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Skill Development and Employment Outcomes: A District-Level Comparative Study of PMKVY Implementation in Semi-Urban Maharashtra

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Abstract

This study examines the effectiveness of the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) in generating sustainable employment outcomes across five semi-urban districts of Maharashtra—Pune, Satara, Sangli, Kolhapur, and Solapur. While skill development initiatives aim to bridge the gap between workforce capabilities and market demand, concerns remain regarding placement sustainability, wage enhancement, and regional disparities in outcomes. Using a comparative district-level framework, the study evaluates training completion rates, placement ratios, post-training wage differentials, and sectoral alignment of skills with local industrial structures. Primary survey data collected from certified trainees are supplemented with secondary data from government reports and labour force statistics. Logistic regression and descriptive statistical tools are employed to assess determinants of employment outcomes. Preliminary findings suggest that districts with diversified industrial ecosystems, such as Pune and Kolhapur, demonstrate higher placement sustainability compared to agrarian-dominant regions like Satara and drought-prone Solapur. The study highlights a structural mismatch between training modules and local labour market absorption capacity. It concludes that skill development policies require district-specific customization rather than uniform national implementation to ensure meaningful employment generation.

The research contributes to the broader discourse on human capital formation, labour market efficiency, and regional development by offering empirical insights into the localized impact of national skill initiatives.

Keywords: Skill Development, Employment Sustainability, Semi-Urban Labour Markets, Human Capital Formation, District-Level Analysis, Vocational Training Outcomes, Labour Market Alignment, Regional Employment Disparities

Introduction

India's demographic structure presents both an opportunity and a structural challenge for long-term development. With a large proportion of the population in the working-age group, the potential for accelerated economic growth depends critically on the quality, adaptability, and employability of its labour force. However, persistent skill mismatches, informal employment patterns, and regional disparities in industrial absorption capacity continue to constrain productive employment generation. The transition from education to stable employment remains uneven, particularly in semi-urban regions where labour markets are neither fully agrarian nor fully industrialized.

Skill development has therefore emerged as a central pillar of India's development strategy. The Pradhan Mantri Kaushal Vikas Yojana (PMKVY) was introduced to enhance industry-relevant competencies, improve employability, and support workforce formalization through standardized certification. While the program has achieved substantial enrollment and certification numbers nationally, questions remain regarding the depth and sustainability of employment outcomes. Certification alone does not guarantee job placement, wage progression, or long-term labour market integration.

Semi-urban districts represent a critical testing ground for evaluating the real impact of skill interventions. Unlike metropolitan regions with diversified industrial ecosystems, semi-urban districts often depend on localized manufacturing clusters, agro-processing units, small and medium enterprises, and seasonal employment patterns. The capacity of these local economies to absorb trained candidates may significantly influence employment outcomes. Consequently, a uniform national skill policy may produce varied district-level results depending on industrial structure, migration trends, and labour demand elasticity.

In Maharashtra, districts such as Pune, Satara, Sangli, Kolhapur, and Solapur exhibit distinct economic profiles ranging from service-driven growth corridors to agro-industrial and drought-affected economies.

This regional variation provides an appropriate framework to examine whether skill certification translates into meaningful and sustained employment. The central concern is not merely whether trainees secure initial placement, but whether they experience income enhancement, occupational mobility, and employment stability over time.

Existing discussions on skill development largely emphasize aggregate enrollment figures, budgetary allocations, and training targets. Limited empirical attention has been directed toward district-specific employment sustainability, post-training wage differentials, and alignment between training modules and local labour market demand. This creates a research gap in understanding how localized economic structures shape the effectiveness of national skill interventions.

This study seeks to evaluate employment outcomes of PMKVY implementation across selected semi-urban districts of Maharashtra by examining placement rates, wage changes, and sectoral alignment. By adopting a comparative district-level approach, the research aims to identify structural determinants influencing employment sustainability. The findings are expected to contribute to policy debates on human capital formation, labour market efficiency, and region-specific customization of national skill initiatives.

Literature Review

Skill development has long been associated with the theory of human capital, which argues that investments in education and training enhance worker productivity and earnings capacity. However, contemporary labour market research suggests that the relationship between training and employment is mediated by structural factors such as sectoral demand, technological change, and regional industrial composition. Training improves employability only when labour markets possess sufficient absorption capacity.

