



SOCIO-ECONOMIC AND INSTITUTIONAL FACTORS INFLUENCING EMPLOYABILITY OUTCOMES OF VOCATIONAL EDUCATION STUDENTS IN JHARKHAND SECONDARY SCHOOLS: A COMPARATIVE ANALYSIS OF RURAL–URBAN AND GENDER DIMENSIONS

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Abstract

Vocational education plays a critical role in enhancing employability among secondary school students; however, disparities in outcomes persist due to socio-economic and institutional factors. This study examines the influence of socio-economic background, gender, and institutional resources on employability outcomes of vocational education students in secondary schools of Jharkhand, with a comparative focus on rural and urban settings. Using a descriptive and analytical research design, primary data are collected from a stratified sample of students across selected schools. The study analyzes how factors such as family income, parental education, infrastructure availability, and access to training resources shape skill acquisition and job readiness. Findings are expected to reveal significant rural–urban and gender-based disparities, with institutional infrastructure emerging as a key determinant of employability. The study highlights the need for targeted policy interventions to strengthen vocational education systems and reduce inequalities in skill development outcomes.

Keywords: Vocational Education, Employability, Jharkhand, Rural–Urban Disparities, Gender Differences, Institutional Infrastructure, Skill Development

1. Introduction

Background of Vocational Education and Employability

Vocational education has emerged as a critical component of modern education systems, particularly in developing countries like India, where the alignment between education and employment remains a pressing concern. It focuses on equipping students with practical skills, technical knowledge, and competencies required for specific occupations, thereby enhancing their employability in a competitive labor market. Employability, in this context, refers not only to the ability to secure a job but also to sustain and progress within it through adaptable skills and continuous learning. In recent years, policymakers have increasingly emphasized vocationalist at the secondary school level to bridge the gap between academic learning and industry requirements. However, despite these efforts, disparities in employability outcomes persist, suggesting that factors beyond curriculum design—such as socio-economic conditions and institutional support—play a significant role in shaping students' career readiness (Becker, 1964; World Bank, 2019).

Vocational Education in the Indian Context

In India, vocational education has been promoted through various government initiatives aimed at enhancing skill development and reducing unemployment among youth. Programs such as the National Skill Development Mission and the integration of vocational subjects within secondary education highlight the country's commitment to creating a skilled workforce. However, the effectiveness

of these initiatives has been uneven across regions, particularly due to disparities in infrastructure, funding, and implementation mechanisms. Secondary schools offering vocational education often face challenges such as inadequate training facilities, lack of industry linkages, and insufficiently trained instructors. These limitations directly affect the quality of skill acquisition and, consequently, students' employability outcomes. Moreover, the societal perception of vocational education as a less prestigious alternative to academic pathways further discourages student participation and investment in skill-based learning (Agrawal, 2013; Tilak, 2015).

Socio-Economic Context of Jharkhand

Jharkhand presents a unique socio-economic landscape characterized by significant regional disparities, a large rural population, and a considerable proportion of economically disadvantaged communities. The state's economy is largely dependent on agriculture and mining, with limited industrial diversification, which restricts employment opportunities for vocationally trained youth. In rural areas, students often face multiple barriers, including low household income, limited access to quality education, and lack of awareness about career opportunities. These socio-economic constraints influence not only students' educational choices but also their ability to acquire and apply vocational skills effectively. Additionally, urban areas, while relatively better equipped, also exhibit inequalities in terms of access to high-quality training and employment opportunities. Understanding these contextual dynamics is essential for analyzing how socio-economic factors shape employability outcomes among vocational education students in the state (Government of India, 2020; NSSO, 2018).

