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ASSESSMENT PRACTICES IN HIGHER EDUCATION: TRENDS AND INNOVATIONS IN INDIA

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Abstract

This study explores innovative assessment methods in Indian higher education institutions that go beyond traditional examinations. This study examines current practices such as formative assessment and data analysis using EViews software for technology integration. Despite challenges such as the digital divide and data security concerns, there has been a significant shift towards holistic and student-centred assessment techniques. The study contributes to ongoing debates on improving the efficiency and caliber of examinations in Indian higher education institutions. Further research is needed to determine how these approaches affect student learning outcomes and quality assurance in HEIs.

1. Introduction

Evaluation practices in the higher education are developing universally, specially in the Indian circumstances. Since the educational environment advances, increasingly more emphasis is put on presenting innovative assessment techniques that go past traditional tests to extensively survey understudy learning. The identification behind the changes is that the assessment isn't only measuring results, but also about developing the educational experience. In India, factors such as expanding the project variation, changing academic methodologies, and the integration of innovation into education continue by affecting this pattern. The point of this task is to investigate the latest things and innovations in assessment practices in higher education organizations in India utilizing the strong statistical programming EViews to dissect the information and gain significant insights. By investigating arising practices, this study contributes to the continuous debate on working on the quality and effectiveness of higher education assessment in India.

2. Literature Review

Assessment practices in higher education have been broadly contemplated around the world, and writing zeroing in on patterns and innovations has expanded, particularly in the Indian setting. One outstanding pattern is the shift to formative assessment, which underlines ceaseless criticism and understudy commitment throughout the educational experience (Muniandy and Abdullah, 2023). Formative assessment has been displayed to improve understudy learning results by giving convenient and targeted criticism, promoting self-managed learning and more profound comprehension of subject matter.

Another significant pattern is the utilization of innovation in assessment, including on web assessments, automated assessment frameworks and information analysis apparatuses. Innovation-based assessments offer a few benefits, like expanded efficiency, scalability, and the capacity to gather and investigate information to improve instruction and learning (Мосьпан, 2023). Despite challenges connected with the advanced gap, privacy and information security have to be addressed to guarantee equal access and keep up with the integrity of assessments. Innovations in assessment methods are explored, including project-based assessments, peer and self-assessments, and competency-based assessments. These methodologies plan to assess information, yet abilities, attitudes, and values that line up with higher education's more extensive objectives of getting ready understudies for the requests of the 21st-century workforce. The writing features a shift towards more understudy-focused, authentic and comprehensive assessment practices in Indian higher education. Notwithstanding, further examination is expected to assess the effectiveness of these practices and their impact on understudy learning results and institutional quality assurance.

3. Data

3.1 Research Methodology

The exploration technique of this task on "Evaluation Practices in Higher Education: Trends and Innovations in India" includes a methodical way to deal with the study and dissect evaluation practices in Indian higher education institutions using EViews software. First, the venture begins with an extensive writing survey to understand existing trends, speculations and innovations in appraisal practices in the Indian higher education setting (Putro et al. 2023). This audit distinguishes holes, and difficulties and extends porticoes for additional exploration Next, gather information about the rating measurements of different Indian colleges. This dataset may include statistics, for example, complete understudy enlistment, normal GPA, test scores, assignment scores, and attendance rates.

Then, information processing steps are performed to clean, validate, and convert the dataset into an organization reasonable for EViews analysis. This requires handling missing qualities, removing copies, and standardizing information organizations to guarantee exactness and consistency (Xie et al. 2023). Once the dataset is finished, EViews uses descriptive statistics, regression analysis, and time series analysis procedures to examine connections between various appraisal measurements, recognize trends after some time, and survey the effect of various variables on understudy outcomes. Finally, the consequences of the analysis are interpreted, ends are drawn, and in light of the insights, suggestions are made that add to the understanding and improvement of evaluation practices in Indian higher education institutions.

