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Research Article

A Crisis Of Confidence: Weighing Employment Uncertainty Among The Postgraduates In The Indian Context

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ABSTRACT

Postgraduate unemployment and underemployment have emerged as critical issues in India, reflecting a deep disconnect between higher education and labor market outcomes. This study investigates the prevalence and predictors of employment uncertainty among postgraduate students using a data-driven, multi-method approach. Drawing on primary survey data from 325 students in Ranchi district, Jharkhand, the research employs Confirmatory Factor Analysis (CFA) to validate key constructs, Logistic Regression and Kernel Density Estimation (KDE) to predict employment uncertainty, and Cluster Analysis to identify distinct risk profiles. Findings reveal that employment uncertainty is alarmingly high, with a majority of students falling within the 0.85–0.95 probability range on the uncertainty scale. Poor employability skills, job search difficulties, low confidence in government policies, and socio-economic constraints emerged as major contributors. Conversely, higher CGPA, job offers, and institutional reputation reduced uncertainty. Cluster analysis further segmented students into 11 behavioral profiles, highlighting diverse psychological and demographic patterns influencing employment outlooks. This study bridges a significant research gap by integrating statistical modeling with psycho-social dimensions of employability. The results have critical implications for educational institutions, policymakers, and career support systems. It calls for curriculum reform, targeted career counseling, and policy interventions that rebuild trust and align educational outcomes with labor market demands. By providing a predictive and segmented view of employment uncertainty, this research offers a scalable framework for addressing the employment challenges of India's highly educated youth.

Keywords: Employment Uncertainty, Postgraduate Students, Employability Prediction, Kernel Density Estimation, Cluster Analysis

JEL Codes: I23, J21, J64, C38, C83

Introduction

Background

India is experiencing a paradox in higher education: while postgraduate enrolment continues to grow, employment opportunities remain stagnant or misaligned. Recent data from the Centre for Sustainable Employment at Azim Premji University indicate that 42.3% of Indian graduates under the age of 25 are unemployed, compared to just 21.4% of those with only higher secondary education (Premji University, 2023). This reveals a deeply rooted inefficiency in translating educational attainment into job market outcomes. The International Labour Organization (ILO) and the Institute for Human Development (2023) further highlight that 83% of India's unemployed youth are educated, with nearly one-third holding degrees at the graduate or postgraduate level. Educated unemployment is particularly prevalent in northern and eastern Indian states, where skill gaps, low job absorption, and poor alignment between education and industry requirements persist. Employment uncertainty among postgraduate students doesn't just present economic hurdles—it significantly impacts psychological well-being. A recent peer-reviewed study in *Scientific Reports* by Biswas, Das, and Sheikh (2024) found that 54.4% of highly educated unemployed youth in Kolkata experienced clinical depression, with over 60% facing severe anxiety. The authors attribute this to unmet career expectations and

financial insecurity among qualified graduates. Further evidence from Ahmed, Arora, and Gond (2023) reveals that unemployed youth in northern India report high levels of stress and hopelessness, often exacerbated by social pressure, isolation, and a lack of career guidance. These studies suggest that employment uncertainty constitutes a distinct psychosocial risk factor for mental illness among India's educated youth. Laeequddin, Waheed, and Sahay (2024) found similar trends among MBA students, particularly during campus placement season, citing placement anxiety, fear of joblessness, and unmet expectations as direct triggers of mental distress.

These findings are further echoed in the recent *National Medical Commission* survey (2024), which reported that 15.3% of postgraduate medical students in India showed signs of mental illness, with over 27% reporting suicidal ideation. The effects of postgraduate unemployment also spill into India's economy and healthcare system. The *Economic Survey 2023–24* revealed that only 51.25% of Indian graduates are considered employable by industry benchmarks (India Today, 2024). This low employability ratio is a result of a poorly structured higher education curriculum that emphasizes theoretical knowledge over market-driven skills. From a macroeconomic lens, this results in enormous lost productivity. According to data synthesized by India's Ministry of Health and Family Welfare, untreated depression and anxiety, both increasingly prevalent among unemployed youth, lead to billions of rupees in lost output annually (Economic Survey, 2024). Households with unemployed graduates tend to reduce consumption in education and healthcare, creating intergenerational vulnerability (Ahmed et al., 2023).