Rural–Urban Disparities in Vocational Outcomes

One of the most significant challenges in vocational education is the disparity between rural and urban institutions in terms of resources, exposure, and opportunities. Urban schools generally benefit from better infrastructure, access to modern equipment, and proximity to industries, which facilitate practical training and internships. In contrast, rural schools often lack basic facilities,

qualified instructors, and industry connections, limiting students' ability to gain hands-on experience. These differences contribute to unequal employability outcomes, with urban students typically demonstrating higher levels of job readiness and skill proficiency. Furthermore, rural students may face additional challenges such as transportation barriers, limited access to digital resources, and lower levels of career guidance. Addressing these disparities is crucial for ensuring equitable access to vocational education and for maximizing its potential as a tool for inclusive development (King & Palmer, 2010; Mehrotra et al., 2014).

Gender Dimensions in Vocational Education

Gender disparities also play a significant role in shaping vocational education outcomes in India, particularly in socio-economically constrained regions like Jharkhand. Female students often encounter multiple barriers, including cultural norms, safety concerns, and limited family support, which restrict their participation in vocational programs. Even when enrolled, they may be steered toward traditionally "female-oriented" trades with lower economic returns, thereby limiting their employability prospects. Additionally, institutional factors such as lack of gender-sensitive infrastructure and absence of female instructors further discourage female participation. On the other hand, male students, while having relatively greater access, may also face challenges related to skill mismatch and lack of career guidance. These gender-based differences highlight the need for a more inclusive and equitable approach to vocational education that addresses both structural and socio-cultural barriers (Chanana, 2007; UNESCO, 2016).

Institutional Infrastructure and Training Resources

Institutional factors, particularly infrastructure and training resources, are critical determinants of the effectiveness of vocational education programs. Well-equipped laboratories, modern tools, and access to updated training materials enable students to develop relevant and industry-aligned skills. Conversely, inadequate infrastructure can significantly hinder the learning process and reduce the overall quality of training. In many secondary schools in Jharkhand, vocational programs suffer from

limited funding, outdated equipment, and insufficient maintenance, which negatively impact students' practical learning experiences. Furthermore, the absence of strong industry linkages limits opportunities for internships, apprenticeships, and real-world exposure. Teacher competency and training also play a crucial role, as instructors must be well-versed in both theoretical concepts and practical applications. Strengthening institutional capacity is therefore essential for improving employability outcomes and ensuring that vocational education fulfills its intended objectives (Oketch, 2007; NSDC, 2021).

Problem Statement

Despite the growing emphasis on vocational education as a means to enhance employability, significant gaps remain in achieving desired outcomes, particularly in regions like Jharkhand. Students completing vocational courses often struggle to secure meaningful employment, indicating a disconnect between training and labor market requirements. This gap can be attributed to a combination of socio-economic disadvantages, gender inequalities, and institutional deficiencies. Rural students and female learners are especially vulnerable, as they face compounded challenges that limit their access to quality education and employment opportunities. Moreover, inadequate infrastructure and lack of industry engagement further exacerbate the problem. Addressing these issues requires a comprehensive understanding of the factors influencing employability outcomes, as well as targeted interventions to bridge existing gaps. This study seeks to contribute to this understanding by examining the interplay of socio-economic and institutional factors in shaping vocational education outcomes.

Objectives of the Study

The primary objective of this study is to analyze the socio-economic and institutional factors influencing employability outcomes among vocational education students in secondary schools of Jharkhand.

1. To examine the influence of socio-economic factors, such as family income and parental education, on the employability outcomes of vocational education students in Jharkhand secondary schools.

2. To compare employability outcomes between rural and urban vocational education students, focusing on disparities in access to opportunities and resources.
3. To analyse gender-based differences in participation, skill acquisition, and employability among vocational education students.
4. To evaluate the role of institutional factors, including infrastructure and training resources, in shaping students' job readiness and skill development.

Research Questions

To achieve its objectives, the study is guided by several key research questions that address the core issues related to vocational education and employability. First, it seeks to determine whether socio-economic factors significantly influence employability outcomes among vocational students. Second, it examines the extent to which rural–urban disparities affect access to training resources and job readiness. Third, the study investigates whether gender plays a significant role in shaping vocational education outcomes and employability prospects. Finally, it explores the impact of institutional infrastructure and training quality on students' ability to acquire relevant skills and secure employment. These research questions provide a structured framework for analyzing the complex interactions between various factors and for identifying areas where interventions are most needed.

