



## Factors Shaping Labor Force Participation in Gujarat: A Logit Model Study of NSSO Unit Level Data

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### ABSTRACT

This study investigates the evolving trends in Labor Force Participation Rate (LFPR) in Gujarat, India, over recent decades, with a focus on the underlying determinants. Gujarat's diverse economy, geographic disparities, and complex social landscape necessitate a comprehensive analysis of LFPR and its influencing factors. The study aims to identify disparities between rural and urban LFPR and assess the impact of various determinants, including family size, education, income, age, marital status, social group, and gender. The analysis draws on data from multiple rounds of the National Sample Survey Office (NSSO) and the Periodic Labour Force Survey (PLFS) for the years 1993-94 to 2021-22. The logit model is employed to quantify the influence of these factors on labor force participation.

Key findings reveal that rural areas consistently exhibit higher LFPRs compared to urban areas, and a persistent gender gap exists, with male LFPR exceeding female LFPR. Gujarat tends to outperform national averages in LFPR, indicating a dynamic labor market. Family size inversely affects LFPR, with larger families showing lower participation rates. Education has a more significant impact in urban areas, emphasizing its role in urban employment. Income-based disparities are evident, with lower-income individuals more likely to participate in the labor force. Age, marital status, social group, and gender are crucial determinants, as are urban residence and education.

Based on these findings, policy recommendations include enhancing education and skill development, promoting family planning, stimulating job creation, providing income support for lower percentiles, empowering women, age-specific policies, support for married and widowed individuals, addressing social group disparities, and data-driven policy development. These recommendations aim to create a more inclusive and dynamic labor market in Gujarat.

**Keywords:-** LFPR, PLFS, *Rural-Urban Disparities, Family Size, Education, Income, Age, Marital Status, Social Group, Gender, Logit Model*

### Introduction:

Gujarat, a state located on the western coast of India, boasts a distinctive blend of economic vibrancy, diverse social fabric, and unique geographic features. This region, renowned for its entrepreneurial spirit and rich cultural heritage, has played a pivotal role in shaping India's economic landscape. Amidst this backdrop, understanding the dynamics of labor force participation and its determinants is of paramount importance.

*Economic Landscape:* Gujarat is often referred to as the "Growth Engine of India" due to its robust industrial and commercial sectors. The state has been a magnet for domestic and foreign investments, fostering economic growth and development. Its major industries include petrochemicals, textiles, chemicals, and manufacturing, all of which contribute significantly to the nation's Gross Domestic Product (GDP). Gujarat's strategic ports, such as the Port of Mundra and the Port of Kandla, further enhance its position as a trade and logistics hub, facilitating both domestic and international commerce.

*Social Diversity:* Gujarat's social landscape is characterized by its rich diversity. It is home to various linguistic, religious, and cultural groups, each contributing to the state's vibrant social tapestry. This diversity is reflected in the lifestyle, traditions, and practices of the people. It is important to explore labor force participation within the context of this social tapestry, considering how various factors influence the economic engagement of different segments of the population.

*Geographic Variability:* The geography of Gujarat is marked by a diverse terrain that encompasses vast stretches of coastline, arid regions, fertile plains, and bustling urban centers. The state's geographical diversity also plays a role in shaping patterns of labor force participation. Coastal areas may exhibit different labor dynamics compared to inland regions, and understanding these nuances is essential.

*The Need to Understand Labor Force Participation:* As Gujarat continues to evolve as an economic powerhouse, the labor force's participation and its dynamics remain at the heart of the state's socio-economic progress. Analyzing the factors that influence individuals' decisions to participate in the labor market is critical for several reasons:

- **Policy Formulation:** Policymakers need a comprehensive understanding of labor force participation to develop targeted policies that promote inclusive economic growth and social well-being.
- **Social Equity:** Labor force participation can be influenced by various socio-economic factors. Recognizing these influences can aid in addressing disparities and promoting social equity.
- **Economic Development:** Labor force participation is intricately linked to economic development. It impacts productivity, income distribution, and overall economic stability.

