



Estimating student discontinuation in higher education: A methodological framework using institutional data from Indian universities

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Abstract: Student discontinuation remains a significant concern in higher education research and policy, particularly in contexts characterised by expanding enrolment and institutional diversification. However, existing studies often rely on inconsistent definitions and fragmented measurement approaches, limiting comparability across institutions. Although institutional datasets such as the National Institutional Ranking Framework provide standardised information on admissions and graduation outcomes, their potential for discontinuation analysis remains underutilised. In addition, institutional datasets often cannot distinguish between permanent dropout and institutional discontinuation, leading to conceptual and methodological ambiguity. The study proposes a methodological framework for estimating student discontinuation using institutional-level indicators. The framework introduces a standardised estimation model based on admitted student counts and graduation outcomes and outlines a replicable analytical workflow for institutional analysis. The applicability of the framework was illustrated using NIRF data from three selected central universities in India. The study contributes by clarifying the conceptual distinction between dropout and discontinuation, introducing a replicable estimation framework, and demonstrating how institutional ranking datasets may be repurposed for progression-oriented higher education research. The framework may support comparative institutional analysis, methodological standardisation, and exploratory policy assessment in contexts where longitudinal student-level tracking systems remain limited.

Keywords: *Academic Discontinuation; Higher education; Methodological framework; NIRF.*

1. Introduction

Student discontinuation has emerged as a persistent concern within higher education systems, particularly in contexts marked by expanding enrolment and increasing institutional diversity (Tinto, 1975; Yorke, 1999). Although access to higher education has widened in recent decades, a substantial proportion of students do not complete their programmes within the expected duration (Bean, 1980; Tinto, 1993). This pattern raises concerns not only about individual educational trajectories but also about the efficient use of institutional resources and the broader goals of equity and inclusion (Pascarella & Terenzini, 2005; Yorke, 1999). In this context, discontinuation may be viewed as an outcome reflecting the interaction among institutional conditions, student preparedness, and structural constraints (Bean, 1980; Cabrera et al., 1993; Tinto, 1993). However, despite its importance, discontinuity measurement remains an underdeveloped concept and method (Braxton, 2000; Yorke, 1999). This limitation constrains both scholarly analysis and policy intervention, thereby necessitating closer attention to how discontinuation is defined and operationalised (Braxton, 2000; Tinto, 1993).

Existing research on student attrition has generated valuable insights into the factors associated with non-completion. A considerable body of literature has examined individual-level determinants such as socio-economic background, academic preparedness, and motivation (Bean, 1980; Cabrera et al., 1993; Tinto, 1975). At the same time, institutional factors, including teaching quality, academic support, and campus environment, have also received attention (Braxton, 2000; Pascarella & Terenzini, 2005; Tinto, 1993). While these studies contribute to understanding the causes of student exit, they often rely on survey-based data or institution-specific datasets (Braxton, 2000; Cabrera et al., 1993). Such approaches, although informative, tend to yield findings that are difficult to compare across contexts because of variations in definitions, measurement strategies, and data availability (Braxton, 2000; Yorke, 1999). Moreover, the absence of a standardised operational framework for measuring student exit has led to conceptual ambiguity, particularly in the interchangeable use of terms such as 'dropout', 'attrition', and 'retention' (Tinto, 1975; Yorke, 1999). As a result, the existing literature appears fragmented, with limited cumulative progress in establishing comparable and scalable measurement approaches (Braxton, 2000).

Administrative and institutional datasets offer an alternative avenue for analysing patterns of student discontinuation at a larger scale (Pascarella & Terenzini, 2005). In the Indian context, initiatives such as the National Institutional Ranking Framework provide systematic data on institutional performance, including indicators related to student intake, graduation outcomes, and resource availability (Ministry of Education, 2025; Ministry of Education, n.d.). These datasets have been widely used for ranking and evaluation purposes; however, their potential for methodological analysis of student discontinuation remains underexplored (Ministry of Education, 2025). Given that such data are collected in a standardised format across institutions, they may support the development of comparable measures of student outcomes (Ministry of Education). Nevertheless, the absence of a clear methodological framework for interpreting these indicators in relation to discontinuation limits their analytical utility. In other words, while the data exist, the methods for transforming them into meaningful measures of student exit are not yet well articulated.

This gap points to a broader need for methodological clarity in the study of student discontinuation (Braxton, 2000; Tinto, 1993). Specifically, there is a need to distinguish between concepts that can be directly observed and those that are inferred. Institutional datasets typically capture enrolment and graduation patterns, but they do not track individual student trajectories across institutions (Ministry of Education, n.d.). Consequently, what can be observed is not necessarily permanent dropout from higher education, but rather discontinuation within a given institutional context (Tinto, 1975; Yorke, 1999). Recognising this distinction is important for developing appropriate measurement strategies (Braxton, 2000). Furthermore, a systematic approach is required to translate available institutional indicators into a consistent measure of discontinuity that can be applied across different settings. Such an approach would enhance comparability, support cumulative research, and provide a basis for evidence-informed policy analysis (Pascarella & Terenzini, 2005).

