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Forecasting Employee Turnover for Human Resource Based on Time Series Analysis

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ABSTRACT

Purpose: The study examines employee turnover in hospitality industry in India. It investigates the trend of employee turnover in the hospitality industry in India and factors responsible for employee turnover.

Design/Methodology/Approach: The data was from secondary sources of Journal of Annual Survey of industries (2011-2012) Volume II of the Government of India, Ministry of Labour & Employment Labour Bureau, Chandigarh/Shimla. The analysis was done using the Time Series model and E-views 9.0 software was used for carrying out the data analysis of the study.

Originality/Value: There have been few studies that made use of the regression model with additive trend, seasonality, and interventions to determine employee turnover rates in India. This paper contributes to the rate of employee turnover in hospitality industry in India.

Keywords: Employee, turnover, labour, hospitality, employment.

1. INTRODUCTION

The rate at which the existing employees are replaced by new employees is called the employee turnover rate. In today's competitive business world, it is considered to be an important task to manage employee turnover for any organization. Naturally, people want diversities in his/her everyday life; seeks for new and challenging jobs and the good working environment in the job place. To provide these things to the employees in an economic way is very difficult and cumbersome. But it is also crucial for any organization to retain its talented employees. Every organization wished to have high productivity, fewer turnovers and to be profitable. Managing turnover successfully is a must to achieve the above goals. In a human resources

context, turnover or labour turnover is the rate at which an employer gains and loses employees. Simple ways to describe it are "how long employees tend to stay" or "the rate of traffic through the revolving door." Turnover is measured for individual companies and for their industry as a whole. If an employer is said to have a high turnover relative to its competitors, it means that employees of that company have a shorter average tenure than those of other companies in the same industry.

There are basically four different types of turnover: Voluntary, Involuntary, Functional and Dysfunctional. Lockyer (2010) opined that in a voluntary turnover the employee leaves due to his own free will. He may leave due to a better job offer, a conflict with the staff or the higher authorities or lack of opportunities for advancement in the present job. Phillips and Connell (2010) commented that involuntary turnover is when the existing employee is fired by the authorities and the employee unwillingly leaves his job. This can be caused due to poor performance or conflict with the staff or authorities. Pizam (2010) explained that Functional turnover occurs when an employee who performs weakly or poorly leaves on his own volition. In this case, the paperwork is much less for the company concerned. They do not have to go through the hassle of proving that the employee is a poor performer and fire him or her but simply respect the wishes of the employee and let them go. Finally, Powers and Barrows (2009) stated that dysfunctional turnover occurs when an employee who performs very well leaves the company because they have a better opportunity somewhere else.

Beardwell (2004) and Long et al. (2012) are among few authors who argued that employees of a company are important stakeholders in the firm. They regretted that after limited resources have been used in recruiting, training and developing the employees, the majority of them leave the organization for other organizations. It was put forward that employee's turnover has drained limited resources of small and medium-sized firms (SMFs) as the services of the lost employees are no longer available to be utilized by the firm (Ajagbe et al, 2012, Bilau, 2011). If the demands of employees are properly addressed, the turnover rate is not likely to rise. Risen level of employee's turnover implies that employees are not satisfied with their current job (Solomon et al, 2012).

Turnover rate varies from company to company and sector to sector. The highest level of turnover normally found in private sectors than public sectors. The levels of turnover also vary from region to region. The highest rates are found where the unemployment rate is lower and where it is easy for people to get alternative employment (Rankin, 2006). Sometimes employee turnover benefits organizations positively. This might happen when a poor performer is replaced by a more skilled employee and when a retired employee replaced by a younger one. Employee turnover may be also costly as it requires the different cost to take account such as administrative costs of recruitment, cost of coverage during the period in which there is a vacancy, training cost for the new employeeetc. (Philips, 1990).