This study embarks on a journey to unravel the complexities of labor force participation in Gujarat, considering factors such as family size, education, income, age, marital status, social group, gender, and urban-rural distinctions. By delving into these intricacies, we aim to contribute valuable insights that inform policy decisions and shed light on the unique labor market dynamics of this vibrant state.

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## Literature review

**Unni (1996):** Unni's study focuses on the occupational choice behavior in rural Gujarat, specifically examining the economic rationale behind single or multiple job holding and self or wage employment. The analysis suggests that individuals undertaking multiple jobs tend to be younger, less educated, earn lower wages, and reside farther from urban centers. The influence of physical capital on job choices is found to be complex, with higher land and asset values encouraging diversification into a second activity for the self-employed, except at very high land values. The study, however, does not delve into the social and cultural factors that may also play a crucial role in shaping occupational choices in rural Gujarat.

**Tayal and Paul (2021):** Tayal and Paul's research addresses the persistent issue of low and stagnant labor force participation rates among women in urban India. They scrutinize long-term trends in female labor force participation by breaking down urban women based on age, marital status, and education levels. The study utilizes nonparametric techniques alongside cross-sectional analysis. The findings indicate that the challenge primarily lies with relatively well-educated married women in the age cohorts of 30-59 years. The paper suggests that further research could explore the reasons behind this phenomenon in more detail.

**Jayaram and Varma (2020):** Jayaram and Varma's study sheds light on the informal work arrangements and access to labor rights of migrant workers in urban sectors, with a focus on Gujarat. They highlight the widespread prevalence of wage and employment insecurity, as well as hazardous work conditions in urban labor markets. The study argues for a shift in policy focus from relief measures to addressing core issues in labor governance. While the paper provides a comprehensive view of migrant worker exploitation in urban sectors, it does not delve into the economic implications of this phenomenon.

**Singh (2022):** Singh's study explores the labor force participation of women in Haryana, examining factors that influence their participation. The research covers a substantial timeframe, spanning more than 25 years, to capture changes in key variables affecting female labor force participation in the state. Findings indicate that family size, household jobs, years in education, urbanization, age, and marital status significantly impact women's labor force participation. This study adds to the understanding of gender dynamics in labor force participation, particularly in the context of Haryana.

**Singh and Singh (2023):** In their study, Singh and Singh investigate labor force participation in Bihar, emphasizing rural-urban disparities and gender dynamics. They employ logistic regression analysis to identify determinants of labor force participation in Bihar, analyzing data from multiple rounds of the National Sample Survey Office (NSSO) and Periodic Labor Force Survey (PLFS). The study highlights a significant gender gap in rural areas and explores various factors, including family size, age, education, caste, and gender, influencing labor force participation.

**Singh and Meena (2023):** Singh and Meena's research focuses on labor force participation trends in Uttarakhand, comparing them with national trends. The study explores the impact of factors such as family size, education, age, gender, caste, and marital status on labor force participation. Additionally, it examines how these factors affect participation differently in rural and urban areas of Uttarakhand, providing insights into the state's labor force dynamics.

**Singh and Rani (2023):** This study investigates the factors influencing labor force participation among non-student youth in Rajasthan during 2020-21. Utilizing data from the Periodic Labor Force Survey, the study employs a logistic regression model to identify determinants of labor force participation in rural, urban, and combined areas of Rajasthan. Key findings include the significance of family size, number of jobs, marital status, and gender in influencing labor force participation.

**Singh and Kapoor (2023):** Singh and Kapoor's research focuses on labor force participation rates among young people in Rajasthan, examining gender disparities and factors affecting participation. The study underscores the decline in labor force participation among young people and highlights the significance of addressing gender bias and other factors to promote sustainable economic growth.

**Singh (2016):** In this study, Singh examines rural farm and non-farm employment in Haryana. The research investigates the nature of rural non-farm employment, emphasizing its role as an alternative to reduce poverty and achieve economic growth in the rural economy. It discusses the restructuring of the rural non-farm sector and its impact on employment opportunities in Haryana.

**Singh and Kataria (2023):** Singh and Kataria's study delves into Tamil Nadu's labor force participation rate (LFPR) trends from 1993-94 to 2021-22, comparing them with national data. The research identifies determinants of LFPR, including family size, education, age, gender, marital status, and caste. It provides nuanced insights into LFPR patterns, emphasizing the need for gender-specific initiatives, education investment, job creation, and urban-rural balance to promote inclusive economic growth in Tamil Nadu.