In response to these issues, the present study seeks to develop a methodological framework for measuring student discontinuation using institutional data. The study pursues three specific objectives. First, it aims to clarify the conceptual distinction between dropout and discontinuation in higher education research. Second, it proposes a standardised method for estimating discontinuation using commonly available institutional indicators, with particular reference to datasets such as the National Institutional Ranking Framework. Third, it demonstrates the applicability of the proposed method through a limited illustrative analysis of selected universities. By addressing both conceptual and methodological dimensions, the study seeks to contribute to the development of more coherent and replicable approaches to analysing student outcomes.

The study's contribution lies in three interrelated areas. It provides a conceptual clarification that distinguishes discontinuation from broader notions of dropout, thereby aligning measurement with observable data. It introduces a standardised and replicable methodological procedure for estimating discontinuation using institutional datasets. In addition, it demonstrates how existing large-scale data sources, typically used for ranking, can be repurposed for analytical research. Through these contributions, the study attempts to advance methodological discussion in higher education research while offering a practical tool for future empirical work.

The remainder of the paper is structured as follows. The next section presents a conceptual clarification of discontinuation in relation to dropout and related terms. This is followed by a critical review of existing approaches to measuring student attrition. The subsequent section outlines the proposed methodological framework, including its conceptual basis, estimation model, and analytical workflow. An illustrative application using selected universities is then presented to demonstrate the method's feasibility. The paper concludes with a methodological evaluation, implications for research and policy, and directions for future work.

2. Conceptual Clarification: Discontinuation and Dropout

Conceptual clarity is essential for any methodological contribution, particularly in areas where key terms are used inconsistently (Maxwell, 2012; Tinto, 1975). In higher education research, terms such as dropout, attrition, retention, and persistence are often used interchangeably, even though they refer to distinct phenomena (Bean, 1980; Braxton, 2000; Tinto, 1993). This lack of precision creates difficulties in measurement, comparison, and interpretation (Braxton,

2000; Yorke, 1999). Therefore, before proposing a methodological framework, it is necessary to clarify what is meant by student discontinuation and how it differs from related concepts, especially dropout.

The term dropout is commonly used to describe students who leave higher education without completing a programme (Spady, 1970; Tinto, 1975). In many studies, dropout is implicitly treated as a permanent exit from the education system (Bean, 1980; Tinto, 1993). This definition assumes that once a student leaves an institution, the individual does not re-enter higher education elsewhere. However, this assumption does not always hold, particularly in systems where student mobility across institutions and programmes is common (Hagedorn, 2005; Yorke, 1999). As a result, the use of dropout as an analytical category may obscure the distinction between temporary interruption, institutional transfer, and permanent withdrawal (Braxton, 2000; Tinto, 1993). This limitation becomes more pronounced when researchers rely on datasets that do not track individual student trajectories over time (Pascarella & Terenzini, 2005).

In contrast, the concept of discontinuation refers to the termination or interruption of enrolment within a specific institutional or programme context (Yorke, 1999). It captures the observable outcome that a student who was previously enrolled is no longer progressing academically within that institution. Importantly, discontinuation does not assume that the student has permanently exited higher education. Instead, it recognises that the student may have transferred to another institution, changed programmes, or temporarily suspended studies (Hagedorn, 2005; Tinto, 1993). In this sense, discontinuation is a more limited but empirically grounded concept, as it aligns with what institutional data can actually capture (Braxton, 2000). This distinction has important methodological implications (Maxwell, 2012). Institutional datasets, including those used for performance assessment and ranking, typically record aggregate information such as student intake, enrolment, and graduation outcomes (Ministry of Education, n.d.). However, they do not provide longitudinal tracking of individual students across institutions. Consequently, these datasets cannot reliably distinguish between permanent dropout and other forms of student movement (Pascarella & Terenzini, 2005). When such data are used to estimate dropout, there is a risk of misclassification, as students who transfer or temporarily discontinue may be counted as dropouts (Braxton, 2000; Hagedorn, 2005). Therefore, the use of the term dropout in such contexts may introduce conceptual and measurement errors (Maxwell, 2012).

Recognising these limitations, the present study adopts student discontinuation as the primary analytical concept. This choice reflects an attempt to align conceptual definitions with the nature of available data. By focusing on discontinuation, the analysis remains grounded in observable institutional outcomes rather than inferred individual trajectories (Maxwell, 2012). This approach does not deny the importance of studying dropout as a broader phenomenon; rather, it acknowledges that different types of data support different levels of inference (Pascarella & Terenzini, 2005). In contexts where individual-level longitudinal data are unavailable, discontinuation provides a more appropriate and defensible basis for measurement (Braxton, 2000).

At the same time, it is important to situate discontinuation within the broader framework of student progression. Discontinuation may be viewed as one component of a continuum that

includes enrolment, persistence, completion, and transition (Tinto, 1993; Yorke, 1999). From this perspective, discontinuation represents a deviation from expected progression within a given institutional setting. Its occurrence may be influenced by a range of factors, including academic challenges, financial constraints, institutional support, and personal circumstances (Bean, 1980; Cabrera et al., 1993; Tinto, 1993). While the present study does not attempt to model these determinants directly, it recognises that discontinuation reflects the interaction of multiple influences operating at different levels (Cabrera et al., 1993; Tinto, 1993).