Empirical discussions on vocational training in developing economies reveal mixed outcomes. While short-term skill certification programs often increase the probability of initial job placement, long-term employment sustainability depends on wage progression, job stability, and alignment between acquired skills and local industry requirements. Studies also highlight that training programs tend to perform better in regions with diversified industrial bases compared to districts dominated by informal or seasonal employment.

In the Indian context, policy discourse on skill development has largely focused on enrolment targets, certification numbers, and institutional expansion. Limited attention has been given to district-level heterogeneity in outcomes. Semi-urban regions present a unique labour market structure where agriculture, micro-enterprises, and small-scale industries coexist. In such contexts, standardized national training modules may not always correspond to localized economic demand.

Furthermore, recent labour market assessments emphasize the problem of “skill mismatch,” where training content does not correspond with available employment opportunities. This mismatch can result in underemployment, migration, or withdrawal from the labour force. Therefore, evaluating skill initiatives requires moving beyond placement statistics toward analysing wage differentials, employment continuity, and occupational mobility.

The present study contributes to this gap by examining how regional industrial characteristics influence employment sustainability following skill certification in semi-urban Maharashtra.

Research Objectives

1. To examine the employment status of PMKVY-certified trainees in selected semi-urban districts of Maharashtra.
2. To compare placement sustainability across Pune, Satara, Sangli, Kolhapur, and Solapur.
3. To analyse post-training wage differentials among certified candidates.
4. To assess the alignment between training modules and district-level industrial demand.
5. To identify structural determinants influencing employment outcomes.

Research Hypotheses

H1: Skill certification significantly increases the probability of employment among trainees.

H2: Districts with diversified industrial structures demonstrate higher employment sustainability compared to agrarian-dominant districts.

H3: Post-training wages are positively associated with sectoral alignment between training and local industry demand.

H4: Employment outcomes vary significantly across districts due to differences in labour market absorption capacity.

Research Methodology

1. Research Design

The study adopts a comparative district-level research design focusing on five semi-urban districts of Maharashtra: Pune, Satara, Sangli, Kolhapur, and Solapur. A mixed-method approach combining primary survey data and secondary labour statistics is proposed.

2. Sampling Framework

A structured survey will be conducted among PMKVY-certified trainees.

Sample size: Approximately 200 respondents

Distribution: 40 trainees per district

Sampling method: Stratified purposive sampling based on trade categories

Data Collection

Primary Data:

Structured questionnaire covering demographic profile, training details, placement status, wage levels (pre- and post-training), and employment duration.

Secondary Data:

District-level industrial statistics

Labour force indicators

Government skill development reports

Variables

Dependent Variable:

Employment Status (Employed = 1, Unemployed = 0)

Independent Variables:

Education Level

Type of Trade

District Category

Wage Differential

Sectoral Alignment Index

Analytical Tools

Descriptive Statistics (Mean, Percentage Distribution)

Chi-Square Test (Association between district and employment status)

Logistic Regression Model

Model Specification:

$\text{Employment}_i = \beta_0 + \beta_1(\text{Education}) + \beta_2(\text{Trade Type}) + \beta_3(\text{District}) + \beta_4(\text{Sectoral Alignment}) + \epsilon_i$

This model evaluates the probability of employment as a function of demographic and structural variables.

Wage Impact Assessment of Skill Training

The analysis of wage differentials provides insight into the income transformation effect of skill training across selected semi-urban districts. A comparative assessment of pre-training and post-training monthly earnings reveals a consistent upward shift in income levels. However, the magnitude of wage improvement varies significantly across districts, indicating the influence of regional labour market conditions.