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### Research Gap for the Study

The existing research on labor force participation in India has provided valuable insights into various regions, including Haryana, Bihar, Uttarakhand, Rajasthan, and Tamil Nadu. However, there are significant research gaps when it comes to Gujarat. Prior studies in Gujarat, like Unni's (1996), have predominantly focused on economic determinants, overlooking the potential influence of social and cultural factors on occupational choices. Gender-specific research tailored to Gujarat's context is also lacking, with limited exploration of women's labor force participation dynamics. Additionally, while some studies highlight informal labor markets and urban-rural disparities, there is a need for more in-depth investigations into the economic consequences of informal work and specific challenges faced by different sectors in Gujarat. Furthermore, Gujarat-centric policy recommendations based on the state's unique challenges and opportunities remain underrepresented. Bridging these research gaps will enable a more comprehensive understanding of labor force dynamics in Gujarat and inform targeted policy interventions for the state's diverse labor markets.

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### Need of the study

Given Gujarat's dynamic economy, geographical heterogeneity, and intricate social fabric, it is imperative to comprehend the trends in Labor Force Participation Rate (LFPR) and the underlying determinants. Economic development, gender roles, urbanization, and educational factors all wield significant influence over the composition of the labor force. Therefore, the primary aim of this study is to conduct an extensive analysis of LFPR trends in Gujarat over the recent decades, pinpoint the key factors that impact labor force participation, and provide insights that can guide policy formulation for fostering more inclusive and sustainable economic growth.

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### Objectives of the Study:

- **Evaluating Sectoral Disparities in Labor Force Participation:** This research seeks to rigorously assess disparities in labor force participation rates between the rural and urban sectors of Gujarat. It aims to discern the multifaceted factors that underlie these disparities.
- **Identifying Influential Determinants:** The study endeavors to identify and quantify the pivotal determinants that wield substantial influence over labor force participation rates in Gujarat. These determinants encompass a wide spectrum, including family size, educational attainment, income group, age bracket, marital status, social group, and gender. The focus is to illuminate their roles in shaping labor force participation patterns within both rural and urban contexts.

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### Data and methods

The research methodology employed in this study aims to investigate the labour force participation rate (LFPR) trends in both rural and urban areas of Gujarat, considering gender disparities. To achieve this objective, we utilized data from various rounds of the National Sample Survey Office (NSSO) household surveys focusing on 'Employment-Unemployment,' which encompass a wide range of employment and unemployment dimensions. Specifically, we extracted and analyzed data from the most recent four thick rounds of NSSO quinquennial surveys, spanning the 50th round (1993-94), 55th round (1999-2000), 61st round (2004-05), and 68th round (2011-12). Additionally, we incorporated data from the Periodic Labour Force Survey (PLFS) for the years 2017-18 and 2021-22, which provide valuable insights into employment and unemployment dynamics.

To process and analyze this extensive dataset, we employed appropriate software tools. Our study focused on individuals within the age group of 15-64 years, aligning with the working-age group definition outlined by the International Labour Organization (ILO). The primary analytical approach applied in this research is the logit model, which allows us to discern and quantify the key factors that influence an individual's likelihood of participating in the labour force within the context of Gujarat. This logit model was specifically applied to the unit-level household data extracted from the PLFS for the year 2021-22 in Gujarat, enabling us to identify the primary determinants associated with the probability of labour force participation in the both rural and urban area of Gujarat.

### Basic Description of the Variables and Mathematical form used for the Logit Model are:

Labour force participation is a qualitative characteristic. An observation consists of noting whether the characteristic is present. Thus, the dependent variable, designated as  $Y$ , is dichotomous and takes a value of 1 if a person between the ages of 15-64 years had a job or was looking for work and a value of 0 if not in the labour force.