Furthermore, the adoption of discontinuation as an analytical concept facilitates comparability across institutions. Since institutional datasets generally follow standard reporting formats, discontinuation can be estimated using consistent indicators such as intake and graduation outcomes (Ministry of Education, n.d.). This standardisation supports the development of comparable measures across diverse institutional contexts. However, it also requires careful interpretation, as the same measure may capture different underlying processes in different settings (Pascarella & Terenzini, 2005). For example, a high discontinuation rate in one institution may reflect student transfer to other institutions, while in another context it may indicate genuine attrition from higher education (Hagedorn, 2005). These nuances highlight the importance of combining methodological rigour with interpretive caution (Maxwell, 2012). In summary, the distinction between dropout and discontinuation is not merely semantic but has direct implications for measurement and analysis. While dropout refers to a broader and often unobservable phenomenon, discontinuation represents an institutionally bounded and empirically observable outcome. By adopting discontinuation as the central concept, the present study seeks to establish a more precise and methodologically consistent basis for analysing student exit. This conceptual clarification provides the foundation for the subsequent development of a standardised framework for measuring discontinuation using institutional data.

3. Review of Existing Measurement Approaches

The measurement of student exit from higher education has attracted considerable scholarly attention; however, the approaches adopted across studies remain varied and often inconsistent. This section reviews the methodological traditions used to analyse student attrition, with a focus on how discontinuation or dropout has been operationalised. The discussion highlights the strengths of existing approaches while identifying key limitations that justify the need for a more standardised methodological framework.

3.1 Survey-Based Approaches

Survey-based studies constitute a significant portion of the literature on student dropout (Bean, 1980; Cabrera et al., 1993; Tinto, 1993). These studies typically collect primary data from students through questionnaires or interviews, enabling researchers to examine individual-level factors such as socio-economic background, academic preparedness, motivation, and psychological well-being (Bean, 1980; Cabrera et al., 1993; Pascarella & Terenzini, 2005). One advantage of this approach lies in its ability to capture nuanced and context-specific information that is not available in administrative datasets (Creswell & Creswell, 2018). For instance, surveys may reveal students' subjective experiences of institutional support, perceived academic difficulty, or financial stress, all of which may influence decisions to discontinue (Tinto, 1993; Cabrera et al., 1993).

Despite these strengths, survey-based approaches exhibit several methodological limitations. First, such studies often rely on relatively small or institution-specific samples, which restricts the generalisability of findings (Creswell & Creswell, 2018; Pascarella & Terenzini, 2005). Second, the use of self-reported data introduces the possibility of recall bias and response bias, particularly when students are asked to reflect on past decisions (Podsakoff et al., 2003). Third, variations in survey design, measurement scales, and operational definitions make it difficult to compare results across studies (Braxton, 2000; Yorke, 1999). Consequently, while survey-based research contributes to understanding the determinants of discontinuation, it does not provide a consistent or scalable method for measuring the phenomenon across institutions (Braxton, 2000).

3.2 Administrative Data Approaches

Administrative data, collected by institutions or government agencies, offer an alternative means of analysing student outcomes (Pascarella & Terenzini, 2005). These datasets typically include information on enrolment, progression, and graduation, and may cover large populations over multiple years (Shavelson, 2010). As a result, administrative data support large-scale analysis and may enhance the external validity of findings (Pascarella & Terenzini, 2005). In many contexts, such data have been used to estimate retention rates, completion rates, and, indirectly, dropout patterns (Tinto, 1993; Yorke, 1999).

However, the use of administrative data also presents challenges. One major limitation concerns the lack of standardisation across institutions and datasets (Braxton, 2000). Different institutions may define and record variables such as enrolment status, programme completion, or student withdrawal in different ways. This variation complicates cross-institutional comparison (Yorke, 1999). In addition, administrative datasets often lack information on the reasons behind student exit, limiting their explanatory power (Pascarella & Terenzini, 2005). Importantly, most administrative data systems do not track students across institutions, which makes it difficult to distinguish between permanent dropout and institutional transfer (Hagedorn, 2005). As a result, estimates derived from such data may conflate different forms of student movement (Braxton, 2000; Hagedorn, 2005).

3.3 Institutional-Level Indicators and Aggregate Measures

A third approach involves the use of institutional-level indicators, often derived from publicly available reports or ranking frameworks. These indicators may include aggregate measures such as student intake, graduation outcomes, faculty–student ratios, and resource allocation (Ministry of Education, n.d.). Such data are typically standardised across institutions and are therefore suitable for comparative analysis (Ministry of Education, n.d.). In the Indian context, large-scale datasets such as those produced under the National Institutional Ranking Framework provide a structured compilation of institutional indicators across multiple dimensions (Ministry of Education, 2025).

While these datasets offer significant potential, their use in analysing student discontinuation remains limited. Most studies that engage with institutional indicators focus on performance evaluation or ranking rather than on student progression or exit (Ministry of Education, 2025). Moreover, there is no widely accepted methodological procedure for translating these indicators into measures of discontinuation. Researchers may use simple ratios or descriptive statistics, but these approaches are often ad hoc and lack theoretical justification (Braxton,

2000; Yorke, 1999). Consequently, although institutional datasets are rich in information, their analytical potential for studying discontinuation has not been fully realised.