4. Result and Findings

	A	B	C	D	E	F	G
1	Date: 02/19/24 Time: 16:17						
2	Sample: 1 101						
3							
4		ASSIGNMEN...	ATTENDAN...	AVERAGE_GPA			
5							
6	Mean	75.87129	89.32673	3.559406			
7	Median	76.00000	89.00000	3.600000			
8	Maximum	82.00000	94.00000	3.900000			
9	Minimum	69.00000	85.00000	3.200000			
10	Std. Dev.	3.442857	2.328557	0.205513			
11	Skewness	-0.224369	0.163968	-0.076288			
12	Kurtosis	2.313589	2.253371	2.130960			
13							
14	Jarque-Bera	2.830209	2.798528	3.276232			
15	Probability	0.242900	0.246779	0.194346			
16							
17	Sum	7663.000	9022.000	359.5000			
18	Sum Sq. Dev.	1185.327	542.2178	4.223564			
19							
20	Observations	101	101	101			
21							
22							
23							

Figure 1: Descriptive Statistics

This figure shows the descriptive statistics of the three attributes named “Assignment score”, “Attendance”, and “Average_GPA” for the following project and the evaluations are done by means of statistical parameters.

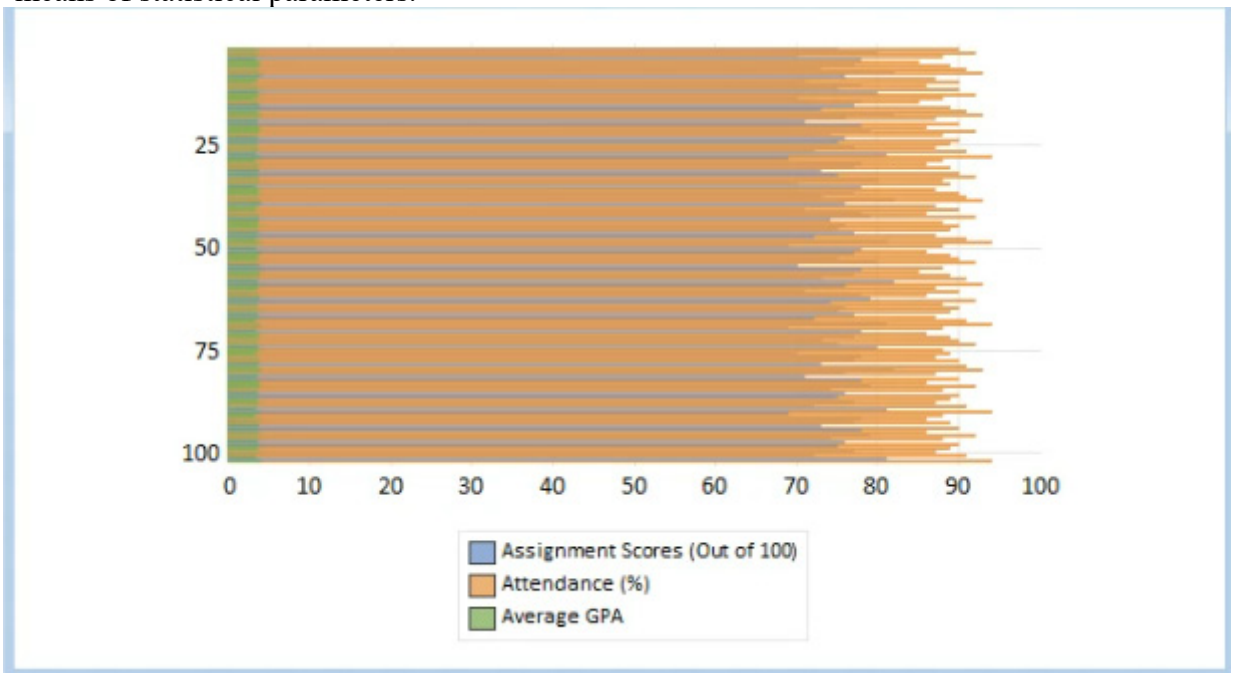


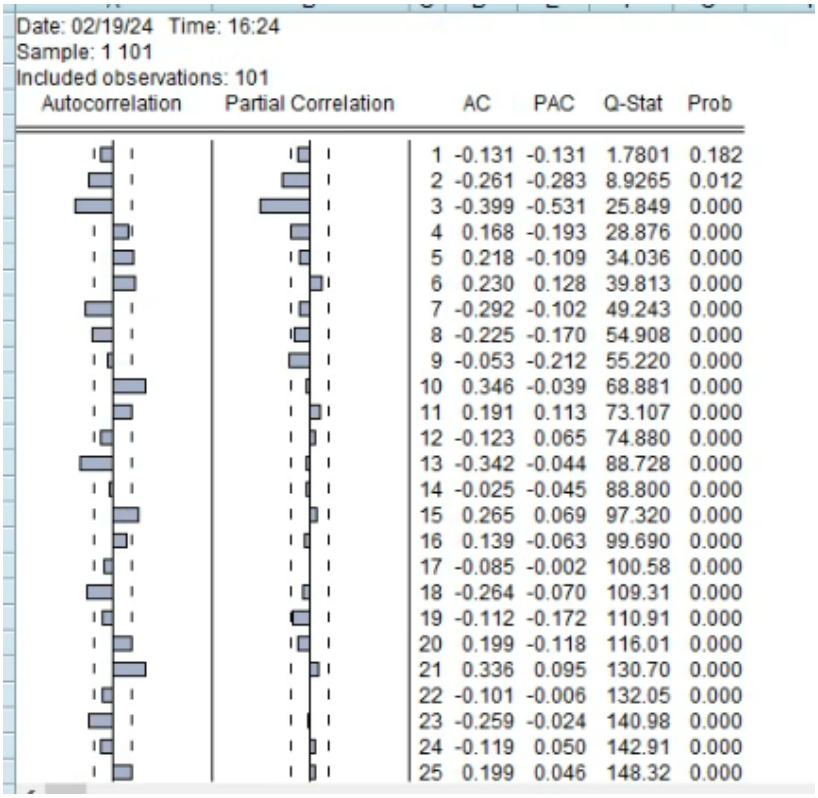
Figure 2: Bar plot of Descriptive Statistics

This figure shows the bar plot of the descriptive statistics with the different colour indicators. The attendance is progressed in the maximum path for the following statistical analysis.

	A	B	C	D	E	F
1		ASSIGNMEN...	TOTAL_STUDENTS			
2						
3	ASSIG...	1.000000	0.262266			
4	TOTAL...	0.262266	1.000000			
5						
6						
7						
8						
9						
10						
11						

Figure 3: Correlation Analysis