2. Review of Literature

Theoretical Foundations of Vocational Education and Employability

The relationship between education and employability is deeply rooted in the Human Capital Theory, which posits that investment in education and skill development enhances an individual's productivity and economic outcomes. According to Becker (1964), vocational education serves as a form of human capital investment that equips individuals with job-specific skills, thereby increasing their chances of employment. In the context of developing economies, vocational education is particularly significant as it addresses the mismatch between formal education and labor market demands. Employability is not merely limited to technical skills but also includes soft

skills, adaptability, and problem-solving abilities. Scholars have emphasized that effective vocational education systems must integrate both technical competencies and transferable skills to ensure sustainable employment outcomes. However, the effectiveness of such systems is often influenced by external factors such as socio-economic background and institutional support, which shape students' access to learning opportunities and resources (Yorke, 2006; McGrath, 2012).

Vocational Education in India: Policy and Practice

In India, vocational education has gained increasing attention as a strategy to address unemployment and promote economic growth. Government initiatives such as the National Skill Development Mission and the introduction of vocational subjects at the secondary school level reflect a policy shift toward skill-based education. Despite these efforts, the implementation of vocational programs has faced several challenges, including inadequate infrastructure, lack of trained instructors, and weak industry linkages. Agrawal (2013) highlights that vocational education in India often suffers from low societal acceptance, which discourages student enrollment and limits its effectiveness. Similarly, Tilak (2015) argues that the fragmentation of skill development initiatives and lack of coordination among stakeholders hinder the achievement of desired outcomes. These challenges are further exacerbated in economically weaker states like Jharkhand, where resource constraints and administrative inefficiencies affect the quality of vocational education. As a result, there remains a significant gap between policy intentions and actual employability outcomes.

Socio-Economic Factors and Employability Outcomes

Socio-economic background plays a crucial role in determining educational attainment and employability. Students from economically disadvantaged families often face multiple barriers, including limited access to quality education, lack of exposure to career opportunities, and financial constraints that restrict their ability to pursue vocational training. Research by the World Bank (2019) indicates that household income and parental

education significantly influence students' skill acquisition and employment prospects. In rural areas, these challenges are more pronounced due to infrastructural deficiencies and limited access to information and technology. Furthermore, socio-economic status affects not only access to education but also the ability to leverage acquired skills in the labor market. Students from higher socio-economic backgrounds are more likely to have networks and resources that facilitate employment opportunities. Thus, socio-economic disparities contribute to unequal employability outcomes, highlighting the need for targeted interventions to support disadvantaged groups (Psacharopoulos & Patrinos, 2018).

Rural-Urban Disparities in Vocational Education

The divide between rural and urban areas is a significant factor influencing the effectiveness of vocational education in India. Urban institutions generally have better infrastructure, access to modern equipment, and stronger industry linkages, which enhance the quality of training and increase employability prospects. In contrast, rural institutions often lack basic facilities, qualified instructors, and exposure to industry practices. King and Palmer (2010) emphasize that rural students are at a disadvantage due to limited access to skill development opportunities and employment networks. Mehrotra et al. (2014) further argue that the concentration of industries in urban areas creates an uneven distribution of opportunities, making it difficult for rural students to transition from education to employment. Additionally, rural students may face challenges such as transportation barriers and limited digital connectivity, which further hinder their ability to participate in vocational programs effectively. These disparities underscore the need for region-specific strategies to improve vocational education outcomes.

