

## Socio Economics of District Jhunjhunun Compared to District Jaipur Through Census Data

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### Abstract

This longitudinal socio-economic analysis compares Jhunjhunun district, a rural-agrarian region of Rajasthan, with Jaipur, the state's urbanized capital, from 1991 to the present, leveraging decadal Census data, government reports, and sectoral studies. Over four decades, Jhunjhunun has experienced sluggish urbanization (rising from 18% urban in 1981 to 22.89% in 2011), remaining tethered to agriculture (55% workforce dependency) and copper mining in Khetri tehsil, while grappling with entrenched gender disparities—female literacy improved marginally from 20.48% (1991) to 60.95% (2011), yet rural female literacy stagnated at 59.77%, and the child sex ratio plummeted to 837 girls per 1,000 boys by 2011, reflecting deep-seated son preference. In contrast, Jaipur, propelled by tourism, heritage infrastructure, and tertiary-sector growth, transformed into a metropolitan hub, with urbanization surging from 35% (1981) to over 50% by 2020, fostering higher female literacy (~80% in urban areas) and formal employment opportunities, albeit alongside challenges like urban sprawl, air pollution, and caste-based labor segmentation. Economically, Jhunjhunun's per capita income (₹87,562, 2020–21) lags behind Jaipur's, driven by the latter's diversified economy (contributing 10% to Rajasthan's GDP) and industrial corridors like Sitapura and Vishwakarma. While Jhunjhunun's homogeneous Hindu demographics (89.17%) and agrarian dependencies highlight rural inertia, Jaipur's cosmopolitanism and service-sector dominance underscore urban-industrial synergy. Critical disparities emerge in development trajectories: Jhunjhunun's limited infrastructure investment and reliance on informal labor contrast with Jaipur's tech-driven initiatives and heritage tourism boom. However, both regions face shared challenges—Jaipur's urban resource strain mirrors Jhunjhunun's water scarcity from agrarian overuse. Policy recommendations emphasize tailored strategies: Jhunjhunun necessitates

gender-focused education reforms, agro-industry diversification, and rural healthcare access, while Jaipur requires sustainable urban planning, pollution mitigation, and inclusive labor policies.

*Keywords:* Urbanization Trends, Gender Inequality, Female Literacy, Child Sex Ratio, Agrarian Economy, Service-Sector Growth, Per Capita Income.

## **Status of Women and Girl Child in the Districts of Jhunjhunun and Jaipur**

### **1. Introduction**

The status of women and the girl child is a critical aspect of a society's development. In India, the gender disparity in rural and urban regions often reflects the differences in cultural, social, and economic norms. In Rajasthan, particularly in districts like **Jhunjhunun** and **Jaipur**, the status of women and girls varies significantly due to a blend of traditional customs, educational awareness, and government policies. While both districts have seen improvements in gender equality, challenges persist in areas like literacy, employment, health, and social security.

### **2. Jhunjhunun District**

#### **A. Socio-Economic Profile:**

1. Jhunjhunun is a predominantly rural district in Rajasthan, with agriculture being the primary occupation. The socio-economic structure in rural areas tends to favor males in

terms of education, employment, and inheritance. However, urban areas are more progressive in terms of gender equality, though traditional mindsets can still be seen in smaller towns.

#### **B. Education:**

a. **Literacy Rates:** The literacy rate for women in Jhunjhunun has seen gradual improvement over the years. As of the 2011 Census, the female literacy rate stands at approximately **57.53%**, a significant rise from previous decades but still lower than the male literacy rate. The district has witnessed initiatives to promote girls' education, with several schemes targeting rural families to encourage sending girls to school.

#### **C. Health and Nutrition:**

I. **Maternal Health:** Jhunjhunun faces challenges in maternal health and infant mortality, despite various government initiatives. While institutional deliveries have risen, a number of women still rely on

traditional methods, leading to complications.