This figure shows the correlation analysis of the two attributes named “Assignment score out of 100” and “Total_students”. The correlation is the maximum in the first cell of the total set of correlations.



	AC	PAC	Q-Stat	Prob
1	-0.131	-0.131	1.7801	0.182
2	-0.261	-0.283	8.9265	0.012
3	-0.399	-0.531	25.849	0.000
4	0.168	-0.193	28.876	0.000
5	0.218	-0.109	34.036	0.000
6	0.230	0.128	39.813	0.000
7	-0.292	-0.102	49.243	0.000
8	-0.225	-0.170	54.908	0.000
9	-0.053	-0.212	55.220	0.000
10	0.346	-0.039	68.881	0.000
11	0.191	0.113	73.107	0.000
12	-0.123	0.065	74.880	0.000
13	-0.342	-0.044	88.728	0.000
14	-0.025	-0.045	88.800	0.000
15	0.265	0.069	97.320	0.000
16	0.139	-0.063	99.690	0.000
17	-0.085	-0.002	100.58	0.000
18	-0.264	-0.070	109.31	0.000
19	-0.112	-0.172	110.91	0.000
20	0.199	-0.118	116.01	0.000
21	0.336	0.095	130.70	0.000
22	-0.101	-0.006	132.05	0.000
23	-0.259	-0.024	140.98	0.000
24	-0.119	0.050	142.91	0.000
25	0.199	0.046	148.32	0.000

Figure 4: Correlogram Plot

This figure shows the plot of the correlogram and the plots are visualized in two types- ACF and PACF and the AC and PAC values are evaluated therefore.

	A	B	C	D	E
		ASSIGNMEN...	ATTENDAN...	AVERAGE_GPA	
	ASSIG...	11.73591	1.636114	0.671013	
	ATTEN...	1.636114	5.368493	0.169699	
	AVERA...	0.671013	0.169699	0.041817	

Figure 6: Covariance

The covariance of this dataset shows the similarity in the analysis of variances and this has been done in the three attributes such as “Assignment scored out of 100”, “Attendance”, and “Average GPA”