3.4 Identified Gaps in Existing Approaches

The review of existing methods reveals several recurring limitations. First, there is an absence of a standardised operational definition of student exit, leading to inconsistent use of terms such as dropout and attrition (Braxton, 2000; Tinto, 1993; Yorke, 1999). Second, measurement approaches vary widely across studies, which undermines comparability and cumulative knowledge building (Braxton, 2000). Third, while large-scale institutional datasets are available, there is limited methodological guidance on how to use these data to estimate discontinuation in a consistent and theoretically grounded manner (Ministry of Education, 2025; Ministry of Education, n.d.). Finally, many approaches either focus on individual-level explanations without scalable measurement, or on aggregate data without sufficient conceptual clarity (Pascarella & Terenzini, 2005; Braxton, 2000).

Taken together, these gaps indicate the need for a methodological framework that can bridge conceptual and empirical dimensions. Such a framework should align definitions with observable data, provide a clear and replicable estimation procedure, and enable comparison across institutions. The following section addresses this need by proposing a structured approach to measuring student discontinuation using institutional data.

4. Proposed Methodological Framework

This section presents the central contribution of the study by developing a structured and replicable framework for estimating student discontinuation using institutional data. The framework is based on the principle that methodological validity depends on the alignment between **conceptual definitions, available data, and analytical procedures**. Accordingly, the proposed approach conceptualises discontinuation as an institutionally observable outcome derived from aggregate indicators such as student admissions and graduation outcomes. The section outlines the conceptual basis of the framework, introduces the estimation model, explains the analytical workflow, and discusses the analytical scope as well as possible sources of error and bias.

4.1 Conceptual Basis of the Framework

The proposed framework conceptualises student discontinuation as a deviation from expected academic progression within a given institutional setting. Under normal progression conditions, students admitted into a programme are expected to complete the programme within the stipulated academic duration. However, a proportion of students may not reach programme completion within this period. This divergence between admission and completion forms the basis for estimating discontinuation at the institutional level.

The framework rests on three interrelated assumptions. First, institutional datasets generally provide reasonably consistent information regarding student admissions and graduation outcomes. Second, the difference between admitted students and graduating students may function as a proxy indicator of discontinuation, provided that the assumptions and limitations of the data are acknowledged. Third, discontinuation is influenced by multiple institutional and structural conditions, including academic environment, student composition, financial constraints, and institutional support systems. While the present framework does not attempt

to model these determinants directly, it assumes that the estimated discontinuation indicator reflects the combined influence of such factors.

Importantly, the framework does not claim to identify permanent dropout from higher education. Instead, it seeks to estimate institution-level progression deviation using observable administrative indicators. Consequently, the resulting measure should be interpreted as an approximation of discontinuation rather than an exact measure of student attrition.

4.2 Estimation Model for Student Discontinuation

The methodological core of the framework is a standardised estimation model that uses institutional progression indicators to derive an estimated discontinuation measure. The model is represented as follows:

$$D_e = \frac{A - G}{A}$$

where:

D_e denotes the estimated discontinuation indicator,

A represents the number of students admitted into a programme or cohort, and

G indicates the number of students graduating within the minimum stipulated duration.

The logic of the model is based on the assumption that students who are admitted but do not appear among graduating students within the expected timeframe represent an approximation of discontinuation within the institutional context. The resulting value therefore estimates the proportion of students who do not complete the programme within the expected duration.

The framework intentionally uses *admitted student counts* rather than sanctioned intake capacity. This distinction is methodologically important because sanctioned intake reflects institutional capacity, whereas admitted students represent the actual participating cohort. In many institutional contexts, sanctioned seats may remain vacant, thereby distorting progression estimates if intake capacity alone is used. By grounding the estimation in actual admissions, the framework improves both validity and institutional comparability.

At the same time, the estimation model should be interpreted cautiously. The model does not distinguish between permanent withdrawal, institutional transfer, delayed completion, or temporary interruption of study. Consequently, the indicator reflects estimated discontinuation within a specific institutional context rather than definitive dropout from higher education.

4.3 Methodological Workflow

To ensure replicability, the framework proposes a systematic analytical workflow that researchers may apply using institutional datasets such as NIRF reports.

Step 1: Identification of Programme Category

The analysis begins by selecting a comparable programme category across institutions. Programme duration should remain consistent to reduce distortions arising from varying academic timelines. For example, two-year postgraduate programmes may provide greater comparability than combining undergraduate and postgraduate categories.

Step 2: Identification of Admission Data

The number of admitted students is identified from institutional reports. This value constitutes the reference cohort for the estimation process.

Step 3: Identification of Graduation Outcomes

The number of students graduating within the minimum stipulated duration is extracted from the same institutional dataset. Where possible, graduation data should correspond to the same academic cohort.

Step 4: Application of the Estimation Model

The estimated discontinuation indicator is calculated using the proposed formula. This produces a standardised institutional estimate that may support comparative analysis.

Step 5: Adjustment for Programme Duration

Where institutional reporting structures require approximation, researchers should align admissions and graduation data according to the normal duration of the programme. This adjustment is particularly important in datasets that do not explicitly track longitudinal cohorts.

Step 6: Contextual Interpretation

The resulting estimate should be interpreted in relation to institutional context, programme structure, and possible student mobility patterns. Comparative interpretation should therefore remain cautious and analytically grounded.