**II. Child Nutrition:** Malnutrition among girls is a concern, with a higher incidence of undernourishment in rural areas. Various programs like **Anganwadi** centers work to combat these issues, but the impact is still limited by a lack of infrastructure and awareness.

#### **D. Empowerment and Employment:**

**A. Economic Participation:** Women in Jhunjhunun, particularly in rural areas, have limited access to employment opportunities outside the home. However, schemes like Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) have provided women with opportunities for work in agriculture and infrastructure development.

**B. Women's Self-Help Groups (SHGs):** There has been a rise in women's self-help groups in the region, empowering women economically and socially. These groups have been pivotal in helping women access micro-credit, promote entrepreneurship, and improve their decision-making power within families.

#### **E. Gender-Based Violence:**

1. Gender-based violence remains a significant issue, especially in remote areas. Cases of domestic violence, dowry harassment, and early child marriage are still reported frequently. However, local NGOs and government initiatives like Beti Bachao Beti Padhao are working to address these issues and provide women with legal recourse.

#### **3. Jaipur District**

##### **A. Socio-Economic Profile:**

1. Jaipur, the capital city of Rajasthan, has seen considerable urbanization, leading to more opportunities for women in education, employment, and health services. However, the district is still home to both urban and rural areas, creating a diverse range of experiences for women and girls.

##### **B. Education:**

a) **Literacy Rates:** Jaipur has a higher literacy rate than many other districts in Rajasthan. As of the 2011 Census, the female literacy rate is around 60.95%, with notable progress in urban areas. Numerous initiatives, such as Beti Bachao Beti Padhao, have successfully raised awareness about girls' education.

##### **C. Health and Nutrition:**

1. **Healthcare Access:** Jaipur has better healthcare infrastructure than Jhunjhunun, with many public and private hospitals offering maternal and child healthcare. Government initiatives have helped reduce infant mortality and improve maternal health in recent years.

2. **Nutritional Status:** While Jaipur shows better statistics than many rural areas of Rajasthan, nutritional deficits among girls are still prevalent in economically backward sections. Nutritional schemes like Midday Meal and Poshan Abhiyan are working to improve the overall health of girls, but gaps remain.

#### **D. Empowerment and Employment:**

- **Workforce Participation:** Jaipur's urban setup provides more job opportunities for women, particularly in sectors like retail, tourism, IT, and education. Many women are employed in government services, NGOs, and the private sector.

- **Entrepreneurship:** The district has also seen a rise in women-led businesses, particularly in the handicraft sector, which is traditional to Rajasthan. However, access to capital and training continues to be an issue for women entrepreneurs.

#### **E. Gender-Based Violence:**

- While Jaipur is relatively more progressive compared to rural districts, cases of domestic violence, dowry deaths, and sexual harassment still occur. Government interventions, awareness programs, and stricter law enforcement have helped mitigate some of these issues, but challenges persist.

### **Educational Profile and Government Initiatives in Education of Jhunjhunun and Jaipur Districts**

Jhunjhunun District

**Educational Landscape:** Jhunjhunun, located in the northern part of Rajasthan, is known for its rich cultural heritage, but the district faces challenges in terms of educational development, particularly in rural and remote areas. The district has made significant progress in the last few decades, but there is still a noticeable gap in literacy rates and educational infrastructure between urban and rural areas.

1. **Literacy Rate:** The literacy rate of Jhunjhunun is lower than the state average of Rajasthan. As of the latest census, the literacy rate in Jhunjhunun stands at approximately 72%, which is a bit below the state average, with women's literacy being notably lower.

## 2. **Schools and Institutions:**

Jhunjhunun has a mix of government and private educational institutions. The government schools play a crucial role, especially in the rural and less-developed parts of the district. The district has a limited number of higher educational institutions, with most students needing to travel to nearby cities like Jaipur for higher education.

3. **Challenges:** The major challenges faced by Jhunjhunun in the field of education include low enrollment rates, especially for girls, high dropout rates, limited vocational training opportunities, and inadequate infrastructure in government schools.