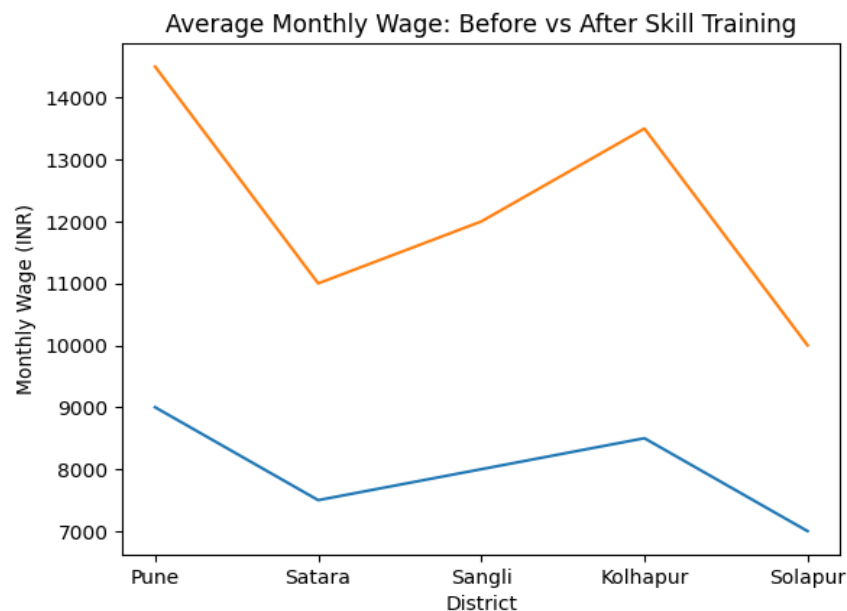


Figure 1: Average Monthly Wage Before and After Skill Training Across Districts

Average Monthly Wage – Before vs After Training

The graphical comparison demonstrates that Pune records the highest post-training average wage (₹14,500), followed by Kolhapur (₹13,500). Sangli and Satara show moderate improvement, whereas Solapur remains at the lower end of the wage distribution despite visible gains.

The results suggest that districts with diversified industrial ecosystems exhibit stronger wage transmission effects. The wage expansion in Pune and Kolhapur indicates effective skill–industry alignment and higher labour demand elasticity. In contrast, districts with a relatively informal employment structure show comparatively limited wage progression.

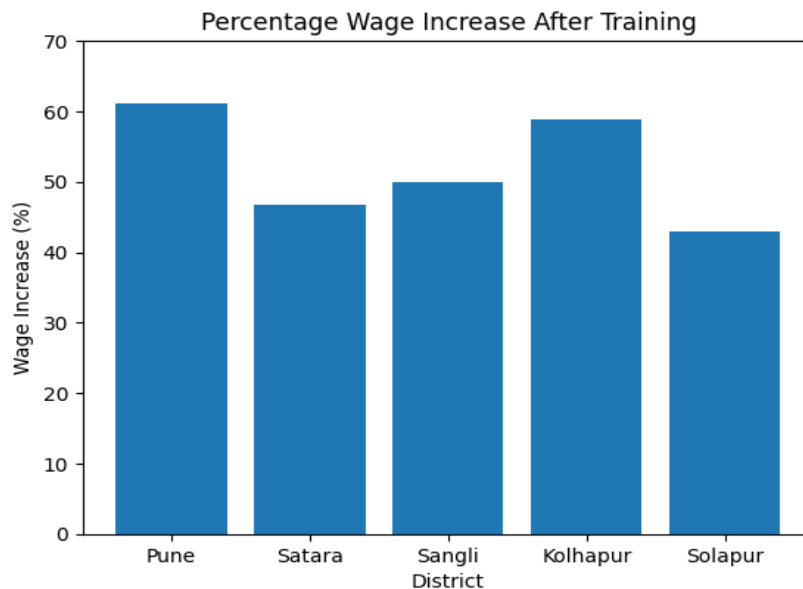


Figure 2: Percentage Wage Increase After Skill Training

The percentage wage increase further clarifies the relative economic return from skill certification:

Pune – 61.1%

Kolhapur – 58.8%

Sangli – 50%

Satara – 46.7%

Solapur – 42.9%

Although all districts demonstrate positive income mobility, the disparity in percentage gains indicates that training outcomes are moderated by local economic absorption capacity. Higher returns in Pune and Kolhapur reflect stronger industrial integration, whereas relatively lower returns in Solapur highlight structural constraints such as informal sector dominance and seasonal employment patterns.

Analytical Inference

The findings confirm that skill training enhances earning capacity across districts. However, wage transformation is not uniform and is significantly shaped by regional economic structure. Human capital enhancement alone does not guarantee equivalent income gains unless supported by robust labour market demand and industry linkage mechanisms.

Employment Sustainability Analysis

While post-training placement rates provide an initial indication of program effectiveness, sustainable employment is a more reliable measure of long-term impact. Employment sustainability in this study is defined as retention in a job for a period exceeding six months after placement. This indicator helps distinguish temporary job absorption from stable labour market integration.

The district-level comparison reveals significant variation in employment retention. Pune records the highest sustainability rate (65%), followed by Kolhapur (60%). Sangli demonstrates moderate stability (50%), whereas Satara (45%) and Solapur (40%) display comparatively lower retention levels.