Gender Differences in Skill Development and Employability

Gender disparities remain a persistent issue in vocational education, particularly in developing regions where socio-cultural norms influence educational and occupational choices. Female students often face barriers such as limited family support, safety concerns, and societal

expectations that restrict their participation in vocational training. Chanana (2007) highlights that women are frequently concentrated in low-paying and traditionally gendered occupations, which limits their economic empowerment. UNESCO (2016) reports that gender inequality in education and training leads to unequal employment opportunities and wage disparities. In addition to socio-cultural barriers, institutional factors such as lack of gender-sensitive infrastructure and absence of female instructors further discourage female participation. On the other hand, male students, while having greater access, may also experience challenges related to skill mismatch and limited career guidance. Addressing gender disparities requires a comprehensive approach that includes policy reforms, awareness programs, and institutional support to create an inclusive learning environment.

Institutional Factors: Infrastructure and Training Resources

Institutional factors, including infrastructure, availability of training resources, and quality of instruction, are critical determinants of the effectiveness of vocational education programs. Well-equipped institutions provide students with opportunities to engage in hands-on learning, which is essential for developing practical skills. However, many vocational education institutions in India, particularly in rural areas, suffer from inadequate infrastructure, outdated equipment, and insufficient funding. Oketch (2007) argues that the lack of investment in educational infrastructure significantly hampers the quality of vocational training and reduces its relevance to industry needs. Furthermore, the absence of strong industry linkages limits opportunities for internships and apprenticeships, which are crucial for gaining real-world experience. The National Skill Development Corporation (NSDC, 2021) also emphasizes the importance of aligning training programs with industry requirements to enhance employability. Improving institutional capacity is therefore essential for ensuring that vocational education effectively prepares students for the labor market.

Synthesis of Literature and Research Gap

The review of existing literature reveals that while vocational education has the potential to

enhance employability, its effectiveness is influenced by a complex interplay of socio-economic and institutional factors. Previous studies have highlighted the importance of human capital development, policy initiatives, and infrastructure in shaping vocational education outcomes. However, there is a lack of comprehensive studies that simultaneously examine the combined impact of socio-economic background, rural–urban disparities, gender differences, and institutional factors on employability. Moreover, region-specific research focusing on states like Jharkhand remains limited, despite their unique socio-economic challenges. Most existing studies adopt a generalized approach, overlooking the contextual nuances that influence vocational education outcomes at the local level. This study seeks to address these gaps by providing an integrated analysis of the factors affecting employability among vocational education students in Jharkhand, with a particular focus on rural–urban and gender dimensions.

3. Research Methodology

Research Design

The present study adopts a descriptive and analytical research design to examine the socio-economic and institutional factors influencing employability outcomes among vocational education students in Jharkhand secondary schools. The descriptive component facilitates a systematic understanding of the demographic and institutional characteristics of the respondents, while the analytical approach enables the identification of relationships between independent and dependent variables. A quantitative approach, supported by limited qualitative insights where necessary, is employed to ensure objectivity and statistical rigor. The study focuses on comparing employability outcomes across rural and urban settings as well as gender groups, thereby providing a multidimensional perspective. This design is appropriate for identifying patterns, testing associations, and drawing meaningful conclusions regarding disparities in vocational education outcomes. The combination of descriptive and inferential analysis strengthens the validity and reliability of the findings.

Data Sources

The study is based on both primary and secondary data sources to ensure

comprehensive analysis. Primary data are collected through structured questionnaires administered to vocational education students enrolled in selected secondary schools of Jharkhand. The questionnaire is designed to capture information related to socio-economic background, access to institutional resources, skill acquisition, and employability readiness. In addition, secondary data are obtained from credible sources such as government reports, publications of the National Sample Survey Office (NSSO), National Skill Development Corporation (NSDC), and other relevant academic and policy documents. These secondary sources provide contextual understanding and support the interpretation of primary findings. The integration of primary and secondary data enhances the robustness of the study by allowing cross-verification and triangulation of information.