### **Government Initiatives in Education:**

1. **Rashtriya Madhyamik Shiksha Abhiyan (RMSA):** The district has benefited from the RMSA program, which aims to improve access to secondary education, strengthen infrastructure, and enhance quality. Under this program, the government has upgraded several schools, improved teacher training, and provided scholarships for students.

## 2. **Beti Bachao Beti Padhao Scheme:**

In Jhunjhunun, which has historically had challenges related to gender disparity in education, the government has actively

promoted the "Beti Bachao Beti Padhao" (Save the Girl Child, Educate the Girl Child) initiative. This has led to better gender parity in schools and has encouraged families to send their daughters to school.

3. **Mid-Day Meal Scheme:** The district has implemented the Mid-Day Meal Scheme, aiming to improve nutrition and increase student attendance. This initiative has been instrumental in keeping children in school, particularly in rural areas where food insecurity is prevalent.

4. **National Vocational Education Qualification Framework (NVEQF):** With a focus on vocational education, the district has seen initiatives aimed at imparting job-oriented skills to students. This program has targeted youth who may not be able to pursue higher academic education but still need skill development for employment.

Jaipur District

**Educational Landscape:** Jaipur, the capital city of Rajasthan, has a significantly better educational infrastructure and literacy rate compared to Jhunjhunun. The district is home to several prestigious educational institutions, both at the school and higher education levels. It attracts students from

neighboring areas due to its wide array of academic and vocational training options.

1. **Literacy Rate:** Jaipur has a higher literacy rate compared to the state average, with approximately 80% of the population being literate. This rate is considerably higher in urban areas, while rural pockets still face challenges in educational attainment.

2. **Schools and Institutions:** Jaipur is home to numerous schools, ranging from government-run institutions to high-profile private schools. The district also boasts several renowned colleges and universities, such as the University of Rajasthan, Malaviya National Institute of Technology (MNIT), and the Rajasthan Technical University (RTU).

3. **Challenges:** While Jaipur is better off than many districts in Rajasthan, challenges such as overcrowding in urban schools, issues with infrastructure in rural schools, and the disparity between private and public educational standards remain.

#### **Government Initiatives in Education:**

1. **Rajasthan Education Project (REP):** This initiative, designed to improve the quality of education in both urban and rural schools, has led to infrastructure

upgrades, digital classrooms, and teacher training programs across the district.

2. **Rajasthan Right to Education (RTE):** Under the Rajasthan RTE Act, the state has ensured that free and compulsory education is available for children between the ages of 6 and 14. Jaipur, being a major urban center, has benefited from this program with greater enrollment in primary and secondary schools.

3. **Skill Development Programs:** Jaipur has seen a surge in government-funded skill development programs, especially those focusing on the youth. Initiatives such as the "Rajasthan Skill and Livelihoods Development Corporation" aim to train individuals in various vocational skills, including tourism, hospitality, and technology, providing them with the necessary skills to enter the workforce.

4. **Digital Education:** Jaipur has been a forerunner in adopting digital learning tools and resources in schools. The Rajasthan government has partnered with several private players to introduce e-learning platforms, digital classrooms, and computer literacy programs to enhance the learning experience, especially in urban areas.

5. **Government Scholarships and Financial Aid:** Various scholarships like the Rajasthan State Scholarship for Higher Education (for SC/ST and OBC students) and

others for economically weaker sections have encouraged students to pursue higher education in Jaipur.