### Dependent Variable:

- Labour Force Participation (LFP) = 1 if a person worked/looking for work = 0 otherwise

The factors influencing labour force participation include **(Independent Variables)**:

- Family Size
- Years spend in education
- Number of Jobs in his/her family
- Income Group (dummy variable) 0-40, 40-80 and Top 20 Percentile based on Family Income. Here base Income Group is 0-40 percentile which has zero value.
- Age Group (Dummy variable) 15-29, 30-44 and 45-64 year age. Here base Age Group is 15-29 years which has zero value
- Marital status (dummy variable) Unmarried, Currently Married and Widow/Divorcee. Here base Martial status is unmarried which has zero value.
- Social Group (dummy variable) SCST (combined) , OBC and General Caste
- Gender (dummy variable) Male/Female here male is base variable which has zero value and female is one.
- Sector (dummy variable) Rural/Urban Here Rural is base variable which is considered zero and in against it Urban is One.

#### Logit Model for Labour Force Participation of a Person in Gujarat:

$$L_i = \log \left[ \frac{P_i}{1-P_i} \right] = \alpha + \beta_1(\text{FamilySize}) + \beta_2(\text{YearinEducation}) + \beta_3(\text{No. of jobs}) + \beta_4(40 - 80/0 - 40\text{Percentile}) \\ + \beta_5(\text{Top20}/0 - 40\text{Percentile}) + \beta_6(30 - 44/15 - 29\text{Age}) + \beta_7(45 - 64/15 - 29\text{Age}) \\ + \beta_8(\text{Married}/\text{Unmarried}) + \beta_9(\text{Widow}/\text{Unmarried}) + \beta_{10}(\text{OBC}/\text{SCST}) + \beta_{11}(\text{General}/\text{SCST}) \\ + \beta_{12}(\text{Female}/\text{Male}) + \beta_{13}(\text{Urban}/\text{Rural}) + \text{Error term}$$

## Results of The Study

### Gujarat Labor Force Participation Rate (LFPR) Analysis:

Table 1: Trends of LFPR (per thousand) of working age (15-64 years) population in Gujarat and India

	Year	Gujarat			India		
		Rural	Urban	All	Rural	Urban	All
Male	1993-94	910	839	886	896	824	877
	1999-2k	901	825	875	878	814	860
	2004-05	916	853	893	884	821	866
	2011-12	876	838	860	835	796	823
	2017-18	824	807	817	798	786	794
	2021-22	844	834	839	818	796	811
Female	1993-94	604	226	481	512	248	445
	1999-2k	629	192	484	477	219	409
	2004-05	653	221	506	518	257	448
	2011-12	396	193	314	375	217	328
	2017-18	241	171	212	261	217	248
	2021-22	470	234	369	388	256	350
All	1993-94	761	550	691	707	551	666
	1999-2k	766	518	683	679	531	639
	2004-05	788	556	707	701	553	660
	2011-12	646	544	603	607	516	579
	2017-18	547	498	527	532	505	524
	2021-22	663	552	614	604	532	583

Source: Authors' estimation from NSSO unit-level data of EUS and PLFS various rounds

#### Male LFPR in Gujarat:

- In 1993-94, the LFPR for males in rural Gujarat was 910, while in urban areas, it was 839. Over the years, there have been fluctuations in these figures. In 2021-22, the LFPR for males in rural areas increased to 844, and in urban areas, it stood at 834.

#### Female LFPR in Gujarat:

- In 1993-94, the LFPR for females in rural Gujarat was 604, and in urban areas, it was 226. Over the years, there has been a noticeable decrease in female LFPR in rural areas, reaching 470 in 2021-22. In urban areas, the LFPR for females also saw an increase, reaching 234 in 2021-22.

**Yearly Changes (1993-94 to 2021-22) in Gujarat:**

- The LFPR for males in both rural and urban areas has shown some variations over the years. For instance, in rural areas, there was a slight decrease from 910 in 1993-94 to 844 in 2021-22. In urban areas, it went from 839 in 1993-94 to 834 in 2021-22, showing relatively more stability.
- The LFPR for females in rural areas experienced significant decline, decreasing from 604 in 1993-94 to 470 in 2021-22. In urban areas, there was also a notable increase from 226 in 1993-94 to 234 in 2021-22.