Turnover occurs for many different reasons. Sometimes new job attracts employees and pulls them to leave the old one. In contrary employee also pushed to leave thejob due to the dissatisfaction in their present workplace or by domestic circumstances when someone reallocates with their spouse or partner (Campion, 1991). A poor relationship with the management can be an important reason for the employees to leave their jobs. It is relatively rare for people to leave jobs in which they are happy even offered by higher salary elsewhere (Carsten and Spector, 1987).

A lack of proper training and development is also a major cause of voluntary turnover. Employees have a preference for the security of their jobs. A high turnover rate may be harmful to the company if

high-performance workers are leaving frequently and the number of novice employees is growing. Zhang (2010) commented that many companies track their turnover rate, especially in case of dysfunctional turnovers and take steps to avoid these. They have found that immediately addressing the issues that bother the employees lead to a lower rate of dysfunctional turnovers.

The present study examines the employee turnover in hospitality industries in Indian. Sheel (2014) opined that the main problem of Indian hospitality industry is that, they always think of putting the customer first and they forget to consider the employees. However, it is very important that they must consider the employees also to run a successful business. The Indian hospitality industry suffers from a high rate of attrition, that is, more and more employees leave but new employees are not found to replace them. This problem mainly arises because the employees are dissatisfied with their long working hours and not adequate pay.

The objectives of this study are as follows:

(i) To examine the trend of employee turnover in the hospitality industry in India.

(ii) To determine factors responsible for employee turnover in the hospitality industry in India.

(iii) To examine the impact of employee turnover on the productivity level hospitality industry in India.

Research Hypotheses

$H_0$1: The rate of employee turnover in the hospitality industry has no significant impact on the productivity level of the industry.

$H_0$2: The trend of employee turnover in the hospitality industry is significantly higher than other sectors.

$H_0$3: The factors responsible for employee turnover in the hospitality industry has no significant impact on the productivity level of the industry.

2. LITERATURE REVIEW

Budhwar, Varma, Malhotra, & Mukherjee (2009) have observed that range of reasons like from monotonous nature of work, stressful work environment, adverse working conditions, lack of career development opportunities, to better job opportunities elsewhere emerged as key causes of attrition in Indian BPO industry. Thite & Russell (2010) examined work organization, human resource practices and employee retention in Indian call centres and observed in their research that workers who consider that their current jobs are easily replaceable are significantly less likely to exhibit attachment to their employment in Indian BPO. Lang (2008) suggested that high attrition rates problems can solve by working on factors like meaningful job (job pleasure or enjoyment), career path and money, as these three factors were found main considerations for employees to be in the company.

Boxall, Macky, & Rasmussen (2003) stated that in terms of the reasons for employee turnover, the study demonstrates that motivation for a job change is multidimensional: no one factor will explain it. While interesting work is strongest attract or and retainer in labour market. There is a growing concern with work-life balance and relationship between co-workers and supervisors.

Parker and Kohlmeyer, (2005) noted in their study that the two factors that are organisational commitment and job satisfaction has a very high effect on turnover intention. This shows that the staffs with good job satisfaction levels have a great potential to work efficiently and their organizational commitment and willingness to cooperate with the organization, stops them from leaving their jobs. According to Robinson & Beesley, (2010), dissatisfaction in the work environment is a major force that drives the employee towards turnover intentions. They also commented that searching for new jobs is beginning of the intention to quit.

3. METHODS

Data Sources and Preparation

The data used was a secondary data gotten from Journal of Annual Survey of industries (2011-2012) Volume II of the Government of India, Ministry of Labour & Employment Labour Bureau, Chandigarh/ Shimla. The turnover dataset was summarized in the form of monthly data with the following variables such as factories reporting labour turnover, average number of workers, accession and separation within 24 months (January 2010- December 2011) This study examined the impact of average number of workers, accession and separation on factories reporting labour turnover over a period 24 months. The data analysis was carried out using E-views 9.0 software.