Null Hypothesis: ATTENDANCE____ has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-12.90132	0.0001
Test critical values:	1% level	-3.498439	
	5% level	-2.891234	
	10% level	-2.582678	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(ATTENDANCE____)
Method: Least Squares
Date: 02/19/24 Time: 16:23
Sample (adjusted): 4 101
Included observations: 98 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ATTENDANCE____(-1)	-2.327859	0.180436	-12.90132	0.0000
D(ATTENDANCE____(-1))	0.981463	0.132783	7.391460	0.0000
D(ATTENDANCE____(-2))	0.571666	0.086979	6.572494	0.0000
C	207.8383	16.10718	12.90346	0.0000

R-squared	0.723437	Mean dependent var	0.061224
Adjusted R-squared	0.714610	S.D. dependent var	3.493193
S.E. of regression	1.866129	Akaike info criterion	4.125569
Sum squared resid	327.3491	Schwarz criterion	4.231078
Log likelihood	-198.1529	Hannan-Quinn criter.	4.168245

Figure 7: ADF Test

This figure shows the ADF test with the values of t-statistic and probability which is 0.0001.

Heteroskedasticity Test: ARCH

F-statistic	0.003406	Prob. F(1,98)	0.9536
Obs*R-squared	0.003475	Prob. Chi-Square(1)	0.9530

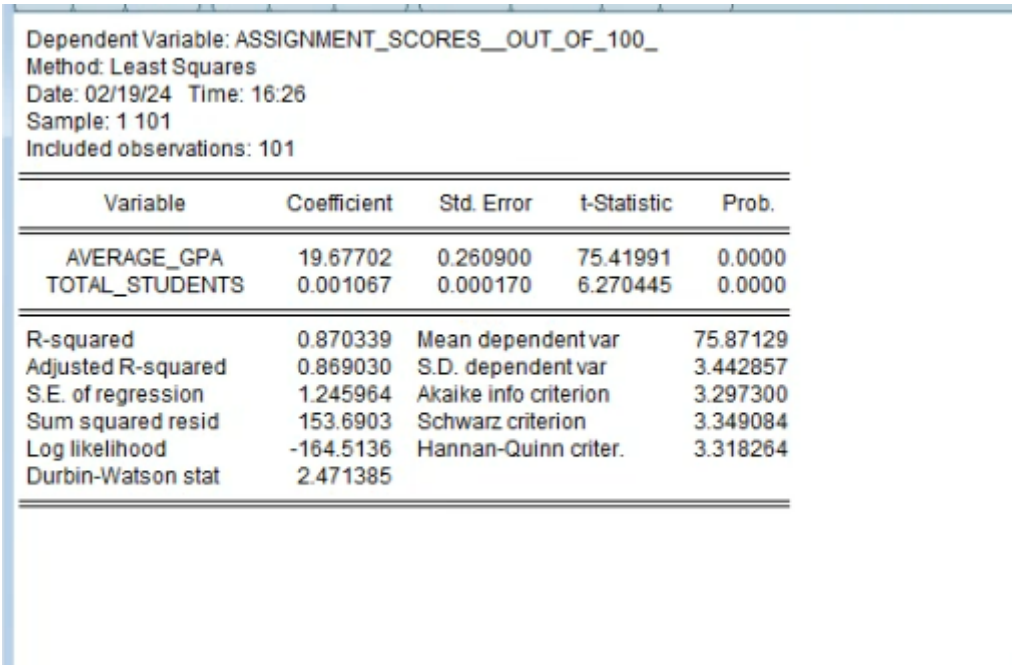
Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 02/19/24 Time: 16:27
Sample (adjusted): 2 101
Included observations: 100 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.539544	0.226254	6.804491	0.0000
RESID^2(-1)	-0.006029	0.103301	-0.058360	0.9536

R-squared	0.000035	Mean dependent var	1.530584
Adjusted R-squared	-0.010169	S.D. dependent var	1.653478
S.E. of regression	1.661864	Akaike info criterion	3.873554
Sum squared resid	270.6555	Schwarz criterion	3.925657

Figure 8: Heteroskedascity Test

The F-statistic for the findings of this ARCH test is 0.0034, which gives a probability of 0.9536, indicating no heteroskedasticity. The poor correlation between the squared and lagged residuals is indicated by an R-squared of 0.0035. As a result, homoscedasticity remains the null hypothesis supporting a constant error variance.