**Disparities in Gujarat (Rural vs. Urban, Male vs. Female):**

- Rural areas in Gujarat consistently show higher LFPRs for both males and females compared to urban areas. This indicates a more active labor force in rural regions.
- Male LFPR is consistently higher than female LFPR in both rural and urban areas. This pattern is observed throughout the years.

**Comparison with India:****Male LFPR in Gujarat vs. India:**

- In rural Gujarat, male LFPR tends to be higher than the national average in India. For example, in 2021-22, the LFPR for males in rural Gujarat (844) was higher than the national average in rural India (818).
- In urban Gujarat, male LFPR also tends to be higher than the national average in urban India. In 2021-22, the LFPR for males in urban Gujarat (834) was higher than the national average in urban India (796).

**Female LFPR in Gujarat vs. India:**

- In rural Gujarat, female LFPR consistently surpasses the national average in rural India. For instance, in 2021-22, the LFPR for females in rural Gujarat (470) was higher than the national average in rural India (388).
- In urban Gujarat, female LFPR also tends to exceed the national average in urban India. In 2021-22, the LFPR for females in urban Gujarat (234) was lower than the national average in urban India (256).

**Overall LFPR in Gujarat vs. India:**

- The overall LFPR (combining rural and urban) in Gujarat tends to be higher than the national average in India. This suggests that Gujarat has a generally more active labor force participation rate compared to the national averages, reflecting a dynamic labor market in the state.

In summary, Gujarat exhibits disparities in LFPR between rural and urban areas and between genders, with rural areas generally having higher LFPRs. Additionally, male LFPR is consistently higher than female LFPR in both rural and urban areas. When comparing Gujarat with India, Gujarat tends to have higher LFPRs for both males and females in both rural and urban areas, indicating a more active labor force participation in the state compared to the national averages.

**Determinants of Labour Force Participation in Gujarat**

In our analysis, we employed a logistic regression (logit) model to investigate the determinants of Labor Force Participation (LFP) among individuals aged 15-64 in Gujarat during the year 2021-22. The odds ratios (OR) presented in Table 2 play a crucial role in understanding the influence of various factors on the likelihood of LFP, particularly in rural, urban, and overall contexts.

**Understanding Odds Ratios (OR):**

Odds ratios provide insights into how changes in independent variables affect the odds of LFP occurrence.

- **OR > 1:** Indicates a positive association. An OR greater than 1 suggests that an increase in the independent variable is associated with higher odds of LFP.
- **OR = 1:** Implies no effect. An OR of 1 signifies that the independent variable has no impact on LFP.
- **OR < 1:** Suggests a negative association. An OR less than 1 implies that an increase in the independent variable is linked to lower odds of LFP.

Table 2: Odd Ratio for a Persons (15-64 Age) during 2021-22 in Gujarat: Logit Model

	(1)	(2)	(3)
VARIABLES	Rural	Urban	Overall
LFPR	.	.	.
Family Size	0.714***	0.626***	0.679***

Year in Education	0.999	1.052***	1.009
No. of Jobs in Family	3.237***	4.233***	3.532***
40-80/0-40 Percentile	0.926	0.633***	0.800***
Top 20/0-40 Percentile	0.936	0.589***	0.811**
30-44/15-29Age	4.612***	5.186***	4.690***
45-64/15-29Age	1.846***	1.127	1.432***
Married/Unmarried	5.647***	3.734***	4.582***
Widow/Unmarried	7.411***	9.237***	7.807***
OBC/SCST	0.636***	0.738***	0.678***
General/SCST	0.530***	0.652***	0.601***
Female/Male	0.071***	0.024***	0.043***
Urban/Rural			0.750***
Constant	0.835	1.424*	1.416***
Observations	5,932	5,587	11,519
Log Likelihood	-2436	-2114	-4670
Df	12	12	13
Chi2	2720	3503	6205
Prob>Chi2	0	0	0
Pseudo R <sup>2</sup>	0.358	0.453	0.399

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Authors' estimation from NSO unit-level data of PLFS 2021-22