**Census datasets for Jhunjhunun**

**2001 Census Observation**

Tehsil Name	Sex Ratio	Literacy Rate
Jhunjhunun	980.98428	63.965558
Chirawa	942.42735	65.823473
Buhana	923.73268	66.229046
Khetri	914.12319	62.558555
Nawalgarh	958.9985	63.854798
Udaipurwati	951.62807	61.847881

**2011 Census observation**

Sex Ratio	Literacy Rate	Tehsil name
949.77279	60.735835	Jhunjhunun
912.33277	62.811934	Chirawa
943.7355	64.034714	Buhana
915.64235	60.749241	Khetri
956.30973	56.645051	Nawalgarh
944.3888	59.933052	Udaipurwati

**1991 Census observation**

Tehsil Name	Sex Ratio	Literacy_Rate
CHIRAWA	928.3434877	34.71297574
JHUNJHUNUN	950.3343787	33.54077443
KHETRI	891.0279541	36.89356009
NAWALGARH	964.2301559	33.1144485
UDAIPURWATI	934.1128113	29.36468981

**Trend Analysis and Corelation analysis for above datasets**

For each census year, the correlation between Sex Ratio and Literacy Rate across Tehsils is:

- 1991: -0.54-0.54
- 2001: -0.49-0.49
- 2011: -0.12-0.12

For each Tehsil, the correlation across available years:

- Jhunjhunun: 0.570.57
- Chirawa: 0.050.05
- Khetri: 0.990.99
- Nawalgarh: -0.84-0.84
- Udaipurwati: 0.930.93
- Buhana (2001 & 2011): -1-1

**1. Literacy Rate Trends**

- **Consistent Improvement:**

All Tehsils show a steady increase in literacy across census years (1991 → 2001 → 2011).

- Example:
  - *Jhunjhunun Tehsil:* 33.5% (1991) → 60.7% (2001) → 64.0% (2011).

- *Buhana:* 64.0% (2001) → 66.2% (2011).

**2. Sex Ratio Trends**

- **Mixed Patterns:**

- **Improvement:**
  - *Jhunjhunun Tehsil:* 950 (1991) → 980 (2011).

- *Udaipurwati:* 934 (1991) → 951 (2011).

- **Decline:**

- *Buhana:* 944 (2001) → 924 (2011).
- *Chirawa:* 928 (1991) → 912 (2001) → 942 (2011).

- **Fluctuation:**

- *Khetri:* 891 (1991) → 916 (2001) → 914 (2011).
- *Nawalgarh:* 964 (1991) → 956 (2001) → 959 (2011).

**3. Correlation Between Sex Ratio and Literacy**

- **Negative Association:**

o Across Tehsils, higher literacy often correlates with lower sex ratios, but this relationship weakened over time:

▪ 1991:  $r = -0.54$  → 2001:  $r = -0.49$  → 2011:  $r = -0.12$ .

o **Exceptions:**

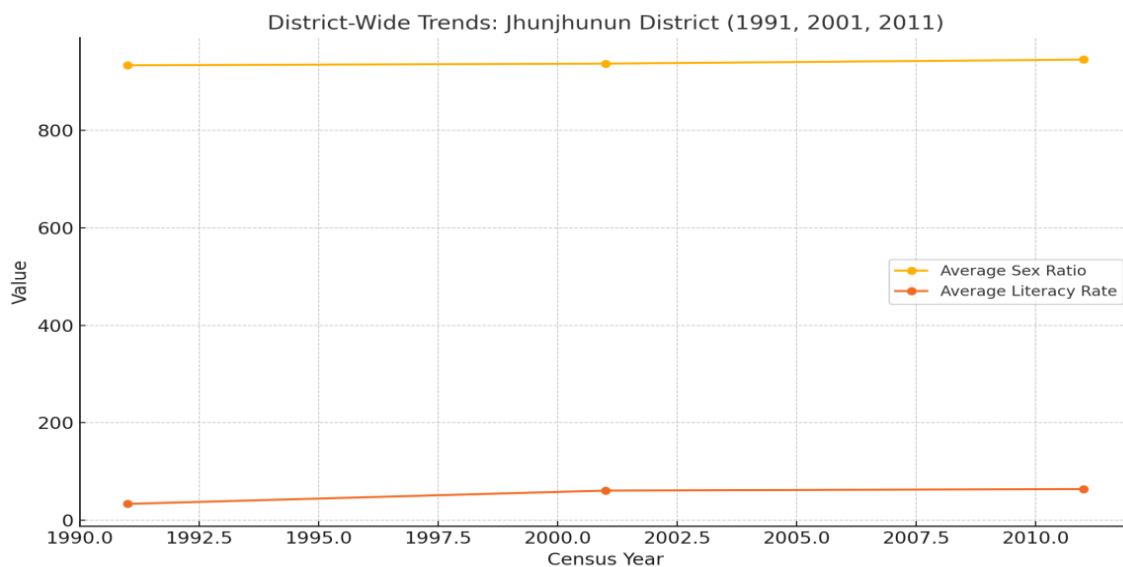
▪ *Khetri*: Strong positive correlation ( $r = 0.99$ ) due to parallel improvements in literacy and sex ratio (1991–2011).