Pattern Analysis, Cross-correlations, and Outlier Identification

To model a time series, looking for patterns in the turnover series is important. First, this study examined the time plot of the series and box plots of the seasons or the months. In this case, the turnover series' seasonal pattern was tested through Kruskal–Wallis and ANOVA tests (p-value < 0.05), which did not correct for any trend in the series. The second stage of the pattern analysis involves autocorrelation (ACF) and partial autocorrelation (PACF) plots to identify seasonal, autoregressive and moving average patterns. If external variables exist (as in this case), the third stage of pattern analysis examines the cross-correlations between turnover series (Yt) and external variables (CLI (Xt) over time). The cross-correlation function (CCF) was used to identify lags of CLI (Xt) that might be useful predictors of turnover series (Yt). A longer lag that is strong enables the forecast horizon to be longer when using an external variable.

Time Series Analysis

In time series forecasting, past observations of the variable being analyzed are collected and analyzed to develop a model describing the pattern. This modelling approach is particularly useful when little knowledge is available regarding the data generating processor when no satisfactory explanatory model relates the prediction variable to other explanatory variables. In this study, univariate and multivariate time series methods were used to identify an optimum forecast.

Table 1
Descriptive Statistics

Variable	*Mean*	*SD*
Labour turnover	52731.6	64394.5
Number of workers	74.0	10.0
Accession	19.0	18.0
Separation	18.0	10.0