Dependent Variable: ASSIGNMENT_SCORES__OUT_OF_100_
Method: Least Squares
Date: 02/19/24 Time: 16:26
Sample: 1 101
Included observations: 101

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AVERAGE_GPA	19.67702	0.260900	75.41991	0.0000
TOTAL_STUDENTS	0.001067	0.000170	6.270445	0.0000

R-squared	0.870339	Mean dependent var	75.87129
Adjusted R-squared	0.869030	S.D. dependent var	3.442857
S.E. of regression	1.245964	Akaike info criterion	3.297300
Sum squared resid	153.6903	Schwarz criterion	3.349084
Log likelihood	-164.5136	Hannan-Quinn criter.	3.318264
Durbin-Watson stat	2.471385		

Figure 9: ARCH Evaluation

This figure shows the ARCH evaluation of the Assignment score attribute. Hence the coefficient and standard errors are evaluated respectively.

Dependent Variable: ASSIGNMENT_SCORES__OUT_OF_100_
Method: ML - ARCH
Date: 02/19/24 Time: 16:34
Sample (adjusted): 3 101
Included observations: 99 after adjustments
Failure to improve likelihood (non-zero gradients) after 0 iterations
Coefficient covariance computed using outer product of gradients
MA Backcast: 0 2
Presample variance: backcast (parameter = 0.7)
GARCH = C(9) + C(10)*RESID(-1)^2 + C(11)*GARCH(-1) + C(12)
*TOTAL_STUDENTS

Variable	Coefficient	Std. Error	z-Statistic	Prob.
ATTENDANCE____	-0.069170	0.025541	-2.708226	0.0068
AVERAGE_GPA	2.382084	0.863965	2.757152	0.0058
EXAM_SCORES__OUT_OF_100_	0.856756	0.057418	14.92147	0.0000
AR(1)	0.005000	2.733265	0.001829	0.9985
AR(2)	0.005000	3.374136	0.001482	0.9988
MA(1)	0.005000	2.761040	0.001811	0.9986
MA(2)	0.005000	3.501696	0.001428	0.9989
MA(3)	0.005000	0.559464	0.008937	0.9929
Variance Equation				
C	0.022345	0.134061	0.166679	0.8676
RESID(-1)^2	0.150000	0.582105	0.257685	0.7966
GARCH(-1)	0.600000	2.049868	0.292702	0.7698
TOTAL_STUDENTS	0.000000	0.000127	0.000000	1.0000

Figure 10: GARCH Evaluation

This figure shows the GARCH evaluation for the Assignment Score attribute. Two arcs and three order metrics are analysed in this GARCH evaluation and the corresponding method is ARCH.

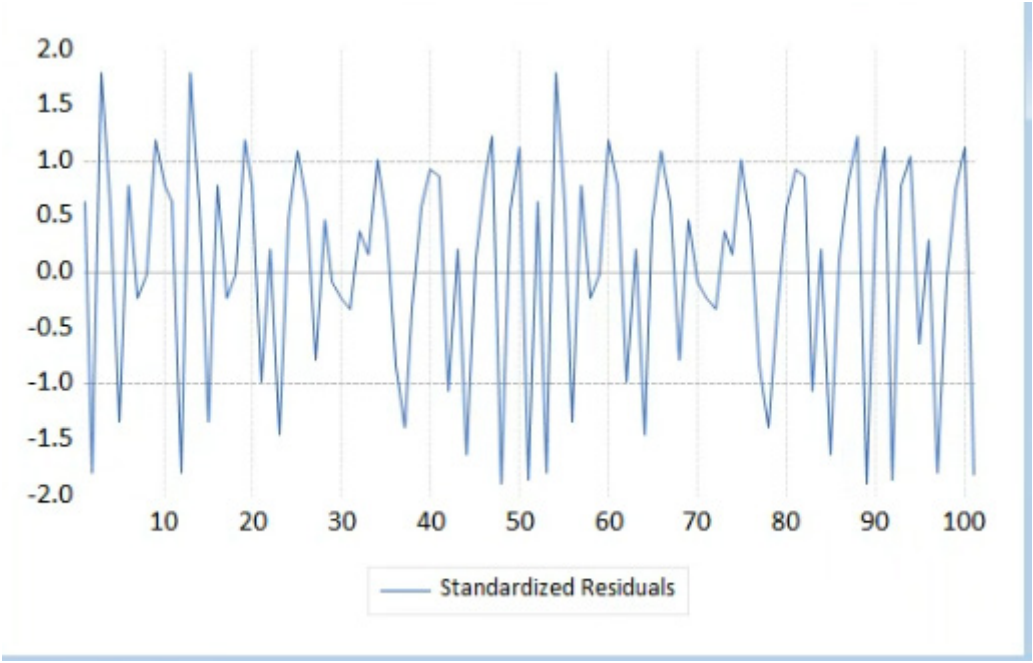


Figure 11: Standardized Residual Graph

The above figure shows that the Standardized Residual Graph of Assignment scored out of 100 where the x-axis contains 10 to 100 and the y-axis contains -2.0 to +2.0

