



Case Study

Impact of COVID-19 on Labor Market Participation: A Case Study of Jammu City, India

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Abstract: Labor market participation has increased attention due to the global impact of the COVID-19 pandemic. This crisis has significantly affected various aspects of society, including labor market participation, resulting in widespread job losses, disruptions in education, shifts in industry demands, skill gaps, and increased unemployment, both on a global scale and within Jammu City. This paper aims to analyze the labor market participation of youth during the pandemic and its impact on education, employment, and socio-economic outcomes. The study uses both primary and secondary sources, such as labor force surveys, reports, and research papers, covering problems worldwide, India and the specific context of Jammu city. The study covers the pre- and post-pandemic labor market participation of survey respondents examining the types of job losses, vocational education and training (VET) courses, work-from-home opportunities, and the challenges faced by individuals in securing employment during the pandemic. The central focus of the study lies in exploring the labor market participation of the respondents. How has the COVID-19 pandemic affected youth labor market participation in Jammu City, and impacted education, employment, and socio-economic outcomes? Major findings have been discussed in this paper, The COVID-19 pandemic resulted in widespread job losses, disruptions in education and significantly impacted youth labor market participation in Jammu City, VET courses emerged as crucial avenues for skill development and adapting to the changing labor market demands during the pandemic. Work-from-home opportunities became prevalent, but access to such opportunities varied among different demographic groups, aggravating existing inequalities. Challenges in securing employment during the pandemic included limited job opportunities, skill gaps, and barriers to accessing education and training. Policy recommendations for addressing the impact of the pandemic on youth labor market participation and socio-economic conditions in Jammu City include enhancing skill development programs, promoting inclusive job creation initiatives, and ensuring equitable access to education and training opportunities. These measures aim to mitigate difficulties in labor market participation and socio-economic challenges, emphasizing the importance of skill enhancement, inclusive job creation, and accessible education and training within the city.

Keywords: youth, unemployment, job loss, labor market, labor market participation

JEL: J13, E24, J69, J4, J21

1. Introduction

COVID-19, caused by the severe acute respiratory syndrome coronavirus (SARS-COV-2) has become a major global health crisis. The virus was initially discovered in December 2019 in a seafood market in Wuhan, Hubei Province, China and swiftly spread worldwide leading to extensive sickness, loss of life and a significant impact on socio-economic conditions (Yu et al., 2020). In 2020, the World Health Organisation officially declared it a pandemic and defined it as a rapid and widespread outbreak of novel disease that affects a substantial portion of the world's population, resulting in illness, death and significant disruption to societies (Macintyre, 2020).

The pandemic has affected every aspect of human life and has far-reaching economic effects, including job losses, business closures, and disruptions to global supply chains. Lockdown measures have resulted in reduced economic activity and financial difficulties for both individuals and businesses. The International Labor Organization (ILO) started monitoring COVID-19 on March 18, 2020, and estimated an increase in unemployment and underemployment from 5.3 million to 24.7 million, compared to 188 million in 2019-20. India's labor market has a high percentage of non-regular employment, including self-employed and casual workers 77.1%, as well as a significant proportion of individuals in regular but unprotected jobs 13.7% (Behera et al., 2021).

The global labor market has been severely impacted by the COVID-19 pandemic with various sectors experiencing disruptions. Indian youth have faced numerous challenges related to education, employment, job losses, and shifts in industrial demand, as well as gender disparities and skill mismatches (Foley & Cooper, 2021). The paper discusses major challenges for youth due to the pandemic first, educational institutions have faced challenges with school closures and the shift to online learning which have long-term implications for the employability and future prospects of students (Jalongo, 2021). Secondly, the pandemic has caused a significant rise in youth unemployment due to job losses on a global scale. Fewer job opportunities and increased competition have resulted in a higher youth unemployment rate worldwide at 13.1% in 2020 (Rotar, 2022). Many young individuals find themselves working in lower-skilled jobs that do not match most of their abilities, hindering their career development and financial stability (Pastore & Choudhry, 2022). The digital transformation accelerated during the pandemic and has also contributed to skill mismatches in various occupations. Thirdly, gender disparities in labor market participation have become evident with a significant number of women, especially in low-income countries, lacking the necessary skills and experience to participate effectively in the labor market (Saadat et al., 2022). Fourth, the uncertainty regarding future job prospects, financial instability, and social isolation affected the mental health and well-being of individuals leading to increased stress, anxiety, and depression. The delayed entry of youth into the labor market harmed their motivation, productivity, and ability to secure employment. (McKibbin & Vines, 2020).

The COVID-19 pandemic had far-reaching impacts on every aspect of human life. For Jammu City in particular, the pandemic had a significant influence on the labor market, disrupting established patterns of employment, income, and workforce dynamics affecting labor market participation in Jammu City and also highlighting the importance of understanding the pandemic's impact on employment and workforce dynamics and the need for better-informed policy and decision-making processes. The city is prominent for youth employment and there is an urgent need to develop this area digitally so that work-from-home jobs can be enhanced. This area is still developing as compared to the rest of the world and various innovations in the labor market and employment generation need to be developed. In the following sections, we will explore the specific ways in which the pandemic changed the labor landscape in Jammu and shed light on the challenges and opportunities.

This paper significantly contributes to understanding the impact of COVID-19 on labor market participation through a focused case study of Jammu City, India. By providing a localized impact analysis, the study reveals insights often hidden in broader national studies, highlighting regional disparities and specific community challenges. It offers sector-specific insights, identifying which industries were most affected, thus informing targeted policy responses and economic support measures. The research also explores demographic disparities, particularly focusing on gender, to understand how the pandemic differently impacted males and females.

Documenting changes in employment patterns, such as shifts from formal to informal labor market participation, variations in the unemployment rate, and job losses, the study provides crucial data for policymakers. Practical policy recommendations are grounded in empirical evidence, making them relevant and actionable for local authorities. The paper's mixed-methods approach, combining quantitative data with qualitative interviews, enhances the robustness of

the findings, offering a comprehensive view of the pandemic's impact. By situating the findings within a global context, the study contributes to the broader discourse on COVID-19's economic repercussions. It also explores coping strategies employed by workers and businesses, offering lessons in resilience and adaptability. Finally, the study lays a foundation for further research on labor market dynamics in pre-pandemic and post-pandemic scenarios, identifying gaps and areas needing additional investigation. This paper, therefore, provides valuable insights and practical recommendations for policymakers, researchers, and stakeholders engaged in economic recovery and labor market development.

With the above background, the paper intends to discuss the long-term effects of the pandemic on youth labor market participation and focuses on issues such as job losses, unemployment rate, reduced earnings, skill gaps, diminished career prospects, income potential, socio-economic conditions, and the transition from education to employment in Jammu city.

2. Review of literature

The author of this paper reviews various papers on the Impact of COVID-19 on Labor Market Participation, which will help in developing knowledge for present job prospects in the study area and for future research directions. Additionally, the paper developed numerous local, national, and international studies for better understanding and filling research gaps. The foremost important research questions discussed are: What are the various impacts of the COVID-19 pandemic on labor market participation? Which sectors are hit hardest during the pandemic? The main need is to focus broadly and scrutinize the literature based on the objectives mentioned in this paper.

The COVID-19 pandemic has badly affected various sections of society and the labor market. Among these groups adversely impacted by the pandemic substantial economic disruptions have occurred within the youth segment in the market. The study helps to examine how the pandemic has influenced the labor market outcomes of young individuals, drawing insights from numerous studies conducted in various countries and India and providing a comprehensive understanding of this issue.

In the context of labor market participation, youth refers to individuals having their first job transition from education to work and their active involvement of individuals in the labor market (Sanderson, 2020). The COVID-19 pandemic has a considerable impact on youth employment. Moreover, it causes job losses which means loss of employment due to various factors such as economic downturns, business closures, etc. It also causes unemployment, changes in employment patterns and reduced labor market participation including individuals who are employed and unemployed or actively seeking employment (Montenovo et al., 2022). The pandemic has seen its effect on educational losses, affecting all transitions within the labor market (Abraham et al., 2022) and disrupting the demand for and supply of labor and the interactions between job seekers and employers which become challenges in obtaining a quality education, acquiring relevant skills and transitioning from education to employment (Frolova et al., 2021). The effect of job losses has been more seen among women who have faced difficulties in adapting to online work arrangements, digital literacy, and increased domestic responsibilities (Bezak et al., 2022). Moreover, the pandemic has raised unemployment among youth who are actively looking toward employment and there is no availability for work and also is an important indicator of labor market participation in measuring the unemployment rate (Liotti, 2020) while job seekers are faced with reduced job opportunities and a dearth of training opportunities and skills (Pohl, 2022).