Addressing postgraduate unemployment and the associated uncertainty is no longer optional, it is essential for the reasons including, personal well-being covering mental health deterioration among highly educated youth is now a public health concern (Biswas et al., 2024), workforce productivity indicating underutilization of trained individuals reduces national economic competitiveness (India Today, 2024), social cohesion, suggesting educated unemployment risks disenfranchisement, political unrest, and inter-group tension (Laeequddin et al., 2024), and policy alignment referring to the National Education Policy (NEP) 2020 calls for better integration between education and employability outcomes, necessitating reforms grounded in evidence and analytics.

To tackle these multi-dimensional challenges, this study adopts a mixed-methods quantitative approach. It applies Confirmatory Factor Analysis (CFA) to validate latent constructs such as "career confidence" and "policy trust." Kernel Density Estimation (KDE) and logistic regression to predict uncertainty and visualize risk distributions among postgraduate students. Cluster analysis to categorize students into segments requiring targeted interventions, such as skill training, counseling, or job-matching. This data-driven approach not only identifies what factors influence employment uncertainty but also how they cluster and evolve, empowering institutions, career support services, and government agencies to respond with greater precision.

Problem Statement

In India, postgraduate students, despite holding advanced qualifications, face disproportionately high levels of unemployment and underemployment, leading to growing employment uncertainty. This uncertainty not only affects their mental well-being and economic independence but also contributes to a waste of educational investment and human capital. However, existing research lacks an integrated, India-specific framework that can measure the level of employment uncertainty, predict future employment likelihood using reliable modeling techniques, and identify the key causal factors contributing to this uncertainty, especially through rigorous statistical and segmentation tools like CFA, logistic regression, KDE, and cluster analysis.

Thus, there is a critical need for data-driven models that not only forecast employability outcomes for postgraduate students but also highlight uncertainty risk zones to support targeted interventions by institutions and policymakers.

Literature Review

Graduate unemployment in India fosters worthlessness and social embarrassment, with participants reporting stigma and identity loss due to inability to secure appropriate employment post-degree (Sinha, 2018). Among 100 unemployed youth in Varanasi post-COVID, moderate stress, low self-esteem, helplessness, and hopelessness were prevalent, highlighting the psychological toll of academic unemployment (Ahmed et al., 2022). In Kolkata, unemployed migrant graduates exhibited 54.4% depression, 61.8% anxiety, and 47.9% stress, underscoring the severe mental health impact of postgraduate unemployment (Biswas et al., 2023). NIMHANS psychiatry trainees reported 72% reluctance to disclose mental health issues, citing stigma even within a mental health setting, illustrating stress among postgraduate students.

Kashmir youth, irrespective of employment status, showed poor mental health; unemployed individuals had significantly worse MH-38 scores, highlighting region-specific unemployment impact (Bhat & Joshi, 2020). Education–occupation mismatch results in wage penalties for overeducated formal-sector workers, demonstrating economic inefficiencies tied to postgraduate unemployment (Bahl & Sharma, 2023). Despite economic growth, Indian youth faced absolute job losses from 2004 to 2018, with most employed in low-quality or informal jobs, underscoring structural employment issues (Abdullah & Mansoor, 2023). Only 51.25% of Indian graduates are deemed employable, revealing that nearly half of degree-holders lack skills for the labor market, exacerbating employment uncertainty (Chakrabarty, 2024). Found 29.1% unemployment among

graduates, nine times that of illiterate youth, highlighting the educated-unemployment paradox in India (ILO & IHD, 2023). Graduate underemployment is noted as a major issue, with some doctoral holders applying for low-status jobs, reflecting saturated postgraduate job markets (Sanghera, 2019). Cited PLFS data indicating youth unemployment is highest among graduates/postgraduates; only ~20% of graduates are employable per India Skills Report (PLFS/Skills Report, 2023).