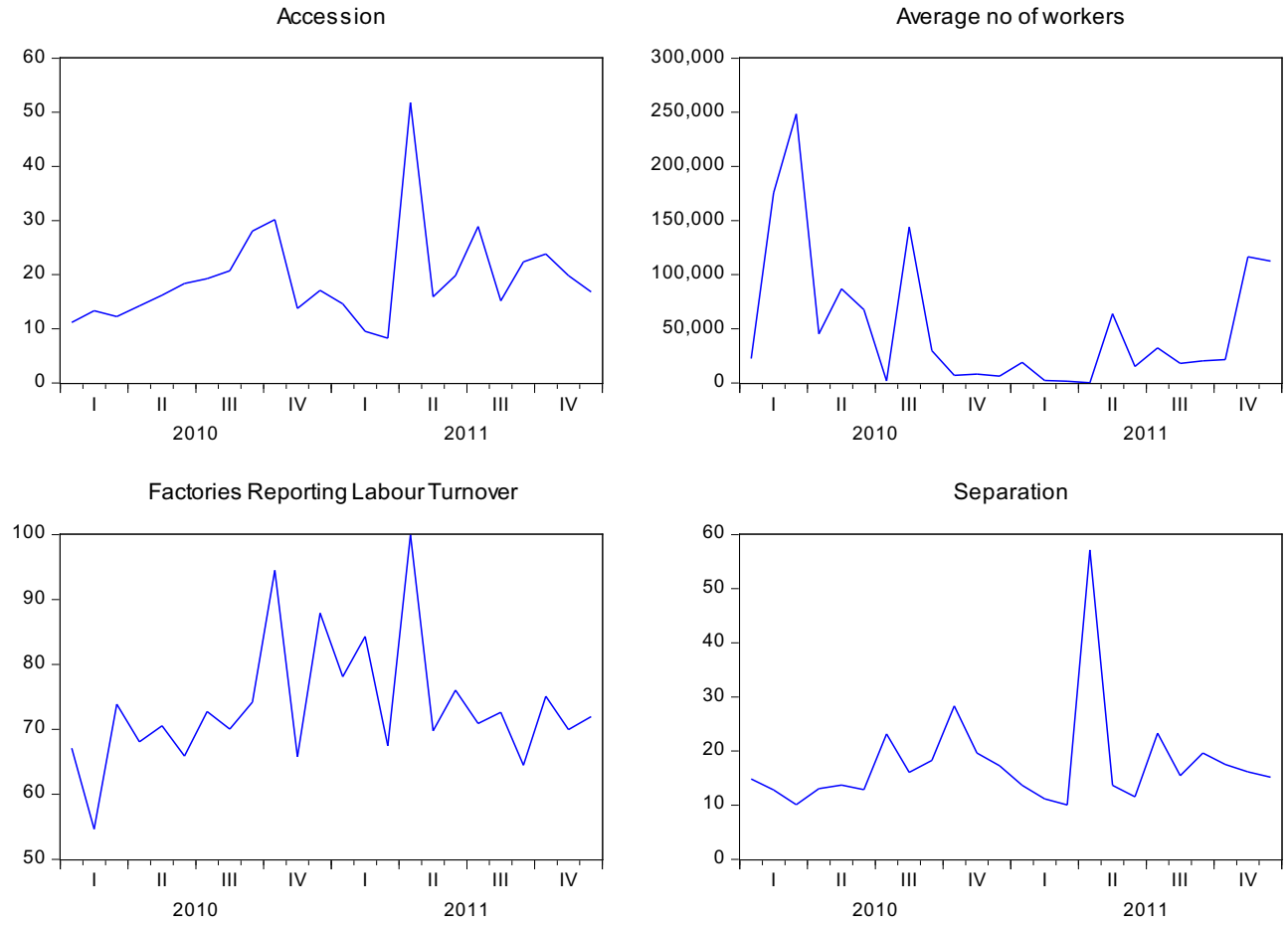


Table 2
Augmented Dickey Fuller (ADF) Test

Variable	*Level*	*Critical Value (5%)*	*Critical Value (10%)*	*P-Value*	*Decision*
Log labour Turnover	–5.419769*	–2.998064	–2.638752	0.0002	I(0)
Log no of workers	–3.655068*	–2.998064	–2.638752	0.0124	I(0)
Log accession	–4.409776*	–2.998064	–2.638752	0.0023	I(0)
Log separation	–3.894573*	–3.004861	–2.642242	0.0076	I(0)

Note: *indicates significance at 5 percent level.

The result of the Augmented Dickey Fuller unit tests are presented in table 2 above. The test indicated that all the variables proved to be stationary at Level, since the ADF statistics are much lower than their respective critical values at 5% and 10%, so we reject the H_0 at and conclude that the variables (log Labour Turnover, Log no of workers, Log accession and Log separation) have no unit root. This was proven their respective *p*-values which are less than 0.05. The study concludes that all the variables are integrated to order zero (0). Since the Level values of Log labour Turnover (Labour Turnover) –5.419769, Log no of workers (Number of workers) –3.655068, Log accession (Accession) –4.409776 and Log separation (Separation) –3.894573 are lower than the critical values –2.998064, –2.998064, –2.998064 and –3.004861

at 5% and –2.638752, –2.638752, –2.638752 and –2.642242 at 10% respectively, we conclude that the variables Labour Turnover, Number of workers, Accession and Separation are stationary and integrated to order zero I(0).

Table 3
Johansen co-integration test result

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	*Eigenvalue*	*Trace Statistic*	*0.05 Critical Value*	*Prob.***
None*	0.777964	71.79439	47.85613	0.0001
At most 1*	0.610103	38.68621	29.79707	0.0037
At most 2*	0.413591	17.96500	15.49471	0.0208
At most 3*	0.246369	6.222766	3.841466	0.0126
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	*Eigenvalue*	*Max-Eigen Statistic*	*0.05 Critical Value*	*Prob.***
None*	0.777964	33.10818	27.58434	0.0088
At most 1	0.610103	20.72121	21.13162	0.0570
At most 2	0.413591	11.74224	14.26460	0.1207
At most 3*	0.246369	6.222766	3.841466	0.0126

From table 4.3, since the trace statistic of 71.79439 is greater than the critical value of 47.85613 and the *p*-value < 0.05. Also At most 1 level, trace statistic of 38.68621 is greater than the critical value of 29.79707 and *p*-value < 0.05, therefore, we reject null hypothesis and conclude that there is at most 4 co-integration among the variables Labour Turnover and independent variables (Number of workers accession and separation). This implies that there is at most 4 co-integration model at 5% level. The variables Labour turnover and independent variables (Number of workers accession and separation) are co-integrated or have long run association. This is supported by the max-eigen statistics of 33.10818 which is greater than the critical value of 27.58343 with *p*-value <0.05 and At most 3 level, the Max statistic of 6.222766 is greater than critical value of 3.841466 with *p*-value <0.05. Therefore, we reject null hypothesis and conclude that