The shift to remote learning is also a significant challenge for students, teachers, and parents, as the digital divide and digital literacy gaps were prevalent during the pandemic. Consequently, there is a persistent need for strategies to enhance educational outcomes (Mathrani et al., 2022). The impact of the pandemic on the labor market has been diverse across demographic groups, and technology plays a pivotal role. Appropriate policy measures are important in facilitating labor market transitions in the post-pandemic era (Pereznieto & Oehler, 2021). The immediate consequences of the pandemic include an increased youth unemployment rate and the disruption of traditional employment patterns, which have had impacts on their mental health, leading to heightened stress, anxiety, depression, and enduring psychological impacts (Pereznieto & Oehler, 2021). Furthermore, the pandemic has left its mark on various areas such as trade, supply chains, financial markets, and different sectors like tourism, manufacturing, and services, causing widespread difficulties in the global economy (Rotar, 2022). Governments and international organizations have implemented various policies to reduce the economic downturn and explore the long-term implications for global

economic growth and development (Asare & Barfi, 2021). Small businesses have faced challenges like business closures, job losses, and revenue declines. Despite efforts to transition to online platforms and government support, they have yet to recover (Chapman Cook & Karau, 2023).

Technological advancements have facilitated remote work and learning but have also exacerbated existing inequalities in access to digital resources (Feldman & Czerniewicz, 2023). Moreover, the pandemic's effects on mental health have received significant attention. The pandemic has led to increased levels of stress, anxiety, and depression among individuals, particularly youth, due to factors such as social isolation, economic uncertainty, and fear of contracting the virus (Dubey et al., 2020). The economic consequences of the pandemic have been far-reaching, with small businesses facing particularly acute challenges. Studies have highlighted the disproportionate impact of lockdown measures on small businesses, leading to closures, job losses, and financial strain (Belitski et al., 2022). In response to these challenges, governments and international organizations have implemented various policy measures aimed at mitigating the economic impact of the pandemic. The paper discussed the effectiveness of policies in supporting businesses, preserving jobs, and promoting economic recovery (Mwamazingo et al., 2021). Overall, the literature highlights the need for comprehensive and targeted policy responses to address its effects.

There are various aspects of the pandemic on labour market participation in Jammu City and suitable measures have been taken to mitigate these effects on socio-economic aspects. The COVID-19 pandemic led to a sharp increase in job losses and income insecurity in Jammu City. Lockdowns and business closures resulted in a significant decline in employment, particularly in sectors like tourism, hospitality, and small businesses. Many individuals were left without a source of income leading to increased financial stress (Kalogiannidis, 2020). The pandemic had an uneven impact on different demographics. Vulnerable groups, including daily wage labourers and informal workers were disproportionately affected. These groups faced number of challenges in accessing social protection measures and often resorted to unsafe working conditions for employees (Kumar et al., 2021).

Measures like direct cash transfers, food distribution, and subsidized housing for vulnerable populations also emphasized the importance of such interventions in reducing the adverse impact on labor market participation (Singh et al., 2023). It underscores the importance of government interventions to support vulnerable populations, the need for reskilling and adaptation to changing job market dynamics and the importance of long-term planning to ensure a more resilient and inclusive labor market in the post-pandemic era. While challenges remain, these studies provide valuable insights for policymakers and stakeholders working to rebuild and strengthen the labor market in Jammu City.

A systematic literature approach is used for the review process by applying identification, screening, eligibility, exclusion, and inclusion criteria (Booth et al., 2021). This approach ensures uniqueness and flexibility in context. In total, 357 papers have been identified from systematic review databases such as ILO, IZA, Emerald, Web of Science, and PubMed, among others. These papers cover both developed and developing countries. Among the identified papers, 101 studies are selected based on their relevance to the research content, including title, abstract, and keywords. Out of these, 78 studies are utilized for the literature review and analysis purposes. Specifically, 54 documents are studied for the current literature review, while the remaining 24 are used for analysis, focusing on titles and keywords.

The paper acknowledges several shortcomings and outlines potential ways to tackle these issues in future research. To address the limited regional focus, the study could expand its geographical scope to include comparative analyses across different regions in India, enhancing the generalizability of its findings. Incorporating primary data collection methods, such as surveys and interviews with affected individuals, would provide more direct insights into local labor market conditions. Additionally, conducting longitudinal studies would capture the ongoing and long-term effects of the pandemic, offering a more comprehensive temporal perspective. A deeper dive into each sector's specific challenges and adaptive strategies could enrich the analysis, providing more detailed recommendations and insights.

The paper could also offer a more detailed examination of the informal economy, which constitutes a significant portion of the workforce in India, to enhance the understanding of broader labor market impacts. By thoroughly analyzing gender disparities, the study can explore how the pandemic has differently affected gender, particularly in terms of job losses, reemployment rate, and labor market participation. Youth-specific strategies and policy recommendations tailored to support young individuals transitioning from education to employment could further strengthen the study. Integrating a detailed analysis of mental health challenges faced by different demographic groups, particularly those related to labor market disruptions, would provide a more comprehensive understanding of the pandemic's effects due to job losses. A deeper examination of digital literacy and access issues would shed light on the

digital divide's impact on remote work and education. Evaluating the implementation and effectiveness of various policy measures could offer valuable lessons for future crisis management. Lastly, including a more systematic comparative analysis with other countries' responses and outcomes would highlight best practices and lessons learned globally, enriching the study's overall insights. By addressing these areas, future research can provide a more holistic and nuanced understanding of the COVID-19 pandemic's impact on labor market participation, particularly in the context of Jammu City.

With this backdrop, the present paper is an attempt to fill the research gap by analyzing deeper comprehension of the pandemics on various impacts youth's labor market participation and helps in recognizing the challenges faced by young individuals and identifying potential strategies to address them as well as understanding the long-term consequences on their career prospects and future economic well-being and education in the post-pandemic era.

3. Objectives and methodology

Jammu serves as the winter capital of the Indian Union Territory of Jammu and Kashmir, situated on the bank of the Tawi River and is renowned for its rich cultural diversity and historical significance. It is a significant center for pilgrimage and tourism. Jammu is surrounded by the plains to the north and the Himalayas to the north and south. For the research purpose, the Jammu Division was randomly chosen from the two divisions of the J & K Union Territory. Within the Jammu Division, the Jammu district was purposively selected. This district comprises seven sub-divisions, with Jammu North and Jammu South being the most populous and mainly urban areas, collectively referred to as Jammu City.

The Jammu city consists of 75 wards, out of these five wards namely Panjtirthi, Pacca Danga, Shastri Nagar, Rehari Colony (N) and Tallab Tillo (S) are selected and the total population of Panjtirthi ward (01) is 8,585, Pacca Danga ward (10) is 9,266, Shastri Nagar ward (22) is 6,880, Rehari Colony (N) ward (24) is 8,689, and Talab Tillo (S) ward (31) is 10,782 (Government of J & K, 2016). A sample of 340 respondents is drawn from the total educational pass-outs of 2,277 from these five wards namely Panjtirthi, Pacca Danga, Shastri Nagar, Rehari Colony (N) and Tallab Tillo (S). The sample size for each of these wards are 93, 135, 44, 24 and 44 respectively, calculated using Solvin's formula, which is given below and shown in Table 1 and their categorization based on gender. The gender-based selection of the respondents have been done randomly based on a maximum number of pass-outs in a ward.

$$n = \frac{N}{(1 + Ne^2)}$$

Where, n = Sample size, N = Population size, e = Margin of error.

According to the formula,

$$\begin{aligned} n &= 2,277 / 1 + 2,277 \times 0.05 \times 0.05 \\ &= 2,277 / 6.6925 \\ &= 340 \end{aligned}$$

Data was collected through well-structured questionnaires using in-person interviews to analyze the labor market participation amid of COVID-19 pandemic. Afterwards, the collected data was tabulated and analyzed using appropriate statistical techniques, including simple descriptive statistics, to analyse the information scientifically and draw meaningful conclusions, research findings, and policy implications (Mooi et al., 2018).