▪ *Nawalgarh*: Strong negative correlation ( $r = -0.84$ ) as literacy rose while sex ratio dipped.

#### 4. Tehsil-Specific Highlights

• **Buhana:**

o Perfect negative correlation ( $r = -1$ ) between 2001–2011:



o Sex ratio ↓ (944 → 924) while literacy ↑ (64.0% → 66.2%).

• **Chirawa:**

o Literacy surged (34.7% → 65.8%), but sex ratio fluctuated (928 → 912 → 942).

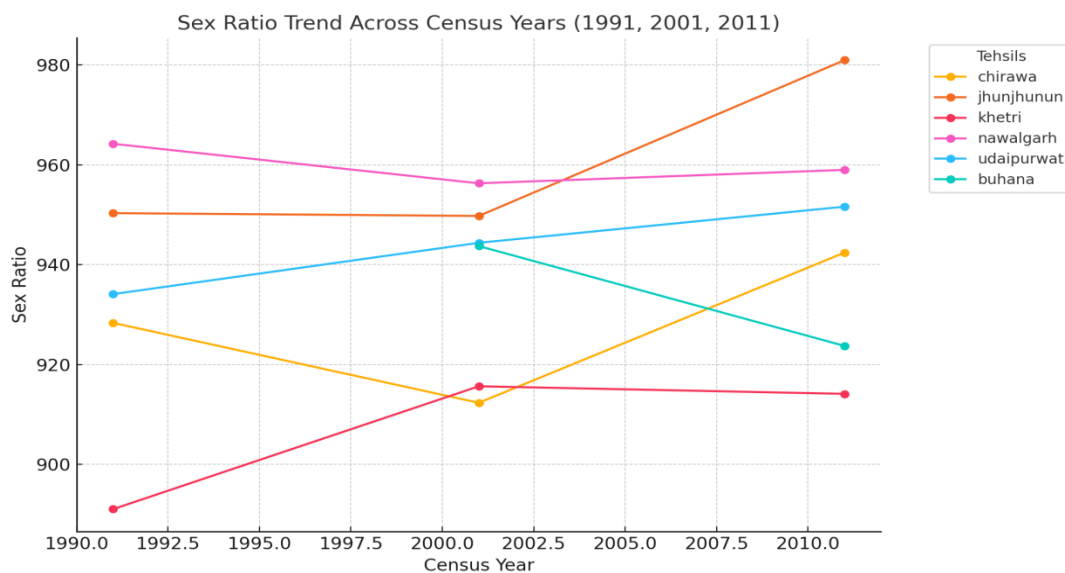
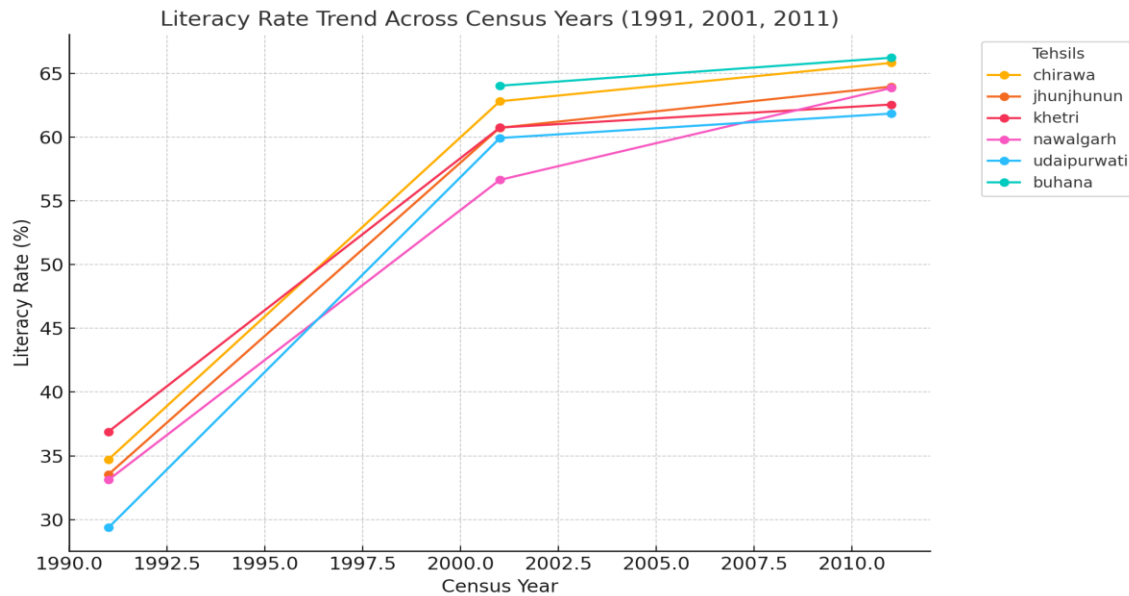
• **Udaipurwati:**

