

Heritage vs. Higher Education: Assessing Student Dropout Dynamics in the Sarthebari Bell Metal Craft Cluster

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Abstract

Higher education dropout reduces societal human capital and deepens economic vulnerability [Helland et al., 2025]. In Sarthebari town (Barpeta, Assam)—the core of Assam's indigenous bell metal industry—this labor-intensive craft serves as an economic lifeline but acts as a powerful socio-economic pull factor, drawing youth out of classrooms into family workshops [Bhuyan & Singha, 2014]. This study assesses how dependency on the traditional bell metal craft drives higher education attrition. It identifies the socio-economic push-and-pull factors, household labor dynamics, generational expectations, and academic mismatches forcing students to discontinue their studies. Mixed method approach, i.e., structured questionnaires and qualitative interviews have been used to collect the primary data from a sample of 200 including dropouts, local artisans, and educators. To analyze the statistical relationship between the Bell metal craft dependence and dropout rates, Chi-Square test of independence has been used. The field survey reveals that 76.7% of dropouts occurred at the Higher Secondary level, while 23.3% occurred at the undergraduate level. The primary catalysts for leaving college include the urgent need to support the family workshop (43.3%), acute financial constraints (23.3%), and labor-market uncertainties (33.3%). Furthermore, 93.3% of students contributed over six hours of daily manual labor during college, inducing physical exhaustion and severe academic time poverty. Chi-Square testing strongly rejected the null hypothesis (χ^2 calculated value = 8.033), ($p = 0.0046$), confirming a highly significant association between bell metal craft dependence and higher education dropouts. Dropping out in Sarthebari operates as an active household risk-mitigation strategy where immediate workshop returns are prioritized over delayed educational dividends. To balance heritage preservation with educational attainment, the study recommends integrating flexible "Earn While You Learn" vocational modules under NEP 2020, offering specialized craft scholarships, and providing state-backed credit and raw-material subsidies to eliminate structural artisan poverty.

Keywords: Higher Education, Students' Dropout, Sarthebari Bell Metal Craft

1. Introduction:

From the social viewpoint, dropout of students from education always represents economic loss as it reduces human capital base, skilled professionals and thereby the loss of economic output. From

individual point of view, dropping out from the formal academic system may have adverse effects on future earnings and well-being. Furthermore, when dropout rates are unevenly distributed across socio-economic lines, existing social disparities in higher education attainment will be widened (Helland et al., 2025). These losses are more prominent if dropout is from higher education as it severely limits job options and earning potential. Higher education dropouts can cause underdevelopment by shrinking a nation's skilled workforce, which lowers the potential innovation for economic growth. More particularly, for a craft dependent towns or locality, the dropout from higher education is more harmful as it causes the community to lose its skilled workers that can deteriorate the local cultural traditions fade. It is observed that generally the dropout tendency is higher among the students who come from low-income families and adverse social backgrounds. It is due to the influence of variables such as work obligations, personal obligations and high costs associated with study (Castleman & Meyer, 2020).

Thus there is need to study how the dependency on local craft affects higher education dropout. It will help to prevent wasted tuition money and protects local economies. It will identify the opportunity costs—what a student lose by choosing one option over another or how earning a degree can cost a family both time and income.

The Sarthebari town, located in Barpeta District of Assam, is the heart centre of Assam's famous bell metal craft industry. As an indigenous cottage industry, it offers livelihood to thousands of artisans. The craft relies entirely on manual labor, utilizing a traditional binary alloy of copper and tin. Being a labour intensive craft, this traditional bell metal craft industry in Sarthebari can directly and indirectly drive student dropouts from higher education. Due to financial safety net, physical demands and generational exceptions, this craft industry pulls young adults out of colleges into full-time workshop labor. Even students who attempt to balance part-time craft labor with higher education often experience severe physical exhaustion, leading to poor attendance, failing grades, and eventual dropout. Due to lack of local job opportunities, young adults frequently perceive the inherited bell metal trade as a more reliable path to self-employment than a general college degree

The dropout trend from higher education driven by the Sarthebari bell metal craft has been contributing to regional underdevelopment by trapping the community in low-income, labor-intensive work. It creates a vicious cycle of skill stagnation, health hazards, and an inability to compete with modern markets. Higher education empowers individuals to enter diverse, high-growth sectors (like IT, modern manufacturing, and services). When youth abandon studies to join the family forge, they restrict their earning potential and miss out on developing the skills needed for a modern economy. Dropping out of education compels the youth in to hazardous work environments at the cost of alternative of higher-paying and safer professions (Binder & Jühlke, 2026).