### Key Findings:

- Family Size:** The odds ratio for family size suggests that for every one-unit increase in family size, the odds of LFP decrease by approximately 28.6% in rural areas, 37.4% in urban areas, and 32.1% overall. This indicates that larger families are less likely to participate in the labor force.
- Years in Education:** The odds ratio for years in education indicates that an additional year of education has a negligible impact on LFP in rural areas (0.999), but it increases the odds of LFP by 5.2% in urban areas and 0.9% overall. Education appears to have a more significant positive effect on urban LFP.
- Number of Jobs in Family:** An increase in the number of jobs in the family significantly increases the odds of LFP. In rural areas, the odds increase by approximately 223.7%, in urban areas by 323.3%, and 253.2% overall. This suggests that households with more job opportunities tend to have higher labor force participation.
- Income Group (40-80/0-40 Percentile):** Individuals in the 40-80 percentile income group have 7.4% lower odds of LFP in rural areas, 36.7% lower odds in urban areas, and 20% lower odds overall, compared to those in the 0-40 percentile income group. Lower-income individuals are more likely to participate in the labor force.
- Income Group (Top 20/0-40 Percentile):** Individuals in the top 20 percentile income group have 6.4% lower odds of LFP in rural areas, 41.1% lower odds in urban areas, and 18.9% lower odds overall, compared to those in the 0-40 percentile income group. This indicates that the highest income earners are less likely to participate in the labor force.
- Age Group (30-44/15-29 Age):** Being in the 30-44 age group (compared to the 15-29 age group) significantly increases the odds of LFP by approximately 361.2% in rural areas, 418.6% in urban areas, and 369% overall. Middle-aged individuals are more likely to participate in the labor force.
- Age Group (45-64/15-29 Age):** Being in the 45-64 age group (compared to the 15-29 age group) also increases the odds of LFP by approximately 84.6% in rural areas, 12.7% in urban areas, and 43.2% overall. Older individuals are more likely to participate in the labor force.
- Marital Status (Married/Unmarried):** Married individuals have substantially higher odds of LFP compared to unmarried individuals. In rural areas, the odds increase by 464.7%, in urban areas by 273.4%, and 358.2% overall. Marriage appears to be positively associated with labor force participation.
- Marital Status (Widow/Unmarried):** Widow individuals have even higher odds of LFP compared to unmarried individuals. In rural areas, the odds increase by 641.1%, in urban areas by 824.6%, and 680.7% overall. This suggests that being a widow is strongly associated with labor force participation.

10. **Social Group (OBC/SCST):** Individuals from the OBC category have 36.4% lower odds of LFP in rural areas, 26.2% lower odds in urban areas, and 32.2% lower odds overall, compared to those from the SCST category. This indicates a disparity in labor force participation based on social groups.
11. **Social Group (General/SCST):** Individuals from the General category have 47% lower odds of LFP in rural areas, 34.8% lower odds in urban areas, and 39.9% lower odds overall, compared to those from the SCST category. This reveals a significant social group disparity in labor force participation.
12. **Gender (Female/Male):** Females have significantly lower odds of LFP compared to males. In rural areas, the odds are 92.9% lower for females, in urban areas, 97.6% lower, and 95.7% lower overall. Gender disparity in labor force participation is pronounced.
13. **Urban/Rural:** Living in an urban area (compared to a rural area) increases the odds of LFP by 75%. Urban residents are more likely to participate in the labor force.

**Constant:** The constant represents the baseline odds of LFP when all other variables are held constant.

#### Model Fit:

- The Chi-squared statistic (Chi2) tests the overall model fit. In all three cases (rural, urban, and overall), the p-value is <0.01, indicating that the model is statistically significant.

**Pseudo R-squared:** The pseudo R-squared values suggest that the model explains a substantial portion of the variance in LFP, with values of 0.358 for rural, 0.453 for urban, and 0.399 overall.

#### Implications and Conclusions:

- The results indicate that several factors significantly affect labor force participation in Gujarat.
- Family size, education, number of family jobs, marital status, age, social group, and gender are important determinants of labor force participation.
- Lower income groups are more likely to participate in the labor force.
- Policies and interventions aimed at increasing labor force participation should consider these factors, especially addressing gender disparities and social group disparities.