This workflow transforms raw institutional indicators into a replicable analytical measure while maintaining transparency regarding assumptions and limitations.

4.4 Analytical Scope and Applications

The proposed framework enables several forms of institutional analysis using publicly available administrative data. First, it facilitates cross-institutional comparison by generating a standardised progression-based indicator. Second, it supports the identification of broad patterns in student progression and completion across different institutional settings. Third, the framework may assist policymakers and institutional administrators in examining potential areas of progression loss without requiring complex student-level longitudinal datasets.

Another important feature of the framework is its adaptability. The model may be applied across different programme categories, institutional types, or temporal periods, depending on data availability and research objectives. This flexibility increases the potential applicability of the framework within higher education research and policy analysis.

At the same time, the framework is intended primarily as a methodological tool rather than a definitive evaluative instrument. The resulting indicator should therefore support exploratory and comparative analysis rather than deterministic institutional ranking.

4.5 Sources of Error and Bias

Although the proposed framework provides a systematic procedure for estimating discontinuation, the resulting indicator remains subject to several methodological limitations. One important limitation concerns the potential overestimation of discontinuation. Since institutional datasets do not track student mobility across institutions, students who transfer elsewhere may still appear as discontinued within the original institution.

Similarly, the framework may underestimate completion in contexts where students graduate after the minimum stipulated duration. Delayed completion, semester extension, academic interruption, or temporary withdrawal may reduce the number of students appearing in the expected graduation cycle even when eventual completion occurs.

Another source of limitation arises from cohort approximation. In many institutional datasets, admissions and graduation outcomes are reported annually rather than longitudinally. As a result, the alignment of admissions and graduation indicators involves assumptions regarding

programme duration and progression consistency. Variations in institutional reporting practices may therefore affect comparability across contexts.

In addition, institutional indicators themselves may contain inconsistencies arising from administrative reporting differences, evolving programme structures, or changes in admission patterns across years. These factors should be acknowledged when interpreting the estimated discontinuation indicator.

Rather than treating these limitations as methodological weaknesses alone, the framework considers them inherent constraints associated with aggregate institutional data. Explicit recognition of these constraints enhances methodological transparency and encourages cautious interpretation. Future research may refine the framework further through the integration of longitudinal or student-level tracking systems.

Overall, the proposed framework provides a conceptually aligned and methodologically replicable approach to estimating student discontinuation using institutional datasets. By combining conceptual clarification, a standardised estimation model, and a transparent analytical workflow, the framework attempts to address existing inconsistencies in higher education progression measurement while remaining attentive to the limitations of available data.

5. Illustrative Application Using Selected Universities

The proposed methodological framework was illustrated using institutional data obtained from the NIRF 2026 submissions of three central universities in India: University of Hyderabad, Maulana Azad National Urdu University, and English and Foreign Languages University. The purpose of this section is not to produce a comprehensive empirical analysis of discontinuation patterns, but rather to demonstrate how the proposed estimation framework may be applied using publicly available institutional indicators. Accordingly, the illustration is intended to show the operational feasibility of the method rather than generate generalisable conclusions.

5.1 Selection of Universities

The three universities were selected purposively to ensure institutional variation within a comparable higher education category. All three institutions are central universities and appear within the NIRF overall data reporting system; however, they differ in terms of institutional orientation, student composition, and academic profile. The University of Hyderabad represents a research-intensive multidisciplinary institution with relatively high national visibility. In contrast, Maulana Azad National Urdu University reflects a socially inclusive institutional model with a strong emphasis on access and linguistic diversity. The English and Foreign Languages University represents a specialised institution with a focused academic orientation towards language and humanities education.

The inclusion of these institutions serves two methodological purposes. First, institutional diversity allows the framework to be tested across different academic and organisational contexts. Second, the variation helps illustrate whether the estimation model is capable of identifying differences in student progression patterns without requiring individual-level tracking data.

5.2 Data Extraction and Variable Selection

For the illustrative application, the analysis was restricted to **Postgraduate (PG) Two-Year Programmes**. This restriction was adopted to maintain methodological consistency across

institutions. Since programme duration influences graduation timing, the use of a common programme structure reduces variation arising from differing academic timelines.

Two indicators were extracted from the NIRF 2026 institutional reports:

1. Number of students admitted in the first year of PG two-year programmes
2. Number of students graduating within the minimum stipulated time

The indicators were obtained from the “Placement and Higher Studies” section of the institutional submissions. For the present illustration, the academic year 2023–24 admission cohort and the corresponding graduation outcomes reported for 2024–25 were used.

Instead of using sanctioned intake capacity, the study employs *actual admitted students* as the reference value. This modification was adopted because sanctioned intake may not reflect actual student participation due to vacant seats. Consequently, the framework introduces a refined estimation indicator:

$$D_e = \frac{A - G}{A}$$

where:

D_e represents the estimated discontinuation indicator,

A denotes the number of admitted students, and

G refers to the number of students graduating within the minimum stipulated time.

This refinement improves methodological validity by linking discontinuation estimation to actual enrolment rather than institutional capacity.

5.3 Application of the Estimation Framework

Using the extracted indicators, the proposed estimation model was applied to the three selected universities. The resulting values are presented in Table 1.

