. As a result, tax revenue target for every forthcoming budget appears to be buoyant albeit the prevalence of domestic constraints, i.e. inefficiencies in tax system, narrower tax base along with numerous exemptions and political instability. To enhance tax effort to reduce fiscal vulnerability, a neoteric revenue forecasting procedure is necessary. But, in Bangladesh, during the budget preparation, the method to target tax revenue is based on the growth rate extended with discretionary adjustments for a number of updated assumptions and personal judgments, which can lead to huge forecast error. This exercise attempts to identify an appropriate model by scrutinizing three approaches - ARIMA SARIMA multiplicative approach, Holt-Winters seasonal multiplicative approach and Holt-Winters seasonal additive approach - to forecast monthly tax revenue of Bangladesh and finds that, Holt-Winter seasonal multiplicative approach is the most appropriate method with minimum forecast error.

Keywords: Tax revenue forecasting, Box-Jenkins Method, ARIMA, SARIMA. Holt-Winters seasonal multiplicative approach, Holt-Winters seasonal additive approach.

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I. Introduction

Over the years, one of the key issues in the design of a sound fiscal policy has been the accuracy of budget forecast, particularly tax revenue forecast. For a sound fiscal environment with lower arrears to pursue a consistent Medium-term budget framework for any economy, accurate and relevant revenue forecasting method is crucial to avoid unexpected revenue shortfall or to set target for revenue collection before budget preparations. Large forecast errors from poorly performing forecasting procedures can lead to significant budget management problems, expenditure arrears and stop-and-go expenditure policies, which can pose severe obstacle to the development of a realistic medium-term budget plan.

In Bangladesh, Ministry of Finance (MOF) is the supreme authority to target tax revenue. Before every budget preparation, Ministry of Finance (MOF) sets tax revenue as a budgetary target, but tax effort depends on the accuracy in forecasting method and the institutional efficiency of tax collection authority, i.e. National Board of Revenue, Bangladesh (NBR). Thus, favorable tax revenue performance is determined by the consistent coherence performance of these two institutions simultaneously. Over the last five years, Bangladesh has performed well to enhance its tax revenue efforts; though it is still low compared to other similar countries from the perspective of economic development; Bangladesh is even in the bottom half among South Asian countries on this context (Appendix A. Table 01).

Though Bangladesh is on the right track in meeting tax revenue targets; the gap between targeted and actual tax revenue still exists which are fairly large and remains to be volatile in its pattern. Based on the tax revenue data reported by Ministry of Finance, Bangladesh, it has been calculated that the average tax gap⁴ lies between 8-12 billion taka for the fiscal year 2005 to 2012 (Appendix B Figure 01). These patterns have been attributed to weaken institutional capacity to set targets, which may be one of the causes of inaccuracy of tax revenue projection during pre-budget.

Tax revenue buoyancy in Bangladesh is still more than unity, tax efforts is below unity, which explains Bangladesh has the potential to enhance tax effort through reforming the tax system.

⁴ Tax gap is defined as the difference between targeted and actual tax revenue.

Although government of Bangladesh has taken various initiatives to modernize tax system through tax automation; lack of institutional capacity to collect tax revenue is still one of the greatest challenges to meet.

This may be one of the logical reasons behind volatility in tax revenue collection, which brings huge gaps between projected tax revenue figures in budget and actual tax revenue collection. And the huge gaps between actual and targeted figures reported in budgetary documents can become a severe obstacle to achieve sustainable fiscal management and to improve domestic resource mobilization.

It is surprising that, tax revenue forecasting techniques in Bangladesh are generally not put down in formal documents, and country practices are often a mix of idiosyncratic budget practices and influences from legacy systems. Not a single remarkable exercise has been carried out in identifying appropriate methodology of revenue forecasting from those institutions involved in revenue collections in Bangladesh.

Methods for tax revenue forecasting are not entirely free from errors. Some economic factors, like growth variations in different economic sectors, international vulnerability, inflation, influence of political factors on tax policy changes (exemptions, unequal treatments) can ascribe to the unpleasant patterns of tax revenue (Abed, 1998)⁵. In addition, underdeveloped institutional capacities can be some of the likely reasons behind intentionally overstated forecasts in developing countries (Lienert and Sarraf, 2001)⁶.

This study attempts to find an appropriate forecasting model through analyzing various time series forecasting models and quantifying the gaps between actual and forecasted values for these models. Finally, this paper compares the tax gaps between actual and forecasted values calculated by Ministry of Finance (MoF) to tax gaps calculated from appropriate forecasting model.

II. Literature Review

Like all other forecasting literatures in economic theory, tax revenue forecasting is done following some common assumptions.

⁵ During 1985 –1995, tax revenue forecasts were above actual values for about 77 percent of the time in a sample of 34 low-income countries. He argued that tax policy changes in different regime of the government leads to major discrepancies in forecasting model.

⁶ Forecasting fluctuations are explained by government corruption and which is motivated by the well-established empirical fact of a high state captures in low-income countries.

These assumptions are consistent with variables like growth in the national income, inflation rate and interest rate. Although there is a dearth of forecasting exercises in Bangladesh, a few worth mentioning studies related to tax revenue forecasting are highlighted in this study.

In a study, Kairala (2011) used seasonal ARIMA and exponential seasonal smoothing method and winter models to scrutinize the forecast revenue of Nepal which pursues an erratic movement along time- there were over-estimation of revenue followed by under-estimation. He pointed out that SARIMA model was superior to any other forecasting models. He also argued that existing models of revenue forecasting in Nepal were constructed on the basis of growth rate; resulting in frequent higher discrepancies in the estimation.

In an attempt Fullerton (1991) applied univariate ARIMA model integrated with a composite method of sales tax revenue to forecast using quarterly revenue data. This study suggested that a composite model based on univariate ARIMA projections of Idaho retail sales tax receipts provided better forecasts than either single model. He also posited that given any existing efficient institutional capacity, forecast error appears because of some undesired occurrences in both external and internal factors intrinsic to tax system.

Danninger (2005) applied the Principal-Agent framework⁷ based on the tax structure of Azerbaijan to diagnose the systematic relationship between tax effort efficiencies and incentives to tax collection agencies. He attempted to argue that, upward bias in forecasts is the result of a government's inability to monitor the performance of its tax administration.

Schoefish (2005) introduced a more general forecasting model⁸ based on the assumption that tax elasticity must vary depending on the phase of economic cycle.

⁷ The standard solution to the principal-agent problem is the design of an incentive compatible contract for the agent (e.g., Holmström and Bengt, 1979; Grossmann and Hart, 1983), which links compensation to an observable variable varying with the principle's objective function and thus counterbalances the agent's conflicting goals. In the given scenario, this would suggest that the compensation of the revenue administration should be linked to the revenue collection performance (e.g., a fixed share of collected revenue is distributed as a bonus). In reality, however, such contracts are not practical, as they would be costly and face serious political opposition. First, compensation schemes would likely be expensive to discourage individual rent taking as targeting would be a problem. Second, they would be inefficient, since the role of other factors affecting revenue, such as economic growth, is quite large. Finally, they would be hard to justify politically, as their prime function is to reward non-corrupt behavior.

⁸ $Y_t = \alpha + \beta Y_{t-1} + \beta^2 Y_{t-2} + \dots + \beta^p Y_{t-p} + \epsilon_t$, which permits that tax base (x_t) to be a moving combination of current and past values of x_t . He also used the lagged values of Y_t explanatory variables. If absolute value of $\beta = 1$, then tax revenue growth rates $\Delta \log Y_t$ follow a trend plus errors in this model. Alternatively, if the estimated absolute value of $\beta < 1$, then, the impacts of the previous period's tax revenue on current revenue follows relatively smaller effect and it would be declining patterns for the distant past time period.

He also included seasonal factors in tax revenue collection for monthly and quarterly data. He used tax base as proxy to the moving geometric combinations of one or more macroeconomic regressors and their lagged values. He also considered the growth rates in place of tax base and concluded that they were all necessary to calculate good forecast values.

Legeida and Sologoub (2003) applied a stationary time series approach and established a stable long-term relationship between VAT (Value Added Tax) base⁹ and VAT productivity¹⁰. Finally, they attempted to apply the ARIMA model for monthly data to forecast VAT revenue in short-run. They concluded that ARIMA is fully consistent with the government projections for the budget. They also argued that, VAT refund, debt, numerous tax exemptions and extremely low VAT compliance might complicate the forecast of VAT revenue in Ukraine.

Chowdhury and Hossain (1988) examined the tax structure of Bangladesh to estimate tax elasticity. This study showed that overall tax structure is inelastic with respect to national income. This study also identified that tax yield can be increased by removing various exemptions, smoothing existing multiple tax rates and improving tax administration capacity. They also mentioned that, to project higher tax yield in upcoming budget it is required to expand tax base and improve tax administration capacity.

Ahmed (2012) conducted a study using ARCH model and coefficient of variations to explain the volatility in the flow of tax revenue against periodical changes in different tax series in Bangladesh. The result of this study pointed that most of the tax series have significant high level of volatility in both short and long run during this cluster of periods.

III. Bangladesh: Revenue Structure and Performance

After independence revenue share of all categories of tax revenue has increased gradually in Bangladesh, initially custom duty had larger share but its share continued to fall till date.

⁹ VAT base has been calculated by including all industrial and service sector, agricultural sector are excluded in Ukraine.

¹⁰ VAT productivity represents the efficiency of any tax system. It is measured simply by a ratio of the VAT revenue to GDP ratio to the Standard VAT rate. Sometimes, VAT revenue to total consumptions is taken into consideration to calculate VAT productivity in place of VAT to GDP ratio. Higher ratio indicates that given standard rate efforts is high resulting more institutional efficiency underlying constant tax and economic factors in any country.

Like other developing countries, tax structure of Bangladesh is highly dominated by indirect taxes; mainly value added taxes (VAT) and custom duty. Domestic VAT has a dominant role in this increase (Appendix B Figure 02). Higher buoyancy in domestic demand causes more domestic economic activities, some remarkable institutional reforms¹¹ in tax structure through various amendments in tax policies by National Board of Revenue (NBR) contributed to enhance domestic VAT revenue effort. In the last five years, on an average, domestic VAT revenue registered a ninety percent rate of growth.

Although indirect tax revenue has greater share, direct tax revenue is also gradually increasing due to the government's continuing tax modernization initiatives, but the share of direct tax revenue of total tax revenue is still lower compared to indirect tax revenue as the latter is increasing at a greater rate than the earlier one (Ahsan et al, 2011). Share of indirect tax revenue accounts for 70 percent, while direct tax revenue possesses 30 percent of total NBR taxes. In spite of higher growth in income tax during the last five years, shares of direct tax revenue seems to be quite unimpressive because of the lower tax nets with higher distortions, income tax incentives, lack of significant numbers of TIN holders, and also lower corporate tax base.

While indirect tax revenue accounts for the lion's share of total tax revenue, it is evident from data that domestic based tax revenue increases at a faster rate compared to import based tax revenue. So, tax performance in Bangladesh has become more dependent on domestic based tax revenue. But, this may not be an ideal tax structure as it is apparent that share of direct tax is still far lower than the share of indirect tax revenue. Sometimes, higher share of indirect taxes may be a cause of less equitable distribution, higher inflation. In spite of the upward trend in tax revenue growth rate, tax to GDP ratios does not increase more given the rates of inflation and economic growth. As a result, tax to GDP ratio is still significantly lower among similar countries (in terms of economic structure and performances) in South Asian, even than Nepal and Bhutan. Average tax effort index¹² of Bangladesh is 0.51; this indicates that Bangladesh has a lot of potentiality to enhance tax efforts by taking reforming measures in the existing tax system.

¹¹ Widening of VAT net to the wholesale and retail stages and the inclusion of some services; Strengthening VAT administration, the management of VAT audit and investigation has been strengthened with technical assistance from the DFID and British High Commission (2002). LTU for VAT, implemented new VAT law in 2013 was also established to modernize the VAT system.

¹² Tax effort index is defined as the ratio of the actual tax share to the predicted (or potential) tax share. If the value of the index is less than one, it means that the country is not utilizing its full revenue potential. The predicted tax share is calculated by regressing the tax-GDP ratio on explanatory variables that serve as proxies for the tax base and other structural factors influencing tax revenue performance. For details of approaches toward measuring tax effort, see Stotsky and WoldeMariam (1997), Hudson and Tere (2003).

Higher tax efforts imply higher efficiency of the tax institution but it may be noted that there is a significant relationship between the higher efforts and countries' stages of development. Based on the tax effort index Bangladesh's performance is the lowest among some African and Asian countries (Appendix A Table 01).

Recent initiatives from Bangladesh government to modernize tax system kindle a flare of hope of moving ahead from the perspective of tax revenue effort, but lack of institutional capacity and absence of a neoteric forecasting method are hindering the enhancement of tax effort in Bangladesh. A relevant forecasting method to predict revenue components assists to maintain accuracy of fiscal estimates to avoid the risks which arise from imprudent policy settings leading to huge pressure on financing and sometimes it may bring erratic policy outcome.

IV. Methodology

IV. A. Data Description

To specify a model for the purpose of forecasting the tax revenue, monthly data of Tax revenue were collected from Ministry of Finance (MoF), Bangladesh. The collected dataset consists of a total of 101 observations from July 2004 to November 2012. Out of these 101 observations, 84 data points were used to specify a model and the remainders were used in this exercise to check for the fit of the specified model.

IV. B. Model Specification

There are two basic approaches to forecast time series: the self-projecting time series approach and the cause-and-effect approach. Cause and effect methods attempt forecasting based on underlying series, which are believed to cause the behaviour of the original series. The self-projecting time series uses only the time series data of the activity to generate forecasts. This latter approach typically requires far less data and is useful for short to medium-term forecasting. To analyze the self-projecting time series approach this exercise incorporates Holt–Winters seasonal multiplicative procedure, Holt–Winters seasonal additive procedure and Box-Jenkins methodology (ARIMA SARIMA multiplicative model) to forecast and evaluates the performance of these three procedures to find out the most appropriate one to forecast monthly tax revenue of Bangladesh.

SARIMA ARIMA Multiplicative Model

This exercise employs Box-Jenkin's methodology to forecast tax revenue using a seasonal ARIMA model, where the seasonal ARIMA process incorporates both non-seasonal and seasonal factors in a multiplicative model.

One shorthand notation for the model is ARIMA $(p, d, q) \times (P, D, Q, S)$, with p = non-seasonal AR order, d = non-seasonal differencing, q = non-seasonal MA order, P = seasonal AR order, D = seasonal differencing, Q = seasonal MA order, and S = time span of repeating seasonal pattern.

Without differencing operations, the model could be written more formally as

$$\Phi(B^S)\varphi(B)(x_t - \mu) = \Theta(B^S)\theta(B)w_t \quad (1)$$

The non-seasonal components are:

$$\text{AR: } \varphi(B) = 1 - \phi_1 B - \dots - \phi_p B^p$$

$$\text{MA: } \theta(B) = 1 + \theta_1 B + \dots + \theta_q B^q$$

The seasonal components are:

$$\text{Seasonal AR: } \Phi(B^S) = 1 - \Phi_1 B^S - \dots - \Phi_P B^{PS}$$

$$\text{Seasonal MA: } \Theta(B^S) = 1 + \Theta_1 B^S + \dots + \Theta_Q B^{QS}$$

A time series is said to follow an autoregressive (AR) model of order p if the current value of the series can be expressed as a linear function of the previous values of the series plus a random shock term. The general equation of an autoregressive model of order p , AR (p), can be written as

$$x_t = a_1 x_{t-1} + a_2 x_{t-2} + \dots + a_p x_{t-p}$$

Where, a_1, a_2, \dots, a_p are the autoregressive model parameters.

And, the moving average (MA) model describes a time series that is a linear function of the current and previous random shocks (e). The random shocks are also called errors, residuals or a white noise process. A time series, x_t is said to be a moving average process of order q , MA(q),

if,

$$x_t = e_t - b_1 e_{t-1} - b_2 e_{t-2} - \dots - b_q e_{t-q}$$

Where, x_t is the current value of time series data; $e_t, e_{t-1}, \dots, e_{t-q}$ the current and previous errors or random shocks; and b_1, b_2, \dots, b_q are the moving average model parameters.

Box-Jenkins forecasting models are based on statistical concepts and principles and are able to model a wide spectrum of time series behavior. It has a large class of models to choose from and a systematic approach for identifying the correct model form. There are both statistical tests for verifying model validity and statistical measures of forecast uncertainty. The underlying goal of this methodology is to find an appropriate formula so that the residuals are as small as possible and exhibit no pattern. The model- building process involves four steps. These steps are repeated as necessary; to end up with a specific formula that replicates the patterns in the series as closely as possible and produces accurate forecasts. These steps are-

- i. Model identification and selection
- ii. Parameter estimation
- iii. Diagnostic checking
- iv. Forecasting

In model identification and selection, covariance stationary data process is ensured first. A stochastic process y_t is covariance stationary if it satisfies the following requirements:

- i. $E[y_t]$ is independent of t .
- ii. $Var[y_t]$ is a finite, positive constant, independent of t .
- iii. $Cov[y_t, y_s]$ is a finite function of $t-s$, but not of t or s .

To check for stationary series, this exercise intends to use both Augmented Dickey-Fuller and Phillips-Perron tests for unit root. The Dickey-Fuller test (developed by Dickey and Fuller in 1979) involves fitting the following model:

$$y_t = a + by_{t-1} + ct + ut \quad (2)$$

by an ordinary least squares, setting $a=0$ if drift term is absent or $c=0$ if trend term is absent. However, such a regression is likely to be plagued by serial correlation. To control for that, the augmented Dickey-Fuller test instead fits a model of the form, such as:

$$\Delta y_t = a + b_0 y_{t-1} + ct + b_1 \Delta y_{t-1} + b_2 \Delta y_{t-2} + \dots + b_k \Delta y_{t-k} + e_t \quad (3)$$

Where, k is the number of lags specified. Testing $b_0=0$ is equivalent to testing $b=0$, or, equivalently, y_t follows a unit root process.

The Phillips–Perron test involves fitting equation (2), and the results are used to calculate the test statistics. Phillips and Perron (1988) proposed two alternative statistics¹³.

Using plots of the autocorrelation and partial autocorrelation functions of the dependent time series it is decided which (if any) autoregressive or moving average component should be used in the model, to correctly specify the ARIMA SARIMA multiplicative model. Besides, parameter estimation uses computation algorithms to arrive at coefficients those best fit the selected ARIMA model. The most common methods use maximum likelihood estimation or non-linear least-squares estimation.

To perform diagnostic tests and to evaluate different combinations of autoregressive and moving average lags for both seasonal and non-seasonal portions, Akaike Information Criterion (AIC)¹⁴ and Bayesian Information Criterion (BIC)¹⁵ are employed. Some authors define the AIC as the expression above divided by the sample size.

Portmanteau (Q) and Bartlett's periodogram-based tests for white noise are executed as diagnostic tools to explore whether the residuals are serially uncorrelated. The portmanteau test relies on the fact that if $x(1), \dots, x(n)$ is a realization from a white-noise process. Then

$$Q = n(n + 2) \sum_{j=1}^m \frac{1}{n - j} \hat{p}^2(j) \rightarrow \chi_m^2$$

Where, m is the number of autocorrelations calculated (equal to the number of lags specified) and indicates convergence in distribution to a χ^2 distribution with m degrees of freedom. \hat{p}_j is the estimated autocorrelation for lag j .

Bartlett's periodogram-based test for white noise is a test of the null hypothesis that the data comes from a white-noise process of uncorrelated random variables having a constant mean and a constant variance.

¹³ Phillips and Perron's test statistics can be viewed as Dickey–Fuller statistics that have been made robust to serial correlation by using the Newey–West (1987) heteroskedasticity- and autocorrelation-consistent covariance matrix estimator.