Table 4
Vector Error Correction Estimates

Cointegrating Eq:	*CointEq1*
Log labour turnover(–1)	1.000000
Log no of workers(–1)	–1.067735
	(0.13254)
	[–8.05587]
Log accession(–1)	11.40640
	(1.66887)
	[6.83479]
Log separation(–1)	–18.20790
	(1.96385)
	[–9.27154]
C	10.36106

Error Correction:	*D(Log labour turnover)*	*D(Log no of workers)*	*D(Log accession)*	*D(Log separation)*
Cointeq1	–0.032359	–0.589674	0.149341	0.196055
	(0.02318)	(0.45310)	(0.08369)	(0.08500)
	[–1.39613]	[–1.30141]	[1.78449]	[2.30643]
D(Log labour turnover(–1))	–1.306393	–0.360254	–1.632032	–0.684186
	(0.34038)	(6.65407)	(1.22901)	(1.24832)
	[–3.83805]	[–0.05414]	[–1.32792]	[–0.54808]
D(Log labour turnover(–2))	–0.370496	–4.356204	–0.725032	0.181437
	(0.34789)	(6.80085)	(1.25612)	(1.27586)
	[–1.06499]	[–0.64054]	[–0.57720]	[0.14221]
D(Log no of workers(–1))	–0.051455	–0.006270	–0.070608	–0.037524
	(0.02991)	(0.58468)	(0.10799)	(0.10969)
	[–1.72044]	[–0.01072]	[–0.65384]	[–0.34210]
D(Log no of workers(–2))	–0.027793	0.633666	–0.089738	–0.064559
	(0.02339)	(0.45717)	(0.08444)	(0.08577)
	[–1.18846]	[1.38606]	[–1.06275]	[–0.75274]
D(Log accession(–1))	0.485964	3.001085	–0.625156	–0.834521
	(0.22568)	(4.41191)	(0.81488)	(0.82769)
	[2.15329]	[0.68022]	[–0.76717]	[–1.00826]
D(Log accession(–2))	0.297305	0.794494	–0.682204	–0.627272
	(0.19123)	(3.73839)	(0.69048)	(0.70133)
	[1.55468]	[0.21252]	[–0.98801]	[–0.89440]
D(Log separation(–1))	–0.644387	0.834080	0.162784	0.385406
	(0.30790)	(6.01923)	(1.11175)	(1.12922)
	[–2.09281]	[0.13857]	[0.14642]	[0.34130]
D(Log separation(–2))	–0.401794	2.905228	0.469816	0.241427
	(0.21652)	(4.23284)	(0.78181)	(0.79409)
	[–1.85565]	[0.68635]	[0.60094]	[0.30403]
C	0.001986	–0.054462	0.028947	0.025005
	(0.01122)	(0.21930)	(0.04051)	(0.04114)
	[0.17701]	[–0.24834]	[0.71465]	[0.60777]
R–squared	0.796324	0.702897	0.703334	0.711139
Adj. R–squared	0.629681	0.459812	0.460608	0.474797
Sum sq. resids	0.028045	10.71784	0.365631	0.377212
S.E. equation	0.050493	0.987091	0.182316	0.185181
F–statistic	4.778607	2.891575	2.897642	3.008949
Log likelihood	39.69614	–22.73527	12.73416	12.40674
Akaike AIC	–2.828204	3.117645	–0.260396	–0.229213
Schwarz SC	–2.330812	3.615037	0.236995	0.268179
Mean dependent	–0.000476	–0.016667	0.006667	0.008571
S.D. dependent	0.082974	1.343028	0.248240	0.255525
Determinant resid covariance (dof adj.)		1.76E-08		
Determinant resid covariance		1.33E-09		
Log likelihood		95.42071		
Akaike information criterion		–4.897211		
Schwarz criterion		–2.708688		

there is at least 1 co-integration among the variables Labour turnover and independent variables (Number of workers accession and separation). This implies that there is at least one co-integration among the dependent variable Log labour turnover (Labour Turnover) and the Independent variables (Number of workers, accession and separation) which means that there is long run relationship between Labour turnover and Number of workers accession and separation.