Table 1

Illustrative Estimation of Student Discontinuation Indicators in Selected Universities

University	Admitted Students (A)	Graduating Students (G)	Estimated Discontinuation Indicator ((D _e))
University of Hyderabad	1335	1087	0.186
Maulana Azad National Urdu University	1107	1085	0.020
English and Foreign Languages University	433	306	0.293

Data source: NIRF 2026 institutional submissions.

The results indicate observable variation across institutions. The estimated discontinuation indicator appears comparatively low in the case of Maulana Azad National Urdu University, moderate for the University of Hyderabad, and relatively higher for the English and Foreign Languages University. Importantly, these values should not be interpreted as precise measures of dropout. Rather, they represent institution-level approximations of progression deviation derived from aggregate indicators.

5.4 Comparative Illustration and Methodological Interpretation

The illustrative application demonstrates several methodological features of the proposed framework. First, the estimation model is capable of producing differentiated institutional outcomes using only a limited set of publicly available indicators. This suggests that institutional datasets may support preliminary analysis of progression patterns even in the absence of longitudinal student tracking systems.

Second, the framework highlights the importance of contextual interpretation. For example, a relatively higher estimated discontinuation indicator in a specialised institution may not necessarily imply weaker institutional performance. The observed value may reflect programme mobility, delayed completion, or variations in student progression structures. Similarly, lower estimated discontinuation may arise from stronger completion systems, but it may also reflect differences in programme composition or reporting practices. Therefore, the framework is intended to support analytical approximation rather than deterministic classification.

Third, the illustration demonstrates the methodological advantage of using admitted students instead of sanctioned intake. In several institutional contexts, sanctioned capacity differs substantially from actual enrolment. By grounding the estimation in admitted student counts, the framework reduces distortions arising from unfilled seats and improves comparability across institutions.

Overall, the illustrative analysis confirms that institutional datasets such as NIRF reports may be repurposed for discontinuation estimation when supported by a clear conceptual and methodological structure. At the same time, the exercise also reveals the need for interpretive caution, particularly in relation to student mobility and cohort approximation. These considerations are examined further in the following section through a broader methodological evaluation of the proposed framework.

6. Methodological Evaluation

The proposed framework attempts to address a persistent methodological challenge in higher education research: the absence of a consistent and institutionally scalable approach for estimating student discontinuation. Rather than treating discontinuation as a directly observable phenomenon, the framework conceptualises it as an estimated progression deviation derived from institutional indicators. This section evaluates the methodological strengths, limitations, and analytical implications of the framework in light of the illustrative application presented earlier.

6.1 Methodological Strengths

One major strength of the framework lies in its conceptual alignment with available data. Existing studies frequently use the term dropout even when the underlying datasets cannot verify permanent withdrawal from higher education. In contrast, the present framework explicitly adopts discontinuation as the analytical category because institutional datasets primarily capture enrolment and completion patterns within specific institutional contexts. This conceptual clarification reduces ambiguity and improves methodological consistency.

A second strength concerns replicability. The framework relies on a limited set of indicators that are commonly available in institutional reports, particularly datasets produced through structured reporting systems such as NIRF. Since the estimation model requires only admission and graduation indicators, the procedure may be applied across multiple institutions without

extensive data collection. This feature enhances the potential for comparative analysis and cumulative research.

The framework also demonstrates analytical flexibility. Although the present illustration focused on postgraduate two-year programmes, the same methodological logic may be extended to other programme categories, institutional types, or temporal contexts, provided that comparable indicators are available. Such adaptability increases the utility of the framework for exploratory institutional analysis.

Another important contribution lies in the methodological refinement introduced through the use of admitted student counts rather than sanctioned intake capacity. In many institutions, sanctioned seats remain partially unfilled, thereby weakening the validity of intake-based progression estimates. By grounding the estimation in actual admissions, the framework improves the relationship between the observed cohort and the estimated discontinuation indicator.

Finally, the framework offers practical applicability for higher education research and institutional review. In contexts where longitudinal student-level tracking systems are unavailable or inaccessible, the proposed model provides a relatively simple method for approximating institutional progression outcomes using publicly available data.

6.2 Methodological Limitations

Despite its strengths, the framework remains subject to several limitations arising from the nature of aggregate institutional data. The most significant limitation concerns the inability to distinguish between different forms of student movement. Students who transfer to another institution, temporarily interrupt their studies, or change programme categories may appear as discontinued within the original institutional dataset even when they remain within higher education. Consequently, the estimated discontinuation indicator should not be interpreted as a definitive measure of permanent dropout.

Another limitation relates to delayed completion. The framework estimates progression deviation based on graduation within the minimum stipulated duration. However, students who complete programmes after extension or interruption periods may not appear in the expected graduation cycle. In such cases, the framework may overestimate discontinuation in institutions where delayed completion is relatively common.

The framework also depends on cohort approximation. Since institutional datasets often report admissions and graduations annually rather than longitudinally, the alignment between admitted students and graduating students involves assumptions regarding programme duration and progression continuity. Variations in curriculum structure, semester systems, or reporting practices may therefore affect the comparability of estimates across institutions.

In addition, institutional datasets themselves may contain reporting inconsistencies. Changes in programme structure, fluctuations in annual admissions, or differences in data interpretation across institutions may introduce measurement variation that is not directly related to actual progression patterns. These limitations highlight the importance of cautious interpretation and contextual analysis.