¹⁴ Akaike's (1974) information criterion is defined as : $AIC = -2 \ln L + 2k$, where, $\ln L$ is the maximized log-likelihood of the model and k is the number of parameters estimated.

¹⁵ Schwarz's (1978) Bayesian information criterion is another measure of fit defined as: $BIC = -2 \ln L + k \ln N$ here, N is the sample size.

If $x(1), \dots, x(T)$ is a realization from a white-noise process with variance σ^2 , the spectral distribution would be given by $F(w) = \sigma^2 w$ for $w \in [0, 1]$, and we would expect the cumulative periodogram of the data to be close to the points $S_k = k/q$ for $q = [n/2]+1$; $k = 1, \dots, q$. $[n/2]$ is the greatest integer less than or equal to $n/2$. Except for $w=0$ and $w=.5$, the random variables $2\hat{f}(w_k)/\sigma^2$ are asymptotically independently and identically distributed as χ^2_2 . Because χ^2_2 is the same as twice a random variable distributed exponentially with mean 1, the cumulative periodogram has approximately the same distribution as the ordered values from a uniform (on the unit interval) distribution.

Feller (1948) shows that this results in

$$\lim_{q \rightarrow \infty} \Pr \left(\max_{1 \leq k \leq q} \sqrt{q} \left| U_k - \frac{k}{q} \right| \leq a \right) = \sum_{j=-\infty}^{\infty} (-1)^j e^{-2a^2 j^2} = G(a)$$

Where, U_k is the ordered uniform quantile. The Bartlett statistic is computed as

$$B = \max_{1 \leq k \leq q} \sqrt{\frac{n}{2}} \left| \widehat{F}_k - \frac{k}{q} \right|$$

Where, \widehat{F}_k is the cumulative periodogram defined in terms of the sample spectral density \hat{f} as,

$$\widehat{F}_k = \frac{\sum_{j=1}^k \hat{f}(w_j)}{\sum_{j=1}^q \hat{f}(w_j)}$$

The associated p-value for the Bartlett statistic and the confidence bands on the graph are computed as $1-G(B)$ using Feller’s result. After the appropriate model is selected, the step of forecasting is executed on the ARIMA SARIMA multiplicative model using both one-step forecasting¹⁶ and dynamic forecasting¹⁷ methods.

Holt–Winters seasonal multiplicative procedure

This method forecasts seasonal time series in which the amplitude of the seasonal component grows with the series. Chatfield (2001) notes that there are some nonlinear state-space models whose optimal prediction equations correspond to the multiplicative Holt–Winters method.

¹⁶ The one-step-ahead forecasts never deviate far from the observed values, though over time the dynamic forecasts have larger errors. As when making the one-step forecast for period t, we know the actual value of the data process x_t at time t-1.

¹⁷ Dynamic forecasting the forecasted value of x_t for period t is based on the observed value of x_t at period t-1 but the forecast for t+1 is based on the forecasted value at period t, the forecast for period t+2 is based on the forecasted value of period t+1 and so on.

This procedure is best applied to data that could be described by: $x_{t+j} = (u_t + B_j)S_{t+j} + e_{t+j}$, where x_t is the series, u_t is the time-varying mean at time t , B is a parameter, S_t is the seasonal component at time t , and e_t is an idiosyncratic error. There are three aspects to implementing the Holt–Winters seasonal multiplicative procedure: the forecasting equation, the initial values, and the updating equations. In this method, the data are now assumed seasonal with period L . Given the estimates $a(t)$, $b(t)$, and $s(t+m-L)$, a m step-ahead point forecast of x_t , denoted by y_{t+m} , is $y_{t+m}^* = \{a(t) + b(t)m\} s(t+m-L)$, here, y_{t+m}^* denotes the estimated value of y_{t+m} . Given the smoothing parameters α , β , and γ , the updating equations are as follows:

$$a(t) = \alpha \{x_t / s(t-L)\} + (1-\alpha) \{a(t-1) + b(t-1)\},$$

$$b(t) = \beta \{a(t) - a(t-1)\} + (1-\beta) b(t-1)$$

and

$$s(t) = \gamma \{x_t / a(t)\} + (1-\gamma) s(t-L).$$

The updating equations require the $L+2$ initial values $a(0)$, $b(0)$, $s(1-L)$, $s(2-L)$, ..., $s(0)$. To calculate the initial values with the first n years, each of which contains L seasons. Here, n is set to the number of seasons in half the sample. The initial value of the trend component, $b(0)$, can be estimated as: $b(0) = (x_n^* - x_1^*) / (n-1)L$ where, x_n^* is the average level of x_t in year n and x_1^* is the average level of x_t in the first year. The initial value for the linear term, $a(0)$, is then calculated as $a(0) = x_1^* - (L/2)b(0)$.

To calculate the initial values for the seasons $1, 2, \dots, L$, we first calculate the deviation-adjusted values, such as: $S(t) = x_t / [x_i^* - \{(L+1)/2 - j\}b(0)]$, where, i is the year that corresponds to time t , j is the season that corresponds to time t , and x_i^* is the average level of x_t in year i .

Next, for each season $l = 1, 2, \dots, L$, we define p as the average S_l over the years. That is,

$$p = \left(\frac{1}{n}\right) \sum_{k=0}^{n-1} S_{l+kL}, \text{ for } l=1, 2, \dots, L.$$

Then, the initial estimates are as follow:

$$p_{0l} = p_l \left(\frac{L}{\sum_{l=1}^L p_l}\right), \text{ for } l=1, 2, \dots, L, \text{ and these values are used to fill in } s(1-L), \dots, s(0).$$

Holt–Winters Seasonal Additive Method

In this method the seasonal effect is assumed to be additive rather than multiplicative. This method forecasts series that can be described by the equation: $x_{t+j} = (u_t + B_j) + S_{t+j} + e_{t+j}$ where x_t is the series, u_t is the time-varying mean at time t , B is a parameter, S_t is the seasonal component at time t , and e_t is an idiosyncratic error. As in the multiplicative case, there are three smoothing parameters, α , β and γ , which can either be set or chosen to minimize the in-sample sum-of-squared forecast errors. The updating equations are as:

$$a(t) = \alpha\{x_t - s(t-L)\} + (1-\alpha)\{a(t-1) + b(t-1)\},$$

$$b(t) = \beta\{a(t) - a(t-1)\} + (1-\beta)b(t-1)$$

$$\text{and } s(t) = \gamma\{x_t - a(t)\} + (1-\gamma)s(t-L).$$

An m -step-ahead forecast, denoted by y_{t+m}^* is given by $x_{t+m}^* = a(t) + b(t)m + s(t+m-L)$. To obtain the initial values for $a(0)$, $b(0)$, $s(1-L), \dots, s(0)$ from the regression: $x_t = a(0) + b(0)t + d_{s,1-L}D_1 + d_{s,2-L}D_2 + \dots + d_{s,0}D_L + e_t$, where, D_1, \dots, D_L are dummy variables with $D_i = 1$, if t corresponds to season i and $D_i = 0$, otherwise.

Evaluation Criteria

In this exercise, the evaluation among the three approaches: Holt-Winters seasonal multiplicative model, Holt-Winters seasonal additive model and ARIMA SARIMA multiplicative model is performed applying Mean Percentage Error (MPE)¹⁸, Mean Absolute Percentage Error (MAPE)¹⁹ and Sum of Squared Residuals (SSR)²⁰.

V. Results and Discussions

Figure 1 represents the time series plot of monthly tax revenue collected by National Board of Revenue in Bangladesh and Figure 2 shows growth rate of tax revenue. From Figure 1, it is evident that tax revenue follows an increasing and deterministic trend along with seasonal patterns, i.e. every month of June in each fiscal year. Further, seasonality and trending pattern with the autocorrelation function of the data set.

¹⁸ $MPE = \frac{1}{n} \sum_{t=1}^n \frac{u_t}{x_t}$, here, $u_t = x_t - f_t$; the difference between the actual and forecasted values of x_t

¹⁹ $MAPE = \frac{1}{n} \sum_{t=1}^n \left| \frac{u_t}{x_t} \right|$, here, $u_t = x_t - f_t$; the difference between the actual and forecasted values of x_t

²⁰ $MSE = (1/n) \sum_{t=1}^n u_t^2$, here, $u_t = x_t - f_t$; the difference between the actual and forecasted values of x_t

These seasonal variations correctly explain tax collections in Bangladesh as larger number of income tax and VAT returns are completed in June. The growth rate of revenue collection is quite volatile over the whole period of time showing upswings and downswings in it. Sometimes growth rate is positive and very high while other times growth rate is negative.

Figure 1: Trend of Total Tax Revenue
(Crore Taka)

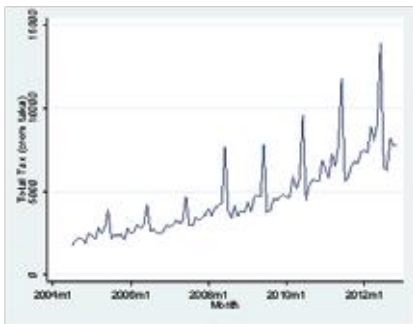
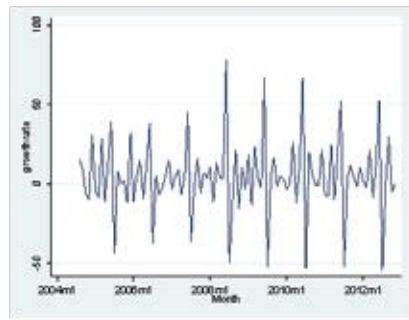


Figure 2: Growth Rate of Tax Revenue



Moreover, descriptive statistics of monthly tax revenue collection in Bangladesh is displayed in table 1, which exhibits some preliminary understanding about nature of the data. It shows that during 2011 total tax collection was the highest with mean value of 7827.32 crore taka. As indicated by Figure 1, total tax revenue has shown increasing trend with increasing variability between highest and lowest values within a year. Revenue collection is generally higher during April-June and lower during November-January. In terms of distributions, the series is also not normally distributed as the values of skewness and kurtosis is far from 0 and 3 respectively for the entire period.

Table 1: Descriptive Statistics of Tax Revenue in Bangladesh

Fiscal Year	Mean	Std. Deviation	Skewness	Kurtosis	Minimum	Maximum
2004-05	2442	568.8	1.55	5.15	1807	3947
2005-06	2703	557.2	1.70	5.59	2129	4214
2006-07	3014	595.3	1.98	6.53	2475	4700
2007-08	3952	1244.8	2.38	7.87	2961	7657
2008-09	4375	1181.1	2.21	7.24	3403	7813
2009-10	5167	1531.9	2.16	7.08	3729	9599
2010-11	6604	1845.4	1.89	6.27	4518	11762
2011-12	7827	2206.8	1.86	6.07	5621	13948
2012-13	7272	862.1	-.269	1.27	6378	8183

Source: Authors' Own Estimates

The autocorrelation and partial autocorrelation function are used to identify the nature of data; whether they follow any systematic pattern or not of the time series analysis. It also helps us to identify whether series is stationary or not. The ACF and PACF graph for tax revenue at level and first differences are represented in Figure 4a and 4b. Autocorrelation coefficient dies out slowly and statistically significant at seasonal interval for the series at 5% significance level. This indicates that the series is non-stationary and follows trend and seasonal pattern at level form.

Figure 3a: Detrended Tax Revenue

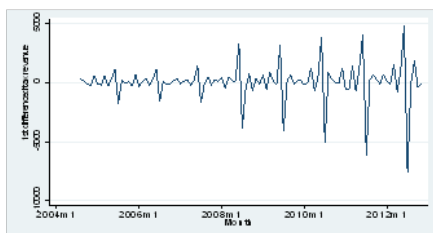


Figure 3b: Deseasonalised Detrended Tax Revenue

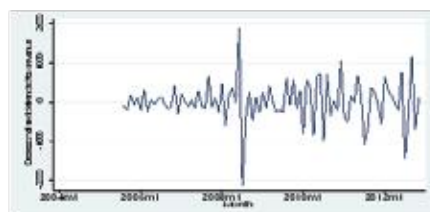
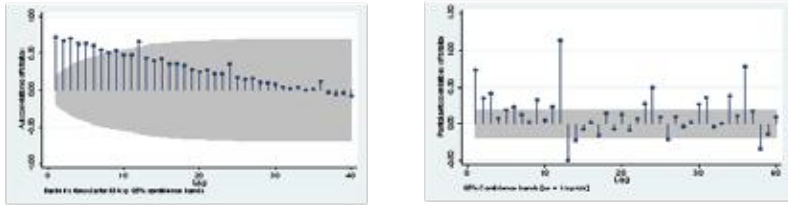


Figure 4a: ACF and PACF of Tax Revenue



While with first difference, the ACF of cement sales dies out quickly although at certain seasonal interval they are statistically significant at 5% significance level, indicating series is stationary. Similarly, a new series is generated from the first differenced series by considering seasonal difference of order $s=12$ (since it's a monthly data) and then ACF and PACF are obtained for the newly deseasonalised series. The result shown in Figure 4b indicates that new series is still non-stationary as ACF dies out slowly, but its first difference is stationary as represented in Figure 4c.

Figure 4b: ACF and PACF of Detrended Tax Revenue

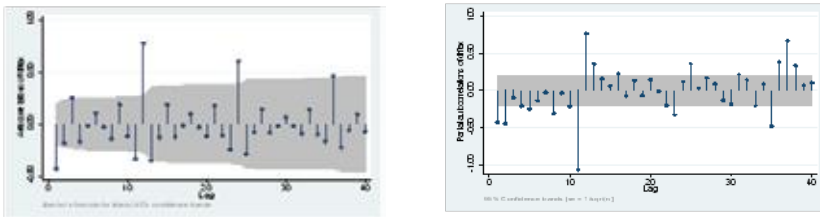
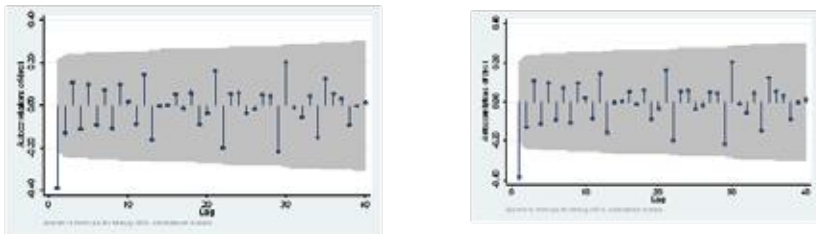


Figure 4c: ACF and PACF of Detrended Deseasonalised Tax Revenue



To confirm the presence of non stationary in the data process Augmented Dickey-Fuller test (Table 2) for unit root is employed. From Table 2, it can be concluded that there is no unit root present in the data process, as the value of test statistics is -6.731, smaller than the 1% critical value of -4.042, but the coefficient of trend term is 60.63 significant at even 1% level of significance. Therefore, tax revenue is non-stationary because of the presence of trend term. Detrending tax revenue through first difference ($\Delta x_t = x_t - x_{t-1}$) yields a stationary data process with a statistically insignificant trend coefficient (p-value more than 0.75). Deseasonalized detrended tax revenue is also stationary with test statistics of -10.66 and statistically insignificant trend term.

Like Augmented Dickey-Fuller test, Phillips-Perron test for unit root (Table 3) concludes the presence of non-stationarity; not because of unit root (value of test statistics is -8.88 lower than 1% critical value of -4.04) but because of the presence of statistically significant trend coefficient. First difference yields detrended and stationary data process with no unit root and statistically significant trend coefficient.

Table 2: Augmented Dickey-Fuller Test for Unit Root

Variable	Test statistics z(t)	1% critical value	L1	Trend	Constant	Lag. difference(1)
Tax revenue	-6.731	-4.042	-.9236*	60.6278*	1253.453*	.0272**
1 st differenced tax revenue	-13.365	-4.044	-2.083*	.8325**	79.580**	.4523*
Deseasonalised						
1 st differenced tax revenue	-10.661	-4.071	-1.856*	-.3799**	36.21**	.3374*

* With a p-value of less than 0.003. ** With a p-value of more than 0.75.

Table 3: Phillips-Perron Test for Unit Root

Variable	Test statistics z(t)	1% critical value	L1	Trend	Constant
Tax revenue	-8.875	-4.040	.1025 [#]	58.561*	1245.237*
1 st differenced tax revenue	-18.930	-4.042	-.4343*	.3754**	64.4123**
Deseasonalised 1 st differenced tax revenue	-15.423	-4.069	-.3879*	-.2649**	22.3844**

* With a p-value of 0.000. ** With a p-value of more than 0.75. # With a p-value of more than 0.30

To determine the lags of ARIMA SARIMA multiplicative model; a close inspection of autocorrelation and partial autocorrelation functions of stationary first differenced tax revenue in Figure 4b and of autocorrelation and partial autocorrelation of detrended deseasonalised tax revenue in Figure 4c is conducted. It can be seen that, first lag of ACF and first two lags of PACF for detrended tax revenue are statistically significant as they falls within the 95% confidence interval other higher order statistically significant lags depict seasonal patterns. And for detrended deseasonalised tax revenue first lag of ACF and PACF falls within the 95% confidence interval.

Table 4: Regression Table with Diagnostic Tests

Model	Coefficients			AIC	BIC	Portmanteau (Q) test for white noise p>chi ² (40)	Bartlett's Periodogram based test for white noise (p>B)
	Non-seasonal		Seasonal				
ARIMA.SARIMA (0,1,1)*(1,0,0,12)	MA(1) -6.6		AR(1) .934	1272.2	1279.5	0.2024	0.9795
ARIMA.SARIMA (1,1,1)*(1,0,0,12)	AR(1) .024*		AR(1) .935	1274.2	1283.2	0.2068	0.9798
ARIMA.SARIMA (0,1,2)*(1,0,0,12)	MA(1) -.672		AR(1) .935	1274.2	1283.9	0.2075	0.9801
ARIMA.SARIMA (2,1,1)*(1,0,1,12)	MA(2) -.02*		AR(1) -.034*				
	AR(1) -.034*		AR(1) .937				
	AR(2) -.59*			1295.4	1310.0	0.2699	0.9799
	MA(1) -.66	MA(1) -.0002 [*]					

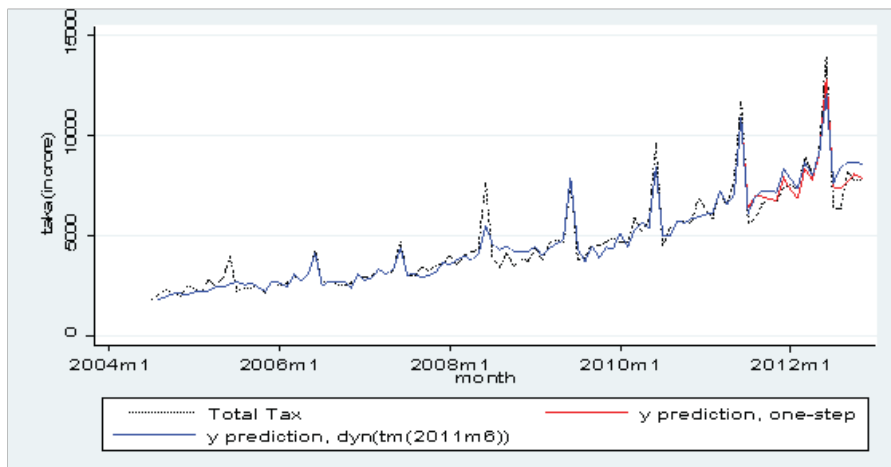
*All coefficient values are statistically significant with a p-value of 0.000 except for the coefficients with asterisk mark.

Estimation results of ARIMA SARIMA multiplicative model with different lags of autoregressive and moving average process for both seasonal and non-seasonal portion are shown in Table 4 with the results of diagnostic tests. Though for all the models are weak from the perspective of Portmanteau test for white noise, according to Bartlett's periodogram based test for white noise, all of them perform satisfactorily; error terms falling inside 95 percent confidence interval band (Appendix C Figure 03). Using Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC); ARIMA (0,1,1) SARIMA(1,0,0,12) can be chosen as the most appropriate ARIMA SARIMA multiplicative model with the lowest AIC and BIC values of 1272.27 and 1279.53 respectively. All the coefficients of the lags of autoregressive and moving average for both seasonal and non-seasonal portions of this model are statistically significant with a p-value of 0.000.