Proposed a unified prediction model for employability across Indian HEIs using data mining of B.Tech and MCA students, showing consistent prediction accuracy (Thakar et al., 2024). Including psychometric attributes alongside academic data significantly improves employability prediction in MCA cohorts, supporting broader predictive analytics (Thakar et al., 2017). During COVID lockdowns, increased social media exposure correlated with anxiety and disrupted sleep, factors that compound unemployment-linked mental issues (Swarnam, 2021). Explored unemployment's perceived meaning among those with severe mental illness, noting lack of employment options worsens symptomatology and prevents agency (Samuel et al., 2020). Economic outcome studies of mental health interventions in rural Karnataka show that employment enhances both income and psychological health (Raja et al., 2008).

Research Gap

Despite increasing academic attention on youth unemployment and the psychological consequences of underemployment in India, existing studies reveal the following critical gaps:

(i) Limited Predictive Modeling on Employment Uncertainty: While some research (e.g., Thakar et al., 2017; 2024) uses data mining for employability prediction, few integrate Confirmatory Factor Analysis (CFA) with Kernel Density Estimation (KDE) and clustering to model employment uncertainty among Indian postgraduate students, a highly affected yet under-researched population.

(ii) Neglect of Psychological Impact in Employment Forecasting: Though several studies (e.g., Biswas et al., 2023; Ahmed et al., 2022) address the mental health effects of unemployment, they rarely connect employment prediction tools with anxiety or uncertainty perception, creating a gap between forecasting employability and understanding how it affects student confidence and well-being.

(iii) Lack of Segment-Based Interventions: Most employment-focused research aggregates students into homogenous groups, overlooking important clusters of risk (e.g., by skill, region, gender, or policy trust) that could benefit from differentiated career guidance or institutional support.

(iv) India-Centric Postgraduate Focus Missing in Mainstream Models: Western or global models dominate the literature on employment forecasting, but Indian postgraduate cohorts, facing distinct economic, social, and policy contexts, remain underrepresented in studies that model employment uncertainty empirically.

Research Objectives and Hypothesis

The research objectives of this study are outlined to systematically explore, predict, and explain the factors contributing to employment uncertainty among postgraduate students.

(i) To assess the extent and distribution of employment uncertainty among postgraduate students across different socio-demographic and academic variables.

(ii) To develop a predictive model using statistical techniques (CFA, logistic regression, KDE) to determine the likelihood of future employment uncertainty among postgraduate students.

(iii) To identify distinct clusters or student segments with similar employment uncertainty profiles and determine the key contributing factors for each group.

With the stated objective to empirically test the assumed relationships between key variables influencing employment uncertainty among postgraduate students, the following hypotheses have been tested.

H_1: Employment uncertainty is significantly high among Indian postgraduate students due to gaps in skills, limited policy trust, and economic pessimism.

H_2: There is a statistically significant negative correlation between employability factors (such as CGPA, college reputation, job offers) and perceived employment uncertainty.

H_3: Postgraduate students can be meaningfully segmented into clusters based on their employment uncertainty levels and influencing variables.

Research Methodology

This study adopts a quantitative, exploratory, and predictive research design. It uses survey-based primary data, analyzed using statistical modeling techniques to explore and predict employment uncertainty. The population comprised postgraduate students from the universities and colleges in Ranchi district, Jharkhand. A sample of 325 students was drawn using G*Power software for the population and stratified random sampling to ensure representation across fields of study, gender, and region. Ethical consideration was also taken into consideration during the data collection process. A structured questionnaire was developed, consisting of 7 key domains (Table 1), which were identified through a series of three focus group discussions in the selected study area, with each group having 10 students and two teachers.