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## Conclusion

In conclusion, this study has delved into the evolving landscape of labor force participation rates (LFPR) in Gujarat, shedding light on the multifaceted determinants that influence these patterns. It is evident that rural areas consistently maintain higher LFPRs than their urban counterparts, and a persistent gender gap is observed, with male LFPR surpassing female LFPR. Moreover, Gujarat exhibits a notable trend of outperforming national averages in LFPR, indicating a more active labor force in the state.

The analysis of determinants has unveiled several critical insights. Family size appears to be inversely related to LFPR, suggesting that larger families are less likely to engage in the labor force. Education's impact on LFPR is more pronounced in urban areas, emphasizing the role of education in promoting urban employment. Additionally, households with more job opportunities show a higher propensity for labor force participation.

Income-based disparities are evident, with lower-income individuals being more inclined to participate in the labor force. The study also underscores the importance of age, with middle-aged and older individuals exhibiting a higher likelihood of engaging in the labor force. Marital status, particularly being married or widowed, is positively associated with LFPR. Social group disparities are observed, with individuals from certain categories having lower odds of labor force participation. Gender remains a significant determinant, with females experiencing significantly lower LFPR, necessitating focused efforts to bridge this gap. Urban residence is also associated with higher LFPR.

In light of these findings, it is imperative for policymakers and stakeholders in Gujarat to consider these determinants when formulating strategies to foster inclusive and sustainable labor force participation. Addressing gender disparities, promoting education and skill development, and creating job opportunities for all segments of society are vital steps towards achieving a more equitable and dynamic labor market in the state.

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## Policy Recommendations

Based on the findings of the study on the changing pattern of LFPR and its determinants in Gujarat, several policy recommendations can be proposed to address the observed disparities and promote labor force participation in the state.

1. **Enhance Access to Education and Skill Development:** Given that educational attainment plays a significant role in labor force participation, policies should focus on improving the quality and accessibility of education, particularly in rural areas. Invest in vocational training programs to equip individuals with relevant skills for the job market.

2. **Family Planning and Support:** Encourage family planning initiatives to address the negative impact of larger family sizes on labor force participation. Offer support and awareness campaigns to promote responsible family planning.
3. **Promote Job Creation and Economic Growth:** Implement policies that stimulate economic growth, attract investments, and create job opportunities in both rural and urban areas. Support the growth of labor-intensive industries and SMEs.
4. **Income Support for Lower Percentiles:** Recognizing that lower-income groups are more likely to participate in the labor force, consider targeted income support programs or wage subsidies to help individuals from economically disadvantaged backgrounds.
5. **Empower Women in the Workforce:** To address the gender disparity in labor force participation, promote women's participation through measures such as affordable childcare facilities, flexible work arrangements, and campaigns to challenge gender stereotypes.
6. **Focus on Age-Specific Policies:** Develop age-specific policies, especially for the middle-aged and older populations, to support their engagement in the labor force. Encourage lifelong learning and reskilling programs to keep older workers competitive.
7. **Marriage and Widowhood Support:** Provide support and resources for married and widowed individuals to facilitate their participation in the labor force. Programs could include vocational training, childcare, and career counseling.
8. **Address Social Group Disparities:** Mitigate disparities in labor force participation among different social groups. Implement affirmative action policies and initiatives to ensure equal opportunities for all.
9. **Gender Equality and Empowerment:** Implement policies and programs that promote gender equality in all sectors of society, including the workforce. Encourage equal pay, anti-discrimination measures, and women's leadership initiatives.
10. **Urban Development and Infrastructure:** Invest in urban infrastructure, transportation, and technology to facilitate labor force participation in urban areas. Focus on reducing urban-rural disparities in access to job opportunities.
11. **Data-Driven Policy Development:** Continue collecting and analyzing data on LFPR trends and determinants. Use data-driven insights to tailor policies and monitor their effectiveness over time.
12. **Awareness and Outreach:** Conduct awareness campaigns to inform individuals about the benefits of labor force participation and the available support mechanisms. Encourage a culture of active participation in the workforce.

These policy suggestions, based on the study's findings, can serve as a foundation for Gujarat's efforts to address labor force participation disparities and create a more inclusive and dynamic labor market in the state.

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