In this context, this research paper makes an attempt to establish the socio-economic pull factors driving students out of colleges into traditional bell metal craft industry.

2. Objectives:

The study is concerned with the following research objectives.

3. Primary Objective

1. Assess the extent and nature of student dropouts from higher education institutions (undergraduate levels) due to early engagement in the ancestral bell metal craft in Sarthebari.

Secondary Objectives

1. **Identify Socio-Economic Drivers:** Evaluate the financial push-and-pull factors—such as immediate household income, debt, lack of graduate employment opportunities, or family obligation—that force youth to abandon higher education for the traditional craft.
2. **Analyze the Role of Hereditary Skill Transfer:** Examine how traditional family pressures, informal apprenticeship systems, and generational artisan identity influence a student's decision to prioritize craft over academic degrees.
3. **Assess Academic and Skill Mismatches:** Investigate whether higher education curricula lack relevance or practical alignment with regional livelihood opportunities, making the traditional craft appear more lucrative or viable in the short term.
4. **Determine Gender and Household Dynamics:** Map differences in dropout trends between male students (who engage directly in intensive hammering/forging) and female students within artisan households.
5. **Formulate Policy Recommendations:** Propose policy interventions—such as vocational degree integration, flexible higher education frameworks under NEP 2020, and specialized craft scholarships—to help young artisans pursue higher education without abandoning their heritage

Hypotheses

The primary and secondary objectives have been assessed on the basis of the following Null and Alternative Hypotheses.

H₀: Bell metal craft dependence and dropping out from higher education are completely independent

H₁: Bell metal craft dependence and dropping out from higher education are not independent

Testing of the Null hypothesis satisfies the primary objective

4. Research Methodology

A mixed method approach- Quantitative surveys with qualitative interviews has been applied for this research study. Quantitative survey shows how many students drop out due to craft dependence, while qualitative interviews explain why and how the craft pulls them away from higher education.

5. Population and Sample

The target population is the households involved in bell metal craft with members of college or university age (18–25 years). For the purpose of survey 200 bell metal artisans including households and students have been selected. Qualitative interviews have been taken from college/ university dropouts, local artisans, and college/university teachers. Purposive and stratified random sampling from areas heavily active in the bell metal industry has been used.

6. Data Collection

Structured questionnaires, covering household income percentage from bell metal, student work hours in the craft and education status (enrolled vs. dropped out), have been used to collect the primary data. Semi-structured interviews asking about family financial pressure, daily work expectations, and the choice between earning money now and finishing a degree have been also taken. Secondary Data have been collected from the government reports, district education statistics, and artisan cooperative data.

7. Analysis of Data

For quantitative analysis, Chi-Square test has been used for reliable prediction of relationship between the high craft dependence and higher dropout rates. Thematic analysis to find recurring themes like 'financial emergency', 'loss of family labor' or 'lack of time for studies' has been done for qualitative study.