Table 1. Concentration of educational pass-outs

Ward/Name	Pass-out	Sample size
01/Panjtirthi	625	93
10/Pacca danga	901	135
22/Shastri nagar	297	44
24/Rehari colony (N)	157	24
30/Talab tillo (S)	297	44
Total	2,277	340

Note: N = North and S = South Source: Calculated using Solvin' s formula

The study has drawn a case study approach that involves an in-depth and comprehensive analysis of a specific case, event, individual, or phenomenon. It is often used to gain a deep understanding of a particular subject or to explore complex and contextual issues (Schoch, 2020). It is comprehensive and provides valuable insights that cover the design, methods, and application in various research contexts, from education to social science (Thomas, 2021). Jammu is chosen for the case study approach based on its relevance to the research objectives and for its unique characteristics, study aligns with the research topic, possesses distinct features of interest and data provides practical access for fieldwork. Comparative analyses or research with practical implications for Jammu can further drive its selection as a case study. Ultimately, the choice of Jammu is contingent on the specific research context and the goals of the study and this has been shown in the Figure 1 (Map of J & K) UT.



Figure 1. Map of Jammu and Kashmir (J & K) UT

Source: Jammu Municipal Corporation, 2016

With the above background, the paper attempts to analyse the following objectives:

- To examine the pre-pandemic labour market participation.
- To assess the labour market participation of respondents during the pandemic.
- To examine the type of job losses, skill and VET courses and work-from-home jobs.
- To identify problems and policy measures for getting suitable jobs by the respondents in Jammu city.

4. Results and discussion

The study attempts to analyze the current job loss and labour market participation of the respondents in Jammu City. The pre-pandemic labor market involvement has long-term effect on employment trends and also influences factors like education levels, income inequality, and demographic characteristics (Von Wachter, 2020). The majority of the workforce is involved in informal employment which lacks social security benefits and stable working conditions (Unni, 2020). Cultural norms, limited access to education and skills training, along insufficient supportive policies, contribute to a lower female labor force participation rate (Yeung & Yang, 2020). Skills mismatch, creates a gap between the skills possessed by job seekers and those demanded by employers, as reported by the International Labour Organization (ILO) (Silva, 2022). This mismatch leads to disparities in labour market participation between rural and urban areas and increases migration from rural to urban regions in search of better economic opportunities (Mamgain, 2021).

Results and discussion presented below cover pre-pandemic labor market participation, Labour market participation in the Pandemic, type of job losses in the pandemic, type of online skills and vocational courses, and work-from-home jobs in the Pandemic.

4.1 Pre-pandemic labour market participation of respondents

The labor market participation of respondents before the pandemic, which holds importance in shaping the nation's economic landscape and reflects the employment and economic prospects.

Table 2 indicates that the majority of males (87.81%) are engaged in self-employment due to the lack of availability of government jobs and the rigorous and competitive selection process. One-third of total respondents are in contractual jobs, whereas two-thirds of females are in contractual jobs in private schools and colleges. They prefer to transit easily even in less-paid jobs. About 12.19% of females are self-employed due to a lack of skill and experience required in various jobs.

Table 2. Pre-pandemic labor market participation of respondents (No./%)

Type of job	Gender	Panjtirthi	Pacca danga	Rehari colony (N)	Shastri nagar	Tallab tillo (S)	Total
Government	Male	6 (25.00) ^a (66.67) ^b	13 (54.17) ^a (81.25) ^b	2 (8.33) ^a (50.00) ^b	1 (4.17) ^a (25.00) ^b	2 (8.33) ^a (50.00) ^b	24 (100.00) ^a (64.86) ^b
	Female	3 (23.08) ^a (33.33) ^b	3 (23.08) ^a (18.75) ^b	2 (15.38) ^a (50.00) ^b	3 (23.08) ^a (75.00) ^b	2 (15.38) ^a (50.00) ^b	13 (100.00) ^a (35.14) ^b
	Total	9 (24.32) ^a (100.00) ^b	16 (43.25) ^a (100.00) ^b	4 (10.81) ^a (100.00) ^b	4 (10.81) ^a (100.00) ^b	4 (10.81) ^a (100.00) ^b	37 (16.23) ^a (100.00) ^b
Private	Male	20 (24.09) ^a (57.15) ^b	31 (37.35) ^a (57.41) ^b	4 (4.82) ^a (40.00) ^b	15 (18.07) ^a (75.00) ^b	13 (15.67) ^a (76.47) ^b	83 (100.00) ^a (61.03) ^b
	Female	15 (28.30) ^a (42.85) ^b	23 (43.40) ^a (42.59) ^b	6 (11.32) ^a (60.00) ^b	5 (9.43) ^a (25.00) ^b	4 (7.55) ^a (23.53) ^b	53 (100.00) ^a (38.97) ^b
	Total	35 (25.73) ^a (100.00) ^b	54 (39.71) ^a (100.00) ^b	10 (7.35) ^a (100.00) ^b	20 (14.71) ^a (100.00) ^b	17 (12.50) ^a (100.00) ^b	136 (59.65) ^a (100.00) ^b

Table 2. (cont.)

Type of job	Gender	Panjtirthi	Pacca danga	Rehari colony (N)	Shastri nagar	Tallab tillo (S)	Total
Self-employed	Male	11 (30.56) ^a (91.66) ^b	14 (38.89) ^a (93.34) ^b	2 (5.56) ^a (100.00) ^b	2 (5.56) ^a (50.00) ^b	7 (19.43) ^a (87.50) ^b	36 (100.00) ^a (87.81) ^b
	Female	1 (20.00) ^a (8.34) ^b	1 (20.00) ^a (6.66) ^b	-	2 (40.00) ^a (50.00) ^b	1 (20.00) ^a (12.50) ^b	5 (100.00) ^a (12.19) ^b
	Total	12 (29.27) ^a (100.00) ^b	15 (36.58) ^a (100.00) ^b	2 (4.87) ^a (100.00) ^b	4 (9.76) ^a (100.00) ^b	8 (19.52) ^a (100.00) ^b	41 (17.98) ^a (100.00) ^b
Contractual	Male	1 (33.33) ^a (50.00) ^b	1 (33.33) ^a (20.00) ^b	-	1 (33.33) ^a (50.00) ^b	-	3 (100.00) ^a (33.33) ^b
	Female	1 (16.67) ^a (50.00) ^b	4 (66.66) ^a (80.00) ^b	-	1 (16.17) ^a (50.00) ^b	-	6 (100.00) ^a (66.67) ^b
	Total	2 (22.22) ^a (100.00) ^b	5 (55.56) ^a (100.00) ^b	-	2 (22.22) ^a (100.00) ^b	-	9 (3.95) ^a (100.00) ^b
Part-time	Male	2 (66.67) ^a (100.00) ^b	1 (33.33) ^a (33.33) ^b	-	-	-	3 (100.00) ^a (60.00) ^b
	Female	-	2 (100.00) ^a (66.67) ^b	-	-	-	2 (100.00) ^a (40.00) ^b
	Total	2 (40.00) ^a (100.00) ^b	3 (60.00) ^a (100.00) ^b	-	-	-	5 (2.19) ^a (100.00) ^b
Total	Male	40 (26.85) ^a (66.67) ^b	60 (40.27) ^a (64.52) ^b	8 (5.37) ^a (50.00) ^b	19 (12.75) ^a (63.34) ^b	22 (14.76) ^a (75.86) ^b	149 (100.00) ^a (65.35) ^b
	Female	20 (25.32) ^a (33.33) ^b	33 (41.77) ^a (35.48) ^b	8 (10.13) ^a (50.00) ^b	11 (13.92) ^a (36.66) ^b	7 (8.86) ^a (24.14) ^b	79 (100.00) ^a (34.65) ^b
	Total	60 (26.32) ^a (100.00) ^b	93 (40.78) ^a (100.00) ^b	16 (7.02) ^a (100.00) ^b	30 (13.16) ^a (100.00) ^b	29 (12.72) ^a (100.00) ^b	228 (100.00) ^a (100.00) ^b

Note: Data in parenthesis indicate % age, a = row-wise % age and b = column-wise % age
Source: Field survey

The private sector played a pivotal role in drawing investments and creating employment opportunities within the study area, providing income-generating prospects for both skilled and unskilled workers who may not have access to formal employment opportunities. Analyzing the prevailing trends in the pre-pandemic labor market allows us to gain a deeper understanding of the Indian labor market and identify areas for improving employment outcomes.