After choosing the appropriate model, this exercise attempts to determine the forecasted value for total NBR tax revenue from July 2004 to November 2012 using both one step and dynamic forecasting methods in Figure 5.

Figure 5: Comparison among Actual and Forecasted Tax Revenue

(Based on Multiplicative SARIMA Model)



It is evident from the figure that, the estimated forecasting model assigns quite accurate approximation of the actual data. Though dynamic forecast deviates more than one step forecast, this deviation is not alarming and is somewhat expected as dynamic forecast uses estimated values to forecast.

Only abnormal discrepancy in one-step forecasting occurred in the month of June 2008. During this period, huge surplus in income tax had contributed a larger share in this surplus in revenue as interim care taker government of Bangladesh compelled many taxpayers to return due tax payments.

For both Holt-Winters seasonal multiplicative approach and Holt-Winters seasonal additive approach smoothing parameters α , β and γ are chosen to minimize the in-sample penalized forecast error. For multiplicative approach they are respectively 0.2571, 0.1271 and 0.3290. On the other hand, for additive approach they are 0.2179, 0.0550 and 1.000 respectively. Root mean squared error from multiplicative approach is 323.3492, smaller than that of additive approach, which is 407.1164. Therefore, it can be concluded that seasonal component grows with the series rather than being constant over the period.

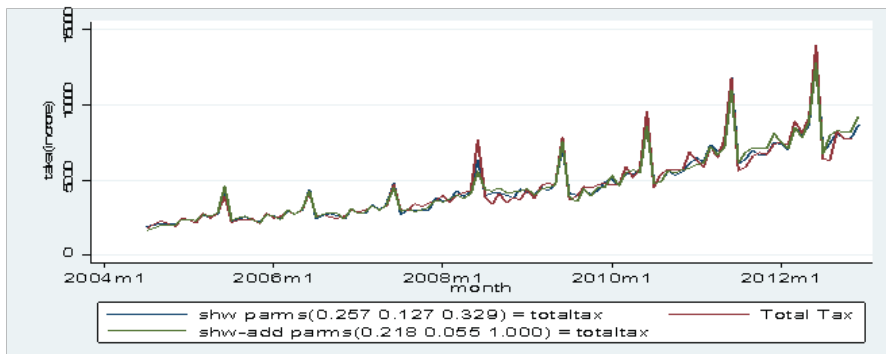
Table 5: Holt Winter's Multiplicative Approach

Alpha(α)	0.2571
Beta(β)	0.1271
Gamma(γ)	0.329
Sum of squared residuals	8887151
Root mean squared error	323.3492

Table 6: Holt Winter's Additive Approach

Alpha(α)	0.2179
Beta(β)	0.055
Gamma(γ)	1
Sum of squared residuals	1.41E+07
Root mean squared error	407.1164

Figure 6: Comparison among Actual and Forecasted Tax Revenue
(Based on Multiplicative SARIMA Model)



VI. Evaluation of the Forecasting Model

In this section, this study evaluates various forecasting models based on the accuracy in tax revenue forecasting. Accuracy has been measured in terms of tax gaps, i.e. the difference between actual and projected values. Thus, minimum gap, either in the form of positive (actual tax revenue is above the projected value) or negative (actual tax revenue is below the projected value) indicates more accuracy in forecasting method. Higher volatility in tax gaps executing from a specific forecasting methodology leads to higher inaccuracy to project tax revenue, which may give birth to miss-match in a stable fiscal milieu.

Table 7: Statistical Measures of Accuracy of the Methods

Statistical methods	Mean Percentage Error (MPE)	Mean Absolute Percentage Error (MAPE)	Mean Square Error (MSE)
One-Step Forecast (ARIMA SARIMA)	-0.028	7.04	4409650
Dynamic Forecast (ARIMA SARIMA)	-0.076	9.68	505824.6
Holt-winter seasonal multiplicative approach	-0.015	4.38	96525.72
Holt-winter seasonal additive approach	-0.045	7.16	270845.5

Out of four competing methods, Holt-Winter Seasonal Multiplicative Approach performs the best in terms of minimum MSE and MAPE criteria because values of MAPE and MSE are lower compared to any forecasting method scrutinized in this study. From the three remaining methods, One-Step ARIMA SARIMA method can be ranked second. The MPE and MAPE from one-step ARIMA SARIMA approach are -0.028 and 7.04 respectively whereas from Holt-Winter multiplicative they are -0.015 and 4.38 respectively.

Table 8: Actual and Projected Tax Revenue

Fiscal Year	Actual	MoF Projection	One-step (ARIMA SARIMA)	Dynamic (ARIMA SARIMA)	Holt Winter (Multiplicative)	Holt Winter (Additive)
2004-05	293	322	240	240	295	294
2005-06	325	357	332	332	329	328
2006-07	362	411	358	358	363	363
2007-08	474	439	435	435	449	436
2008-09	525	545	560	560	535	554
2009-10	620	610	594	594	607	601
2010-11	793	726	770	770	783	764
2011-12	939	919	939	960	934	950
2012-13	364	1123	384	419	379	394

Source: Authors' Own Estimates except for MoF projection

Table 8 reports actual and forecasted tax revenue from fiscal year 2004-05 to 2012-13, whereas, MoF projected tax revenue has been taken from the budget documents reported by Ministry of Finance, Bangladesh. From these reported tax revenue, it is explicit that forecasted values of tax revenue generated from Holt-Winter multiplicative approach are closer to actual tax revenue from fiscal year 2004-05 to 2012-13 than other methods. Looking forward to Table 9, in which all reported values are in differenced form of actual and projected tax revenue values.

Table 9: Comparison among the Projections from Different Tax Revenue Forecasting Approaches

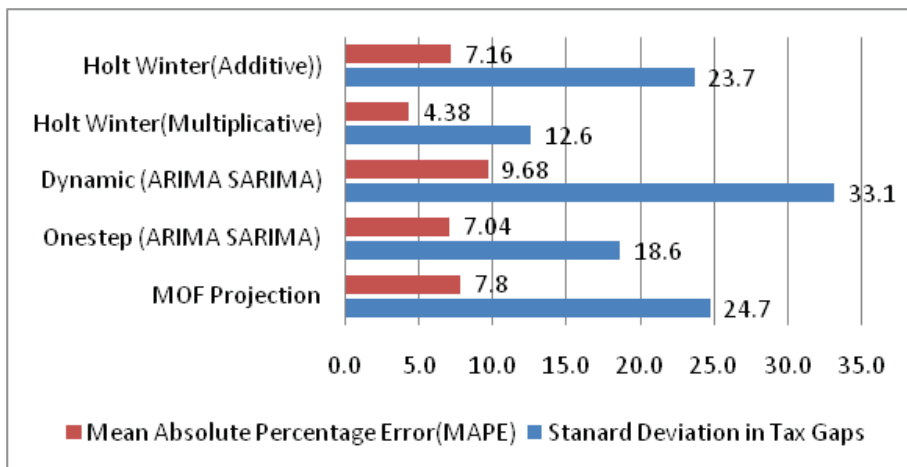
Fiscal Year	MoF Projection	One-step (ARIMA SARIMA)	Dynamic (ARIMA SARIMA)	Holt Winter Multiplicative Approach	Holt Winter Additive Approach
2004-05	-22.5	35.2	35.2	-0.4	-2.3
2005-06	-15.9	-8.0	-8.0	-4.8	-4.0
2006-07	-38.4	3.6	3.6	-1.0	-1.7
2007-08	21.3	39.8	39.8	25.5	37.9
2008-09	-20.0	-35.0	-35.0	-10.5	-28.9
2009-10	-12.6	25.6	25.6	12.7	18.9
2010-11	37.3	22.6	22.6	9.4	28.1
2011-12	13.3	0.3	-20.8	5.7	-11.2
2012-13	-21.2	-20.3	-55.3	-15.6	-30.3

Source: Authors' Own Estimates, but, MoF Projection is based on tax revenue data reported by Ministry of Finance, Bangladesh.

Tax gaps may either be positive or negative. Negative values in Table 9 indicate tax revenue in shortfall, but positive values indicate tax revenue in surplus. Moreover, model accuracy is appropriate or not, depends on the lower values of negative or positive, which indicate the gap between actual and projected tax revenue. Table 9 shows that amount of tax gap (forecasting error) is lower in case of Holt-Winter Multiplicative approach.

Further inspection on the association between standard deviation of tax gaps and the Minimum Absolute Percentage Error (MAPE) can show the reason why, Holt-Winter multiplicative method can be employed as an appropriate model to forecast tax revenue in Bangladesh.

Figure 7: Tax Gap Volatility among Various Forecasting Methods



Source: Authors' Own Estimates.

Here, Figure 7 shows that both standard deviations in tax gap and MAPE for different approaches which are the highest from judgmental projection by Ministry of Finance and the lowest from Holt-Winter multiplicative method. This indicates that lower value of MAPE is a good indicator of lower value of standard deviation of tax gaps. Thus, Holt-Winter multiplicative approach leads to more efficiency with minimum error to forecast tax revenue in Bangladesh comparing to the judgmental approach done by Ministry of Finance.

Vii. Conclusion and Policy Suggestion

Selecting an appropriate forecasting method to predict the nature of any macroeconomic series can be difficult because sometimes, any unforeseen event i.e. sudden crisis in world and domestic economy can change the whole calculation of forecasted value. This is why, forecasting of any series is a continuous process rather a one-time calculation.

Government revenue forecasting is an important aspect in the design and execution of sound fiscal policies. Moreover, it is important to enhance domestic resource mobilization, and to reduce heavy reliance on external financing. Because of liquid constraint and European debt crisis, external financing from multi-agency has started to become scarce; that is why, most of the least developed countries are compelled to seek alternative sources of deficit financing resulting in the gradual increase in domestic debt. To maintain sustainable level of fiscal deficit in line with huge demand for development budget for higher economic growth without the alarming increase in domestic debt; accuracy in tax revenue forecast in each upcoming budget is required. As huge difference between actual and projected revenue may create huge pressure on domestic financing and lead to larger scale of borrowing from the banking system resulting in high inflation, reduced actual development expenditure.

Like other least developed countries, Bangladesh's reliance on domestic financing to mitigate fiscal deficit is increasing day by day. Although Bangladesh is operating relatively well from the perspective of stable fiscal management, debt sustainability; revenue performance is still very low comparing to similar countries around the globe. In recent years, Bangladesh has increased tax efforts by taking various reforms and modernizing tax system. Nevertheless, it is not good enough because of the huge difference between actual and projected tax revenue reported by Ministry of Finance. This implies that judgmental tax revenue forecasts reported by Ministry of Finance may not follow an appropriate forecasting procedure. Therefore, this is high time to reduce tax revenue forecasting error, which follows an erratic trend - accounts for huge surpluses or huge shortfalls in tax revenue collection - over the couple of years.

The main objective of this study is to identify an appropriate methodology to forecast monthly tax revenue. This paper utilizes monthly tax revenue series from July 2004 to December 2012. Out of the four popular techniques scrutinized in this study, Holt-Winter multiplicative approach is found to be appropriate for revenue forecasting in Bangladesh with minimum forecast error.

Moreover, this study attempts to compare forecast tax revenue error projected by Ministry of Finance with others popular technique and finds that, existing judgmental tax revenue forecasting method in Bangladesh produces larger error with higher volatility in tax gaps compared to others popular methods employed in this study whereas, Holt-Winter multiplicative approach performs the best to forecast monthly tax revenue in Bangladesh. Thus, forecasting attempts in this paper have opened an avenue for the systematic analysis of revenue forecasting using several methods rather than depending on existing judgmental method followed by fiscal Authority in Bangladesh.

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Appendix A: Tables

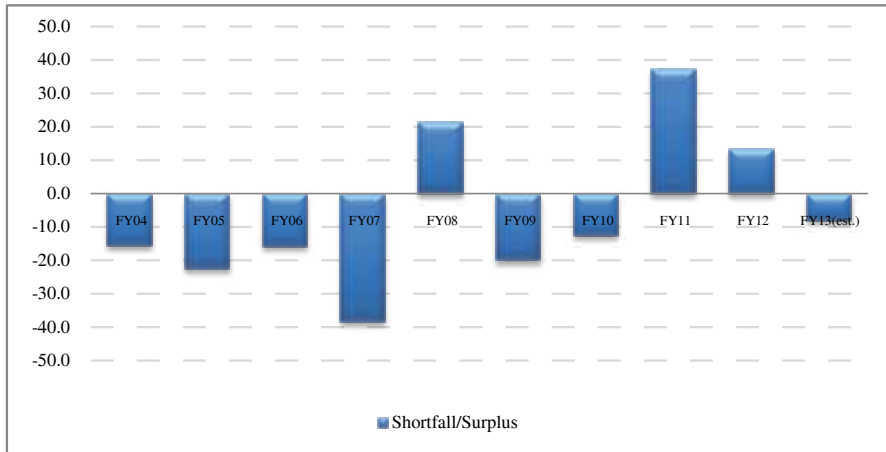
Table 01: Tax Efforts in Selected Countries

Name of Countries	Total Tax	Income Tax	Value Added Tax
Bangladesh	0.508	0.357	0.482
Bhutan	0.661	0.979	0.612
Nepal	0.736	0.452	0.764
India	0.775	0.975	0.774
Pakistan	0.942	0.952	0.969
Sri Lanka	1.182	0.677	1.812
Indonesia	1.014	1.283	0.821
Philippines	1.020	1.190	0.743
Singapore	1.009	0.967	0.989
South Korea	1.206	1.372	1.570
Thailand	0.936	0.705	0.687
Kenya	1.367	1.984	1.492
Tunisia	1.516	1.368	1.492
Uganda	0.947	0.877	1.286

Source: An Evaluation of the Tax System in Bangladesh- IGC Working Paper Series.

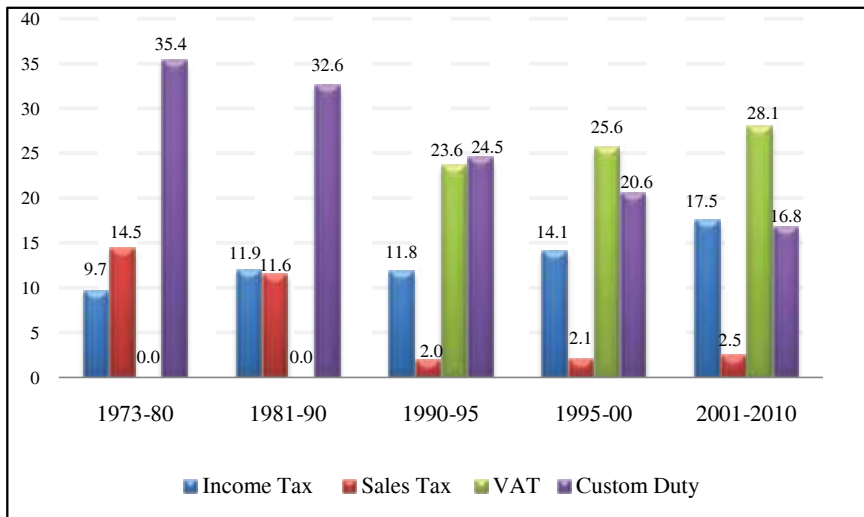
Appendix B: Figures

Figure 01: Shortfall or Surplus of Tax Revenue



Source: National Board of Revenue & Authors' Own estimates

Figure 02: Bangladesh: Tax Revenue Structure From 1972-2010



Source: Ministry of Finance, Bangladesh

Figure 03: Bartlett's Periodogram Based Test for White Noise

Figure 03a: ARIMA.SARIMA (0,1,1)*(1,0,0,12)

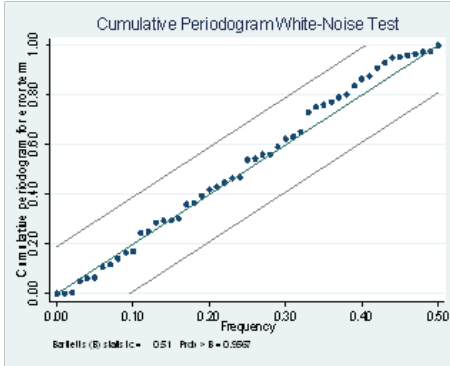


Figure 03b: ARIMA.SARIMA (1,1,1)*(1,0,0,12)

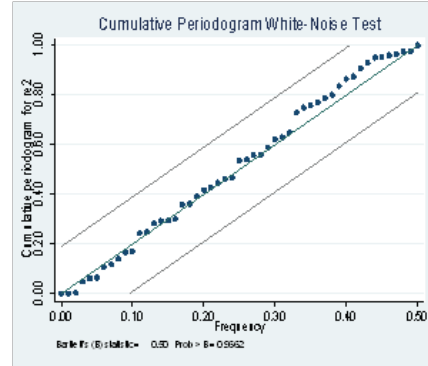


Figure 03c: ARIMA.SARIMA (0,1,2)*(1,0,0,12)

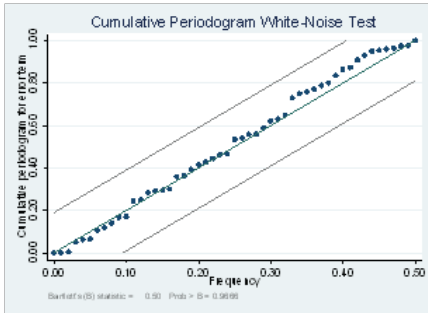
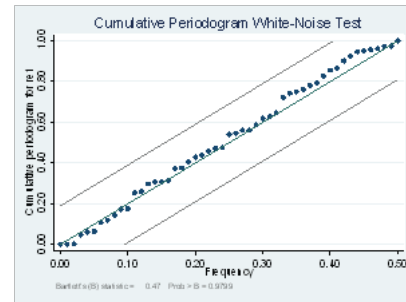


Figure 03d: ARIMA.SARIMA (2,1,1)*(1,0,1,12)



Willingness to Pay for Solid Waste Management System in Dhaka City, Bangladesh: A Socio-Economic Analysis

Basanta Kumar Barmon^{*1}, Kazi Mohiuddin*, Gazi Esha Islam² & Nawshin Laila*

Abstract

The present study attempts to analyze the relationship between socio-economic factors and willingness to pay (WTP) for solid waste management in Dhaka city. Primary data were randomly collected from 120 households through comprehensive questionnaire. Four areas with varying income levels – Mirpur, Mohammadpur, Banani and Khilgaon - were purposely selected, because this study aimed to find a relationship between WTP and income of the households. Compared to Mirpur and Khilgaon, households with higher income reside in Banani and Mohammadpur. The findings of the study show that there is a positive relationship between household income and WTP for waste management. The residents in all four areas showed concern about solid waste management and the negative impacts waste accumulation has on the environment. Residents in unison also expressed their dissatisfaction with the quality of the existing solid waste management system. The study concluded that residents indeed are willing to pay more for better waste management, and this higher payment can then be used to enhance the existing solid waste management system - resulting in cleaner and more hygienic environment in Dhaka city.

1. Introduction

Rapid urbanization has made solid waste management a serious problem in poor and developing counties (Bahauddin and Uddin, 2012).

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Most of the municipalities in both developed and developing countries allocate and spend a huge amount of budgets for collection, transportation, and disposal of solid waste (Altaf and Deshazo, 1996). In most cities of developing countries, municipal authorities spend about 20-50% of municipal revenues for solid waste management. However, level of collection service remains low with only 50-70% of residents receiving the service and most of the disposals being treated in an unhygienic way (Cointreau, 1984; 1994).