From the Vector Error Correction Model in Table 4, the co-integration equation is estimated as Log labour turnover = 10.36106 – 1.067735 Log no of workers + 11.40640 Log accession – 18.20790 Log separation. The long-run elasticity of the Log labour turnover (Labour Turnover) to Log no of workers (Number of workers) is almost 1.1 In other words, a one percent deviation in number of workers increases the Labour turnover by 1.1%. Accordingly, a one percent deviation in the accession increases the Labour turnover by 11.4% and a one percent deviation in the separation increases the Labour turnover by 18.2%.

The model is stated as below as:

D(Log labour turnover) = C(1) × (Log labour turnover(–1) - 1.06773516116*Log no of workers(–1) + 11.4063996822*Log accession(–1) – 18.2078983365 × Log separation(–1) + 10.3610574335) + C(2) × D(Log labour turnover(–1)) + C(3) × D(Log labour turnover(–2)) + C(4) × D(Log no of workers(–1)) + C(5) × D(Log no of workers(–2)) + C(6) × D(Log accession(–1)) + C(7) × D(Log accession(–2)) + C(8) × D(Log separation(–1)) + C(9) × D(Log separation(–2)) + C(10)

This shows that with $R^2 = 0.7963$ which implies that 78.5% of the total variance in Labour turnover was accounted for by the linear combination of predictor variables (number of workers, separation and accession).

Table 5
Long Run and Short Run Causality

Dependent Variable: D(Log labour turnover)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Date: 01/30/18 Time: 16:29
Sample (adjusted): 2010M04 2011M12
Included observations: 21 after adjustments
D(Log labour turnover) = C(1) × (Log labour turnover(–1) – 1.06773516116*Log no of workers(–1) + 11.4063996822 × Log accession(–1) – 18.2078983365 × Log separation(–1) + 10.3610574335) + C(2) × D(Log labour turnover(–1)) + C(3) × D(Log labour turnover(–2)) + C(4) × D(Log no of workers(–1)) + C(5) × D(Log no of workers(–2)) + C(6) × D(Log accession(–1)) + C(7) × D(Log accession(–2)) + C(8) × D(Log separation(–1)) + C(9) × D(Log separation(–2)) + C(10)

	Coefficient	*Std. Error*	*t-Statistic*	*Prob.*
C(1)	–0.032359	0.023178	–1.396130	0.1902
C(2)	–1.306393	0.340379	–3.838054	0.0028
C(3)	–0.370496	0.347887	–1.064990	0.3097
C(4)	–0.051455	0.029908	–1.720444	0.1133
C(5)	–0.027793	0.023386	–1.188459	0.2597
C(6)	0.485964	0.225684	2.153289	0.0543
C(7)	0.297305	0.191231	1.554684	0.1483

	Coefficient	*Std. Error*	*t-Statistic*	*Prob.*
C(8)	–0.644387	0.307905	–2.092812	0.0603
C(9)	–0.401794	0.216525	–1.855652	0.0905
C(10)	0.001986	0.011218	0.177012	0.8627
R-squared	0.796324	Mean dependent var		–0.000476
Adjusted R-squared	0.629681	S.D. dependent var		0.082974
S.E. of regression	0.050493	Akaike info criterion		–2.828204
Sum squared resid	0.028045	Schwarz criterion		–2.330812
Log likelihood	39.69614	Hannan-Quinn criter.		–2.720257
F-statistic	4.778607	Durbin-Watson stat		1.844175
Prob(F-statistic)	0.008883			

From Table 5, C(1) is negative but not significant, therefore there is no long run causality running from the independent variables (Number of workers, accession and separation) to Labour turnover.