4.2 Labor market participation in the pandemic

The labor market participation of respondents during the pandemic, has wide-range effects on employment, the unemployment rate, and overall labor market engagement. The global working hours saw an 8.8% decline in 2020, equal to the loss of 255 million full-time jobs, showing the decline in labor force participation experienced by workers across the globe (Đokić, 2022).

Table 3 shows, nearly 36.11% of respondents are in the private sector, 27.08% in government, 20.83% in contractual jobs, and 15.28% in part-time jobs. The main reason is technological advancement which is more accessible and feasible for many private companies. Moreover, the pandemic has increased the trend towards the private sector as many companies have benefited by improved productivity and reduced disruptions by making flexible working. The pandemic brought about a significant surge in job losses and the unemployment rate, leading to business closures and a reduction in economic activities.

Furthermore, this resulted in job losses but also contributed to a decrease in the labor force participation rate, as many workers withdrew from the labor market due to health concerns and a lack of job opportunities. This highlights the persistent need for economic recovery and consideration of long-term labor market dynamics. Various demographic

groups, including women, youth, and low-wage workers, faced an uneven impact on their labor market participation during the pandemic (Baker et al., 2021). Respondents faced challenges due to digital illiteracy, hindering their ability to access online services. A significant transformation has been observed in labor market participation within the study area.

Table 3. Labour market participation in the pandemic (No./%)

Types of job lost	Gender	Panjitirithi	Pacca danga	Rehari colony (N)	Shastri nagar	Tallab tillo (S)	Total
Government	Male	3 (12.50) ^a (60.00) ^b	12 (50.00) ^a (54.55) ^b	2 (8.33) ^a (66.67) ^b	4 (16.67) ^a (100.00) ^b	3 (12.50) ^a (60.00) ^b	24 (100.00) ^a (61.53) ^b
	Female	2 (13.33) ^a (40.00) ^b	10 (66.67) ^a (45.45) ^b	1 (6.67) ^a (33.33) ^b	-	2 (13.33) ^a (40.00) ^b	15 (100.00) ^a (38.47) ^b
	Total	5 (12.82) ^a (100.00) ^b	22 (56.41) ^a (100.00) ^b	3 (7.69) ^a (100.00) ^b	4 (10.25) ^a (100.00) ^b	5 (12.83) ^a (100.00) ^b	39 (100.00) ^a (27.08) ^b
Private	Male	4 (12.90) ^a (57.15) ^b	18 (70.96) ^a (62.06) ^b	3 (9.68) ^a (60.00) ^b	3 (9.68) ^a (50.00) ^b	3 (9.68) ^a (60.00) ^b	31 (100.00) ^a (59.62) ^b
	Female	3 (14.29) ^a (42.85) ^b	11 (52.38) ^a (37.94) ^b	2 (9.52) ^a (40.00) ^b	3 (14.29) ^a (50.00) ^b	2 (9.52) ^a (40.00) ^b	21 (100.00) ^a (40.38) ^b
	Total	7 (13.46) ^a (100.00) ^b	29 (55.76) ^a (100.00) ^b	5 (9.62) ^a (100.00) ^b	6 (11.54) ^a (100.00) ^b	5 (9.62) ^a (100.00) ^b	52 (100.00) ^a (36.11) ^b
Contractual	Male	2 (12.50) ^a (50.00) ^b	6 (37.50) ^a (40.00) ^b	1 (6.25) ^a (50.00) ^b	4 (25.00) ^a (100.00) ^b	3 (18.75) ^a (60.00) ^b	16 (100.00) ^a (53.33) ^b
	Female	2 (14.29) ^a (50.00) ^b	9 (64.28) ^a (60.00) ^b	1 (7.14) ^a (50.00) ^b	-	2 (14.29) ^a (40.00) ^b	14 (100.00) ^a (46.67) ^b
	Total	4 (13.33) ^a (100.00) ^b	15 (50.00) ^a (100.00) ^b	2 (6.66) ^a (100.00) ^b	4 (13.34) ^a (100.00) ^b	5 (16.67) ^a (100.00) ^b	30 (100.00) ^a (20.83) ^b
Part-time	Male	1 (10.00) ^a (33.34) ^b	7 (70.00) ^a (46.66) ^b	-	2 (20.00) ^a (100.00) ^b	-	10 (100.00) ^a (45.45) ^b
	Female	2 (16.67) ^a (66.67) ^b	8 (66.67) ^a (53.34) ^b	1 (8.33) ^a (100.00) ^b	-	1 (8.33) ^a (100.00) ^b	12 (100.00) ^a (54.55) ^b
	Total	3 (13.63) ^a (100.00) ^b	15 (68.18) ^a (100.00) ^b	1 (4.55) ^a (100.00) ^b	2 (9.09) ^a (100.00) ^b	1 (4.55) ^a (100.00) ^b	22 (100.00) ^a (15.28) ^b
Total	Male	10 (12.20) ^a (52.64) ^b	43 (52.44) ^a (53.08) ^b	7 (8.54) ^a (58.33) ^b	13 (15.85) ^a (81.25) ^b	9 (10.97) ^a (56.25) ^b	82 (100.00) ^a (56.95) ^b
	Female	9 (14.52) ^a (47.36) ^b	38 (61.29) ^a (46.92) ^b	5 (8.06) ^a (41.67) ^b	3 (4.84) ^a (18.75) ^b	7 (11.29) ^a (43.75) ^b	62 (100.00) ^a (43.05) ^b
	Total	19 (13.19) ^a (100.00) ^b	81 (56.25) ^a (100.00) ^b	12 (8.34) ^a (100.00) ^b	16 (11.11) ^a (100.00) ^b	16 (11.11) ^a (100.00) ^b	144 (100.00) ^a (100.00) ^b

Note: Data in parenthesis indicate % age, a = row-wise % age and b = column-wise % age
Source: Field survey

4.3 Type of job losses in pandemic

Table 4 provides insights into the types of jobs that were lost by respondents in the study area. It shows, 28.83% of the respondents lost their job. These are in private jobs (53.06%), self-employed (34.69%), contractual (7.14%), and part-time (5.11%) and they worked in shops, industries, businesses, and other part-time jobs while other respondents work online but were still employed during the pandemic. The need for policymakers is to provide adequate support to those who have lost their jobs by providing a safety net and also a huge amount of investment in sectors that are affected by the pandemic.

Table 4. Type of job losses in pandemic (No./%)