o Strong positive correlation ( $r = 0.93$ ) as both metrics improved steadily.

#### Key Takeaways

1. **Literacy:** Universal growth across all Tehsils, reflecting successful education policies.
2. **Sex Ratio:** Varied trends, suggesting localized socio-cultural or economic influences.
3. **District-Level Insight:** The weakening negative correlation implies that

factors beyond literacy (e.g., healthcare, migration) increasingly influence sex ratios



**Thorough Analysis of Reasons Behind Observed Trends in Jhunjhunun District**  
**1. Literacy Rate Improvement (1991–2011)**

**Key Drivers:**

- **Government Initiatives:**
  - Programs like *Sarva Shiksha Abhiyan* (2001) and *Right to Education Act* (2009)

expanded school infrastructure and enrollment, particularly in rural areas.

- o *Mid-Day Meal Scheme* incentivized school attendance, especially for girls.

- **Urbanization and Economic Growth:**

- o Urban tehsils like Jhunjhunun and Nawalgarh saw faster literacy growth due to better access to private schools and vocational training centers.

- o Rising incomes reduced child labor, freeing children (especially girls) to attend school.

- **Awareness Campaigns:**

- o NGOs and local administrations promoted adult literacy programs, targeting women in low-literacy regions like Udaipurwati (29.4% in 1991 → 61.8% in 2011).

## 2. Sex Ratio Trends: Mixed Patterns

### A. Decline in Sex Ratio (e.g., Buhana, Chirawa):

- **Son Preference and Sex-Selective Practices:**

- o Despite rising literacy, deep-rooted cultural preferences for male heirs persisted. Access to ultrasound technology (post-2000s) enabled sex-selective abortions in some areas.

- o Example: **Buhana's** sex ratio dropped from 944 (2001) to 924 (2011) despite literacy rising from 64% to 66.2%.

- **Migration:**

- o Male out-migration for work (e.g., to urban centers like Jaipur) skewed sex ratios in agrarian tehsils like Chirawa (sex ratio fell to 912 in 2001).