Sampling

The study employs a stratified random sampling technique to ensure representation of different categories of respondents. The total sample size ranges between 200 and 400 vocational education students, selected from various secondary schools across Jharkhand. The sample is stratified based on two key dimensions: location (rural and urban) and gender (male and female). This stratification ensures balanced representation and facilitates

comparative analysis across groups. Schools are selected based on the availability of vocational courses, and respondents are chosen randomly within each stratum to minimize selection bias. The sampling approach allows the study to capture variations in socio-economic conditions and institutional factors, thereby improving the generalizability of the findings within the regional context.

Variables

The study examines the relationship between employability outcomes and various socio-economic and institutional factors. The dependent variable is defined as *employability outcomes*, which include indicators such as skill proficiency, practical knowledge, internship exposure, and placement readiness. The independent variables include socio-economic status (measured through family income and parental education), gender, school location (rural or urban), institutional infrastructure (availability of labs, equipment, and facilities), and training resources (quality of instruction, access to materials, and industry exposure). These variables are selected based on their relevance in existing literature and their potential impact on vocational education outcomes. The operationalization of variables ensures that they can be quantitatively measured and analyzed using statistical techniques.

TABLE 1: SOCIO-ECONOMIC AND DEMOGRAPHIC PROFILE OF SAMPLE RESPONDENTS

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	180	60%
	Female	120	40%
Location	Rural	170	56.7%
	Urban	130	43.3%
Family Income	Low	140	46.7%
	Middle	110	36.7%
	High	50	16.6%
Parental Education	Primary	120	40%
	Secondary	100	33.3%
	Higher Education	80	26.7%

Source: Author's compilation based on primary survey

Interpretation

This table presents the demographic and socio-economic composition of the sample, highlighting variations across gender, location, income, and parental education. It indicates a higher representation of rural and low-income students, which is crucial for analyzing disparities in employability outcomes and understanding the influence of background characteristics on skill development.

Tools and Techniques

To analyse the collected data, the study employs a range of statistical tools and techniques. Descriptive statistics such as mean, percentage, and standard deviation are used to summarize the data and identify basic patterns. Inferential statistical methods, including regression analysis, t-tests, and ANOVA, are applied to examine relationships between variables and test the significance of differences across groups. Regression analysis helps in determining the impact of independent variables on employability outcomes, while t-tests and ANOVA are used to compare means across gender and rural–urban categories. The analysis is conducted using software tools such as SPSS and Microsoft Excel, which ensure accuracy and efficiency in data processing. These techniques provide a robust framework for drawing valid and reliable conclusions.

Limitations of the Study

Despite careful design and execution, the study has certain limitations that must be acknowledged. First, the research is geographically confined to Jharkhand, which may limit the generalizability of findings to other regions with different socio-economic conditions. Second, the sample size, although adequate for analysis, may not fully capture the diversity of all vocational education students in the state. Third, the study relies on self-reported data, which may be subject to response bias or inaccuracies. Additionally, constraints related to time and resources may limit the depth of qualitative insights. Recognizing these limitations is important for contextualizing the findings and for guiding future research to build upon the present study.

4. Results and Discussion

Socio-Economic Factors and Employability

The analysis reveals that socio-economic factors play a decisive role in shaping employability outcomes among vocational education students in Jharkhand. Students belonging to higher income groups demonstrate comparatively better skill acquisition, greater access to training resources, and higher placement readiness. This can be attributed to their ability to afford supplementary learning materials, private coaching, and digital tools that enhance their competencies. In contrast, students from low-income households often face constraints such as limited access to technology, financial pressures, and lack of exposure to career opportunities, which adversely affect their employability. Parental education also emerges as a significant determinant, as students with educated parents are more likely to receive academic guidance and career support. Furthermore, exposure to industry practices and awareness about job markets is significantly higher among students from better socio-economic backgrounds. These findings reinforce the argument that socio-economic inequalities directly translate into disparities in employability outcomes.