Response	Gender	Panjtirthi	Pacca danga	Rehari colony (N)	Shastri nagar	Tallab tillo (S)	Total
Respondents lost their job in pandemic	Male	21 (28.77) ^a (75.00) ^b	23 (31.51) ^a (76.66) ^b	2 (2.74) ^a (40.00) ^b	13 (17.81) ^a (81.25) ^b	14 (19.17) ^a (73.68) ^b	73 (100.00) ^a (74.48) ^b
	Female	7 (28.00) ^a (25.00) ^b	7 (28.00) ^a (23.34) ^b	3 (12.00) ^a (60.00) ^b	3 (12.00) ^a (18.75) ^b	5 (20.00) ^a (26.32) ^b	25 (100.00) ^a (25.52) ^b
	Total	28 (28.57) ^a (100.00) ^b	30 (30.62) ^a (100.00) ^b	5 (5.10) ^a (100.00) ^b	16 (16.33) ^a (100.00) ^b	19 (43.18) ^a (100.00) ^b	98 (100.00) ^a (28.83) ^b
Respondents does not lost their job in pandemic	Male	35 (28.00) ^a (53.85) ^b	54 (43.20) ^a (51.43) ^b	9 (7.20) ^a (47.36) ^b	12 (9.60) ^a (42.85) ^b	15 (12.00) ^a (60.00) ^b	125 (100.00) ^a (51.65) ^b
	Female	30 (25.64) ^a (46.15) ^b	51 (43.58) ^a (48.57) ^b	10 (8.55) ^a (52.64) ^b	16 (13.68) ^a (57.15) ^b	10 (8.55) ^a (40.00) ^b	117 (100.00) ^a (48.35) ^b
	Total	65 (26.86) ^a (100.00) ^b	105 (43.38) ^a (100.00) ^b	19 (7.86) ^a (100.00) ^b	28 (11.57) ^a (100.00) ^b	25 (10.33) ^a (100.00) ^b	242 (100.00) ^a (71.17) ^b
Type of job lost							
Private	Male	12 (34.29) ^a (70.58) ^b	7 (20.00) ^a (53.85) ^b	1 (2.86) ^a (33.34) ^b	9 (25.71) ^a (81.82) ^b	6 (17.14) ^a (75.00) ^b	35 (100.00) ^a (67.31) ^b
	Female	5 (29.43) ^a (29.42) ^b	6 (35.29) ^a (46.15) ^b	2 (11.76) ^a (66.66) ^b	2 (11.76) ^a (18.18) ^b	2 (11.76) ^a (25.00) ^b	17 (100.00) ^a (32.69) ^b
	Total	17 (32.69) ^a (100.00) ^b	13 (25.00) ^a (100.00) ^b	3 (5.77) ^a (100.00) ^b	11 (21.16) ^a (100.00) ^b	8 (15.38) ^a (100.00) ^b	52 (100.00) ^a (53.06) ^b
Self-owned business	Male	8 (26.67) ^a (88.88) ^b	13 (43.33) ^a (92.85) ^b	1 (3.33) ^a (100.00) ^b	3 (10.00) ^a (75.00) ^b	5 (16.67) ^a (83.34) ^b	30 (100.00) ^a (88.24) ^b
	Female	1 (25.00) ^a (11.12) ^b	1 (25.00) ^a (7.15) ^b	-	1 (25.00) ^a (25.00) ^b	1 (25.00) ^a (16.66) ^b	4 (100.00) ^a (11.76) ^b
	Total	9 (32.15) ^a (100.00) ^b	14 (41.18) ^a (100.00) ^b	1 (2.95) ^a (100.00) ^b	4 (11.77) ^a (100.00) ^b	6 (17.65) ^a (100.00) ^b	34 (100.00) ^a (34.69) ^b
Contractual	Male	1 (20.00) ^a (100.00) ^b	2 (40.00) ^a (100.00) ^b	-	-	2 (40.00) ^a (66.66) ^b	5 (100.00) ^a (71.43) ^b
	Female	-	-	1 (50.00) ^a (100.00) ^b	-	1 (50.00) ^a (33.34) ^b	2 (100.00) ^a (28.57) ^b
	Total	1 (14.28) ^a (100.00) ^b	2 (28.58) ^a (100.00) ^b	1 (14.28) ^a (100.00) ^b	-	3 (42.86) ^a (100.00) ^b	7 (100.00) ^a (7.14) ^b
Part-time	Male	-	1 (33.33) ^a (100.00) ^b	-	1 (33.33) ^a (100.00) ^b	1 (33.33) ^a (50.00) ^b	3 (100.00) ^a (60.000) ^b
	Female	1 (50.00) ^a (100.00) ^b	-	-	-	1 (50.00) ^a (50.00) ^b	2 (100.00) ^a (40.00) ^b
	Total	1 (20.00) ^a (100.00) ^b	1 (20.00) ^a (100.00) ^b	-	1 (20.00) ^a (100.00) ^b	2 (40.00) ^a (100.00) ^b	5 (100.00) ^a (5.11) ^b
Total	Male	21 (28.77) ^a (75.00) ^b	23 (31.51) ^a (76.66) ^b	2 (2.74) ^a (40.00) ^b	13 (17.81) ^a (81.25) ^b	14 (19.17) ^a (73.68) ^b	73 (100.00) ^a (74.48) ^b
	Female	7 (28.00) ^a (25.00) ^b	7 (28.00) ^a (23.34) ^b	3 (12.00) ^a (60.00) ^b	3 (12.00) ^a (18.75) ^b	5 (20.00) ^a (26.32) ^b	25 (100.00) ^a (25.52) ^b
	Total	28 (28.57) ^a (100.00) ^b	30 (30.62) ^a (100.00) ^b	5 (5.10) ^a (100.00) ^b	16 (16.33) ^a (100.00) ^b	19 (19.38) ^a (100.00) ^b	98 (100.00) ^a (100.00) ^b

Note: Data in parenthesis indicate % age, a = row-wise % age and b = column-wise % age
 Source: Field survey

Workers encountered numerous difficulties because of business closures, disruptions in supply chains, and reduced

consumer demand. These challenges affected the job market in sectors like tourism, retail, and manufacturing, and had an impact on women, young workers, and low-income employees (Sun et al., 2022). The skill plays a crucial role in mitigating the pandemic's impact on employment and facilitating a sustainable economic recovery (Shulla et al., 2021). Effective and appropriate strategies should be implemented to address the challenges faced by individuals, various sectors, and vulnerable groups during global crises.

4.4 Type of online skills and vocational courses

The pandemic has transformed education and remote work, creating demand for online skills and vocational courses. To foster personal and professional growth, various measures have been adopted to have access to online platforms thereby opening new avenues for learning and employment opportunities (Tønnessen et al., 2021). The effectiveness of these courses influences trends in enrolment, the diversity of available courses, skill acquisition, and career progression. These online skill and vocational courses during the pandemic come with both advantages and challenges. Online skill and vocational courses have emerged as a lifeline for education during the COVID-19 pandemic and have several advantages and challenges. The flexibility of online courses is an advantage. However, they have many challenges related to technology access, social interaction, self-discipline, quality, assessment, and hands-on experience (Chen, 2023). Moreover, this paper explores the upcoming trends and innovations that will shape online learning in the post-pandemic era (Bailey & Lee, 2020).

Table 5. Type of online skills and vocational courses (No./%)

Response	Gender	Panjtirthi	Pacca danga	Rehari colony (N)	Shastri nagar	Tallab tillo (S)	Total
Respondents joined online skill/vocational course during pandemic	Male	7 (33.33) ^a (46.66) ^b	5 (23.81) ^a (38.46) ^b	1 (4.78) ^a (20.00) ^b	4 (19.04) ^a (44.44) ^b	4 (19.04) ^a (100.00) ^b	21 (100.00) ^a (45.65) ^b
	Female	8 (32.00) ^a (53.34) ^b	8 (32.00) ^a (61.54) ^b	4 (16.00) ^a (80.00) ^b	5 (20.00) ^a (55.56) ^b	-	25 (100.00) ^a (54.35) ^b
	Total	15 (32.60) ^a (100.00) ^b	13 (28.27) ^a (100.00) ^b	5 (10.87) ^a (100.00) ^b	9 (19.57) ^a (100.00) ^b	4 (8.69) ^a (100.00) ^b	46 (100.00) ^a (13.53) ^b
Respondents not joined online skill/vocational course during pandemic	Male	49 (27.69) ^a (62.83) ^b	72 (40.68) ^a (59.02) ^b	10 (5.65) ^a (52.64) ^b	21 (11.86) ^a (60.00) ^b	25 (14.12) ^a (62.50) ^b	177 (100.00) ^a (60.21) ^b
	Female	29 (24.79) ^a (37.17) ^b	50 (42.73) ^a (40.98) ^b	9 (7.69) ^a (47.36) ^b	14 (11.96) ^a (40.00) ^b	15 (12.83) ^a (37.50) ^b	117 (100.00) ^a (39.79) ^b
	Total	78 (26.53) ^a (100.00) ^b	122 (41.49) ^a (100.00) ^b	19 (6.46) ^a (100.00) ^b	35 (11.91) ^a (100.00) ^b	40 (13.61) ^a (100.00) ^b	294 (100.00) ^a (86.47) ^b
Type of course							
Digital marketing	Male	1 (50.00) ^a (50.00) ^b	1 (50.00) ^a (33.34) ^b	-	-	-	2 (100.00) ^a (40.00) ^b
	Female	1 (33.33) ^a (50.00) ^b	2 (66.67) ^a (66.66) ^b	-	-	-	3 (100.00) ^a (60.00) ^b
	Total	2 (40.00) ^a (100.00) ^b	3 (60.00) ^a (100.00) ^b	-	-	-	5 (100.00) ^a (10.86) ^b
Accounting	Male	1 (50.00) ^a (33.34) ^b	1 (50.00) ^a (50.00) ^b	-	-	-	2 (100.00) ^a (40.00) ^b
	Female	2 (66.67) ^a (66.66) ^b	1 (33.33) ^a (50.00) ^b	-	-	-	3 (100.00) ^a (60.00) ^b
	Total	3 (60.00) ^a (100.00) ^b	2 (40.00) ^a (100.00) ^b	-	-	-	5 (100.00) ^a (10.86) ^b
Computer course	Male	2 (18.18) ^a (66.66) ^b	2 (18.18) ^a (66.67) ^b	3 (27.27) ^a (60.00) ^b	3 (27.27) ^a (60.00) ^b	1 (9.09) ^a (50.00) ^b	11 (100.00) ^a (61.12) ^b
	Female	1 (14.28) ^a (33.34) ^b	1 (14.28) ^a (33.33) ^b	2 (28.58) ^a (40.00) ^b	2 (28.58) ^a (40.00) ^b	1 (14.28) ^a (50.00) ^b	7 (100.00) ^a (38.88) ^b
	Total	3 (16.67) ^a (100.00) ^b	3 (16.67) ^a (100.00) ^b	5 (27.77) ^a (100.00) ^b	5 (27.77) ^a (100.00) ^b	2 (11.12) ^a (100.00) ^b	18 (100.00) ^a (39.14) ^b

Table 5. (cont.)