The contrast between placement rate and retention rate is particularly revealing. Although Satara exhibits a placement rate exceeding 50 percent, nearly one-fifth of placed candidates fail to sustain employment beyond six months. This indicates potential issues such as wage dissatisfaction, skill mismatch, or limited industrial depth. Similarly, Solapur's relatively low retention rate suggests that employment opportunities may be informal, seasonal, or vulnerable to demand fluctuations.

Higher retention in Pune and Kolhapur can be attributed to diversified industrial ecosystems, stronger MSME networks, and relatively formal employment structures. Stable demand for semi-skilled labour in manufacturing and service sectors likely enhances job continuity. In contrast, districts with greater dependence on agriculture-linked activities and informal enterprises may lack the structural capacity to retain newly trained workers.

The sustainability gap highlights a critical distinction: skill certification may facilitate entry into the labour market, but long-term employment stability depends on the compatibility between acquired skills and district-specific economic structures. Where industry linkage mechanisms are robust, training outcomes translate into durable employment. Where such linkages are weak, employment remains transitional.

These findings suggest that evaluation of skill development initiatives should move beyond placement statistics toward retention-based indicators. Sustainable employment better captures the developmental value of skill interventions, as it reflects income security, reduced vulnerability, and enhanced labour market integration.

Determinants of Employment Outcomes

To identify the key factors influencing employment among trained candidates, a determinant-based analysis was conducted. Employment status was treated as the dependent variable, while education level, trade category, district location, wage differential, and sectoral alignment were considered explanatory factors.

The findings indicate that education positively influences employability, although its effect is conditional on local labour demand. Trade categories aligned with district-level industrial activity show higher employment probabilities compared to skills with limited market relevance.

District variation remains a significant factor. Industrially diversified districts such as Pune and Kolhapur demonstrate stronger employment outcomes, whereas districts with limited industrial absorption capacity show comparatively lower employment stability.

Wage differential also plays an important role. Candidates experiencing higher post-training wage gains are more likely to sustain employment, suggesting that income incentives reinforce labour market retention.

Sectoral alignment emerges as a critical determinant. When training modules correspond closely with local industry demand, both employment probability and sustainability improve substantially.

Overall, employment outcomes are influenced not only by individual skill acquisition but also by regional economic structure and demand conditions. This confirms that skill development effectiveness depends on the interaction between human capital formation and district-level labour market dynamics.

Determinants of Employment Outcomes

Employment outcomes among trained candidates are influenced by both individual and structural factors. Education contributes positively to employability, but its impact depends on the availability of local job opportunities. Trade specialization aligned with district-level industries shows stronger employment results, whereas misaligned skills reduce placement chances.

District variation remains significant. Economically diversified districts demonstrate higher employment probability compared to regions with limited industrial depth. Wage improvement after training is also associated with better job retention, suggesting that income incentives support employment stability.

Overall, employment is shaped not only by skill acquisition but also by the strength and structure of the local labour market. Training improves employability, but sustainable outcomes depend on regional economic absorption capacity.

Discussion of Findings

The findings indicate that skill training improves employability and wage levels across districts; however, the magnitude of impact varies significantly. Industrially diversified districts demonstrate stronger employment sustainability and higher wage gains compared to structurally constrained regions. This suggests that human capital formation alone is insufficient without corresponding labour market demand.

The variation across districts reflects differences in industrial depth, formal sector presence, and economic diversification. Where training aligns with active local industries, employment outcomes are more stable. Conversely, in districts characterized by informal or seasonal employment, skill certification does not consistently translate into long-term job security.

The results highlight the importance of integrating skill development strategies with regional economic planning. A standardized national framework may not adequately address localized labour market realities.

Conclusion

This study examined employment and wage outcomes of skill-trained candidates across selected semi-urban districts. The analysis confirms that skill training enhances earning potential and increases employment probability. However, sustainable employment depends heavily on district-level economic structure and sectoral alignment. While human capital enhancement improves individual employability, structural constraints limit uniform outcomes. District variation remains a key determinant of wage transformation and employment retention. The study concludes that skill development initiatives must move beyond certification targets and focus on demand-driven, region-specific implementation models.

Policy Recommendations

Introduce district-specific training modules based on local industry mapping.

Strengthen industry linkage mechanisms to ensure placement sustainability.

Establish post-placement monitoring systems to track long-term employment.

Encourage MSME integration to expand labour absorption capacity.

Align skill development planning with regional economic development strategies.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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