8. Literature Review

An assessment of the traditional brass and bell metal industry in Sarthebari, Assam, indicates that artisans have a moderate educational background (Das et al., 2026). The study indicates that 90 per cent workers are of high school level passed while 8 per cent are of below high school standard and only 2 per cent are of graduation level. It is observed that Family related issues such as personal, family circumstances, income issues are some important reason for dropout from formal education (Madai et al., 2025). Dropping out from higher education can severely restrict a student's long-term and future academic progression. Research shows that, some individuals choose to enter the workforce before completing graduation, a decision frequently driven by immediate financial needs. The main factor for non-completion was financial distress, which forced 42.4% of surveyed students to withdraw due to family poverty. Furthermore, 21.2% of students dropped out from higher education because they found the university curriculum as irrelevant with respect to their goals. Ultimately, the research emphasizes that adverse economic situations and limited labor market opportunities represent the basic reasons for students' dropout. It is found that young people experience strong family demands to carry on traditional craftsmanship rather than pursue higher academic credentials (Bhuyan & Singha. 2014). Though education is an important identifier, however, the percentage of people related with the bell metal craft having graduate and higher level of education is very low. The study finds that due to the scarcity of career prospects relative to the steady income provided by their current bell metal crafts, they choose to prioritize their business over academic advancement. The study on artisanal clusters highlights that low profit margins and high reliance on daily manual labor forces youth to abandon formal education to earn immediate supplementary household income. Helland, et. al., (2025) investigated how the social class disparities influences higher education dropout and institutional mobility in Denmark and Norway. The study indicates that dropout or non-completion creates a lot of social challenges, including financial deficits and shortages of skilled labour. The study shows that the dropout rate is higher for working-class and lower-middle class students in comparison to the students from the upper- and upper-middle classes. The study made by Guzman, et al (2021) views that family income, more particularly for rural families, is an important variable of students' attendance at higher education institutions. The high cost of higher education, combined with personal and professional obligations, disproportionately drives up dropout

rates among socioeconomically disadvantaged families. Because of the financial hardships, students often must work full- or part-time jobs just to afford their basic living and education costs. According to Solanki (2025), external factors like cultural norms, family expectations, and employment opportunities also influence students' dropout rates. The research emphasizes that elevated dropout numbers within Indian higher education result from a multifaceted combination of psychological, academic, institutional, socio-economic, and external variables.

9. Findings and Analysis:

The findings of this study reveal a complex, push-pull dynamic between the socio-cultural imperatives of the Sarthebari bell-metal industry and the academic demands of higher education. Based on 200 of student surveys, interviews with dropouts, and faculty insights, the analysis indicates that academic attrition is rarely caused by a single factor. Instead, it is a negotiation between immediate economic survival, generational artisanal obligation, and the perceived limitations of a generalized higher education curriculum. The following sections dissect these dynamics systematically.

Socio-Economic Profile & Craft Dependence: The study shows that out of the total, 43.3 percent of household solely depend on the Bell Metal craft for their earnings while for 53.3 percent households, primary source of income are the earnings from the Bell metal craft supplemented by agriculture and other works. The study further shows that for 86.7% respondents' family, 1-2 numbers of family members are engaged with this craft while in case of 13.3 percent respondents' family, 3-5 numbers of family members are engaged with the Bell Metal craft for their earnings. For 83.3 percent respondents, the average monthly income generated from this craft is below ₹10,000 while 16.7 percent respondents earn income between the ranges of ₹10,000 – ₹20,000. The study depicts that 36.7 percent respondent always depend on middlemen or mahajans for credit or advance payments to buy raw-materials or to sustain livelihoods. Around 60.0 percent respondent also often depends on middlemen or mahajans. It shows the lack of financial independence among the bell metal craft artisans.

10. Educational Profile & Dropout Status

Field surveys reveal a unique interplay between formal education, hereditary skill acquisition, and economic vulnerability among the artisan community in Sarthebari, Assam. Primary data shows that the overall level of formal education among the bell metal artisans of Sarthebari is moderate to low, with the vast majority falling below the Higher Secondary or undergraduate level. For 76.7 percent respondent, dropped out occurred at Higher Secondary level and for 23.3 percent respondent, dropped out occurred at undergraduate level. 23.3 percent of respondents view that the primary reason for leaving higher education was the financial constraints at their home, 43.3 percent dropped out occurred due to the urgent need to support the family's bell metal workshop while for 33.3 percent respondents, dropped out occurred due to prevailing uncertainties of getting immediate job opportunities after college.

11. Direct Interface between Craft Work and Higher Education

The primary field data reveals a complex and structural relationship between the traditional knowledge system of the Sarthebari bell metal craft and the dropped out from higher education institutions (HEIs). 93.3 percent respondents replied that they had to spend more than 6 hours daily for assisting in the

manufacturing, polishing, or selling of bell metal products during college days. This heavy workload from the craft affects the daily academic performance such as missing lectures, unable to complete home assignments, missing exams, etc. Further there is a clash between the peak seasonal demand for bell metal products and board or university examination schedules. According to 40.0 percent respondents, it occurs frequently. The study further shows that the physical exhaustion from the strenuous labor of bell metalwork (e.g., heat exposure, muscle pain, injuries) also prevents regular college attendance.