6.3 Sensitivity and Interpretive Considerations

The illustrative application demonstrates that the proposed estimation model is sensitive to institutional variation. However, such variation should not automatically be interpreted as

evidence of stronger or weaker institutional performance. Estimated discontinuation indicators may reflect multiple overlapping conditions, including programme composition, student mobility patterns, institutional selectivity, and differences in academic progression structures. This sensitivity reinforces the need for interpretive caution. The framework is intended to support methodological approximation rather than deterministic classification. Consequently, institutional comparisons should remain exploratory and contextually informed rather than evaluative in an absolute sense.

At the same time, the sensitivity of the model may be viewed as analytically useful. The ability to identify broad progression variation across institutions suggests that institutional datasets contain underutilised potential for higher education analysis beyond ranking exercises alone. In this regard, the framework demonstrates how publicly available administrative data may be repurposed for methodological and analytical research purposes.

6.4 Methodological Implications

The broader implication of the framework lies in its attempt to reposition institutional datasets as analytical resources rather than merely evaluative instruments. Large-scale reporting systems such as NIRF are generally designed for institutional assessment and ranking. However, the present study demonstrates that these datasets may also support exploratory methodological analysis when guided by a clear conceptual structure.

The framework further highlights the importance of aligning terminology with data capability. By distinguishing discontinuation from dropout, the study emphasises that methodological validity depends not only on statistical procedure but also on conceptual precision. This distinction may contribute to more careful operationalisation in future higher education research.

Finally, the framework suggests a possible direction for future methodological refinement. The integration of longitudinal student-level tracking systems, administrative linkage databases, or multi-institution progression records may substantially improve the precision of discontinuation estimation. Until such systems become widely available, institution-level estimation frameworks such as the one proposed here may provide a useful intermediate approach for comparative higher education analysis.

7. Implications for Research and Policy

The proposed framework carries several implications for higher education research, institutional analysis, and policy development. Although the framework is methodological in orientation, its application demonstrates how institutional datasets may support broader analytical understanding of student progression patterns when interpreted within a conceptually grounded structure.

7.1 Implications for Higher Education Research

One important implication of the study lies in the promotion of methodological standardisation within discontinuation research. Existing studies frequently employ different operational definitions, datasets, and measurement procedures, thereby limiting comparability across contexts. By proposing a transparent estimation model supported by a defined analytical workflow, the present framework contributes towards greater methodological consistency in institutional-level discontinuation analysis.

The framework also expands the analytical utility of institutional datasets. Publicly available administrative reports are often underutilised in higher education research because they are primarily viewed as evaluative or ranking instruments. However, the present study demonstrates that such datasets may support exploratory methodological analysis when guided by a clearly articulated conceptual structure. This opens possibilities for future comparative studies using institutional indicators across different institutional categories, regions, or time periods.

Another research implication concerns conceptual precision. The distinction drawn between discontinuation and dropout highlights the importance of aligning analytical terminology with the capabilities of available data. Future research may benefit from adopting more differentiated conceptual categories that recognise the limits of institution-level datasets while avoiding unsupported assumptions regarding permanent student withdrawal.

In addition, the framework may provide a foundation for more advanced methodological development. Researchers may extend the proposed model by incorporating longitudinal administrative systems, student mobility indicators, or multilevel analytical techniques. In this sense, the present framework may function as an intermediate methodological approach that bridges aggregate institutional reporting and more comprehensive student-level tracking systems.

7.2 Implications for Institutional Analysis

From an institutional perspective, the framework offers a relatively simple mechanism for examining progression patterns using existing administrative indicators. Institutions often monitor admission and graduation separately, but these indicators are not always integrated into a progression-oriented analytical structure. The proposed framework demonstrates how these data may be connected to generate preliminary estimates of discontinuation.

Such estimates may assist institutions in identifying broad areas of progression loss, particularly when examined over multiple years or across programme categories. While the framework should not be treated as a definitive evaluative instrument, it may support internal academic review, programme monitoring, and strategic planning processes.

The framework may also encourage greater attention to data consistency within institutional reporting systems. Since discontinuation estimation depends heavily on the alignment between admissions and graduation indicators, institutions may benefit from improving longitudinal reporting practices and progression tracking mechanisms.

7.3 Implications for Higher Education Policy

At the policy level, the framework highlights the potential value of institutional datasets for monitoring student progression within expanding higher education systems. In many national contexts, policy discussions surrounding access and equity increasingly emphasise not only enrolment expansion but also successful programme completion. However, reliable large-scale indicators of progression and discontinuation often remain limited.

The present framework suggests that structured institutional datasets such as those developed under the National Institutional Ranking Framework may provide a preliminary basis for progression-related analysis. Although such datasets were originally designed for institutional assessment, their analytical repurposing may support broader policy understanding of institutional variation in student progression outcomes.

At the same time, the study underscores the limitations of relying exclusively on aggregate institutional data. Effective policy analysis ultimately requires more robust longitudinal systems capable of tracking student trajectories across institutions and programme categories. Therefore, the framework should be viewed as a transitional methodological approach rather than a substitute for comprehensive student-level tracking infrastructures.