Response	Gender	Panjtirthi	Pacca danga	Rehari colony (N)	Shastri nagar	Tallab tillo (S)	Total
IT skills	Male	1 (100.00) ^a (50.00) ^b	-	-	-	-	1 (100.00) ^a (50.00) ^b
	Female	1 (100.00) ^a (50.00) ^b	-	-	-	-	1 (100.00) ^a (50.00) ^b
	Total	2 (100.00) ^a (100.00) ^b	-	-	-	-	2 (100.00) ^a (4.35) ^b
Soft skills	Male	1 (100.00) ^a (50.00) ^b	-	-	-	-	1 (100.00) ^a (50.00) ^b
	Female	1 (100.00) ^a (50.00) ^b	-	-	-	-	1 (100.00) ^a (50.00) ^b
	Total	2 (100.00) ^a (100.00) ^b	-	-	-	-	2 (100.00) ^a (4.35) ^b
Online teaching skill	Male	2 (25.00) ^a (50.00) ^b	3 (37.50) ^a (75.00) ^b	1 (12.50) ^a (33.34) ^b	2 (25.00) ^a (66.66) ^b	-	8 (100.00) ^a (57.15) ^b
	Female	2 (33.33) ^a (50.00) ^b	1 (16.67) ^a (25.00) ^b	2 (33.33) ^a (66.66) ^b	1 (16.67) ^a (33.34) ^b	-	6 (100.00) ^a (42.85) ^b
	Total	4 (28.57) ^a (100.00) ^b	4 (28.57) ^a (100.00) ^b	3 (21.43) ^a (100.00) ^b	3 (21.43) ^a (100.00) ^b	-	14 (100.00) ^a (30.44) ^b
Total	Male	8 (32.00) ^a (50.00) ^b	7 (28.00) ^a (58.34) ^b	4 (16.00) ^a (50.00) ^b	5 (20.00) ^a (62.50) ^b	1 (4.00) ^a (50.00) ^b	25 (100.00) ^a (54.35) ^b
	Female	8 (38.09) ^a (50.00) ^b	5 (23.81) ^a (41.66) ^b	4 (19.04) ^a (50.00) ^b	3 (14.28) ^a (37.50) ^b	1 (4.78) ^a (50.00) ^b	21 (100.00) ^a (45.65) ^b
	Total	16 (34.77) ^a (100.00) ^b	12 (26.07) ^a (100.00) ^b	8 (17.39) ^a (100.00) ^b	8 (17.39) ^a (100.00) ^b	2 (4.08) ^a (100.00) ^b	46 (100.00) ^a (100.00) ^b

Note: Data in parenthesis indicate % age, a = row-wise % age and b = column-wise % age
 Source: Field survey

Table 5 provides an overview of the types of online skills and vocational courses taken by respondents during the pandemic. About 13.53% of respondents joined online skill and vocational courses during the pandemic. These courses include computer courses (39.14%), online teaching skills (30.44%), digital marketing and accounting (10.86%), and (4.35%) of respondents joined IT and soft skills.

Online teaching skills have seen the highest adoption, especially in teaching during lockdowns when schools were closed. These skills were essential in bridging learning gaps and supporting academic progress. However, this gap exists in technological literacy and competency in utilizing various digital tools for online work, managing learning systems, using video conferencing platforms, and other technology-driven instructional methods in the study area.

4.5 Work-from-home jobs in the pandemic

Work-from-home jobs undertaken by respondents during the pandemic, reflecting the significant changes in the world of work due to the shift from traditional to remote work. The pandemic, marked by lockdowns and social distancing measures, prompted frequent organizations and employees to adapt to work-from-home arrangements (Tønnessen et al., 2021).

Table 6 provides an overview of the work-from-home jobs about 43% of respondents worked as online educators, 19% as skill trainees, 13% as business managers and customer care representatives, and 12% in marketing-related jobs. There is a need for suitable policy interventions to address issues such as promoting skills and experience in various online courses, enhancing digital literacy, and encouraging other online job opportunities in the study area.

Particularly, the teaching sector observed a substantial shift from traditional in-person teaching to online learning platforms, with a high level of labor market participation among educators. In contrast, other sectors had lower levels of participation in work-from-home arrangements. Teachers, tutors, and support staff experienced a significant increase in demand for remote work opportunities, distinguishing them from sectors with fewer workers participating in this shift.

Table 6. Work from home jobs in the Pandemic (No./%)

Type of job	Gender	Panjtirthi	Pacca danga	Rehari colony (N)	Shastri nagar	Tallab tillo (S)	Total
Online educator	Male	8 (36.36) ^a (53.34) ^b	4 (18.18) ^a (44.45) ^b	1 (4.55) ^a (33.34) ^b	4 (18.18) ^a (57.15) ^b	5 (22.73) ^a (55.55) ^b	22 (100.00) ^a (51.16) ^b
	Female	7 (33.33) ^a (46.66) ^b	5 (23.81) ^a (55.55) ^b	2 (9.52) ^a (66.66) ^b	3 (14.29) ^a (42.85) ^b	4 (19.05) ^a (44.45) ^b	21 (100.00) ^a (48.84) ^b
	Total	15 (34.88) ^a (100.00) ^b	9 (20.94) ^a (100.00) ^b	3 (6.97) ^a (100.00) ^b	7 (16.27) ^a (100.00) ^b	9 (20.94) ^a (100.00) ^b	43 (100.00) ^a (43.00) ^b
Customer care	Male	3 (37.50) ^a (100.00) ^b	4 (50.00) ^a (66.66) ^b	1 (12.50) ^a (50.00) ^b	-	-	8 (100.00) ^a (61.54) ^b
	Female	-	2 (40.00) ^a (33.34) ^b	1 (20.00) ^a (50.00) ^b	1 (20.00) ^a (100.00) ^b	1 (20.00) ^a (100.00) ^b	5 (100.00) ^a (38.46) ^b
	Total	3 (23.08) ^a (100.00) ^b	6 (46.16) ^a (100.00) ^b	2 (15.38) ^a (100.00) ^b	1 (7.69) ^a (100.00) ^b	1 ((7.69) ^a (100.00) ^b	13 (100.00) ^a (13.00) ^b
Skill trainee	Male	2 (14.29) ^a (100.00) ^b	3 (21.43) ^a (50.00) ^b	2 (14.29) ^a (100.00) ^b	2 (14.29) ^a (66.66) ^b	5 (35.70) ^a (83.34) ^b	14 (100.00) ^a (73.68) ^b
	Female	-	3 (60.00) ^a (50.00) ^b	-	1 (20.00) ^a (33.34) ^b	1 (20.00) ^a (16.66) ^b	5 (100.00) ^a (26.32) ^b
	Total	2 (10.53) ^a (100.00) ^b	6 (31.58) ^a (100.00) ^b	2 (10.53) ^a (100.00) ^b	3 (15.78) ^a (100.00) ^b	6 (31.58) ^a (100.00) ^b	19 (100.00) ^a (19.00) ^b
Business manager	Male	-	4 (44.44) ^a (66.66) ^b	1 (11.11) ^a (100.00) ^b	3 (33.33) ^a (75.00) ^b	1 (11.11) ^a (100.00) ^b	9 (100.00) ^a (69.24) ^b
	Female	1 (25.00) ^a (100.00) ^b	2 (50.00) ^a (33.34) ^b	-	1 (25.00) ^a (25.00) ^b	-	4 (100.00) ^a (30.76) ^b
	Total	1 (7.69) ^a (100.00) ^b	6 (46.17) ^a (100.00) ^b	1 (7.69) ^a (100.00) ^b	4 (30.76) ^a (100.00) ^b	1 (7.69) ^a (100.00) ^b	13 (100.00) ^a (13.00) ^b
Marketing	Male	1 (14.29) ^a (100.00) ^b	4 (57.13) ^a (66.66) ^b	1 (14.29) ^a (50.00) ^b	-	1 (14.29) ^a (100.00) ^b	7 (100.00) ^a (58.34) ^b
	Female	-	2 (40.00) ^a (33.34) ^b	1 (20.00) ^a (50.00) ^b	2 (40.00) ^a (100.00) ^b	-	5 (100.00) ^a (41.66) ^b
	Total	1 (8.33) ^a (100.00) ^b	6 (50.00) ^a (100.00) ^b	2 (16.67) ^a (100.00) ^b	2 (16.66) ^a (100.00) ^b	1 (8.34) ^a (100.00) ^b	12 (100.00) ^a (12.00) ^b
Total	Male	14 (23.33) ^a (63.64) ^b	19 (31.67) ^a (57.57) ^b	6 (10.00) ^a (60.00) ^b	9 (15.00) ^a (52.95) ^b	12 (20.00) ^a (66.66) ^b	60 (100.00) ^a (60.00) ^b
	Female	8 (20.00) ^a (36.36) ^b	14 (35.00) ^a (42.43) ^b	4 (10.00) ^a (40.00) ^b	8 (20.00) ^a (47.05) ^b	6 (15.00) ^a (33.34) ^b	40 (100.00) ^a (40.00) ^b
	Total	22 (22.02) ^a (100.00) ^b	33 (33.01) ^a (100.00) ^b	10 (10.01) ^a (100.00) ^b	17 (18) ^a (100.00) ^b	18 (18) ^a (100.00) ^b	100 (100.00) ^a (100.00) ^b