Table 1: Variables used in the study

Domain	Variables	Items
A	Education Factors	Academic record, field of study
B	Employment Uncertainty	Career anxiety, confidence
C	Macroeconomic Indicators	GDP, inflation perception
D	Job Market Perception	Job competition, availability
E	Locational Mobility	Willingness to relocate
F	Career Support	Mentorship, counseling
G	Employment Constraints	Financial, social, or logistical barriers

Source: Variables identified through a series of three focused group discussions

To validate the questionnaire in the study, Confirmatory Factor Analysis (CFA) in SPSS was used on a data set of 50 respondents gauged through a pilot study, and the criteria on which the questionnaire was validated are specified in Table 2.
Table 2 outlines the criteria used to validate the study's variables. A factor loading (λ) above 0.65 ensures item relevance, composite reliability (CR) over 0.70 confirms internal consistency, and an average variance extracted (AVE) above 0.50 indicates sufficient convergent validity for each construct in the questionnaire.

Table 2: Criteria to validate the variables in the study

Sl. No	Validation	Representation	Criteria
1	Factor loading	(λ)	> 0.65
2	Composite Reliability	(CR)	> 0.70
3	Average Variance Extracted	(AVE)	> 0.50

Source:

The primary data collected were analyzed using an array of data analysis techniques, which are detailed in Table 3.

Table 3: Data Analysis technique involved in the study

Sl. No	Technique	Purpose
1	Logistic Regression	To predict the probability of employment certainty/uncertainty based on multiple variables.
2	Kernel Density Estimation (KDE)	To visualize the distribution and density of predicted employment uncertainty.
3	Cluster Analysis (Hierarchical & K-Means)	To segment students into distinct groups based on uncertainty and influencing factors.

Source:

Data Analysis and Discussion

Confirmatory Factor Analysis (CFA)

A Confirmatory Factor Analysis (CFA) was conducted using data from 50 postgraduate students to validate the structure of the employment uncertainty questionnaire. Each construct—ranging from education factors to employment constraints—exhibited standardized factor loadings (λ) greater than 0.65, confirming the significance of all items. Composite Reliability (CR) values exceeded 0.7 for all constructs, and Average Variance Extracted (AVE) surpassed the 0.5 threshold, indicating robust internal consistency and convergent validity. These findings confirm the appropriateness of the questionnaire for assessing employment uncertainty among postgraduate students.

Employment Uncertainty Prediction Using KDE and Logistic Regression

Kernel Density Estimation (KDE) on logistic regression outputs revealed a stark concentration of predicted employment uncertainty between 0.85 and 0.95. This right-skewed distribution underscores a dominant perception of uncertainty among postgraduate students. The steep peak and narrow spread further indicate that many students share similar uncertainty profiles, pointing to common systemic or personal barriers influencing their employment outlook. Key Interpretation from this analysis is summarized below:

- The model effectively captured widespread uncertainty, with minimal instances of employment certainty (i.e., KDE values closer to 0).
- This aligns with the hypothesis that employment uncertainty is prevalent among this demographic.

Variable Influence on Employment Uncertainty

Factors that increased uncertainty included variables like poor skills (+0.78), job search challenges (+0.78), and low confidence in government policies (+0.47) significantly elevated predicted uncertainty. Socioeconomic background, urgency to find a job, and relocation constraints were also notable influencers. The model strongly

associates skill inadequacy and economic skepticism with higher levels of employment anxiety. Conversely, factors that reduced uncertainty included higher CGPA (-0.29), job offers received (-0.34), and college reputation (-0.44) correlated with reduced uncertainty. Interestingly, a lower concern for inflation indicated more confidence, potentially reflecting better macroeconomic understanding among those students.

Group-wise KDE Analysis

Students with poor or average skills showed KDE peaks close to 1.0, confirming that weaker employability skills strongly predict higher uncertainty. Both male and female students demonstrated high uncertainty, though female students' curve was slightly left-shifted, suggesting marginally lower uncertainty levels. Arts and Hotel Management students exhibited the highest uncertainty. Science and Management students showed relatively lower uncertainty, highlighting field-based disparities in perceived employability. Students lacking faith in governmental support peaked near 1.0 in KDE, reaffirming the psychological impact of policy trust on employment perceptions. Those viewing the market as extremely competitive reflected high uncertainty peaks, indicating that the labor market outlook substantially influences self-confidence. This analysis has been derived from the KDE analysis represented in Figure 1.