In Dhaka, solid waste generation amounts to 4000 ton/day, of which 2500 tons are collected and dumped by the DCC, 700 tons end up in backyards and informal landfills, 500 tons end up on roadsides or open space, 200 tons are recycled by the *Tokais*³, and 100 tons go through informal recycling at the point of generation (DCC, 2011). The increasing volume of solid waste and the complex variety of these, including hazardous waste from hospitals and other sources, have become issues of concern to both urban authorities and the citizens. Solid waste consists of all sorts of solid leftover from households, offices, factories, markets, public institutions, construction debris and rubbish, street sweeping and garden trimmings. It has been also reported that about 78% solid waste is coming from residential sector and 20% from commercial sector, 1 % from the institutional sector and the rest from other sectors (Rahman, Shams and Mahmud, 2010).

In Dhaka city, two types of waste collection methods exist - primary waste collection method and secondary waste collection method. NGOs and private sectors provide waste management services like door to door collection, vehicle arrangement, waste transportation etc. There are a few local and International NGOs like Japan International Corporation Agency (JICA), who are working on better solid waste management in Dhaka. But their number is not sufficient to cover all the areas of Dhaka city. Dhaka City Corporation (DCC) manpower is not at all sufficient for the solid waste management. DCC with its limited resources, technical know-how, and inadequate policy framework is facing a mounting task to keep the city clean at an acceptable level. Also, city corporation budget for waste management is not adequate in amount. Currently Dhaka city has two city corporations - North and South City Corporations. Recently many different approaches are taken for better solid waste management services.

³ Destitute slum children acting as scavengers

Dhaka North City Corporation (DNCC) has come up with the concept of Public Private Participation (PPP) and fully privatizes its conservancy works in Uttara, Gulshan, Banani, Baridara, Mohakali and Tejgaon areas. On the other hand, Dhaka South City Corporation (DSCC) is providing logistical and technical supports to a NGO named Sheltech Consultant Pvt. Ltd to introduce a pilot project named "Solid Waste Management in Dhanmondi Residential Area". The main activities of this pilot project includes door to door garbage collection from concerned houses at a particular time notified earlier by the NGOs, disposal of waste in DSCC's nearest dustbin/ container, segregation of organic, inorganic and clinical waste, promoting public awareness campaign etc. Though several strategies are adopted by DNCC and DSCC, still there is no satisfactory result. This is because there is lacking in the conventional system of solid waste management.

There are a large number of researches conducted on the impacts of solid waste management on environment and health using contingency valuation methods (CVM) in poor and developing countries (Mitchell and Carson, 1989; Bahauddin and Uddin, 2012; Amin et al., 2006; Caplan, et al., 2002; Adamowicz, et. al., 1994; Alberini, 1995; Carson, et. al., 1996; Carson, et. al., 2001; Cooper, 1993; Jin, et. al., 2006; Kassim and Ali, 2006; Nilanthi, et. al., 2007). Some studies also focus on the solid management system of different cities in Bangladesh (Salam, 2000; Sinha, 1993; Enayetullah, 1995; Yousuf, 1996; Hasan, 1998; Bhuiyan, 2000; Hasan and Chowdhury, 2005; Ahsan, and Alamgir, 2010; Afroz, 2011). However, the socio-economic analysis of willingness to pay (WTP) for solid waste management has received less attention. Therefore, the present study attempts to analyze the relationship between socio-economic factors and willingness to pay (WTP) for solid waste management system in Dhaka city in Bangladesh.

This research paper is organized into five sections. Following the introduction, methodology of the study (household surveys and data collection method, and analytical techniques) is discussed in section two. Section three contains results and discussions that briefly explain solid waste management system in Bangladesh based on the household survey data, whereas conclusions are made in section four. Finally, recommendations are drawn based on the results and discussions.

2. Methodology of the Study

(i) Sources of Data

In the study areas of Dhaka city, solid waste can be categorized into (i) domestic waste (ii) commercial waste (iii) institutional waste (iv) industrial waste (v) street sweepings (vi) clinical waste and (vii) construction and demolition waste. The present study considered only the management system of domestic wastes because domestic waste constitutes the major proportion (captures about 90%) of total wastes in the study areas. Based on the objectives, primary data were used in this study. Primary data were collected through comprehensive questionnaire. A total of 120 samples were randomly collected of which 30 samples were collected from Mirpur, 30 from Mohammadpur, 30 from Banani and 30 from Khilgaon in Dhaka Municipal. Descriptive statistics and econometric analysis techniques were used in this study. To depict the reliability of the overall situation of the population, the selected sample should contain a sufficient number of households. Therefore, to reduce costs, simplify management and maintain quality of the interviews, the sample size was kept within reasonable limits.

(ii) Analytical Technique

A model is said to be an analysis of variance (ANOVA) dummy variable technique if a multiple regression analysis technique contains quantitative variable as explanatory variable and dummy variables are independent variables. ANOVA dummy variable is a powerful technique in social research (Gujarati, et. al., 2012). In this study ANOVA dummy variable technique is used to test whether willingness to pay for solid waste management is significantly different among Mirpur, Mohammadpur, Banani and Khilgaon areas. This technique seems to be the best fit for this study as the objectives of this paper is to find out the difference in willingness to pay (WTP) among the different areas of Dhaka city. In this study WTP is considered as dependent variable (quantitative variable) and area is considered as independent variables (dummy variables). The following ANOVA type model has been used:

$$Y_i = b_0 + b_1D_1 + b_2D_2 + b_3D_3 + u_i$$

Where,

Y=Willingness to pay (WTP) of the respondents

b_0 = intercept

b_1, b_2, b_3 = regression coefficients

$D_1 = 1$, for Mirpur and '0' otherwise

$D_2 = 1$, for Mohammadpur and '0' otherwise

$D_3 = 1$, for Banani and '0' otherwise

u_i = random error which is normally, independently and identically distributed.

ANCOVA is a statistical procedure that enables one to compare groups on some quantitative dependent variable while simultaneously controlling quantitative independent variables. Thus, ANCOVA combines both qualitative and quantitative independent variables. ANCOVA is used because inclusion of the covariate in the model can (a) increase power to detect group differences and (b) precision of estimates. In this study WTP is considered as dependent variable (quantitative variable), area is considered as independent variable (dummy variable) and income level of the respondents is considered as explanatory variable (quantitative variable). The following ANCOVA type model has been used:

$$Y_i = b_0 + b_1 X + b_2 D_1 + b_3 D_2 + b_4 D_3 + b_5 (XD_1) + b_6 (XD_2) + b_7 (XD_3) + u_i$$

Where,

Y= Willingness to pay (WTP) of the respondents

X=Income level of the respondents

b_0 = intercept

b_1, b_2, \dots, b_7 = regression coefficients

$D_1 = 1$, for Mirpur and '0' otherwise

$D_2 = 1$, for Mohammadpur and '0' otherwise

$D_3 = 1$, for Banani and '0' otherwise

u_i = random error which is normally, independently and identically distributed.

Khilgaon area has been considered as a base area dummy in this model.

3. Results and Discussions

The socio-economic characteristics and attitudes towards the environment and waste management of the respondents are briefly discussed in this section.

3.1 Socio-Economic Characteristics of the Respondents

Socio-economic status of people affects their attitude towards the environment and waste management. The educated people are usually more concerned about their health and the quality of their surrounding environment as they continuously get updated information from television, newspaper etc about the effects and impacts of unplanned solid waste management and dumping of wastes here and there. Occupation of people also plays a major role. Usually, high income people are more health conscious and prefer a better standard of living - they are even willing to pay more for receiving better services for proper solid waste management.

The socio-economic characteristics of the respondents are presented in table 1. The selected samples are the representative of the entire population in all metropolitan cities in Bangladesh. The gender distribution in the samples was 63.33% (76) male and 36.67% (44) female. Male respondents are much more enthusiastic and conscious about waste management compared to their female counterpart. Since mostly males are the ones who pay for the waste collection service - they are more concerned about the quality of service provided. The majority of the respondents had a university degree 55.83% (67), followed by 20.83% (25) with a various diploma degree, 12.50% (15) with a Higher Secondary Certificate (HSC). Only 8.33% (10) had a Secondary School Certificate (SSC), 0.83% (1) had primary education and 1.67% (2) had no formal education. As most of the respondents are educated, they are more conscious about household waste management as well as their surrounding environment - they are aware of the adverse impacts of unplanned waste management on environment and on their health. Bhattarai (2002) in his paper 'Household behavior on solid waste management: A case of Kathmandu Metropolitan city' found that education has a negative effect on waste generation. It means that if education level of the households is high, waste generation falls as educated household members work in the office and stay outside of the house for a long time. That is why the waste generation remains low.

Table 1. Descriptive statistics of socio-economic characteristics of the respondents

Characteristics	No. of respondents	Percentage
Gender:		
Male	76	63.33
Female	44	36.67
Education:		
No formal education	2	1.67
Primary education	1	0.83
Secondary school certificate (S.S.C)	10	8.33
Higher school certificate (H.S.C)	15	12.50
Diploma	25	20.83
University	67	55.83
Occupation:		
Business man	30	25.00
Service man	77	64.16
Housewife	8	6.67
Retired	5	4.17
	<u>Mean</u>	<u>Standard Dev.</u>
Age (Year)	41.46***	11.6
Family size	4.04***	1.22
Income (Taka/month)	43458.30***	16950.2

Notes: (i) *** indicate statistically significant at 1% level.

(ii) Sample size 120.

Occupation is one of the important factors for better solid waste management as well as willingness to pay for better solid waste management. A negative relationship is found between income level and solid waste generation (Nilanthi et. al., 2007). People with a higher income want to maintain a better standard of living and are more health conscious - they want better solid waste management sytem and are willing to pay more for this. Most of the respondents were engaged in public and private service (64.16%), followed by business man (25%) and only 8% respondents were housewives and 5% were retired persons. Income and family size are the key variables to determine a household's willingness to pay for better solid waste management. So it can be assumed that most of the respondents were highly educated with high income.

On an average, the monthly household income of the respondents was about 43,458 taka with a standard deviation of 16,950 taka. The average family size of the respondents was 4.04 with a standard deviation of 1.22 which is close to average family size in urban areas (4.4) in Bangladesh (BBS, 2011). According to a study conducted by Sivakumar and Sugirtharan (2010), residential solid waste generation has shown positive relationship with family income and size. The average age of the respondents was 41.46 years with a standard deviation of 11.6 years. Niringiye and Omortor (2010) in their research paper concluded that age of respondents has a significant negative effect on willingness to pay - when people grow old their willingness to pay for waste management deteriorates.

3.2 Attitudes of the Respondents towards the Solid Waste Management and Environment

Attitudes of the respondents towards the solid waste management system and environmental problems in Dhaka city are discussed in this section.

3.2.1 Extent of Interest about Solid Waste Management

Respondent's extent of interest about solid management is presented in table 2. It shows that about 42%, 40%, and 20% respondents reported that they were very much concerned, somewhat concerned and slightly concerned about solid management system in Dhaka city, respectively. Only 1.67% sampled households informed that they were not at all concerned about solid waste management. Therefore, it can be concluded that almost all households in Dhaka city are more or less concerned about waste management in Dhaka city. This is because most of the respondents are educated and know the adverse impact of unplanned waste management on their health and environment.

Table 2. Extent of interest about solid waste management in Dhaka city

Category	No. of respondents	Percentage
Very concerned	50	41.67
Somewhat concerned	48	40.00
Slightly concerned	20	16.67
Not at all concerned	2	1.67

Source: Field survey, 2013.

3.2.2 Collecting and Placing of Wastes for Disposal

In general, males of the households remain busy with outdoor work for their daily livelihoods. There is no such specification about who collects the waste and places it in the right place. The collection and placement of solid waste for disposal is shown in table 3. The table shows that all the family members in a family are engaged in collecting and placing of waste in Dhaka city. About 52% respondents reported that usually female maid servants are engaged in collecting and placing household waste, followed by wife/mother (31%). Only 13% and 4% households reported that children and husband/father take part in placing the household solid waste in the right place, respectively. Only 4 % husband/father take part in placing household waste because most of the households of our society are dominated by males and wastes are generally collected during day time when most of the males remain at their work. Generally, female maid servants (52%) are responsible for placing the household solid waste in Dhaka city.

Table 3. Persons responsible for collecting and placing of wastes for disposal

Members	No. of respondents	Percentage
Husband/father	5	4.17
Wife/mother	37	30.83
Child	14	13.33
Maid	60	51.67
Total	120	100.00

Source: Field survey, 2013.

3.2.3 Packages of Solid Waste Discharge from Households

Table 4 presents the amount of solid waste discharge from households. About 59% and 39% respondents reported that on an average, a household discharges 1-2 packages and 3-4 packages per day, respectively and only 1.67% respondents informed that a family discharges 5-6 packages in a day. Usually a household discharges solid waste once in a day in Dhaka city because wastes are collected by the waste collectors once in a day.

Table 4. Amount of solid waste discharge from households

Discharge	No. of respondents	Percentage
1-2 packages	71	59.17
3-4 packages	47	39.17
5-6 packages	2	1.67
Total	120	100

Source: Field survey, 2013.

Amount of waste generation largely depends on the size of the households. More family members mean more leftovers produced by each member whether it is kitchen waste or other solid wastes. Table 5 shows the response of households about whether the amount of solid waste discharge depends on household size. About 95% respondents reported that amount of solid waste discharge (package/day) depends on the family size and only 5% households claimed that amount of waste does not depend on the family size in Dhaka city.

Table 5. Response of households about whether amount of solid waste discharge depends on household size

Category	No. of respondents	Percentage
Yes	114	95
No	6	5
Total	120	100

Source: Field survey, 2013.

3.2.4 Satisfaction with the Existing Quality of Waste Collection Service

A city wide survey was conducted by Islam and Khan in 2011 where they found that households had lower level of satisfaction with issues like clearance of the dump bins, sweeping of roads, clearance of garbage from open space and addressing complaints but the most commonly reported reasons for dissatisfaction with garbage service were garbage bins not being cleaned properly, irregular road sweeping and overflow of garbage in dustbins.

Satisfaction of the surveyed households with the existing quality of waste collection service is presented in table 6.

The table shows that about 68% respondents claimed that they were not satisfied whereas about 21% households claimed they were satisfied with the existing quality of waste collection service and only about 12% respondents expressed their satisfaction with the existing quality of waste collection service in Dhaka city. Most of the respondents are not satisfied with the existing waste collection system as the waste collectors sometimes do not come to collect the waste, mostly in time of holidays such as Eid holidays. Some waste collectors even do not collect wastes from door to door and in that case the households themselves have to go to the vehicles to dump their wastes. Moreover, some waste collectors dump the wastes collected from the households in nearby dustbins very unsystematically resulting in noxious and unbearable odor.

Table 6. Satisfaction about the existing quality of waste collection service

Satisfaction	No. of respondents	Percentage
Yes	25	20.83
No	81	67.5
Average	14	11.67
Total	120	100

Source: Field survey, 2013.

3.2.5 Interest in Environmental Problem

Extent of level of interest in environmental problems is shown in table 7. The table shows that about 43% respondents reported that they were very much interested in environmental problems followed by 45% respondents who reported to be somewhat interested and aware about environmental problems and only 15% reported that they were slightly interested in environmental problems when they disposed waste in disposal places. Therefore it can be concluded from table 7 that almost all residents were more or less concerned about environmental problems caused by solid waste in Dhaka city. Most of the respondents are more or less conscious about environment when they dispose waste as they know that directly or indirectly they will be the ones who will be affected by this unsystematic waste disposal in future, be it in a form of environmental degradation or in a form of health hazards.

Table 7. Extent of interest in environmental problems

Level of interest	No. of respondents	Percentage
Very interested	51	42.5
Somewhat Interested	54	45.0
Slightly interested	15	12.5
Total	120	100.0

Source: Field survey, 2013.

3.2.6 Adverse Impact of Unplanned Waste Management on Health and Environment

Unplanned solid waste management has adverse impact on human and animal health and environment. Solid waste from households and the community are a serious health hazard and lead to the spread of infectious diseases. Unattended waste lying around attracts flies, rats, and other creatures that in turn spread diseases. Normally when the wastes decompose they release a bad odor and harmful gases which are very harmful for human and animal health. Solid waste affects climate change through landfill methane emission. Emission of methane gas occurs when organic wastes are left to decay in an open landfill which produces methane gas, hence upsetting the natural atmospheric balance of GHGs and directly increasing global temperature. Saha (2013) in a case study on Pabna city stated that health problems such as asthma, diarrhea and even skin diseases were affecting people of Pabna city due to uncollected disposal of waste on streets and other public areas, drainage congestion by haphazardly dumped wastes and contamination of water resources near uncontrolled dumping site.

Poor solid waste management is a severe issue that threatens the public health and reduces the quality of urban residences in most municipalities (Foo, 1997; Snigdha, 2003). The comments of respondents on the adverse impact of unplanned solid waste management are presented in table 8. Table 8 shows that about 35%, 33% and 25% sampled households respectively reported that unplanned waste management system triggered skin diseases, respiration problem and allergy. Only 7% respondents claimed that all types of diseases were caused due to unplanned waste management in Dhaka city. Thus it may be concluded that almost all sampled households reported that the present solid waste management system is unplanned and it causes various types of diseases.

Table 8. Types of diseases the respondents suffered from because of unplanned solid waste management

Diseases	No. of respondents	Percentage
Skin disease	42	35.00
Respiration problem	40	33.33
Allergy	30	25.00
Above all	8	6.67
Total	120	100.00

Source: Field survey, 2013.

3.2.7 Types of Pollution due to Unplanned Solid Waste Management System

Various types of pollution such as water pollution, air pollution, land erosion, and odor pollution are caused due to unplanned solid management system in Dhaka city. When water comes in contact with decomposing solid waste, it dissolves together with soluble inorganic and organic wastes producing polluted liquid known as leachate or waste juice. If toxic metals are present in the solid waste, this can lead to chronic toxin accumulation in organisms and may consequently affect humans if they feed on these organisms (e.g. fish, prawns, crabs etc.). Air is polluted with hazardous gases such as methane and carbon dioxide that comes out of the landfill sites. Some household wastes such as plastics, metals and aluminum cans, broken computers and car parts do not easily decay, so they mix with the soil and degrades the soil quality resulting in problems like land erosion and reduction in the productivity of the agricultural lands. Odor pollution occurs with the unbearable stench from the decomposing solid wastes that affects the community's quality of life.

Table 9 shows that almost all sampled households claimed that unplanned solid waste management pollute water, air, land and odor in Dhaka city. Almost 80% of the respondents claimed that all the above mentioned pollution occurs due to unplanned solid waste management, 4.16% claimed that only water pollution occurs, 12.5% respondents claimed that only air pollution occurs, 2.5% respondents claimed that land erosion occurs and 1.67% respondents claimed that only odor pollution occurs due to unplanned waste management. Thus, this pollution level will be low if properly managed solid waste management system exists in the society.

Table 9. Types of pollutions due to accumulation of solid waste in the society

Pollution	No. of respondents	Percentage
Water pollution	5	4.16
Air pollution	15	12.50
Land erosion	3	2.50
Odor pollution	2	1.67
Above all	95	79.17
Total	120	100

Source: Field survey, 2013.

Usually a systematic waste management system depends on the sufficient number of dustbins. Due to insufficient number of dustbins, people place their waste here and there. Table 10 shows that about 86% respondents reported that there is insufficient number of dustbins in their areas whereas only 14% respondents claimed that there is sufficient number of dustbins in Dhaka city. This factor determines the WTP value of a society. Because, if dustbins are available then their willingness to pay for the waste management service will be lower as they can dump the wastes themselves in nearby dustbins. But unfortunately in Dhaka, the number of dustbins are quite low compared to the population level of each particular area. Shuvo et.al. (2013) carried out a research on 'Quantitative Analysis of Spatial Pattern of Dustbins and its Pollution in Dhaka City'. The research analyses show that, in the study area the number of the dustbins is inadequate and the existing dustbins are not distributed uniformly. Therefore, all the dustbins remain congested with wastes causing pollution to the environment. Since, the wastes stored in the dustbins are collected after 3 consecutive days, the situation becomes abysmal.