Note: Data in parenthesis indicate % age, a = row-wise % age and b = column-wise % age
Source: Field survey

4.6 Indicators of labor market participation in pre and during pandemic

Table 7 provides insights into how the COVID-19 pandemic has affected labor market participation and Figure 2 shows employment prospects in pre pandemic, during pandemic and job losses in pandemic. The data shows that 50% of the working-age population was employed, while the remaining 50% were unemployed and pursuing further education before the pandemic. However, when the pandemic hit, the employment rate dropped to 41%, indicating a loss of 42.7% of jobs in Jammu City.

Table 7. Indicators of labour market participation in pre and during pandemic

Indicators	Rate in (%)
Employment rate pre-pandemic	$96/192 \times 100 = 50\%$
Employment rate during the pandemic	$55/192 \times 100 = 28.64\%$
Job loss (unemployment) during the pandemic	$41/96 \times 100 = 42.70\%$

Note: Employment rate = employed youth/working-age population of youth \times 100, Unemployment rate = unemployed youth/working-age population of youth \times 100 and Job loss = Total job lost/Pre-pandemic employment of youth \times 100
 Source: Author's own data collection

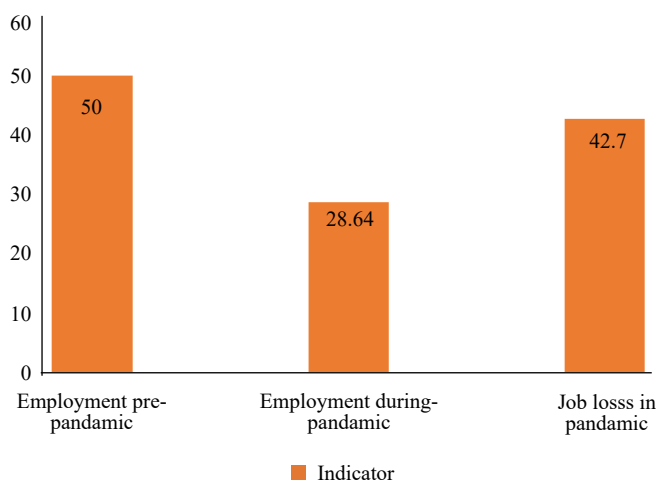


Figure 2. Employment prospects during pandemic

*Source: Author's own data collection

5. Challenges and policy implications

The global crisis of the COVID-19 pandemic has significantly worsened and created a number of challenges in labor market participation for workers, businesses, and policymakers as such there is a need for effective measures to lessen the adverse impact on the labor market.

The study sheds light on the issues and challenges faced by respondents during the pandemic regarding their participation in the labour market:

- **Job loss and unemployment:** The closure of numerous businesses has resulted in widespread job losses and an increase in unemployment, making it difficult for individuals to actively engage in the labor market.
- **Reduced working hours and income:** Many workers have experienced a reduction in working hours and income due to various factors like business closures, reduced demand, or the adoption of remote work arrangements, which affects their capacity to participate in the labor market and meet their financial needs.
- **Skills and qualification mismatch:** Disruptions in various sectors, such as business and e-commerce have led to mismatch of skills and qualifications in the labor market.
- **Disproportionate impact on vulnerable groups:** Specific demographic groups, including women, low-income workers, racial and ethnic minorities, young individuals, have borne the loss of job losses and face more significant hurdles when attempting to re-enter the labor market.
- **Digital Literacy deficiency:** A significant challenge observed among respondents is lack of proficiency in using digital tools, communication platforms, and collaborative software. This hinders their ability to adapt to remote work environments, resulting in decreased productivity and limited job opportunities.

To address these challenges and support labor market participation in the post-pandemic era, it is essential to develop effective strategies and policies that promote resilience, inclusivity, and sustainable recovery. The following policy measures are recommended:

- **Job retention and creation initiatives:** Implement initiatives like wage subsidies for employers and grants for job creation to boost businesses, encourage job retention, minimize job losses, and generate new employment opportunities for respondents in the study area.

- **Income support and social protection:** Measures such as unemployment benefits and direct cash transfers to provide income support to respondents who have lost their jobs during the pandemic.

- **Training and reskilling programs:** Offer programs that are aimed at addressing labor market mismatches and enhancing employability by adapting labor market demands.

- **Remote work training:** Provide vocational training and skill development opportunities that support remote work. This includes training in remote communication, time management, self-motivation, and proficiency in digital tools to enhance productivity and effectiveness in remote work settings.

- **Collaboration and coordination:** Encourage labor market organizations to collaborate and coordinate their efforts to address the challenges faced in labor market participation. This involves sharing information, coordinating actions, and jointly implementing initiatives that support both workers and businesses in post-pandemic.

- **Promotion of lifelong learning:** Encouraging lifelong learning is essential for ensuring respondents to adapt changing job requirements and remain competitive in the labor market. Governments can support this through initiatives such as tax incentives for employer-provided training, portable training accounts that allow individuals to accumulate funds for education and training throughout their careers, and recognition of informal learning experiences.

- **Investment in digital infrastructure and skills:** With the increasingly digital economy, it is essential to invest in digital infrastructure which lacks study area and there is a need to promote digital literacy and skills development among workers who lost their jobs in the pandemic. This includes initiatives such as subsidizing access to broadband internet in underserved areas, providing training in digital tools and technologies, and fostering partnerships between industry and educational institutions to ensure curricula are aligned with industry needs.

- **Encourage small medium and small enterprises:** SMEs are important drivers of employment and innovation, but they often lack the resources to weather economic downturns. Implementing policies that provide targeted financial assistance, access to credit, and business support services can help SMEs recover and thrive post-pandemic, thereby safeguarding jobs and fostering entrepreneurship in the study area.

6. Conclusion

The COVID-19 pandemic has had a significant impact on the labor market, resulting in challenges such as job and income losses, skills mismatches, health concerns, and unequal effects on vulnerable groups. To address these issues, it is urgently required to implement strategic measures. These measures should encompass job retention and creation initiatives, income support, and social protection measures. Moreover, training and reskilling programs should be provided to bridge skills gaps and prepare individuals for the evolving labor market demands. Furthermore, offering training in remote work skills and promoting collaboration in the labor market will enhance resilience and inclusivity in the post-pandemic era.