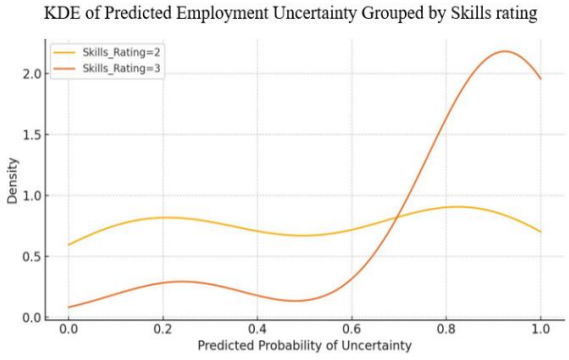
A heatmap of peak KDE predictions illustrated variability across multiple dimensions. Younger students (22–25), those from agricultural backgrounds, and those from lower-reputation colleges felt significantly more uncertain. High uncertainty was also linked to a lack of job offers, financial constraints, misaligned job expectations, and low confidence in future careers. This multidimensional view validated secondary hypotheses, emphasizing that employability is influenced not just by skill but by a combination of demographic, institutional, and psychological factors.

Cluster Analysis

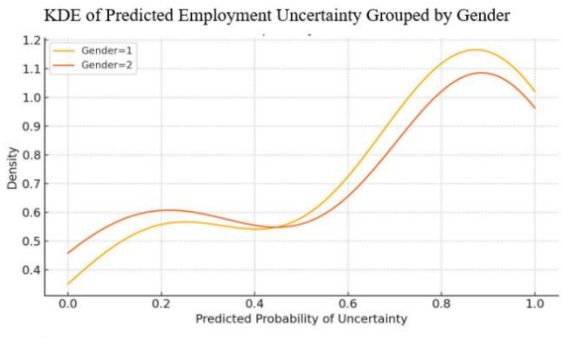
Hierarchical clustering (dendrogram) and K-Means analysis segmented respondents into 11 homogeneous clusters (Tables 4 & 5). Each cluster exhibited unique behavioral and attitudinal profiles:

- Cluster 3 (Extreme Group) and Cluster 11 (Engaged but Critical) indicated heightened dissatisfaction and uncertainty.
- Cluster 1 (Neutral/Baseline) served as a comparative reference group.
- Clusters 5 and 6 demonstrated moderate to high engagement with varying levels of positivity.

These insights highlight the heterogeneity of postgraduate employment concerns, supporting the hypothesis that distinct respondent groups show varied degrees of employment uncertainty. The finding indicated that a high prevalence of employment uncertainty was detected among postgraduate students. Skills, field of study, family background, and confidence in governance were core predictors. Policy trust and macroeconomic outlook play crucial roles in shaping student confidence, and Cluster analysis revealed multiple psychological and demographic subgroups with shared patterns. These findings emphasize the need for policy intervention, curriculum alignment



Source: Research scholar's estimation



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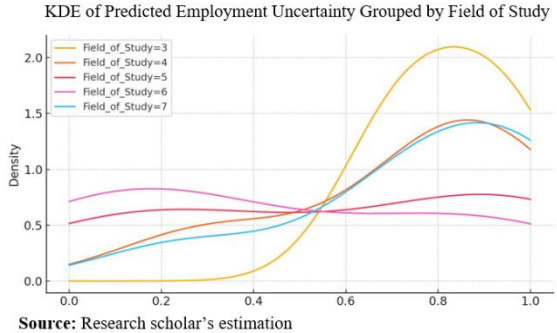

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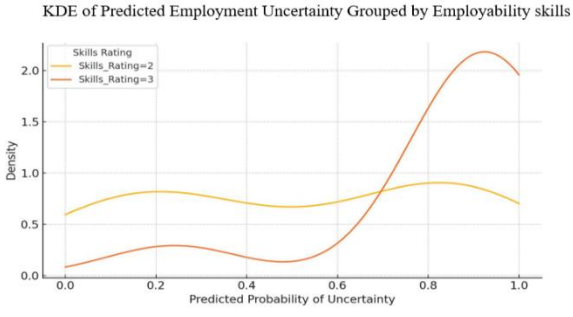