Table 10. Sufficient number of dustbins in the study areas

Sufficient no. of dustbins	No. of respondents	Percentage
Yes	17	14.16
No	103	85.83
Total	120	100

Source: Field survey, 2013.

3.3 Analysis of Descriptive Statistics of Willingness to Pay

The descriptive summary of statistics of the dependent and independent variables used in the regression model are presented in Table 11. The table shows that the mean monthly willingness to pay (WTP) of the sample respondents in Mirpur, Mohammadpur, Khilgaon and Banani areas in Dhaka city were 82 taka, 116 taka, 58 taka and 101 taka, respectively, and their corresponding standard deviation were 47.3 taka, 46 taka, 10 taka and 25.8 taka. It is observed from table 11 that the WTP of the residents of Mohammadpur area is comparatively higher than the other study areas in Dhaka city. The WTP of Banani area is higher than that of Mirpur and Khilgaon areas. The intended maximum willingness to pay (taka/month) was also shown in table 11. On an average, the monthly intended maximum willingness to pay (in taka) is comparatively higher in Mohammadpur than in other study areas such as Mirpur, Khilgaon and Banani in Dhaka city.

Table 11. Descriptive statistics of existing willingness to pay (WTP) and intended maximum willingness to pay (MWTP)

Area	Willingness to pay (WTP) (Taka/month)				Intended maximum willingness to pay (Taka/month)			
	Mean	Min	Max	SD	Min	Max	SD	Mean
Mirpur	82.0***	40.0	200.0	47.3	100.0	1000.0	199.0	423.0***
Mohammadpur	116.0***	60.0	200.0	46.0	100.0	2000.0	297.0	452.0***
Khilgaon	58.0***	100.0	200.0	10.0	100.0	1000.0	258.0	365.0***
Banani	101.0***	40.0	200.0	25.8	100.0	1000.0	262.0	422.0***

Notes: *** indicates statistically significant at 1% level.

3.3.1 Analysis of the Regression Model

The estimates of willingness to pay (WTP) for solid waste management were briefly discussed in the regression model presented in Table 12. The coefficient of determination (R^2) was about 71%, indicating that the dependent variable willingness to pay (WTP) for solid waste management (Y) was explained or accounted for about 71% by the independent variables.

Table 12. Estimates of willingness to pay (WTP) for solid waste management in Dhaka city

Variables	Coefficients	t-statistic
Intercept	144.83*** (4.787)	30.25
Dummy (D ₁)	-94.83*** (6.713)	-14.13
Dummy (D ₂)	-93.83*** (6.713)	-14.13
Dummy (D ₃)	-85.16*** (6.713)	-12.69
R ²	0.71	

Notes: (i) *** indicate statistically significant at 1% level.

(ii) The figures in parentheses indicate standard errors of estimates.

(iii) Sample size was 120.

Table 12 shows the results of stability test of willingness to pay (WTP) (taka/month) in the four areas of Dhaka city. It appears from the table that all the coefficients of the slope dummies of Mirpur (D₁), Mohammadpur (D₂) and Banani (D₃) are statistically significant at 1% level. This indicates that significant differences in willingness to pay (taka/month) existed in the four study areas of Mirpur, Mohammadpur, Banani and Khilgaon of Dhaka city. It was observed from the field survey that the waste management system in terms of waste collecting and placing the dustbin was different in different study areas. Better waste management system was found in Mohammadpur area followed by Banani, Mirpur and Khilgaon area of Dhaka city. As the residents of Mohammadpur and Banani areas pay higher amount of money for waste management, they receive better waste management services than those of other study areas. The main reason is that the waste collectors of Mohammadpur and Banani areas receive higher wages than these of the waste collectors of other areas – Mirpur and Khilgaon. Moreover, as DNCC has privatized the waste collection task in Mohammadpur and Banani areas, residents of those areas receive more efficient services than these of the other study areas.

Based on this better service, the residents of Mohammadpur and Banani areas are willing to pay more money in future if they get better waste management service further. The same conclusions were also found in the regression model of willingness to pay (WTP) for solid management system in Dhaka city.

3.3.2 Test of Structural Break of the Willingness to Pay (WTP) among the Regions

The analysis of covariance (ANCOVA) technique is used to find out whether willingness to pay for solid waste management is significantly different depending on the income level of the respondents of Mirpur, Mohammadpur, Banani and Khilgaon area. The estimates of the ANCOVA model is presented in table 13. It appears from the table that the differential slope coefficients of Mohammadpur (0.0106) and Banani (0.0071) were significant at 5% and 10% level, respectively. This indicates that the willingness to pay (WTP) for solid waste management was significantly higher for the residents of Mohammadpur and Banani areas than these of Mirpur and Khilgaon areas considering the monthly income of the residents. This shows a positive relationship between income and WTP for solid waste management. The differential slope coefficient of Mirpur (0.0077) was statistically insignificant, which indicates that statistically there was no significant difference in willingness to pay (WTP) between Mirpur and Khilgaon area. The field survey also found similar conclusion regarding willingness to pay (WTP) between Mirpur and Khilgaon areas in Dhaka city.

Table 13 also shows that the intercept dummy (437.7, which was statistically significant at 1% level) and slope dummies of Mirpur (-350.9), Mohammadpur (-400.40) and Banani (-499.30) are statistically significant at 10%, 5% and 1% level, respectively. Thus, one may accept the hypothesis that there was definitely a structural break in willingness to pay (WTP) in the study areas in Dhaka city. The level of significance of dummies implies that the willingness to pay (WTP) for Mohammadpur and Banani area was higher than that of Mirpur and Khilgaon areas in Dhaka city as income level is higher in Mohammadpur and Banani areas compared to Mirpur and Khilgaon areas.

Table 13. Estimates of willingness to pay (WTP) for solid waste management in Dhaka city

Variables	Coefficients	t-statistic
Intercept	437.7*** (150.20)	2.92
Income (X)	0.00093 (0.00333)	0.28
Dummy (D ₁)	-350.9* (210.20)	-1.67
Dummy (D ₂)	-400.40** (205.30)	-1.95
Dummy (D ₃)	-499.30*** (194.10)	-2.57
D ₁ X	0.0077 (0.0049)	1.58
D ₂ X	0.0106** (0.0047)	2.21
D ₃ X	0.0071* (0.0039)	1.78
R ²	0.64	

Notes: (i) ***, ** and * indicate statistically significant at 1%, 5% and 10% level, respectively.

(ii) The figures in parentheses indicate standard errors of estimates.

4. Conclusions

Rapid urbanization in each metropolitan city in Bangladesh has made solid waste management a serious issue. Poor solid waste management is a severe problem that threatens public health and reduces the quality of urban environment in most municipalities. But as Dhaka is the fastest growing city in terms of population, poor waste management becomes an alarming issue. For lack of manpower and sufficient budget, Dhaka City Corporation is not able to provide quality services.

This problem can be somewhat minimized if residents' WTP for providing quality services in each area is measured and residents of each area are charged according to their WTP. The WTP for better services will be certainly higher in most of the areas than the amount they pay for the existing waste collection services because most of the residents in Dhaka city are more or less concerned about the environmental and health hazards that can stem out from the mismanagement of the waste collection system. So, City Corporation can charge a higher amount from the residents for providing a better and efficient waste management service.

The findings of the study indicate that willingness to pay varied widely in the study areas of Dhaka city. The residents of Mohammadpur and Banani areas pay comparatively higher money for solid waste management than Mirpur and Khilgaon areas. As a result, waste management system is comparatively better in Mohammadpur and Banani areas than Mirpur and Khilgaon areas. The study also found a positive relationship between household income and their willingness to pay for better waste management service. The residents of Mohammadpur and Banani areas are willing to pay more money for better solid waste management system in future compared to residents of Mirpur and Khilgaon areas because they have higher income compared to households of Mirpur and Khilgaon area. The residents of the study areas are more or less concerned about solid waste management and understand the negative impacts of accumulation of solid waste on environments. However, most of the residents are not satisfied with the quality of the present solid waste management system. Thus it can be concluded that if the residents pay more money for better waste management, the waste management system can be improved by allocating more fund for hiring more manpower for transporting waste quickly to the final dumping sites and for recycling wastes from the final disposal sites.

5. Recommendations

As pointed out several times in the discussion above the present SWM system in Dhaka is less than adequate. Organizational strengthening, better management of the conservancy section would certainly help to change this grim scenario of SWM and bring it to acceptable standards. Manpower, number of vehicles, tricycles and rickshaw vans could be increased. Adequate supervision and management is imperative to ensure that wastes are collected properly and on time every day.

Public awareness campaigns could be initiated by the government so that people and community are better aware of the health and environmental hazards that improper SWM poses. Not only in media and newspapers SWM issues could be introduced in textbooks so that children grow up learning about it and as responsible citizens they themselves look for ways to solve the problem. Community involvement is the key towards solving this burning issue.

Biogas plants are already used by many factories in and around Dhaka to generate electricity from solid wastes. Government could make it mandatory for factories/poulturies/farms generating a certain amount of solid waste to have biogas plants. Certain tax incentives could also be given to those complying with these new regulations.

This paper confirmed that some areas or localities of the city are willing to pay more to get better waste disposal services. Government could easily take this opportunity to charge higher municipal tax in those areas which would not only improve the service but help to maintain a cleaner hygienic city - which is a win-win situation for everyone.

There are many future prospects, recommendations and ideas for SWM but ultimately everything trickles down to proper implementation. NGOs, communities, donors and Government have to work together hand in hand to implement better service and new technologies to properly manage solid waste. Because it is doable and the residents of this mega city deserve a more hygienic and healthier environment.

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Work-Family Conflict and Non Sharing Jobs: The Link Explored for Dhaka

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Abstract

Work family conflict is an area of growing interest to the duo; ie: the Government and employers alike. According to Greenhaus and Beutell (1989) work family conflict is defined as a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect. The focus on this arena is gaining momentum due to the fact that women play a critical combination of roles 'caring' at home and 'working' at the workplace. As governments and employers are becoming increasingly dependent on the contribution from women workforce, this dilemma of work-family balance and the resultant conflict appears to be a serious concern.

This phenomenon surfaces as ubiquitous in developing as well as developed countries. Watchdogs in Bangladesh are also showing greater interest in this. The aim of the present study is to understand the nature of work-family conflict of a specific cluster in Bangladesh – the female school teachers. This particular cluster of white collar professionals has been selected due to the nature of their job as being non-sharing type. School teachers lack 'flexibility' in their profession as the timings are rigid and the scope of alternative arrangements for service delivery is limited. These aspects are stated to lead to heightened level of stress among the professionals. A sample of 120 female school teachers has been selected through stratified random sampling from four different strata (Pre School, Mid School and Senior School, including administrators) for the study. A structured questionnaire was used to collect information from the sample and the data collected were analyzed using various statistical techniques.

The study revealed the presence of high degree of work-family conflict among the female professionals.

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Further it had negative effect on the level of performance, both at work and home. Another major finding is that the children of the professionals suffer the consequences of the work-family conflict.

Key words: Work Family conflict, Dhaka, School teachers.

Introduction

The concept of Work Family Conflict (WFC) surfaced in the research literature in the early 80s. According to Greenhaus and Beutell (1985), WFC is a form of interrole conflict in which the demands for time and energy counteract with one another from two most important domains of human life; work and family.

Work-family conflict is a two-dimensional construct. The first dimension is known as work-to-family conflict indicating conflict arising out of work roles and then interfering with family roles and the second dimension refers to family-to-work conflict which arises when family-related roles interfere with work-related roles (Rathi and Barath, 2013; Beutell, 2010; Kinnunen et al., 2010; Kossek and Ozeki, 1998).

Governments and employers in the developed world have concern about the issue of work-family balance since a happy wholesome balance between the two spatially dislocated domains 'organization' and 'home' addresses a two-fold problem. For the governments of many Western countries where birth rates are declining, the issue is not merely connected with having better lives but with producing new lives for the future labor force (EC, 1999). Conversely, the shrinking workforce poses a threat to the employers' side as to how to attract and retain the competent young mothers. Indeed, the root of work-life balance debate stems from the perceived recruitment and retention problems (IDS, 2000,). A number of studies in European countries reveal the fact that childcare responsibility primarily and exclusively belongs to a mother which leads to the formulation of policies revolving around facilitating the working conditions of women (Kersley et al., 2006; McDonald et al., 2005; Hu 'Iskamp, 2007; Niejahr, 2007).

The scenario in the developing countries is different with respect to 'loose' labor market with abundant supply of cheap labor, unlike Europe, suffering from graying population. Yet, the work-family issues have significance to the quarters of govt. and employers, owing to the increasing and meaningful contribution of white collar female professionals to the workforce.

Progress in the literature on 'work-family' balance has already been recorded in countries like: Taiwan, the Republic of China and India.

The dilemma of WFC issues has been documented in the context of Western culture, like Germany and USA(Herati and Morley 2008;).

Research literature is still building on this arena where the focal point remains the potential impacts of work/family issues on employees, family members, and organizations. (Lu, et al, 2006). However, the developing societies such as Taiwan, the Republic of China. India, Bangladesh follows the western world in researching the work/family issues and their work is only beginning to gain attention.

The central theme of work/family research concerns women's increasing professional life and its consequences. The popular question raised within this topic is: whether and how women can combine satisfying family life and successful career (Kasper et al, 2005). According to Cooper and Williams (1994), most work/family research emphasizes that conflict has impacts on both emotional and physical health, leading to absenteeism and diminishing productivity.

There are three different forms of work/family conflict: time-based conflict, strain-based conflict and behavior-based conflict. Time-based conflict may occur when time devoted to one role makes it difficult to participate in another role; strain-based conflict refers to that strain experienced in one role intrudes into and interferes with participation in another role; and behavior-based conflict occurs when specific behaviors required in one role are incompatible with behavior expectation in another role. (Carlson et al 2005; Greenhaus and Beutell, 1985)

The complex nature of work-family conflict has further been assimilated in to application or strategies for the organization. (Frone et al., 1996; Greenhaus and Beutell, 1985) The practitioner literature comes up with specific prescription such as flexibility, a potential means of reducing stress associated with work-family conflict (Warren and Johnson, 1995).

The fact remains that the issue of 'flexibility' is itself a big domain deserving exclusive attention to the research arena of work-family literature. However, authors in this study pinpoint that flexibility is possible if the nature of job allows alternative arrangements or sharing. This paper explores the issue of work/family conflict for a cluster engaged in non-sharing type of job.

Focus of the Study

Most of the researches on work family conflict are focused on general working women. Aryee et al., 1999; Ng et al., 2002 have conducted their study on working mothers where they portrayed work-family stress as a major problem for working mothers. Study by Lo et al, 2003, also focused on the same cluster. In Bangladesh, the research on this issue appears contemporary but it is drawing focus increasingly. Alam et al (2009) identified the association between working hours and work family conflict on a sample consisting of different cross sections of female white collar professionals in Dhaka city.

This study includes a specific cluster, namely female school teachers engaged in non-sharing jobs. This paper will attempt to explore a first-degree understanding about the pains and perils of work-family conflict.

Research Method

This study used a sample of full-time female school teachers from Dhaka metropolis. The sample chosen on the conceptual foundation that they work at least six hours a day on an average where experiencing high levels of stress is likely, leading to the form of time-based conflict, (Spector et al., 2007).

Stratified random sampling was used in this research to take the advantages of precision over normal sampling. The sample is then divided into four strata on the criteria of varying degree of work-load and use of expertise and experience. They are: teachers from pre-school, (play group to KG-II), mid school (Class I- Class IV), senior section (Class V-XII) and teachers working in administration. As the size of each stratum is different in size; therefore, allocation of sample to each stratum is done on a proportional basis instead of making each one equal. Altogether, 200 survey questionnaires were distributed, out of which, 120 completed the questionnaires (i.e. a response rate of 60.0 percent).

Frone et al. (1996) excluded unmarried women from the study sample on the ground that with no dependents at home the stress factor would be insignificant; so would be time-based conflict. But in this study the authors included both married and unmarried cluster in order to incorporate cultural dimension. Bangladesh and India follow collectivistic culture where human life orbits around the family as nucleus. To Indians, being members of a collectivist culture, fulfilling family and social responsibilities is of utmost priority, (Hofstede, 2001).

Indians usually feel content by spending quality time with their family members, neighbors, friends, and relatives, (Rathi and Barath, 2013). Authors of this study reason that conflict per se stress results broadly from two sources: child care support and family management support. Around 40 percent respondents are within 30 to 40 years of age ($SD=0.80943$). Around 45 percent of the respondents are mothers of one child.

During the data collection process, first of all, a known teacher of the researcher was approached as the first contact point. After approval of request the questionnaires were handed over directly to the school authority. While distributing the questionnaire to the authority the points were made clear that the 4 strata were maintained, no insistence should be put upon the respondents and that respondents should cooperate of their free will.

The scales used in this study consist of items measured on a five-point Likert Scale with response options ranging, unless otherwise indicated, from 1 for "strongly disagree" to 5 for "strongly agree." Greater scores represented more perceived work-family conflict.

Table I: Respondents' Profile

	Respondents	
	<i>n</i>	<i>Percentage</i>
<i>Years in job</i>		
<i>Less than one years</i>	18	15
<i>Between 1-5</i>	18	15
<i>6-10 years</i>	35	29.2
<i>Above 10 years</i>	49	40.8
<i>Level of education</i>		
<i>Graduate</i>	55	45.8
<i>Masters</i>	59	49.2
<i>Others/ Diploma</i>	6	5
<i>Age</i>		
<i>20-30</i>	27	22.5
<i>31-40</i>	47	39.2
<i>41-50</i>	43	35.8
<i>Above 50</i>	3	2.5

Average daily working hour

<i>6 hours</i>	36	30
<i>7 hours</i>	9	7.5
<i>8 hours</i>	9	7.5
<i>9 hours</i>	63	52.5
<i>10 hours</i>	3	2.5

No of Children

<i>No children</i>	27	22.5
<i>1</i>	52	43.3
<i>2</i>	35	29.2
<i>Missing data</i>	6	5

Family composition

<i>Stay with Parents in Law</i>	29	24.2
<i>Stay with Parents</i>	6	5.0
<i>Stay at separate homes</i>	85	70.8

Research Findings:**Reliability Analysis**

The reliability of the various measurement scales is shown in Table II. The reliability of the scale is above 0.6 in all variables category. An alpha coefficient of 0.6 and above is considered good for research in the arena of social sciences (Cronbach, 1990). Five point Likert scale is used in this case (1= strongly disagree, 2= agree, 3 = neutral, 4 = agree, 5 = strongly disagree).

Table II: Reliability of Scales

Scales	Alpha Coefficient
Work hour and conflict	0.737
Job stressor	0.705
Parental demand	0.715
Spouse support	0.726
Children	0.756

Descriptive Statistics

In this research two areas are considered as predecessor for work –family conflict with respect to Dhaka’s situation, child care support and family management support. The important finding is that parental demand contributes more significantly to work family conflict than working hour or job related stressors. This is congruent with the other important finding where majority of the respondents express their concern that children are the most affected segment due to work family conflict.