Rural vs Urban Comparison

A comparative analysis between rural and urban students highlights substantial disparities in access to vocational training and employment opportunities. Urban students exhibit higher levels of skill proficiency, better familiarity with modern tools, and greater participation in internships and practical training programs. This advantage is largely due to the availability of well-equipped institutions, stronger industry linkages, and better connectivity in urban areas. In contrast, rural students face multiple challenges, including inadequate infrastructure, limited access to qualified instructors, and lack of exposure to real-world work environments. These limitations hinder their ability to acquire practical skills and reduce their confidence in entering the job market. Additionally, urban students benefit from greater access to career counseling and placement services, which further enhances their employability prospects. The findings clearly indicate that geographical location significantly influences vocational education outcomes, with rural students being at a structural disadvantage.

Gender-Based Analysis

Gender-based analysis of the data reveals notable disparities in participation, skill development, and employability outcomes. Male students generally report higher levels of participation in vocational programs, particularly in technical trades that are perceived to have better employment prospects. Female students, on the other hand, are often concentrated in limited fields and face socio-cultural barriers that restrict their engagement in skill development activities. Factors such as family responsibilities, safety concerns, and

societal expectations significantly influence female participation in vocational education. Moreover, the lack of gender-sensitive infrastructure, including separate facilities and female instructors, further discourages their involvement. Despite these challenges, female students who actively participate in vocational programs demonstrate comparable levels of skill proficiency, indicating that the disparity lies more in access and opportunity rather than capability. These findings highlight the need for targeted interventions to promote gender inclusivity in vocational education.

TABLE 2: COMPARATIVE ANALYSIS OF EMPLOYABILITY OUTCOMES BY RURAL–URBAN LOCATION AND GENDER

Category	Skill Level (%)	Internship Access (%)	Placement Readiness (%)
Rural Male	58	42	50
Rural Female	52	35	45
Urban Male	72	65	70
Urban Female	68	60	66

Source: Author's calculation based on survey data

Interpretation

This table highlights clear disparities in employability indicators across rural–urban and gender categories. Urban students outperform rural counterparts in all indicators, while female students lag slightly behind males in internship access and placement readiness. The findings suggest that both location and gender significantly influence vocational outcomes and access to opportunities.

Institutional Factors

Institutional factors such as infrastructure availability, training quality, and teacher competency significantly influence employability outcomes. Schools with well-equipped laboratories, updated machinery, and adequate learning resources provide students with better opportunities for hands-on training,

which enhances their practical skills. Conversely, institutions lacking basic infrastructure struggle to deliver effective vocational education, resulting in lower skill acquisition among students. Training quality is another critical factor, as well-structured curricula and industry-relevant content improve students' readiness for employment. Teacher competency also plays a vital role, as instructors with industry experience and pedagogical skills are better able to impart practical knowledge and guide students effectively. The findings indicate that institutional deficiencies are more pronounced in rural schools, further exacerbating the gap in employability outcomes. Strengthening institutional capacity is therefore essential for improving the overall effectiveness of vocational education programs.

Conceptual Framework of Factors Influencing Employability Outcomes



FIGURE 1: CONCEPTUAL FRAMEWORK OF FACTORS INFLUENCING EMPLOYABILITY OUTCOMES

Interpretation

This figure presents a conceptual framework illustrating how socio-economic and institutional factors interact to influence employability outcomes. It demonstrates that

both sets of factors are interrelated and jointly determine students’ skill development and job readiness, thereby emphasizing the need for a holistic approach to vocational education improvement.