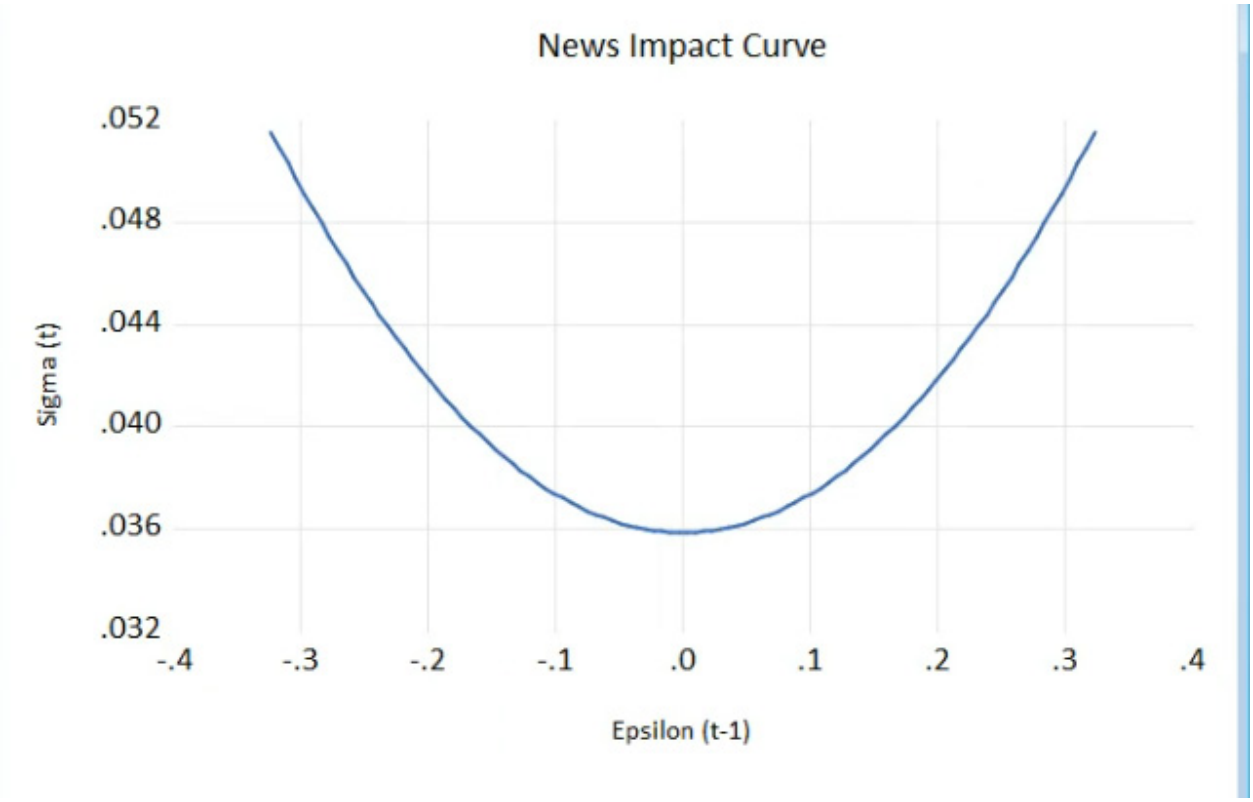


Figure 12: News Impact Curve

This figure shows the News impact curve for the epsilon and sigma values and the nature of the graph is ellipse here.

5. Conclusion

The study highlights the application of innovative techniques to improve learning outcomes and illustrates the evolution of assessment practices in Indian higher education. Formative assessment and technology integration are two growing topics that EViews explores in depth. Despite challenges such as the digital divide and data security issues, it is clear that assessment techniques are evolving to be comprehensive. Further research is needed to assess the effectiveness of these strategies and how they affect quality assurance in higher education, student learning outcomes and both.

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