Table III: Descriptive Statistic

Questions	Mean	Median	Mode
<i>Working hours positively associated with work-family conflict</i>	3.19	4	4
<i>Job stressors positively associated with work-family conflict</i>	3.25	3	4
<i>Parental demand positively associated with work-family conflict</i>	3.95	4	4
<i>Spouse support help to reduce work-family conflict</i>	3.9	4.0	4
<i>Children are affected because of work family conflict</i>	4.3	4.5	5

Five points Likert scale (1 = strongly disagree, 2 =disagree, 3 = neutral, 4= agree, 5 = strongly agree)

A. Respondent Relation with Work Family Conflict Variables

Table IV : Working Hour and Years in Job

	Years in job							
	Less than 1 year		1-5 year		5-10 years		More than 10 years	
<i>Working hours positively associated with work- family conflict</i>	Strongly disagree	0 (0)	Strongly disagree	0 (0)	Strongly disagree	3 (8.6)	Strongly disagree	0 (0)
	Disagree	15 (83.3)	Disagree	9 (50)	Disagree	6 (17.1)	Disagree	6 (12.2)
	Neutral	0 (0)	Neutral	0 (0)	Neutral	9 (25.7)	Neutral	9(18.4)
	Agree	3 (16.7)	Agree	9 (50)	Agree	15 (42.9)	Agree	34 (69.4)
	Strongly agree	0(0)	Strongly agree	0 (0)	Strongly agree	2(5.7)	Strongly agree	0 (0)

Within parenthesis percentage of the respondents

The association between working hour and WFC is perceived to be stronger with increasing length of service. While majority of the respondents with less than one year of experience (83%) reject the notion of association; 69% of the respondents with more than 10 years of experience perceive the other side of the coin as true. This finding could presumably be attributed to the fact that seniority increases responsibility; so does job stressor keeping the working hour constant.

Table V: Correlation Between Years in Job and Working Hours

Variables	Years in service
Working hours positively associated with work -family conflict	0.424(**)
N	120

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

B. Working Hours and Age

	Age group							
	20-30		31-40		41-50		Above 50	
<i>Working hours positively associated with work-family conflict</i>	Strongly disagree	0 (0)	Strongly disagree	3(6.38)	Strongly disagree	0 (0)	Strongly disagree	0 (0)
	Disagree	18 (66.6)	Disagree	12 (25)	Disagree	6(13.9)	Disagree	0 (0)
	Neutral	0	Neutral	9(19.14)	Neutral	9(20.93)	Neutral	0 (0)
	Agree	9	Agree	21(44.68)	Agree	28(65.11)	Agree	3(100)
	Strongly agree	0 (0)	Strongly agree	2(4.25)	Strongly agree	0 (0)	Strongly agree	0 (0)

Within parenthesis percentage of the respondents

The association between working hour and WFC is perceived to be stronger with increasing age despite the common denominator of minimum 6 hours of working for each of the stratum. This could be primarily attributed to more stress deriving from family domain since age increases demand of time for both supporting child and family. For the younger age cluster, the scenario looks reverse as 66.6% rejected the notion. This finding is grounded on the same reasoning that they are not yet into motherhood, so would face less demand of time at home.

Table VI : Correlation between Age group and Working Hours

Variables	Years in service
Working hours positively associated with work -family conflict	0.350 (**)
N	120

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

C. Children Care and Work Family Conflict with Years in Service

	Years in job							
	Less than 1 year		1-5 year		5-10 years		More than 10 years	
Children are affected because of work family conflict	Strongly disagree	---	Strongly disagree	---	Strongly disagree	---	Strongly disagree	----
	Disagree	--	Disagree	---	Disagree	---	Disagree	----
	Neutral	9 (50)	Neutral	3 (16.7)	Neutral	6 (17.1)	Neutral	6 (12.2)
	Agree	3 (16.7)	Agree	3 (16.7)	Agree	6(17.1)	Agree	24 (49.0)
	Strongly agree	6 (33.33)	Strongly agree	12 (66.7)	Strongly agree	23 (65.7)	Strongly agree	19 (38.8)

Within parenthesis percentage of the respondents

The association between children care and WFC is perceived to be strong across the clusters of respondents irrespective of the varying degree of length of service. This particular finding is striking in the backdrop of the previous two where the increase in age or length of service contributed to stronger association between WFC and working hour. This strong omnipresent voice among the respondents that children are affected due to WFC clears out one fact: demand for child care support is perceived to be of utmost importance.

Conclusion

Cross-cultural and cross-occupational research reports that WFC is negatively associated with job satisfaction (Beutell, 2010; Karatepe and Kilic, 2007; Karatepe and Sokmen, 2006; Netemeyer *et al.*, 1996; Spector *et al.*, 2007), family satisfaction, and well-being. (Beutell, 2010; Kinnunen *et al.*, 2010; Lu *et al.*, 2010; O’Driscoll *et al.*, 2004)

This Dhaka based study explores the facts that resonate with the findings from the existing WFC literature. With increasing age or longer the years in service, along with greater burden of child care, the resultant sum total of impacts appears lethal as manifested in the form of ‘burnout syndrome’. School teaching, unlike teaching in university, is non-sharing in nature and lacks flexibility in working hours, thus adding to residual effect of time-based conflict.

Further, the opportunity for career development or job enrichment is pretty scanty for the school teachers since career ladder is almost non-existent, or scope for job rotation is limited. While the body of knowledge drawn from a cross-section of human resource management, organization behavior and psychology, acknowledges that prolonged endurance within an environment with such two-way pull entraps one into a vicious cycle of demotivation –frustration and low self-worth that would further aggravate the ‘spillover’ from work to family sphere.

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SMEs' Preparedness to Face Economic Crisis: A Proposed Framework for Malaysian SMEs

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Abstract

Economic crises are becoming more frequent, due to which the economies are going in and out of recession continuously. Large organizations have the potential to survive recessions because of their huge financial base but problem becomes severe to SMEs'. SMEs' are the backbone of every economy; they are small in size but large in numbers. In Malaysia, SMEs contribute 32% of GDP and employ 59% of workforce. In this paper, authors have tried to establish a relationship between organizational crisis management preparedness with organizational performance, organization experience, CEO characteristics and risk attitude. It has been proposed that these factors have the potential to influence the organizations crisis management preparedness in SMEs' in Malaysia.

Key Words: Economic Crisis, SME, Globalization, Economy

1. Introduction

In today's globalized era, economic crises/recessions are occurring more frequently than ever before. The Economies of many countries have not recovered properly from the 2007-08 sub-prime crises and United Nations has indicated that the second round is coming and expected to hit the shores in the middle or late 2012. In addition, it is expected to be worse than the 2007-08 sub-prime crisis (United-Nations, 2012). Operating an organization in such a turbulent environment is becoming more and more difficult, when the economy of the country is constantly going in and out of recession. In such an environment, large organizations still have a chance to survive the economic crisis due to their huge resource base, but the problem becomes more serious or severe when Small and Medium Enterprises (SME) are considered, since they are small in size and they have limited recourses.

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SMEs are the backbone of every economy of the world; they are small in size but are very large in number. According to National - SME - Development - Corporation (2010-11) report, Malaysia SMEs make up 99.2 % of total business establishments in Malaysia. They contribute 32% in Gross Domestic Product (GDP). In addition SMEs employ 59% of total workforce.

Malaysian government has taken measures to make SMEs the backbone of the economy (Saleh & Ndubisi, 2006). One of the most significant actions that had been taken by the government to strengthen the Malaysian SMEs was the establishment of National SME Development Council in August 2004 (Aris, 2007).

Even though Malaysian Government is taking measures to make SMEs stronger by providing information, training, financial support and enhancing the skills of owner-managers of SMEs through National SME Corporation, but still there are a number of questions that are needed to be addressed like: are the own-manager of SMEs are competent enough to fight the next financial/economic crisis, do they have the required skills to manage in turbulent environment and convert threats into opportunity? Owner-managers are more like craftsmen who are using their skills to earn a living (Cooper & Dunkelberg, 1986).

Gibb (2005) stressed that the competencies of the key players in SMEs will determine the success of an organization. Bolman Lee and Deal Terrence (1997); Burnett (2002); James and Wooten (2005); Wooten and James (2008) argue that competencies required in predicting and managing crisis are different from formal training on the job experience that leaders have, and competencies required for crisis management are a set of complex competencies.

Ahmad and Seet (2009) mentioned behavioral problems of owner-managers lead to business failures and their skills should be enhanced to overcome default rate. Markman (2007) states that strategic leaders possess knowledge, skills and abilities and these things help organizations to become successful. Ong, Ismail, and Yeap (2010) identified five problems being faced by Malaysian SMEs; among the problems, quality of the owner is one of them. Ahmad, Ramayah, Wilson, and Kummerow (2010) argue that owner-manager competencies of SMEs have direct effect on organizational success.

The above-mentioned researchers studied the characteristics/competencies of owner-managers, which are strategic in nature, focused towards running day-to-day business activities and tend to remain stable and focused towards the internal organizational and industry environment. Whereas these researchers did not address the required characteristics/ competencies for preparation/ managing the business when the broader set of negative economic environmental factors like economic/financial crisis or recession is about to effect or prevailing in the economy of the country. Therefore in order to address this problem, the current research will establish a relationship between organizational crisis preparedness of SMEs and factors that contribute to enhancing those competencies.

The current study is important to policy makers, owner-managers of SMEs and academicians. Policy makers can devise strategies that can make Malaysian SMEs' stronger, competitive, healthy and resistant to economic crisis. For own-managers this study will help them by presenting some factors that can help them to prepare for economic crisis and which organizational factors will help them to develop those skills. This will eventually strengthen them and their organization to become more resistant to the economic or other crises.

Theoretically, the current study will advance the literature regarding the crisis management and SMEs. As there is a dearth of literature on crisis management by SMEs, how SMEs prepare themselves for crisis, this gap in the literature is also supported byHerbane (2010). Herbane (2010) mentioned that “database searches of the title and abstracts of the International Small Business Journal (1982–present), Journal of Small Business and Enterprise Development (1994–present), Journal of Small Business Management (1962–present) and the Journal of Small Business Strategy (1990–present) found that not a single article published in these journals made reference to either ‘crisis management’ or ‘business continuity management’/‘disaster recovery’ (the latter being practical manifestations of crisis management)”, pp.44.

The current research advances the literature in terms of how preparedness by SMEs to face economic/ financial crisis are enhanced and which factors contribute towards preparedness. As for SMEs, literature will be advanced in terms of whether SMEs owner-managers need the crisis management preparedness techniques and if so, do the performance of an organization, owners' previous experience regarding financial/economic crisis, industry environment and attitude towards risk in decision making play any part in it.

In addition to that, the current research is using moderating variable (the risk attitude regarding decision making) to check the effect on relationships; this will also enhance knowledge regarding crisis management preparation. As previous researches were done on large organizations, researchers had only identified factors that contributed to crisis preparedness.

In order to analyze the research problem, the following objective has been formulated for the current study. To empirically analyze how prepared SMEs are to face financial crisis and secondly what factors contribute towards this preparedness. In order to fill the gap in the literature of SMEs and crisis management preparedness and to analyze the objective of the current study following research questions have been formulated. (1) Do SMEs have crisis management preparedness competencies? (2) Do organizational previous experience regarding economic crisis has any relationship with crisis management preparedness? (3) Is there a relationship between organizational performance and the crisis management preparedness (4) Do CEO characteristics contribute to the development of crisis management preparedness? And lastly, does the risk attitude contribute to the crisis management preparedness?

According to Pauchant and Mitroff (1992) crisis has five phases and these five phases can be divided into three essential types which are proactive, reactive and interactive. Proactive crisis management phase means if things are done properly then organizations can prevent many crises from occurring. Proactive crisis management consists of first two phases of crisis management and those are signal detection and preparation/ prevention phases. Following Pauchant and Mitroff's (1992) division of phases of crisis management, the current study will only focus on the proactive crisis management and try to answer the question; do own-managers of SMEs have competencies of these two phases and which organizational, environmental and personal factors contribute in the development of these competencies?

2. Literature Review

2.1 Strategic Management and Crisis Management

Ahmad, Ramayah, Wilson, and Kummerow (2010b) established the relationship between entrepreneurial competencies and business success (financial and non-financial) taking environment as a moderator. They took eight competencies to establish the relationship with business success.

In the current study authors are taking only one competency out of eight mentioned by Ahmad et al. (2010b) that is strategic management competency. As this competency is related to the crisis management, the relationship between crisis management and strategic management was established by Preble (1997). Preble (1997) argues that there are a number of similarities between strategic management and crisis management and they work in parallel to one another, one is offensive (strategic management) and other is defensive (crisis management) in nature.

A number of studies (Ahmad, Halim, & Zainal, 2010; Ong, Ismail, & Yeap, 2004) have been conducted in Malaysia where they have mentioned own-manager competencies as an important part. These studies have empirically and conceptually mentioned own-manager competencies in terms of strategic point of view. When entrepreneurs possess the knowledge, skills, and abilities to be a strategic leader their actions have the potential to make business successful (Markman, 2007). They formulate strategy by analyzing the environment, recognize threats and opportunities, and transform these opportunities into business activity (Beaver & Jennings, 2005). As business environment are changing and becoming increasingly complex day by day, it is becoming important for leaders to develop a set of skills that will help them prevent and effectively respond to crises and other strategic issues (Garcia, 2006; I. Mitroff, 2005).

When discussing threats or expected crisis to be faced by an organization, most executives are aware of the negative consequences associated with particular event, but their education, training and on the job learning experiences do not prepare them for crisis management (Wooten & James, 2008). Preparing for Crisis management leadership demands an integration of skills, abilities, and traits that allow a leader to plan for, respond to, and learn from crisis events. In the best possible case, crisis leadership is about handling a crisis in such a way that the firm is better off after a crisis than it was before (Brockner & James, 2008; Wooten & James, 2004).

2.2 Phases of Crisis Management

Five phases of crisis management have been identified by researchers (Coombs, 2004; I. I. Mitroff & Pearson, 1993; Pheng, Ho, & Ann, 1999) that represent a typical business crisis: (a) signal detection, (b) preparation and prevention, (c) damage containment, (d) recovery, and (e) learning.

The first phase, signal detection, requires leaders to sense early warning signals that announce the possibility of a crisis. In the second phase, prevention and preparation kicks in, leaders are expected to prevent the crises and prepare for it. The third phase involves limiting the damage by taking measures so that the crisis cannot expand to other parts of the organization or in its environment. During the recovery phase, leaders are responsible for implementing short- and long term plans designed to help resume business operations. Finally, in the fifth phase of crisis management, leadership encourages learning and examines the critical lessons from the crisis.

In the phases of signal detection and crisis prevention, the competencies focus on how organizations can eliminate vulnerabilities of a crisis and minimize their weaknesses based on warnings. The damage control phase of operation-oriented competencies helps to contain a crisis. Last, for business recovery and reflection/learning phases, the crisis leadership competencies focus on rebuilding the organization and knowledge creation. Since the scope of the current study is limited to signal detection and preparation phases of the crisis, therefore discussion is only limited to first two stages of the crisis management.

2.2.1 Signal Detection

In signal detection there are two main important components and these were identified by the Wooten and James (2008). These are sense making and perceptive thinking:

Sense making: “Sense making involves turning circumstances into a situation that is comprehended explicitly in words and that serves as a springboard into action”(Weick, Sutcliffe, & Obstfeld, 2005, p. 409). According to Weick et al. (2005), the process of sense making addresses three fundamental questions: How does something come to be an event? What does the event mean? What should I do relative to the event?

Perspective taking: Key element to social functioning is one’s ability to entertain or assume the perspective of another person or group(Galinsky & Moskowitz, 2000). During a crisis, one of the main requirements from the leader is to ensure the well-being of those affected by the crisis. Perspective taking allows leader to better understand and empathize with stakeholders and act in the best interest of stakeholders.

2.2.2 Prevention/Preparation

In prevention/preparation there are three competencies and these competencies are issue selling, organizational agility, and creativity (Wooten & James, 2008).

Issue selling: Issue selling is the label used to characterize a set of behaviors used by managers to direct top management's attention to and understanding of important issues that otherwise would not be on their radar screen (Dutton & Ashford, 1993). In the current case since the owner is itself a manager of the organization, therefore the owner-manager has to highlight the issues to the employees and indicate to them how crisis has the potential to hurt organization and ultimately them.

Organizational agility: Crisis leaders who are competent in organizational agility have a thorough knowledge of all aspects of the business and can work across organizational functions, departments to accomplish a task (Wooten & James, 2008). Since they have knowledge of all aspect of their organization they can efficiently and effectively implement change management for the long term health of the organization.

Creativity: The concept of creativity in the workplace most often refers to the production of new or useful ideas, products, services, processes, or procedures (Amabile, 1996). In the context of the current study, competency in creativity is most relevant to how owner-manager works creatively and how he infuses creativity/innovation element into the organization. Owner-manager's ability to think creatively about how a firm is vulnerable to a crisis and plan accordingly requires thinking beyond the traditional approach of managing organization (Wooten & James, 2008).

2.3 Organizational Performance

To be successful in today business environment, comprehensive performance measurement reflecting the total situation of a business is important and needs to be established which then can be more fully aligned with business strategy (McAdam & Bailie, 2000). Hashim (2001) suggests financial profit and growth are the most common measures for organizational performance.

Nash (1993) identified the best indicator to know whether the company is on the right track is by the profitability it generates. Therefore profitability can be used as the primary measure of an organization success.

Light (2008) on the bases of empirical finding argues that organizations which are high performers are more crises prepared as compared to low performer organizations.

2.4 Environment and Risk Attitude

Entrepreneurs develop strategies to transform recognized opportunities into profitable outcomes (Carter & Jones-Evans, 2006). Entrepreneurs explore opportunities under uncertain conditions; therefore they are indulging in risk taking behavior (Muzychenko & Saeed, 2004). Researchers (Cope & Watts, 2000; Harrison & Leitch, 2005; Stokes & Blackburn, 2002) have identified that, entrepreneurs do not act blindly when responding to risks, entrepreneurs learn from surrounding environment, previous mistakes made and from other people.

In SMEs the effect of the business environment on entrepreneurial activities affects the way businesses behave and are run by entrepreneur (Gnyawali & Fogel, 1994). In hostile environment owner-managers try to make connections with the network they are working in through their capabilities that enable them to choose the safest strategy that increases the organizations' performance (Baum, Calabrese, & Silverman, 2000; Covin & Slevin, 1989).

Whereas in benign environment Covin and Slevin (1989) argue that relationship between owner-manager's posture and organizations performance is somewhat weak. Van Wart and Kapucu (2011) argue that in crisis management the environment changes with moderate or at fast speed and accordingly the organization has to adjust otherwise organization can face serious consequences.

When talking about speed of decision-making and environment, risk comes into play. Ho (1996) argued risk is a factor of managerial choice. Managers' attitudes towards risk eliminate some strategic alternatives and prioritize others. Therefore, the decision makers do consider the risk associated with their decision when confronted with environmental uncertainty. Perceived risk is based on the tolerance of internationalization uncertainty by the decision maker (Wiedersheim-Paul et al., 1978) in the current case owner-manager. Two main principles of perceived risk have been recognized by (Eroglu, 1992; Mitchell, 1995) which are the probability of negative outcome and the consequences of the outcome. Risk mainly relates to financial and performance uncertainty and is more relevant to SMEs as they have less financial resources as compared to larger organizations.

2.5 Leadership Styles

Many researchers agree that leadership plays an important part in preparing organization for crisis (Light, 2008; Smith, Jennings, & Castro, 2005). Leadership role in crisis preparedness include the importance of management buy-in and commitment (Grigg, 2003; Light, 2008). According to Light (2008) most often mentioned leadership characteristics are Generating buy-in and commitment, getting adequate resources for crisis readiness, institutionalizing concerns of the community and other stakeholders, recruiting and motivating a high-caliber workforce, implementing sound day-to-day business management practices, taking a comprehensive approach to crisis readiness, and bridging gaps within the organization and between the organization's members and stakeholders, visioning a "business"- a new paradigm", developing trust within the organization, conducting vulnerability assessments, not letting risk aversion drive all decisions, actively engaging in learning, being aware of the special role of the leader. Grigg (2003) argues that leadership involves finding and recruiting the best possible workforce, and then keeping them motivated. Van Wart and Kapucu (2011) argue that crisis management is a special type of management and every phase of crisis management requires different type of leadership style. Light (2008) stated that shared vision plays a very important part in crisis preparedness and when leadership shares the organizations' vision, mission, perceived crisis with the employees, the organization become more prepared for crisis.