12. Socio-Cultural Perceptions & Institutional Support

Higher education dropouts are rarely driven by academic ability alone; they are heavily shaped by external community narratives and internal campus frameworks. Socio-cultural perceptions encompass family expectations, gender roles, caste or class biases, and the perceived utility of a degree within a student's immediate community—factors that can either legitimize persistence or pressure a student to exit prematurely. Conversely, institutional support—comprising academic advising, mentorship, mental health counseling, and flexible financial aid—acts as a critical buffer. When institutions fail to provide inclusive integration or responsive guidance, students frequently experience alienation, making institutional design just as influential as background demographics in the decision to withdraw. 40 percent respondents viewed that higher education is expensive, and learning the craft provides faster financial independence while 60 percent respondents viewed that though Education is valuable, but the family business must come first. According to 53.7 percent respondents prefer immediate involvement in family craft rather than completing graduation. Though some parents (36.7 percent) strongly encourage completing graduation however some parents (10 percent) leave this decision to the students themselves.

13. Testing of Hypothesis

The following table represents the relationship between the dependence on the traditional bell metal craft and the higher education dropout rates.

Table 1: Dependence on the traditional bell metal craft and the higher education dropout

	High Craft dependence	Low craft dependence	Row total
Dropped out	67	46	113
Did not dropped out	34	53	87
Column total	101	99	200

From the table 1, we can construct the following contingency table of Chi square test for testing the null hypothesis that ‘Bell metal craft dependence and dropping out from higher education are completely independent’

Table 2: Contingency Table of Chi square test

	Observed Frequency (O_i)	Expected Frequency (E_i)	$O_i - E_i$	$\chi^2 = (O_i - E_i)^2 / E_i$
Dropped out (High Craft dependence)	67	57.07	9.935	1.730
Dropped out (Low Craft dependence)	46	55.94	-9.935	1.765
Did not dropped out (High Craft dependence)	34	43.94	-9.935	2.247
Did not dropped out (Low Craft dependence)	53	43.07	9.935	2.292
Total χ^2				

Degree of freedom (df) = (R-1) (C-1) = (2-1) (2-1) = 1x1 = 1

χ^2 calculated value = **8.033**

χ^2 Tabulated value (critical value) = 0.0046 (At $\alpha = 0.005$ level of significance)

14. Statistical Conclusion

Because the obtained p-value ($p = 0.0046$) falls significantly below the standard 5% significance level, therefore, the null hypothesis H_0 that (the Bell metal craft dependence and dropping out from higher education are completely independent) can be rejected. Hence Alternative Hypothesis H_1 (Bell metal craft dependence and dropping out from higher education are not independent) is accepted. Thus there is a significant association between the dependence on Bell metal craft industry and dropping out from higher education.

15. Causes of the Dropout from Higher Education

The bell metal industry serves as a crucial economic lifeline for artisan communities. The study shows that a heavy dependence on this traditional craft directly triggers higher education dropouts due to immediate labor demands, fluctuating family incomes, and the intergenerational transmission of trade skills.

Immediate Financial Necessity vs. Delayed Returns: Higher education is a long-term investment with uncertain job outcomes. In contrast, stepping into the bell metal workshop offers immediate, daily financial relief to a struggling family. 67 percent respondent views that they are not interested in completing graduation due to lack of immediate job opportunities after college.

Labor-Intensive Production Dynamics: Bell metal crafting is physically grueling and requires multiple hands for molding, beating, and polishing. When a family cannot afford hired labor, college-aged children are pulled out of classrooms to fill the labor gap. The study shows that 81 percent higher education dropout occurs due to urgent need to support the family's bell metal workshop.