Overall, the proposed framework demonstrates that publicly available institutional indicators possess analytical potential beyond ranking and evaluation. By combining conceptual clarification with a replicable estimation procedure, the framework contributes to ongoing discussions regarding methodological innovation, institutional accountability, and progression analysis within higher education research and policy.

8. Conclusion

The present study addressed an important methodological gap in higher education research by proposing a structured framework for estimating student discontinuation using institutional datasets. Existing approaches to measuring student exit often suffer from conceptual inconsistency, fragmented operational definitions, and limited comparability across institutional contexts. In response, the study sought to develop a conceptually aligned and methodologically replicable approach that could utilise publicly available institutional indicators while remaining attentive to the limitations of aggregate administrative data.

A central contribution of the study lies in the distinction established between dropout and discontinuation. While dropout is frequently treated as permanent withdrawal from higher education, institutional datasets generally do not possess the capacity to verify such trajectories. Accordingly, the study argued that discontinuation represents a more appropriate analytical category when working with institution-level indicators. This conceptual clarification formed the basis for the development of the proposed estimation framework.

The study further introduced a standardised estimation model based on admitted student counts and graduation outcomes. By using actual admissions rather than sanctioned intake capacity, the framework sought to improve institutional comparability and reduce distortions caused by vacant seats. The accompanying analytical workflow demonstrated how institutional indicators can be systematically transformed into estimated discontinuation measures through a transparent, replicable procedure.

The illustrative application using selected central universities demonstrated the operational feasibility of the framework. Although the resulting estimates should not be interpreted as exact measures of student dropout, the analysis showed that institutional datasets, such as NIRF reports, have underutilised potential for progression-oriented research. At the same time, the study emphasised the need for interpretive caution due to limitations associated with student mobility, delayed completion, and cohort approximation.

Overall, the proposed framework contributes to methodological discussion in higher education research by repositioning institutional datasets as analytical resources rather than solely evaluative instruments. The framework offers a preliminary yet scalable approach for examining variation in progression across institutions in contexts where longitudinal student-level tracking systems remain limited.

Future research may extend the framework by incorporating longitudinal administrative databases, student mobility indicators, or programme-level progression tracking systems. Such

developments may improve the precision of discontinuation estimation and support more comprehensive analysis of student progression within higher education systems. Until such infrastructures become widely available, institution-level estimation approaches such as the one proposed in this study may provide a useful methodological foundation for comparative higher education analysis.

9. Limitations of the Study

The present study is subject to several limitations that should be considered while interpreting the proposed discontinuation framework. First, the framework relies on aggregate institutional data rather than longitudinal student-level records. Consequently, it cannot distinguish between permanent dropout, institutional transfer, temporary interruption, or programme change. Second, the estimation model is based on graduation within the minimum stipulated duration and may therefore overestimate discontinuation in cases of delayed completion. Third, the framework relies on cohort approximation because institutional datasets, such as NIRF reports, do not directly track individual student progression over time. Variations in institutional reporting practices may therefore affect comparability across institutions.

In addition, the illustrative application was limited to three selected central universities and focused solely on two-year postgraduate programmes. The findings should therefore be interpreted as methodological illustration rather than empirical generalisation. Finally, the proposed indicator was not validated against longitudinal retention or student-tracking datasets. Accordingly, the framework should be understood as an approximate institutional measure of progression deviation rather than a definitive estimate of student dropout. Despite these limitations, the framework may provide a useful methodological approach in contexts where comprehensive student-level tracking systems remain unavailable.

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Conflict of Interest

The authors declare that they have no conflict of interest.

Consent Statement:

Not applicable. This study does not involve human participants or data requiring consent.

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References

- Bean, J. P. (1980). Dropouts and turnover: The synthesis and test of a causal model of student attrition. *Research in Higher Education*, 12(2), 155–187.
<https://doi.org/10.1007/BF00976194>

- Bean, J. P. (1980). Dropouts and turnover: The synthesis and test of a causal model of student attrition. *Research in Higher Education*, 12(2), 155–187.
<https://doi.org/10.1007/BF00976194>
- Braxton, J. M. (Ed.). (2000). *Reworking the student departure puzzle*. Vanderbilt University Press.
- Cabrera, A. F., Nora, A., & Castañeda, M. B. (1993). College persistence: Structural equations modeling test of an integrated model of student retention. *The Journal of Higher Education*, 64(2), 123–139. <https://doi.org/10.1080/00221546.1993.11778419>
- Hagedorn, L. S. (2005). How to define retention: A new look at an old problem. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 89–105). Praeger.
- Maxwell, J. A. (2012). *A realist approach for qualitative research*. Sage.
- Ministry of Education. (2025). *India rankings 2025: National Institutional Ranking Framework (NIRF)*. Government of India. ([NIRF India](#))
- [NIRF Methodology Documents](#)
- [NIRF Official Website](#)
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research* (Vol. 2). Jossey-Bass.
- Spady, W. G. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange*, 1(1), 64–85. <https://doi.org/10.1007/BF02214313>
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45(1), 89–125.
<https://doi.org/10.3102/00346543045001089>
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). University of Chicago Press.
- Yorke, M. (1999). *Leaving early: Undergraduate non-completion in higher education*. Falmer Press.