3. Conceptual Framework

In the current study as discussed earlier in the delimitation section only first two stages of crisis management are catered, these are (i) signal detection, (ii) preparation/prevention. The competencies required in these two stages of crisis management will be analyzed with organizational performance, owner-managers' previous experience regarding economic crisis, business environment and leadership style. In addition to that, the said relationships will be moderated by the attitude of risk taking in decision making process, how much perception of risk moderates the relationships. The conceptual model is presented in figure I.

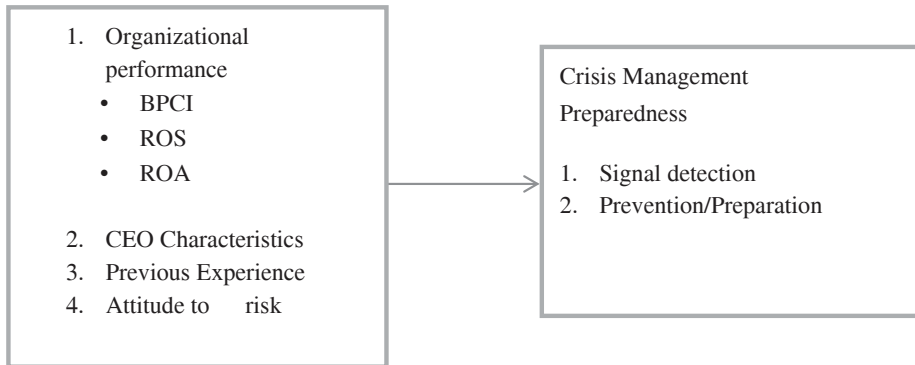


Figure 1: Conceptual Frame work

In order to answer the research question and to analyze the theoretical model, following hypotheses and have been developed:

H1: Previous experience regarding economic crisis has positive relationship with crisis management preparedness competencies of the organization

H2: Organizational performance has positive relationship with crisis management preparedness competencies of the organization

H4: CEO characteristics have positive relationship with crisis management preparedness competencies of the organization

H5: Attitude to risk taking has relationship with crisis management preparedness competencies of the organization.

4. Conclusion

There is an increase in SMEs thus also leading towards a strong need for strategic and tactical preparedness towards crisis management due to volatile, dynamic and hypercompetitive market conditions. The model purposed will assist SMEs in Malaysia to better understand their businesses preparedness to face a financial crisis.

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Understanding Conflicts in Cameroon History through 'Awilo's' Song 'Contri Don Spoil'

Henry Kam Kah ¹

Abstract

According to Geoff Crowther, Cameroon is Africa's most socially artificial country. Although this description seems an exaggeration of reality, Cameroon history after reunification in 1961 displays linguistic cleavages of the English and French cultures. This is a fall-out of German colonialism and the partition of Cameroon into French and British Cameroons after the First World War of 1914 to 1916. During the era of British and French colonial administration, the Mungo River was an important restrictive barrier to the free movement of goods, services and people across the Anglo-French spheres of the Cameroons. The 'officialising' of socio-political differences by successive ruling elite of the two linguistic groups for self-interest has been captured by Ndi Tansa aka 'Awilo' in his sound track titled 'contri don spoil.' The failure of the ruling elite to 'officialise' or promote nationhood in Cameroon is due to among other things a result of inherent cleavages among English speaking Cameroonians. It is also due to a failed romance between the two linguistic groups at the official level. This essay explores the socio-political tensions in a country united in disunity as captured in the music of 'Awilo's hit song 'contri don spoil.'

1. Introduction: Historical Roots of the Problem

The song 'contri don spoil' by Awilo reflects the problems of Cameroon whose roots are in the British and French colonial administration. The history of Cameroon from 1916 is a 'tale of two countries'; namely English and French speaking Cameroons. This has been elaborately documented by several authors among whom are (Ardener et al 1960; Ardener 1967:285-337; Johnson 1970; Rubin 1971; Joseph 1978; Kofele-Kale 1980; Fanso

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1985:23-43; Mbuagbaw et al 1987; Chiabi 1989:170-199; Njeuma 1989; Ebune 1992; Ngoh 1996 and 2001; Milne 1999; Mbile 2000; Awasom 2003/2004:86-116). After independence, this dichotomy remained until recently. There is a spirited attempt to promote the learning of English language by French speaking Cameroonians to promote national unity. The bilingual and bi-cultural nature of Cameroon is a result of the partition of German Kamerun into two unequal halves after the First World War (one-fifth to Britain and four-fifth to France). After the war, Britain and France partitioned German Kamerun. The 1914-16 War in Cameroon that led to the defeat of the Germans by combined French, British and Belgian forces. The eventual partition of Cameroon did not help in the consolidation of the nation state that the Germans had tried to put in place between 1884 and 1916. This laid the foundation for the challenges or problems of Cameroon after independence.

From the period 1914 to 1916 Britain and France attempted a joint administration or condominium but it collapsed even before take-off. This was a result of disagreements over leadership in authority and territorial control (Fanso 1989; Elango 1987). In 1922, the League of Nations through the Mandates Agreement sanctioned British and French control of the Cameroons with commitments to improve on the status of the territory. Both countries were called upon to present annual reports to the Mandates Commission on the level of development in their respective spheres of influence. This partition and recognition by the League of Nations is the genesis of what I describe as a 'tale of two countries.' Through this act the two Cameroons, that is, British and French Cameroons, evolved through different administrative systems (a decentralised and centralised administration respectively). Throughout the period of British and French administration, some nationalists from both sides of the divide like Um Nyobe, Roland Felix Moumie, Ndeh Ntumazah and Albert Mukong² fought for the reunification of the Cameroons.

The Gaullist tradition of centralisation and the British policy of indirect administration impacted on the perception of state affairs after the reunification of the Cameroons on 1 October 1961.

² Reuben Um Nyobe and Roland Felix Moumie were frontline members of the militant Unions des Populations du Cameroun (UPC) which was formed in 1948 with the main objective of immediate independence and reunification of British and French Cameroons. Um Nyobe was the founding Secretary General of the party and was killed in 1958. On the other hand, Ndeh Ntumazah and Albert Mukong were the founding leaders of the One Kamerun (OK) political party after the banning of the UPC in British Southern Cameroons in 1957.

This was and remains a bone of contention in the body politic of Cameroon. Cameroonians west of the Mungo River, formerly an international boundary between British and French Cameroons, generally want a return of a federal system of government or for a decentralised system of administration. This is at variance with what many Cameroonians east of the Mungo want. The crossing of the Mungo today reminds French and English speaking Cameroonians of the notorious boundary that once existed and also provoke discussions about how different the people of British and French Cameroon were in administration and reaction to issues of national concern.

Many self-seeking politicians argue that Cameroon is an island of peace in a turbulent West/Central African region. Their pronouncements and activities linked to regionalism, ethnicity, human rights abuse, corruption and personalisation of power threaten the precarious peace in the country daily (Bayart 1993; Ngwana 2001; Nkwi 2006:123-143; Amundsen 1999:459-475; Hansen n.d.; Che 2008:68-72; Dongmo 2008:41-50; Monga URL:[HTTP://Etudesafricaines.revues.org/index46.html](http://Etudesafricaines.revues.org/index46.html)). The relative peace in Cameroon has enabled the country to survive civil war and armed insurrection like the ones in Chad, Central African Republic, Nigeria, Congo Republic and the Democratic Republic of the Congo. However, in 2008 due to soaring food prices and increase in the price of fuel, the Cameroonian population from both sides of the Mungo took to the streets in large numbers to manifest their disgust with the system and leadership of the country (Suifon 2008). If care is not taken, the internal grievances among Cameroonians will boil over into an unstoppable revolution with serious consequences on lives and property, as has happened in countries like Rwanda, Burundi, Tunisia, Egypt, Ivory Coast, Libya, Yemen, Syria and Bahrain since 2011.

The Post-Independence Politics of Cameroon

To fully appreciate the music of “Awilo” which focuses on the problems of Cameroon, this section examines the post-independence politics of Cameroon. It traces the leadership of the country, the political parties and associated problems, the major ethnic and regional groups vying for power in the country and how all of these make Cameroon a unique country as far as the problems of governance are concerned. The Federal Republic of Cameroon that was created by a union of Southern Cameroons with the Cameroun Republic on 1 October 1961 was a result of disagreement and agreement from both sides of the political divide prior to the union.

The Prime Minister John Ngu Foncha³ of British Southern Cameroons and Ahmadou Ahidjo⁴, firstly as Premier of French Cameroun and then as President of the Cameroun Republic before reunification in 1961 were in many instances diametrically opposed to each other. While Foncha generally thought of a Cameroon which would be a decentralised territory, Ahidjo shrewdly laid a foundation for a highly centralised polity during the Fouban constitutional conference of 17-21 July 1961.

The shrewdness of President Ahmadou Ahidjo resulted in the establishment of a federal system of government in Cameroon between 1961 and 1972 when a referendum was organised on 20 May and Cameroon became a unitary state. Ahidjo had exploited the bickering between leaders of the country especially those of West Cameroon (Kah 2003:103-125) to stamp his authority as the uncontested leader or father of the nation (Pere de la nation). The political intrigues of Ahidjo and the scheming of his very close cohorts cost Cameroon the unity which is annually trumpeted on 20 May in the form of 'grandstandocracy.' The annual celebration has not healed the wounds of division and bitterness among political activists of English speaking Cameroon like Ngala Nfor Nfor and Ayamba Otu⁵. They are unfortunately a divided minority made possible by the divisive tendencies of the Francophone and Anglophone ruling elite (Kah 2012:71-103).

Following the resignation of Ahmadou Ahidjo as President of Cameroon on 4 November 1982, Prime Minister Paul Biya, his constitutional successor, assumed the mantle of leadership of this bilingual and diverse country.

³ He rose to the post of Prime Minister of British Southern Cameroons after the general elections of January 1958. Prior to this, he was leader of the opposition Kamerun National Democratic Party (KNDP) after breaking away from the ruling party the Kamerun National Congress (KNC) led by Dr E.M.L. Endeley in 1955. After the reunification of the Southern Cameroons with the Cameroun Republic in 1961, Foncha became the Vice President, was dropped in 1970 and then subsequently appointed as the Grand Chancellor of National Orders. He resigned his post in the 1990s arguing that the government forces had brutalised Anglophones during the post-1992 elections violence.

⁴ Appointed as the Grand Chancellor of National Orders. He resigned his post in the 1990s arguing that the government forces had brutalised Anglophones during the post-1992 elections violence. This was a prominent politician from the vast Muslim region of Cameroon. He joined politics and was elected into the local parliament. He became the Minister of the Interior and Vice Prime Minister to Andre Marie Mbida and took over from him in 1958. He led French Cameroon to independence in January 1960 and then became the first president of a reunited country. He ruled the country until 1982 when he resigned and handed power to his constitutional successor Prime Minister Paul Biya.

⁵ These are the leaders of the Southern Cameroons National Council advocating the separation of English-speaking from French-speaking Cameroon. The latter was a traditional ruler in Manyu Division of the South West Region of Cameroon. He died recently.

Although Ahidjo handed over the reins of leadership to Paul Biya, the two soon fell out leading to the coup d'état of 6 April 1984 between loyalist and rebel forces (Cameroon Fragile State 2010: 10-11; Fanso 1989; Konde 2012: 25-37). The failure of the coup led to mass executions of enemies of the state and the entrenchment of Biya as another "father" of the Cameroonian nation. The treatment of some people from the northern part of Cameroon especially Muslims and the close associates of the former president laid the basis of the perceived North/South dichotomy in Cameroon politics today. Paul Biya has ruled Cameroon since 1982. Attempts from the 1990s to unseat the incumbent Paul Biya after the reintroduction of multiparty politics in Cameroon have so far failed due to ethnicity, patronage, election rigging, and fractured opposition among the other forces in the country (Nkwi 2006 and Nyamnjoh 2005).

Since independence of the Cameroun Republic in 1960 and the reunification with British Southern Cameroons in 1961, two major groups have ruled the country. Power was first in the hands of the northern Muslims represented by President Ahmadou Ahidjo. Following the resignation of Ahidjo on 4 November 1982, power shifted from the Muslims of the North to the Beti-Ewondo-Bulu ethnic groups represented by Paul Biya on 6 November 1982. Since then, there have been tensions between the northerners and southerners over leadership of the country. In the midst of this power tussle between the Northerners and Southerners, the business-minded Bamileke people have also tried to create alliances and capture state power but to no avail. Rather, over the years they have been lumped up with the Anglophones and treated in the coastal towns of Cameroon as strangers.

The Anglophone minority on the other hand, which consists of many ethnic groups has occupied ceremonial posts of Vice President, Speaker of the National Assembly and recently the post of the Prime Minister and Head of Government. These positions do not carry weight in a presidential system of governance like that of Cameroon. The economically vibrant Bamileke of the West Region of Cameroon have only recently been given senior positions in the power equation of Cameroon. The president of the newly created Senate is Niat Marcel Njifenji and the Secretary General of the Central Committee of the Cameroon Peoples' Democratic Movement (CPDM) Jean Keute are all Bamileke. The ruling party has therefore played with the idea of rewarding different ethnic groups through representation in government but has also excluded others which explain their opposition to government.

The dominance of the CPDM through the use of civil servants, state resources and elections which are not transparent has weakened many political parties to the extent that the only ones represented in the legislature are limited to among others the Social Democratic Front (SDF), Cameroon Democratic Union (CDU), National Union for Democracy and Progress (NUDP). These parties and others put together have an insignificant representation in the legislature. For this reason, the one party mentality of hand clapping and support for the government remains without any critical evaluation of its actions and policies. Bills pass through parliament with little or no resistance from the so called people's representatives.

The history of a politically divided Cameroon since independence has been pointed out in this introduction to establish the link that this has with 'contri don spoil' of 'Awilo.' If Cameroon has multiple problems today such as the ones highlighted by Awilo, the genesis of these problems is from the history of the country since the colonial period when it was divided into two unequal halves.

2. Methodology, Significance and Relevant Literature

In this study, use has been made of field observations of daily discussions by Cameroonians on the socio-economic and political problems of the country. Use has also been made of newspaper articles, articles and books and a content analysis of 'Awilo's' song titled *contri don spoil*. In the song he has raised several issues which are better appreciated within the context of the history of Cameroon spanning from its colonial to the post-independence eras. This explains why historical sources have been used to trace the origins and manifestations of the problems or conflicts 'Awilo' present about the Cameroonian society. Some of these conflicts have been compounded by the very fact that Cameroon is a bi-cultural country epitomised by the Mungo River which was an international boundary between British and French Cameroons between 1916 and 1961.

The significance of this study lies in the fact that music is life and permeates all segments of existence in African and other communities. The different genres of music create a sense of belonging, solidarity, unity; differentiation and nostalgia in the way things ought to be (Onyeji 2004:152) because they are often not. Music also covers other issues and acts as social commentary and criticism.

It also addresses development related matters and advocates improvement and good leadership in society (Finnegan 1970:273; Longwe and Clarke 1990:3).

Some authors contend that singing is formal cultural expression or reveals the cultural fabric of African society (Ifionu 1989:151; Akpan 2003:129; Lewis 2004:28). It has been described as a form of expressive art and through it, the rich and diverse cultural heritage of different African societies has been brought to the limelight. Singing in Africa is an art that combines vocal and instrumental sounds into an emotionally pleasant unit. It also serves as a medium where life is expressed in all its diversity (Tala 1987/1988:102). Nketia (Saleh 1985:25-26) adds that singing and life are inseparable. Through the agency of music the Africans attitude to life, their hope and fears, thoughts and beliefs are made known to the larger society. Such is the kind of music that 'Awilo' has produced in Cameroon which discusses the hopes and fears of Cameroonians in a difficult socio-political milieu.

Music is also connected to social identities (Feld 2000:145; Palmsberg and Kirkegaard 2002:15) and is the most subtle and refined way of human entertainment for both the young and old, the aristocrat and the commoner (Onyeji 2004:151). In reference to African songs and or music, Tala (1987/1988:102) opines that it is a form of pleasure and satisfaction for the aesthetic needs of people. Songs serve this purpose and also create new forms of knowledge, meanings, thinking and documentation. Songs perform in fact markedly utilitarian function to different societies at different times in their history (Brusila 1990:35; Tala 1987/1988:102; Bender 1991:xii-xvi; Onyeji 2004:152).

This utilitarianism explains why music or songs mean life, creates life in the African traditional milieu and also lightens the spirits of those in bondage. They permeate the political, economic and socio-cultural milieu of all African societies. The degree of importance varies from one environment to another. The lyrics serve as an important source of historical reconstruction spanning through the politico-economic and socio-cultural domains. In the music of 'Awilo' is information. To fully appreciate this information, the history of Cameroon before and after independence is necessary.

Politically, music is used for community spirit in Africa and it also symbolises solidarity and unity (Tala 1987/1988:102). Finnegan (1970:272-273) contends that music serves the purpose of reporting or commenting on current affairs.

The musical compositions are also used for political pressure and propaganda to reflect and mould public opinion. Finnegan's observation is an apt description of what this paper suggests namely that the music of 'Awilo' serves the purpose of exerting pressure on the leadership of Cameroon to embark on reforms such as the recruitment of 25, 000 young people into the civil service recently, the challenges involved notwithstanding. Still, others use music to indirectly or informally communicate burning issues to leaders and the suppressed masses. The aim is usually to influence policy while avoiding the consequence of speaking to them openly (Finnegan 1970:275) although some musicians dare do so.

Singing in Africa is also used to invoke the 'gods' in traditional religion (Onyeji 2004:149). The outcome of this is often the establishment of a form of social cohesion. Music is therefore an indispensable vehicle for honouring, sustaining and edifying traditional institutions and the customs of a people (Ifionu 1989:151-152). When this happens, those in authority are happy with the political stability and security of the society they lead. Many scramble to identify with both the supreme spirits of the land and the traditional structures that handle such religious matters. Traditional religion and music have therefore become a very strong uniting force in different African societies but have also divided people.

Still, in the political realm music has been used to assert nationhood (Ifionu 1989:164). Throughout the colonial era, political songs were composed and sung throughout the length and breadth of Africa to create or marshal a sense of belonging and heritage. This was against the backdrop of European colonial administration. It was the target of attack by African nationalists like Kwame Nkrumah, Sekou Toure and Amilcal Cabral of the Gold Coast, Guinea and Cape Verde and Guinea Bissau respectively. During the civil war in Nigeria between 1967 and 1970, music was used as an important tool to arouse nationhood among the people of Eastern Nigeria when they rose against the Federal Republic of Nigeria for a new state of Biafra. In the present dispensation, singers compose songs to address contemporary issues like instability and the search for unity, as Boni has rightly observed (Boni 2000:176).

Music has and continuously serves an economic interest. Among the Kpelle of Liberia for instance, the best soloist gains prestige but more importantly becomes financially independent.

This soloist moves from place to place performing for pay from those who invite him or her (Hunt and Stein 1993:43). It is also becoming fashionable in both rural and urban economic life in Africa to use songs for commercial purposes. Marketing or advertising strategies are facilitated through the use of songs or music. This also includes the marketing of the music itself. Onyeji further elaborates that singing produces company during work or manual labour (Onyeji 2004:151-152). This helps to mobilise people to work harder and increase the output of goods and services. It should, however, be noted that it has also promoted laziness among those who take part in it.

In the socio-cultural domain, singing is an important accompaniment to the initiation of young boys and girls into adulthood. In the past Sande girls were kept in seclusion and given intensive training in music and dance. This was when they were being prepared for adulthood. Similarly, among the Kpelle, the girls were taught responsorial songs which were also lessons for adulthood. Besides, in Tokoe society of Ghana, the young girls perform in music and dance during the coming-of-age ceremony. This performance takes place in front of the entire village (Hunt and Stein 1993:42-43). The important function of singing within the Sande, Kpelle and Tokoe has been replicated in other African cultures. Within the socio-cultural milieu, music is used to satirise witches and wizards for their malicious activities of killing people (Chia 1997:12). This study attempts an analysis of the music of 'Awilo' contri don spoil within the context of the socio-political history of a bi-cultural Cameroon.