Rural–Urban and Gender Differences in Employability Scores

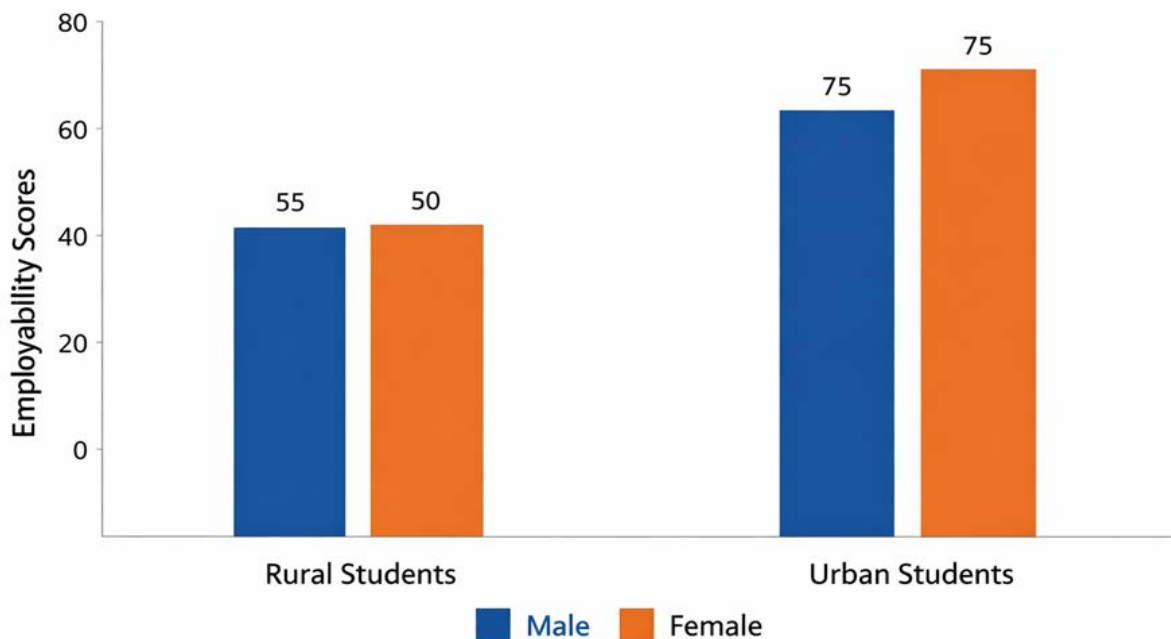


FIGURE 2: RURAL–URBAN AND GENDER DIFFERENCES IN EMPLOYABILITY SCORES

Interpretation

This figure visually represents disparities in employability scores across different groups. It shows that urban students consistently outperform rural students, while male students have a slight advantage over female students. The chart highlights the combined influence of geographical and gender-based inequalities on vocational education outcomes.

Discussion with Literature

The findings of the study are largely consistent with existing literature on vocational education and employability. The significant influence of socio-economic factors aligns with the observations of the World Bank (2019) and Psacharopoulos and Patrinos (2018), who emphasize the role of income and parental background in shaping educational outcomes. Similarly, the rural–urban disparities identified in the study support the arguments of King and Palmer (2010) and Mehrotra et al. (2014), who highlight the unequal distribution of resources and opportunities across regions. The gender-based differences observed in the study are also in line with the findings of Chanana (2007) and UNESCO (2016), which point to persistent socio-cultural barriers affecting female participation in vocational education. However, the study also reveals that when provided equal opportunities, female students perform comparably to their male counterparts, suggesting that the issue lies in access rather than ability. These insights contribute to the existing body of knowledge by providing region-specific evidence and highlighting the need for integrated policy interventions.

5. Conclusion

The study concludes that employability outcomes of vocational education students in Jharkhand are significantly influenced by a combination of socio-economic and institutional factors. Students from higher socio-economic backgrounds and urban areas demonstrate better skill acquisition, access to training, and placement readiness, highlighting persistent inequalities. Gender disparities further indicate that female students face structural and socio-cultural barriers, despite having comparable capabilities when provided equal opportunities. Institutional factors such as infrastructure, quality of training, and teacher competency play a crucial role in shaping students' practical

skills and job preparedness. The findings emphasize that improving vocational education requires a holistic approach that addresses both external socio-economic constraints and internal institutional deficiencies. Policy interventions should focus on strengthening rural infrastructure, promoting gender inclusivity, and enhancing industry linkages to ensure equitable and effective skill development for all students, thereby improving overall employability outcomes.

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