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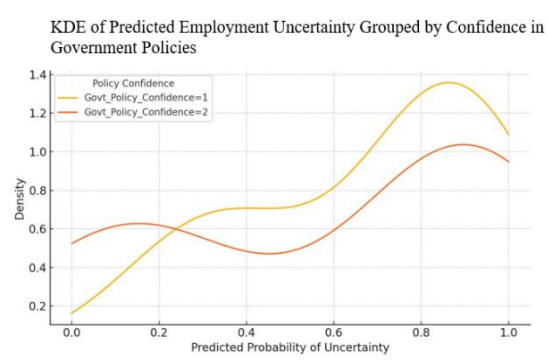

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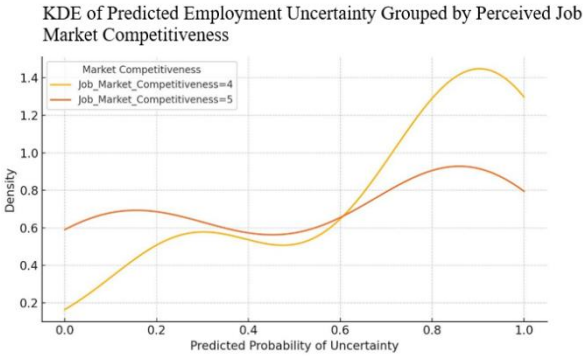

Source: Research scholar's estimation

Table 4: SPSS Output for K-Means Clustering on each item in the questionnaire

Items	Final Cluster Center										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
VAR00001	0	1	1	2	1	1	1	0	0	0	1
VAR00002	0	1	1	1	0	1	1	1	0	1	0
VAR00003	2	2	2	2	2	1	3	3	2	1	2
VAR00004	1	1	1	1	1	1	1	1	1	1	1
VAR00005	1	1	1	1	1	1	1	1	1	1	2
VAR00006	1	1	8	8	3	5	1	4	7	5	7
VAR00007	3	4	3	3	3	3	3	3	3	3	3
VAR00008	4	3	3	4	3	4	4	4	4	3	4
VAR00009	3	3	0	3	0	1	1	3	3	3	2
VAR00010	1	1	1	1	1	1	1	1	1	1	1
VAR00011	1	1	1	1	1	1	1	1	1	1	1
VAR00012	2	2	2	2	2	1	2	2	2	2	2
VAR00013	4	4	4	4	4	4	4	4	4	4	4
VAR00014	2	3	2	3	3	3	2	3	2	2	2
VAR00015	1	1	2	2	1	2	1	1	1	1	1
VAR00016	4	3	3	4	3	4	4	4	4	3	4
VAR00017	1	1	1	1	1	1	1	0	1	1	1
VAR00018	1	1	1	1	2	1	2	2	1	2	2
VAR00019	0	0	0	0	0	0	0	0	0	0	0
VAR00020	0	0	0	0	0	0	0	0	0	1	0
VAR00021	0	1	0	1	0	1	0	0	0	0	0
VAR00022	1	2	2	1	2	2	2	2	2	1	2
VAR00023	1	2	1	2	1	1	1	1	1	1	0
VAR00024	2	2	3	1	3	1	2	1	4	1	1

Source: Research Scholar's estimation using SPSS

Validation of the hypotheses

H_1: Employment uncertainty is significantly high among Indian postgraduate students due to gaps in skills, limited policy trust, and economic pessimism.

Proven**:** Confirmed by Kernel Density Estimation showing a sharp right-skewed distribution between 0.85–0.95, indicating high employment uncertainty. Skill inadequacy, poor perception of government policy, and macroeconomic anxiety were strong predictors.

H_2: There is a statistically significant negative correlation between employability factors (such as CGPA, college reputation, job offers) and perceived employment uncertainty.

Proven**:** Logistic regression results indicated that higher CGPA, better college reputation, and job offers are associated with reduced employment uncertainty.