3. Conflicts in Cameroon: A Contemporary Analysis

Cameroon is Africa in miniature considering the diversity in its vegetation type and, language groups. There are as many as over 280 languages and dialects which has made the country to be conveniently described as a 'babble of tongues' (Fanso 1989; Shultz 1993). Rather than serve as a source of strength, the diversity in cultures and languages has been a source of permanent tension and conflict. There are as many cleavages in the country as there are ethnic and language groups, increasing cosmopolitanism and a growing population of detribalised youths in the towns and cities of the country. The rich are extremely rich. This has made some people describe them as 'stupidly and boisterously' rich. The poor, on the other hand, are exceedingly poor. These are the extremes that have continued to widen the gap between the different social classes in Cameroon.

The result is a mouse and cat-like relationship between the very rich and the extremely poor. The poor have used various approaches to vent their anger and disenchantment with the Cameroonian ruling elite and its acolytes. During the period of electoral consultation these 'wretched of the earth' refuse to register and vote. In spite of many commissions set up to encourage them to vote, they have often resisted them. Others have opted to sell illegally imported fuel in spite of the crackdown on this economic activity.

Another socio-political cleavage in the country is the promotion of ethnicity with provocative impunity by the leadership of this country at different levels of the administrative ladder. Some ethnic groups like the Beti/Ewondo have reserved juicy positions, especially those linked to the control of finances. The Hausa/Fulani since the days of President Ahmadou Ahidjo virtually colonised the military and recruited their kith and kin with impunity. Other ethnic groups have used their elite to colonise other areas of national life like education and some parastatals. During the days of Prime Ministers Ephraim Inoni and Peter Mafany Musonge (between 1996 and 2009) many Bakweri sons and daughters were placed in strategic positions in education. These included people made principals of colleges in Fako Division to the exclusion of other competent Cameroonians.

Besides, in Cameroon there is a political conflict between the ruling elite from the different regions of the country (Nkwi 2006). Each of them wants to be seen and heard and are really to pull the strings for their personal favour and that of very close family members. This conflict blossoms during the run-off to municipal, parliamentary and presidential elections in the country. The elite trade accusations and counter-accusations against one another to the extent that even within the same party they are simply strange bed-fellows. This conflict manifests itself in the form of cultural and development associations, regional non-governmental organisations and other such groups as Chantal and Biya Youths, that is Jarchaby, Presby and President Biya's Young Patriots (Presbyyapa) (Kah Forthcoming). These are simply cover-ups for various attempts to hide the wrongs of those who have plundered state resources with reckless impunity and diverted peoples' attention to regional tensions which serve only the interest of the perpetrators. Such are the kinds of conflicts that 'Awilo' in his hit musical album have addressed in very strong terms. An extract from his song in pidgin English states emphatically:

Papa and mama wona no fool we. Wosai the future for this contri dey?. If something no ti do dis contri, then this contri ti do something. This contri don spoil. Who spoilam and who could fix sam?

These are serious issues and rhetorical questions are raised by 'Awilo' which lay bare the history of Cameroon's socio-political cleavages. The papa and mama he refers to here are people in leadership positions in the state machinery who are an example of bad leaders. Considering the high level of unemployment and armed burglary like the one in Amity Bank in Limbe on 28 September 2008 and Ecobank Douala on 18 - 19 March 2011, 'Awilo' is worried about the future of Cameroon. Considering the problems of Cameroon, 'Awilo' sarcastically argues that something is either wrong with Cameroon or the country itself is on the wrong path. The centre is collapsing but those in authority do not seem to see any problem with the country which makes 'Awilo' to ask the sixty-four million dollar question of who could solve its myriad of problems?

4. Historical Connection of Awilo's Obsession with Cameroon

'Awilo' is the pet name of Mr Ndi Tansa. He hails from the Donga Mantung Division of the North West Region of Cameroon. This region was very critical of the state during the re-introduction of multiparty politics in 1990. This was because of the debilitating economic crisis and the neglect of the construction of the ring road among other social grievances. Many of its citizens dumped the single ruling party, the Cameroon People Democratic Movement (CPDM) for the newly formed party, the Social Democratic Front (SDF)⁶. He is a budding musician with several albums to his credit among which are "We don tiya Beti," and "contri don spoil." He is an anti-establishment musician who believes that it is a matter of time before things begin to fall apart and the centre no longer holds (Vakunta Awilo's Head-on Collision with the Beti Mafia in Cameroon; Cameroons National Communication Council bites <http://erasmodelavega>). Apart from producing music critical of the state and its activities, he is also a TV presenter with the LTM TV in Douala. The famous programme he presents that is watched by many commoners is "Town Cryer." This programme presents issues that affect society and is greatly appreciated by many people.

⁶ The SDF was founded in 1990 in the North West Regional capital Bamenda. The Chariman of the party is Ni John Fru Ndi. It is the leading opposition party in the country.

It was due to this that in 2013 he was suspended by the National Communication Council from presenting this programme for six months and also from broadcasting. The lyrics of his song, “Contri Don Spoil”, present the dilemma of Cameroon. These lyrics read thus:

.... IPP Man he head na he neck carry am. Creation rapide eh bien payee. Eh mama eh contri don spoil eh. Eh mama eh contri don spoil eh. Who spoil am, who could fix am...Yes mona camerounais dem. Ondong Ndong say he no fit die l'acheté for sika détournement des fonds publics. Mais où sont les autres. C'est les choses à vérifier.

This contri get fever. Mbere dem they don turn na clando driver for Mboko here. Repe be talk say place where nang hold you cablé daso for don dibi. PMUC he don make reke dem get vertige because say dem miss one number chaque dimanche... for sika million invisible.... Qui est riche à cause de tiercé? Wona langwa me.

Eh mama eh contri don spoil eh. Eh mama he contri don spoil.... South West he don ton na extreme South West. Kumba-Mamfe road he don ton na the culture of the Manyu people. Every day motion of support from Mamfe to Yaounde for sika weti? The job badly done? I hear say Mamfe woman, Kumba woman dem no ti buy powder again because of dust. Their colour don change for sika dust but everyday motion of support. Ambition don chop wona for witch? Les choses à vérifier.

New law for Cameroon he don chop mona policier dem alias faire bien la voiture. Tu me donnes mes cinq cent comme réglé. Now na civil he dey for minioté nye dem. Wonna don see weti? Petit Pays be commut say même les chefs d'état meurent but time where cocoma call eh for ngola, he want come back Brenda, Junior, Anastasie. Les chefs d'états ne peuvent mourir.

Money get power. Money get power. Ashawoo alias quasaquasa he don ton na business where he no need capital again. Paul Biya Bi Mvondo lias cocoma he don talk say make we create. If you loose hair, gain head na you sabi, all na self-employment

Oh mama eh contri don spoil, oh mama eh contri don spoil.... Ndiefi Pius, Mokake dem not fit play again. If wonna want for play wonna change birth certificate from Mbarga Ndiefi Pius, Onana Atangana Marcus Mokake before wonna fit commut for banc de touche.

Le Cameroun de grandes ambitions. Vraiment, la corruption, discrimination he don kill we pass. If you no get godfather na for your own risk.

Université de Buea he don ton na centre de formation militaire. Dorothy Njeuma alias Margaret Thatcher he be say as daughter of the soil na caterpillar could move he for Université de Buea... Make I laugh small. For last fight na stone he move he for Université de Buea. And na today he don ton na locataire for Yaounde. Contri where youth no get age limit. Le Cameroun de grandes ambitions. Les choses à vérifier. Prof Lambi he say he no know corruption. Grande ambition laugh donc alors tu n'es pas mon fils...enlevé du function. Où sont les autres? Titanji come back. First strike move he second strike bring he. Vraiment les choses à vérifier. Qui a tué Bikoi Njiki? Allez demander à Buea.

Eh mama eh contri don spoil, eh mama eh contri don spoil.... CPDM, UPC vraiment wanna ask dat question for SDF. Who is the chairman of the Social Democratic Front power to the people? Dem say he don ton na individual power. SDF don ton na meat where dog dem ti fight for divide tam for factions. Les choses à vérifier. Muna say na me, Fru Ndi say na me, Ngwasiri say na me. Les choses à vérifier. Na who be compositeur, auteur de SDF wona ask me?

Eh mama eh contri don spoil. Eh mama eh contri don spoil.... Université de Buea he no get future again? You commut dey with kind kind diplome de sortie na for your own risk. If you be nga alors call box ti wait you. If you be man pickin bendskin union alias welcome to motorcycle Union....

SCNC he don ton na NGO where all man ti find way for nyongo for USA. Wanna don nye weti. Na so we could take am for fix this country? Les choses à vérifier

Eh mama eh contri don spoil, eh mama eh contri don spoil... Who could fix am. Papa and mami dem wanna don fool me. Wosai the future for this contri dey? Wosai wanna don lep am? Pickin dem no get future again? Wanna no ti shame? Everyday wanna dey for salon, put me black for head, put me black for head. Na de changement dat? Wanna check skin find, wanna check find.

Eh mama eh contri don spoil, eh mama eh contri don spoil.... Yaounde wanna fix am. I hear say Mamfe man is a proud man, of course.

*Na for the dust where wanna ti export tam or for the mud where
wonna ti import am? Wonna be very good for writing motions of
support...and petition writing too....*

*I go for Bamenda I shame. For labour day of course na Babanki
njama njama be ti march, prisoner dem, shoemakers, ashawoo institute
@yahoo.com*

*Eh mama contri don spoil....This contri don pass me oh, something don pass
me oh....*

In Awilo's lead album he begins a song with the lamentation '*contri don spoil,*' and repeats it throughout the song. This lamentation shows clearly that Cameroon is socio-politically and economically in an abysmal state. The next statement that follows in this song is a rhetorical question *who spoil am and who could fix am?* (Who is responsible for this failure of Cameroon and who will provide the solutions or redeem the country?). These are serious questions as are others like *Wosai the future for this contri dey? Wosai wanna don lep am? Pickin dem no get future again? Wonna no ti shame?* (Where is the future of this country? Where have you kept it? Children do not have a future again? Are you not ashamed?).

There is no doubt that Cameroon's body politic is so sick that there is need for a diagnosis of its multifarious problems and for a prescription of therapies to redeem the country and its people. The roads are bad and the tarring of new roads like the Kumba-Mamfe road which is economically profitable because of the agricultural produce from the area and the trade that can be boosted with Nigeria has for decades been politicised. Again, one can hardly pass an examination or get employment as a civil servant without a godfather. These are some of the ills that Awilo detests and argues that the state is at an advanced stage of decay. Although he is pessimistic about the state of affairs in his beloved country, he is also patriotic about the future of the Cameroon. He asks "who are the culprits in these words *Who spoil am, who could fix am...?*" (Who are the spoilers and who will put back things on rails?). He challenges Cameroonians, especially those in leadership positions, to rise to the challenge and give back sanity to Cameroon that its citizens so badly need.

'Awilo' also describes the daily realities of Cameroon as saddening. In his own words, Cameroon has 'fever.' This means that the country is at a stage of serious socio-political and economic decadence. Truly, 'Awilo' refers to the

numerous crises the country is going through. Many people live at the margin because of the debilitating economic situation in the country compounded by a hike in prices of basic commodities. Among the litany of crises are the grievances of Anglophones who feel marginalised simply because they speak English and come from West of the Mungo River. When civil servants chase documents in Yaounde from the two Anglophone regions, some Francophones refer to them as Anglo-fools. In response, Anglophones also call them names like ‘frogs.’ Within the Anglophone community there is the trivialisation of matters of the state. And precious time is spent in bickering than in building the community and country (Nkwi 2004:185-209; All Anglophone Conference Standing Committee, 1993; Abwa 2000; Konings and Nyamnjoh 1997:203-229; Ngoh 1999:165-183; Chem Langhee 1995:88-99; Fanso 1999; Ngegne 2003:61-86; Jua 2003:87-110; Nkwi 2007:153-160; Tita 1993; Toh 2001; Schneider 1999; Kah 2012:71-103). Other crises of Cameroon include the ‘ethnicisation’ of political representation, political violence, arrogance of appointed individuals, and the depletion of the country’s resources with impunity and the rigging of elections at all levels of the democratic process (Gros 2003:131-165; Kah 2010:19-35; Ndeh et al 2010:121-138).

‘Awilo’ also examines the disgrace on Cameroon by the forces of law and order who through their activities promote lawlessness and disorder. In these words he captures the thinking of Cameroonians about the attitude of the police. *New law for Cameroon he don chop mona policier dem alias faire bien la voiture. Tu me donnes mes cinq cent comme réglé.* The disgrace its police forces have given to the country is the collection of 500 francs CFA from drivers with impunity and relish and their harassment and extortion of money from foreigners who visit the country. Paul Biya, the President of Cameroon, in one of his New Year speeches acknowledged that the police force was a disgrace to the country. Other ills of these men in uniform include drunkenness and gambling. These malpractices of the police made the present Police Boss Martin Mbarga Ngeue temporarily suspend the Police from the road. This was applauded by the public although these men and women in uniform have since returned to the road and continued with their bad habits.

In the days of the Southern/West Cameroon state⁷, such offences were noticed but punished by the governing authorities. People who listen to 'Awilo's' *contri don spoil* lament that such vices were not tolerated in West Cameroon but that since reunification in 1961, the integrity of the police corps has seriously been damaged by the nonchalant and disgraceful attitude of the forces of law and order. They regret the reunification of the Cameroons and attribute vices of the men in uniform to a culture of impunity East of the Mungo which they argue often went unpunished. What is however important to note is that the policy of centralisation of administration has contributed to laxity and inertia in the public service of Cameroon. This inertia has been publicly acknowledged by the Head of State Paul Biya in several of his public speeches. While some people challenge this assertion as a stereotype not based on any rational inquiry, others attest to the fact that in the days of Southern/West Cameroon crimes committed whether by forces of law and order or ordinary citizens were severely punished⁸.

In addition, 'Awilo' also addresses two important aspects of the political culture of Cameroonians which are motions of support and at the same time petitions. His case here is the Mamfe people of Manyu Division in English speaking Cameroon. Although during the rainy season, many of them go through Bamenda, a longer distance to Mamfe, they are notorious for motions of support to the Head of State, Paul Biya and the ruling CPDM to their militancy in the party and unalloyed support to the President. One should however not be blinded to the fact that a few gullible individuals who always claim to speak for the population send these motions of support. Paradoxically, Mamfe is noted by 'Awilo' for its craftsmanship in writing petitions against fellow brethren. This culture of motions of support in Cameroon's political culture has been discussed at length by Akoko and Mbuagbo (Mbuagbo and Akoko 2004:241-258).

⁷ The state of West Cameroon came into existence on 1 October 1961 after the reunification of British Southern Cameroons and the Republic of Cameroon. The former Republic of Cameroon became the East Cameroon state. The Federal structure that brought the two territories was dismantled in 1972 after the Referendum of 20 May. The former West Cameroon was split into the North West and South West Provinces which were again renamed like other provinces as the North West and South West Regions in November 2008.

⁸ In several reports on the "Grape Vine" slot of Cameroon Calling, an English language critical programme over Cameroon Radio and Television (CRTV) in Yaounde, retired journalist Kevin Njomo decried the culture of impunity in Cameroon and compares it with what obtained in the State of West Cameroon between 1961 and 1972 when the Unitary state replaced the Federal state and West Cameroon was split into the North West and South West Provinces and are today known as the North West and South West Regions of Cameroon.

Motions of support have the double-prong effect of estranging and pulling people and the centre together in a cat/mouse-like relationship borne out of fear, suppression and exclusion. Through this, Cameroonian elite from across the Mungo are in a mad race in their sycophantic motions of support to please the system, themselves and displease the people in the process.

While the ordinary literature generally examines the unifying influence of football (Clignet and Stark 1974:409-421; Nkwi and Vidacs 1997; Vidacs 2003:167-184), 'Awilo' thinks that Cameroon's football is sick. Unlike in countries like Nigeria where national unity is sought and blended with talent to ensure the regional representation of players, in Cameroon many players are from the French speaking region and specifically, the Bassa ethnic group.

In the past few years the achievement curve of the national team of Cameroon is on a sharp decline and many questions are being raised by the sports-loving public of the country.

Another problem which has become a cankerworm of the Cameroon administration is the triple issue of corruption, discrimination and godfatherism. Some twenty years or so ago, some were considered a good civil servant or worker if he embezzled money and discriminated in the award of contracts or recruitment of civil servants. This was not tackled with an iron fist by the regime in place and the one before it.

It grew to a level of becoming a monster (Mbile 2000) and today corruption and discrimination have rubbed Cameroon of the virtue of goodness and rightness in the conduct of public affairs. One needs to have a godfather or protector to be sure of employment or admission into a professional school even before s/he graduates from the university. If s/he has not got any direct benefactor, then agents are used to bribe one's way into a position of responsibility in the public service.

'Awilo' focuses on political prostitution and infighting in Cameroon. Citing the example of the Social Democratic Front (SDF) party he questions the person wielding real power in this political party because of the quarrels that erupted between the Chairman of the party Ni John Fru Ndi, Barrister Bernard Muna and Clement Ngwasiri. Instead of preaching power to the people of Cameroon as its slogan says, the tussle within this political party is resulting in individual power. This episode of the SDF is a tip of the iceberg in the political rigmarole in different political parties of Cameroon.

Within other political parties like the CPDM, National Union for Democracy and Progress (NUDP), UPC and others, individuals have wrestled for individual power. In its 2005 report of the October 2004 presidential elections in Cameroon, the National Elections Observatory (NEO) made reference to this bickering in different political parties (General Report of the Conduct of the Presidential Elections of 11 October 2004). Without a clearly defined programme as therapy to the multiple problems of Cameroon, the parties have passed for social clubs where anyone can go for entertainment or use as a base for their own personal enrichment from the state treasury. Some of the parties are regional and therefore out to serve regional and not national interest.

'Awilo' describes the Southern Cameroon National Council as an NGO which people now use to seek asylum in the United States of America and Europe. In his words he says that *SCNC he don ton na NGO where all man ti find way for nyongo for USA* (SCNC has become an NGO which everyone uses to go to the USA). This is what has happened to some people who joined the struggle or who never even joined it but used it to travel to the USA. It is saddening to see Cameroonians West of the Mungo who were once considered as upright citizens to engage in such debasing things as these. It also tells of the level of poverty in the country that has pushed people to seek for all means possible to travel out of the country for jobs elsewhere. Many of the NGOs in the country like others elsewhere are in people's suitcases. They use them to make fast money for themselves and soon afterwards abandon the NGO business for other investments. That is how far the country has gone in its double standards of repression but at the same time in turning around to take credit for the recognition of 1 October as an important date to be recognised and celebrated in Cameroon from 2011. A few years ago, SCNC activists were imprisoned because they dared recognise and celebrate this date but today the government mobilised resources and celebrated the 50th anniversary of reunification in 2014. Where does the credit goes to, the government of Cameroon or the SCNC which started the fight for the recognition of this date? Here lie the complexities of the Cameroon nation-state in the 21st century.

5. Conclusion

In this paper, we have tried to show that the problems of Cameroon today as aptly articulated by 'Awilo' in his song '*contri don spoil*' have their roots in the history of Cameroon from the colonial period. Cameroon was partitioned into two after the defeat of the Germans and evolved through French and British cultures.

After reunification in 1961, these problems became visible in the management of the affairs of the state. Today, there are multifarious socio-political and economic problems that need a strong political will to handle. As long as these problems are taken lightly by gullible governing and ruling Francophone and Anglophone elite, the country is likely to slide towards a precipice. 'Awilo' challenges right-thinking Cameroonians to rise up to the challenge and save Cameroon from total collapse. This can be made possible through a full appreciation of problems of division and reunification and addressing them. Failure to do so will only make Cameroon doomed for failure.

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