The "Safety Net" Trap: Because youth already possess a viable, revenue-generating skill passed down through generations, they may perceive higher education as unnecessary or redundant, leading to

voluntary dropout. 15 percent respondent viewed that inheriting the family craft is safer than pursuing higher studies

Market Volatility and Income Shocks: The rising cost of raw materials (copper and tin) and competition from cheap, machine-made alternatives create severe financial instability for artisans. 37 percent dropout occurs due to extreme financial constraint.

Time Poverty and Lack of Study Hours: Bell metal crafting is structurally continuous and cannot be easily paused. Because the family's daily workshop output depends entirely on enough hands, a student cannot easily concentrate in daily academic routine. This time poverty compels the student artisans to refrain from classes and other academic works.

16. Conclusion & Policy Recommendations

The empirical evidence confirms that higher education dropout within the target demographic is strongly correlated with the compounding economic pressures facing the bell metal crafts. Dropout rate is not merely an "academic failure" but an active economic strategy. Dropping out represents a critical household risk-mitigation strategy where immediate labor contributions to the furnace take priority over delayed educational dividends. Urgent financial need, labour intensive production techniques, socio-cultural perceptions towards higher education; etc pushes the young generations to dropout.

Developing the Bell Metal craft industry while simultaneously reducing higher education dropout rates requires a dual-benefit approach. Financial hardship stands as a leading factor contributing to student dropout rates in higher education. Creating a structural link between the local colleges and the bell metal cluster can keep students enrolled. The integration of Vocational courses in the motto "Earn While You Learn" may be one important recommendation. Necessary steps like supply of raw materials, credit facilities to the poor artisans, skill training, technological up gradation, etc must be taken to overcome this social dilemma.

References:

1. Castleman & Meyer. (2020), Can Text Message Nudges Improve Academic Outcomes in College? Evidence from a West Virginia Initiative. *The Review of Higher Education*, Volume 43, (4), 1125–1165. Doi: 10.1353/rhe.2020.0015
2. Guzmán et al. (2021), Dropout in Rural Higher Education: A Systematic Review, *Frontiers in Education*, Volume 6, 1-14. <https://doi.org/10.3389/feduc.2021.727833>
3. Barroso et al. (2022), Dropout Factors in Higher Education: A Literature Review, *Psicologia Escolar e Educacional*, Volume 26, 1-10. DOI: <http://dx.doi.org/10.1590/2175-35392022228736T>
4. Bhuyan & Singha. (2023), Bell and Brass Metal Craft: A Socio Economic Condition of Artisans of Assam, *Journal of Emerging Technologies and Innovative Research*, Volume 10(7), 1552-1560, <https://www.jetir.org/archive?v=10&i=7&j=July%202023>
5. Helland et al. (2025), Social inequality in dropout rates in higher education: Denmark and Norway. *Studies in Higher Education*, Volume 50 (Issue-12), 2796–2811. <https://doi.org/10.1080/03075079.2024.2431588>
6. Madai et al. (2025), Student Dropout Trends and Causes in Higher Education: The Case of Kailali Multiple Campus, *KMC Journal*, Volume 7 (1), 234-249, <https://doi.org/10.3126/kmcj.v7i1.75134>

7. Solanki. (2025), Exploring the Factors Affecting Dropout Rates in Higher Education Institutions in India, International Journal of Applied and Behavioural Sciences, **Volume 2 (1), 43-49**, DOI: <https://doi.org/10.70388/ijabs250105>
8. Binder & Jühlke. (2026), Higher education dropouts and the labour market. An exploration of parental education effects on early career trajectories in Austria, Journal of Education and Work, Volume 38 (5–8), 203–228, <https://doi.org/10.1080/13639080.2026.2619953>
9. Das et al. (2026), Socio-Economic Assessment of the Traditional Brass and Bell Metal Industry in Sarthebari, Assam: A Contemporary Perspective, International Journal of Research in Social Science and Humanities. Volume 7(3), 53-63. DOI: 10.47505/IJRSS.2026.3.7
10. Sarma & Barman. (2026), Utilizing Sarthebari's Heritage Bell-Metal Artistry For Fostering The Economic Growth Of Assam, International Journal of Creative Research Thoughts, Volume 14 (7),f1-f23, <https://ijcrt.org/viewpaperforall.php?paper=IJCRT2607518>