H_3: Postgraduate students can be meaningfully segmented into clusters based on their employment uncertainty levels and influencing variables.

Proven**:** Cluster analysis yielded 11 distinct segments with unique behavioral and demographic profiles. Clusters like "Extreme Group" and "Engaged but Critical" clearly demonstrated heightened uncertainty.

Table 5: Description of the variables in Table 4 used for cluster analysis

Sl. No	Items	Description
1	VAR00001	Age
2	VAR00002	Gender
3	VAR00003	Family background
4	VAR00004	University reputation
5	VAR00005	CGPA
6	VAR00006	Field of study
7	VAR00007	Technical knowledge & employability skills
8	VAR00008	Uncertain about securing a job after post-graduation
9	VAR00009	Job offers received so far
10	VAR00010	Impact of inflation on job availability
11	VAR00011	Perception concerning improvement in employment opportunities
12	VAR00012	Will the government's employment policies improve job prospects
13	VAR00013	Competitiveness of the job market in your field of study
14	VAR00014	Work expectations
15	VAR00015	Job applications submitted so far
16	VAR00016	Uncertainty concerning securing a job given the market trend
17	VAR00017	Willingness to relocate for a job
18	VAR00018	The biggest constraint in relocating
19	VAR00019	Career counseling during your post-graduation
20	VAR00020	Access to professional networking events
21	VAR00021	Societal support in your career decisions
22	VAR00022	The biggest challenge in your job search
23	VAR00023	Urgency of your job search
24	VAR00024	Confidence in future employment and career expectations

Source: Questionnaire used in the study

Implications

For Educational Institutions

The findings highlight the critical need for educational institutions to realign their curricula with labor market requirements. The high employment uncertainty among students, particularly those from Arts and Hotel Management backgrounds, underscores the inadequacy of current academic programs in preparing students for real-world employment. Institutions must prioritize skill integration through practical training, internships, and interdisciplinary modules that reflect contemporary industry needs. Furthermore, career services should evolve from a one-size-fits-all approach to segmented interventions based on distinct student profiles identified through cluster analysis. Tailored mentoring, early identification of at-risk students through academic performance indicators like CGPA, and individualized career guidance can significantly alleviate employment anxiety and improve placement outcomes.

For Policymakers

The study reveals a widespread lack of confidence in governmental employment policies, directly contributing to heightened uncertainty among postgraduate students. Policymakers must address this by not only enhancing the effectiveness of youth employment schemes but also ensuring their visibility and accessibility to target populations. Clear communication regarding economic policies, labor market projections, and government-supported employment programs is essential to rebuild trust and reduce informational ambiguity. Moreover, students from agricultural or rural backgrounds displayed higher levels of uncertainty, indicating the need for targeted interventions such as regional job fairs, digital employment platforms, and financial incentives to bridge the rural–urban opportunity divide.

For Career Development Services

Career development services play a vital role in bridging the gap between education and employment, and the study emphasizes their growing importance. With poor employability skills emerging as the most significant contributor to uncertainty, these services must offer intensive training in both hard and soft skills, tailored to students' fields of study. The high urgency to secure employment and excessive job applications suggest that students often lack a coherent job search strategy. Counseling must focus on strategic planning, goal setting, and enhancing job search techniques. Additionally, the reluctance or inability to relocate poses a substantial barrier to employment; thus, support services should include relocation assistance, remote job opportunities, and mobility counseling to widen students' employment horizons.

For Students

Postgraduate students must take proactive steps to reduce their employment uncertainty. The data clearly shows that lower employability skills and limited market awareness are major predictors of doubt and anxiety

regarding job prospects. Students should be encouraged to take ownership of their career readiness by enrolling in market-relevant certification programs, seeking internships, and participating in workshops. Moreover, those who stay informed about industry trends and government initiatives demonstrate lower uncertainty levels, suggesting that self-education and awareness are critical. As pressure to secure employment intensifies, mental health and resilience training should also be part of the student development process to help manage job-related stress constructively.