Table 6
Wald Test showing Short Run Causality of Log no of workers

Wald Test:
Equation: Untitled

Test Statistic	*Value*	*df*	*Probability*
F-statistic	1.510099	(2, 11)	0.2633
Chi-square	3.020197	2	0.2209

Null Hypothesis: C(4)=C(5)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	*Value*	*Std. Err.*
C(4)	–0.051455	0.029908
C(5)	–0.027793	0.023386

Restrictions are linear in coefficients.

The result of the Wald Test shows that the F-statistic F(2,11) = 1.510099 with *p*-value of 0.2633 which is not significant, since F-stat's *p*-value > 0.05, then we cannot reject the null hypothesis. Therefore C(4) = C(5) = 0 which implies that the null hypothesis of C(4) = C(5) = 0 is retained and indicate that there is no short run causality running from number of workers to Labour turnover.

Table 7
Wald Test showing Short Run Causality of Log accession

Wald Test:
Equation: Untitled

Test Statistic	*Value*	*df*	*Probability*
F-statistic	2.322539	(2, 11)	0.1441
Chi-square	4.645078	2	0.0980

Null Hypothesis: C(6)=C(7)=0

Null Hypothesis Summary:

Normalized Restriction (= 0)	*Value*	*Std. Err.*
C(6)	0.485964	0.225684
C(7)	0.297305	0.191231

The result of the Wald Test shows that the F-statistic F(2,11) = 2.322539 with *p*-value of 0.1441 and the *p*-value of the Chi-square is 0.0980 > 0.05 which is not significant, since F-stat's *p*-value > 0.05, then we cannot reject the null hypothesis. Therefore C(6) = C(7) = 0 which implies that the null hypothesis of C(6) = C(7) = 0 is retained and indicate that there is no short run causality running from accession to Labour turnover.

Table 8
Wald Test showing Short Run Causality of Log separation

Wald Test:

Equation: Untitled

Test Statistic	*Value*	*df*	*Probability*
F-statistic	2.332077	(2, 11)	0.1431
Chi-square	4.664155	2	0.0971

Null Hypothesis: C(8)=C(9)=0

Null Hypothesis Summary:

Normalized Restriction (= 0)	*Value*	*Std. Err.*
C(8)	–0.644387	0.307905
C(9)	–0.401794	0.216525

Restrictions are linear in coefficients

The result of the Wald Test shows that the F-statistic F(2,11) = 2.332077 with *p*-value of 0.1431 and the *p*-value of the Chi-square is 0.0971 which is > 0.05 which is not significant, since F-stat's *p*-value > 0.05, then we cannot reject the null hypothesis. Therefore C(8) = C(9) = 0 which implies that the null hypothesis of C(8) = C(9) = 0 is retained and indicate that there is no short run causality running from separation to Labour turnover.

Table 9
Serial Correlation

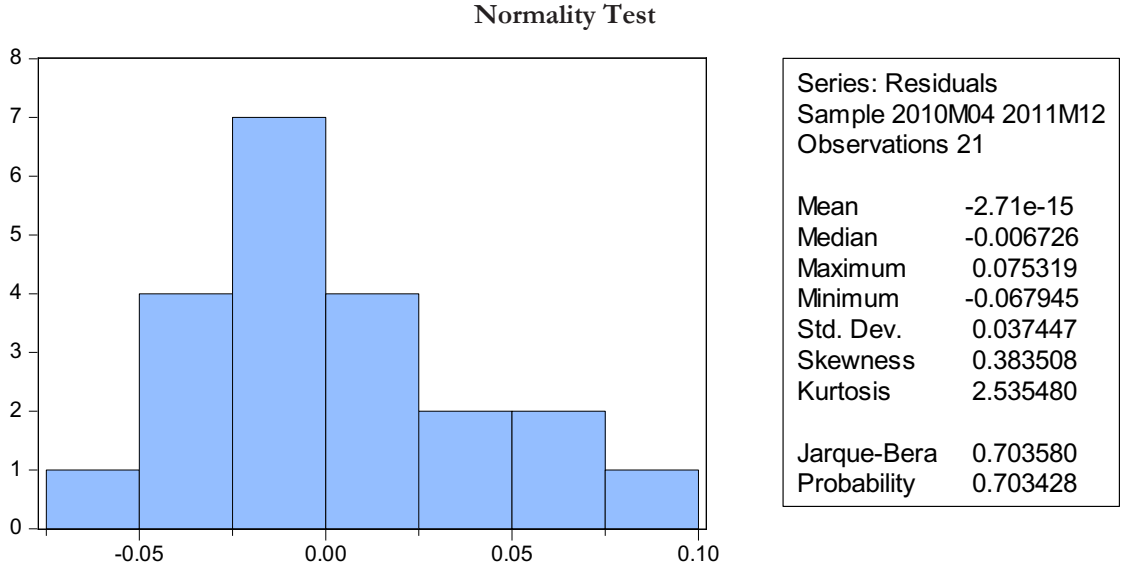
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.310374	*Prob. F(2,9)*	0.7407
*Obs*R-squared*	1.354959	*Prob. Chi-Square(2)*	0.5079