By implementing these policy measures, the government can effectively mitigate the negative impact of the pandemic on labor market participation. These measures aim to facilitate access to employment opportunities and foster a labor market that is more resilient and inclusive. The COVID-19 pandemic has highlighted the importance of adaptable and flexible labor market policies and the necessity for collaborative efforts among government, businesses, and workers. While the challenges have been noteworthy, they also present an opportunity to rethink and reconfigure labor market strategies to ensure a more resilient and inclusive future for the workforce. Policymakers and stakeholders must continue working together to rebuild and strengthen the labor market and recognize that a resilient and adaptable workforce is the cornerstone of economic recovery and growth.

In Jammu City, India, the COVID-19 outbreak had worse impact on labor market participation. The pandemic disrupted the lives of individuals and communities similar to the world's context leading to significant changes in

employment patterns and labor force dynamics. Measures implemented to control the spread of the virus, such as lockdown, social distancing, and business restrictions, resulted in widespread job losses, reduced working hours, and income instability for many residents of Jammu City.

The pandemic caused vulnerabilities within the labor market in certain sectors, such as hospitality, tourism, and informal labor, being hit hard by the economic downturn. These sectors suffered not only from reduced demand but also from the challenges associated with maintaining health and safety standards in the workplace. As a result, many workers found themselves struggling to secure stable employment or faced the difficult choice of risking their health to earn a living. However, the COVID-19 outbreak also encourages adaptation and innovation in the labor market. Remote work and digitalization became essential in several industries, offering new opportunities for certain segments of the workforce. The crisis encouraged many individuals to upskill and reskill to remain competitive in a rapidly changing job market.

Moreover, government interventions in the form of financial support, food distribution, and employment programs played a crucial role in mitigating the adverse effects of the pandemic on labor market participation. These efforts aimed to provide a safety net to those most affected by the economic downturn. As we move forward, it is essential to address the long-term consequences of the pandemic on the labor market. Policymakers and stakeholders must focus on promoting economic recovery, supporting vulnerable workers, and fostering job creation. Moreover, investing in public health and preparedness can reduce the likelihood of similar disruptions in the future.

Furthermore, the COVID-19 outbreak had a multifaceted impact on labor market participation in Jammu City. It exposed vulnerabilities, spurred innovation, and required a concerted effort to support those most affected. Learning from this experience, we can strive for a more resilient and inclusive labor market in the post-pandemic era.

7. Limitations

Study focuses on the restricted sample size could affect the study's ability to generalize findings to the broader youth population and found challenges in accessing comprehensive data on youth labor market participation during the pandemic may compromise the depth and accuracy of the analysis. Moreover, difficulties in obtaining responses from participants may lead to a lower response rate, potentially introducing bias. Time constraints may also limit the scope of the study, hindering a thorough exploration of relevant factors. Financial constraints could further restrict resources available for data collection and analysis. Additionally, external factors such as government policies and economic fluctuations may influence labor market dynamics, complicating the interpretation of results. The geographical focus on Jammu City might limit the applicability of findings beyond this region.

8. Future research directions

Future research could explore longitudinal changes in youth labor market participation in Jammu City, compare strategies with other regions, assess policy effectiveness, analyze sector-specific opportunities, and investigate technology's role. Additionally, evaluating skill development programs, addressing mental health implications, engaging stakeholders, and developing sustainable recovery strategies are vital.

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Conflict of interest

The author declares no competing financial interest.

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S.NO.....

QUESTIONNAIRE
Household Survey

Date.....

Impact of Covid-19 on Labor Market Participation: A Case Study of Jammu City, India

I. Household information

1. Name of household head Ward no/ name.....
2. Name of Respondent:
- a. Gender: Male Female
- b. Age
- c. Marital status: Married Unmarried
- d. Qualification: Primary Middle Secondary Higher Secondary Graduation & above illiterate
- 3 Religion: Hindu Muslim Sikh Buddhis Christian Jain
- 4.Caste: General Schedule caste Scheduled tribe Other Backward caste
5. Age (Years. /No.) < 5 5-10 10-15 15-20 20-25 25-30 30-35 35-40 40-45 45-50 50-55 55-60 > 60
 - a. Male:
 - b. Female:
6. Family size (No.):
 - a. Male: Children (< 15 yrs.) Youth (15-24yrs) Adult (>24 yrs.) Old age (> 60 yrs)
 - b. Female: Children (< 15 yrs) Youth (15-24 yrs) Adult (> 24 yrs) Old age (> 60 yrs)
7. Household size (No.): < 4 4-6 6-8 > 8
 - a. Number of children: < 4 4-6 6-8 > 8
 - b. Number of Youth: < 4 4-6 6-8 > 8
 - c. Number of adults: < 4 4-6 6-8 > 8
 - d. Old age : < 4 4-6 6-8 > 8
8. Type of family: Joint Nuclear

II. Social economic profile of the household

- 1.Asset structure
 - a. Household Asset: Land plot Television/LCD Refrigerator Washing/machine Computer/Laptop AC Mobile Aqua guard
 - b. Transportation asset Cycle Motorcycle Scooty Truck/Bus/Matador Car/Van/ Auto
 - c. Kitchen appliances: LPG Electric cooking stove Mixer/ Grinder Pressure Cooker
2. Infrastructure Facilities: Health care Centre/Hospital Drinking water Electricity School Post Office Bank Police station ration depot
3. Literacy level Illiterate Primary Middle High Hr. Sec College & above Technical/ Professional Other training (No.): courses
 - a. Male:
 - b. Female:
4. Employment Skilled worker Unskilled Government High Private Self-employed Unemployed status (No.): worker
 - a. Male:
 - b. Female:
5. Salary Income (Rs./per month) < Rs. 10,000 10,000-30,000 30,000-50,000 50,000 & above
 - a. Male:
 - b. Female:

6. Is any, member of your family is in neither in education nor in employment (NEET). Yes No
- 6.1. If yes, what are the reason for becoming NEET?
- a. Lack of skill Yes No
- b. work experience Yes No
- c. lack of finance Yes No
- d. insufficient job opportunities Yes No
- e. skill mismatch Yes No
- f. Lack of parent interest in studies Yes No
- 6.2. Number of NEET members in your family Yes No
- Male Female
7. Household expenditure: Food Clothing Shopping Education Health Travel
Petrol Telephone/mobile Ceremonies
8. Household expenditure (Rs per/month): < 10,000 10,000-20,000 20,000-30,000
> 30,000
9. Saving (per/month): < 10,000 10,000-20,000 20,000-30,000 > 30,000
10. Loan: Yes No
- 10.1 If yes, type of loan: Education loan Housing loan any other
- Yes No
- III. Questions regarding Pandemic
- 3.1 During pandemic, if you are working you lost your job? Yes No
- 3.2. What type of job you lost?
- a. Private job Yes No
- b. Self-owned Business Yes No
- c. Contractual Yes No
- d. Part-time Yes No
- 3.3 You want to work from home (job) in pandemic? Yes No
- 3.4 Is your educational attainment and skill experience match with this online job? Yes No
- 3.5 If yes, what type of job you prefer?
- a. Online educator Yes No
- b. Customer care Yes No
- c. Skill trainee Yes No
- d. Business manager Yes No
- e. Marketing Yes No
- 3.6 You prefer, which pay scale job?
< 20,000 20,000-30,000 30,000-40,000 40,000-50,000 > 50,000
- 3.7 Do you find job opportunities during pandemic? Yes No
- 3.8 You easily get job in this period? Yes No
- 3.9 If no, reason for unemployed?
- a. Lack of knowledge Yes No
- b. Ignorance Yes No
- c. Skill mismatch Yes No
- d. Qualification mismatch Yes No
- e. Family and personal issue Yes No
- f. Less salary Yes No
- 3.10 In which sector you want to prefer job?
- a. Government sector Yes No

- b. Private sector Yes No
- c. Part-time Yes No
- d. Contractual Yes No
- 3.11 Do you join any Online skill course/Vocational course during pandemic? Yes No
- 3.12. If yes, you join which course?
 - a. Digital marketing Yes No
 - b. Accounting Yes No
 - c. Computer course Yes No
 - d. IT skills Yes No
 - e. Soft skills Yes No
 - f. Online teaching skills Yes No
- 3.13. Are, these courses helpful in getting work from home & getting good salary?
- 3.14. If no, reason for it?
 - a. Already get job Yes No
 - b. Lack of knowledge & skills Yes No
 - c. Lack of opportunities Yes No
 - d. Family problems Yes No
 - e. Not interested Yes No