Implications for Future Research

This study opens several pathways for future academic exploration. A longitudinal research design tracking students from enrollment to employment would offer richer insights into how employment uncertainty evolves and responds to interventions. Additionally, given the significant influence of academic discipline on job confidence, future research could develop and validate field-specific employment prediction models.

Expanding the research across multiple institutions will also allow comparative analysis, helping identify systemic differences in institutional effectiveness and their influence on employment-related perceptions. These research extensions would further strengthen the understanding of postgraduate employment challenges and support more nuanced policy and programmatic solutions.

Limitations of the study

While this study provides valuable insights into the employment uncertainty faced by postgraduate students in India, it is not without limitations. First, the sample was limited to 325 respondents from universities and colleges in Ranchi district, Jharkhand, which may restrict the generalizability of the findings to other regions with different socio-economic and educational contexts. Second, although the study employed advanced statistical methods like CFA, KDE, and cluster analysis, it relied solely on self-reported data, which may be subject to response bias or social desirability effects. Third, the cross-sectional design captures perceptions at a single point in time, limiting the ability to track changes in employment uncertainty over time or after interventions. Additionally, the psychological aspects of employment uncertainty, while referenced, were not measured using clinical assessment tools, potentially underestimating the full mental health impact. Finally, while the model included a broad range of variables such as skills, background, and policy perception, it did not account for external labor market shocks, institutional placement policies, or global economic conditions, which can also significantly influence employment outcomes. Future research should address these limitations by expanding geographical scope, employing longitudinal designs, and integrating qualitative insights to capture deeper dimensions of student experiences.

Conclusion

India's growing crisis of educated unemployment, particularly among postgraduate students, reveals a complex, multidimensional issue that impacts not only individuals but the national economy and societal stability. This study addresses the often-overlooked area of employment uncertainty, offering a comprehensive empirical framework that combines predictive modeling (Logistic Regression, KDE) and segmentation (Cluster Analysis) to analyze the employment landscape for Indian postgraduates. The findings reveal that a significant proportion of postgraduate students are caught in a psychological loop of uncertainty, predominantly influenced by low employability skills, economic pessimism, and institutional limitations. Confirmatory Factor Analysis confirmed the validity and reliability of the questionnaire used, enabling accurate measurement of employment uncertainty across variables like career confidence, government policy trust, skill level, and field of study.

Kernel Density Estimation shows that most students lie within the 0.85 to 0.95 probability range for employment uncertainty, indicating a widespread perception of job market instability. This pattern is exacerbated among students from the Arts and Hotel Management fields, those with poor or average skills, and students who lack access to career support systems. Interestingly, female students and those who had stronger academic performance or had received job offers tended to report slightly lower levels of uncertainty. Further, cluster analysis segmented the sample into 11 meaningful groups, ranging from “Neutral/Baseline” and “Passive & Balanced” to more vulnerable groups like “Engaged but Critical” and “Extreme Group.” This segmentation provides valuable insights for policy and institutional interventions, making it possible to target career support, skill development programs, and counseling services according to group-specific needs.

The study’s predictive model also identified field of study, willingness to relocate, trust in government policies, and urgency of job search as critical variables influencing employment uncertainty. Students from agricultural backgrounds, those unable or unwilling to relocate, and those perceiving the job market as highly competitive were more likely to experience distress and doubt about future employment outcomes. This research highlights a crucial gap between academic attainment and employability, demonstrating that simply earning a postgraduate degree is not a reliable predictor of job security in India. The results strongly advocate for reforms in higher education curricula, with a stronger emphasis on market-driven skill development, institutionalized career counseling, and psychosocial support. Additionally, policymakers need to restore students’ confidence

in economic and employment policies through transparent, impactful programs that address the needs of educated youth.

In conclusion, employment uncertainty is not merely a symptom of unemployment, it is a structural and psychological risk factor that requires immediate attention from all stakeholders. Through robust statistical validation and empirical evidence, this study lays the groundwork for an integrated, actionable framework that can inform education policy, career strategy, and mental health interventions for India's postgraduate youth.

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