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 01/30/18 Time: 17:28
Sample: 2010M04 2011M12
Included observations: 21
Presample missing value lagged residuals set to zero.

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
C(1)	–0.004485	0.028730	–0.156105	0.8794
C(2)	–0.407824	0.704173	–0.579153	0.5767
C(3)	–0.448460	0.782117	–0.573392	0.5804
C(4)	–0.010076	0.034752	–0.289958	0.7784
C(5)	–0.022079	0.040793	–0.541259	0.6015
C(6)	0.023268	0.265219	0.087730	0.9320
C(7)	0.168729	0.300437	0.561613	0.5881
C(8)	–0.128798	0.380441	–0.338550	0.7427
C(9)	–0.197902	0.352208	–0.561890	0.5879
C(10)	0.001383	0.012397	0.111562	0.9136
RESID(–1)	0.632287	1.017752	0.621258	0.5498
RESID(–2)	–0.414222	0.556755	–0.743993	0.4759
R-squared	0.064522	Mean dependent var		–2.71E-15
Adjusted R-squared	–1.078840	S.D. dependent var		0.037447
S.E. of regression	0.053991	Akaike info criterion		–2.704425
Sum squared resid	0.026236	Schwarz criterion		–2.107555
Log likelihood	40.39646	Hannan-Quinn criter.		–2.574889
F-statistic	0.056432	Durbin-Watson stat		1.832087
Prob(F-statistic)	0.999975			

For the Breusch-Godfrey LM test for serial correlation, *p*-value of the F-statistic F (2, 9) = 0.310374; $p = 0.7407$ which is greater than 0.05 which indicates that the null hypothesis is not rejected and therefore conclude that there is no serial correlation.



The value of the Jarcque-Bera is 0.7036 with a p-value of 0.7035 which is > 0.05, therefore we cannot reject the null hypothesis which implies that residual is normally distributed.

4. CONCLUSIONS

In this study, various time series forecasting models for predicting employee turnover were tested and optimal models for turnover forecasts were identified. As a result of the external variable, the selected model in this study actually performed better than those accessed in the literature review. Although VAR (1, constant and seasonality) has the highest holdout R^2, normally distributed residuals and white noise, the dynamic regression model is considered the best forecasting model for several reasons. Employee turnover was highest around June 2011. Compared to univariate models, multivariate models help in generating a more accurate model fit in most cases. Furthermore, the univariate models' explanatory variables have to be determined accurately before forecasting the dependent variable. From the findings, the main factor that predicted labour turnover was an average number of workers while accession and separation were not significant. This finding is in line with Robinson & Beesley, (2010) who reported that dissatisfaction in the work environment is a major force that drives the employee towards turnover intentions. They also commented that searching for new jobs is beginning of the intention to quit. This implies that job satisfaction, good remuneration and job conditions could go a long way to determine employee retention.

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