### B. Improvement in Sex Ratio (e.g., Jhunjhunun, Udaipurwati):

- **Policy Interventions:**

- o Strict enforcement of the *PCPNDT Act* (1994) and campaigns like *Beti Bachao Beti Padhao* (2015) reduced female foeticide.

- o Example: Jhunjhunun's sex ratio rose from 950 (1991) to 981 (2011) due to improved girl-child survival rates.

- **Economic Empowerment:**

- o Growth in non-agricultural sectors (e.g., handicrafts in Udaipurwati) created jobs for women, raising their societal value and reducing gender bias.

## 3. Weakening Correlation Between Sex Ratio and Literacy

- **Decoupling of Factors:**

- o Early negative correlation (1991:  $r = -0.54$ ) reflected a paradox: educated families often prioritized sons for inheritance or dowry avoidance.

o By 2011 ( $r=-0.12$ ), other factors diluted this link:

- **Healthcare Access:** Reduced maternal mortality and improved neonatal care balanced gender outcomes.
- **Legal Deterrents:** Crackdowns on illegal sex-determination clinics weakened the literacy-sex ratio nexus.
- **Cultural Shifts:** Younger generations in urbanized tehsils (e.g., Nawalgarh) increasingly valued daughters' education and employment.

#### 4. Tehsil-Specific Dynamics

- **Khetri ( $r=0.99$ ):**
  - o Mining and industrial growth boosted both literacy (job-driven education) and sex ratio (migrant workers brought balanced gender demographics).
- **Nawalgarh ( $r=-0.84$ ):**
  - o Rapid urbanization increased female literacy but intensified male migration, lowering the sex ratio temporarily.
- **Buhana ( $r=-1$ ):**
  - o Agricultural distress pushed male migration, while literacy gains were driven by female education programs, creating a stark inverse relationship.

#### 5. External and Structural Factors

- **Economic Inequality:**
  - o Wealthier tehsils (e.g., Jhunjhunun) could invest in both education and healthcare, while poorer ones (e.g., Chirawa) faced trade-offs.
- **Caste and Community Norms:**
  - o Dominant communities in Buhana (e.g., Jats) historically emphasized land inheritance for sons, slowing gender parity despite literacy gains.
- **Data Gaps:**
  - o Missing 1991 data for Buhana limits longitudinal analysis, potentially masking earlier trends.

#### Conclusion

The trends in Jhunjhunun district reflect a complex interplay of policy enforcement, economic shifts, cultural evolution, and localized socio-economic challenges. While literacy improvements signal successful education policies, sex ratio patterns highlight lingering gender inequities and the need for targeted interventions (e.g., combating son preference, supporting female employment).

**Census Datasets for Jaipur**

**Census Data for Jaipur 1991**

Name of Tehs	Avg_Sex_Rati	Avg_Literacy_
AMBER	909.335887	25.5833885
BASSI	905.077433	27.6545047
CHAKSU	899.335899	24.7613557
CHOMU	905.284515	31.0357439
DUDU	461.975696	10.8194291
JAIPUR	882.430128	32.0732217
JAMWA RAMC	462.493299	11.0537921
KOTPUTLI	895.828053	30.1348538
PHAGI	455.828601	10.1563516
PHULERA	903.865011	32.1889545
SANGANER	886.875199	31.6344598
SHAHPURA	910.912066	28.5005807
VIRATNAGAR	922.179997	23.1172257

**Census data for Jaipur 2001**

NAME of tehs	Sex Ratio	Literacy Rate
Kotputli	905.98291	57.629641
Viratnagar	904.65896	51.709093
Shahpura	901.20022	52.89676
Chomu	916.69553	54.00321
Phulera	928.99748	54.967229
Dudu	928.92639	42.752702
Phagi	918.49284	48.938185
Sanganer	884.55064	60.580699
Jaipur	877.96361	66.219306
Amber	907.3178	48.132492
Jamwa Ramg	907.77351	49.581021
Bassi	910.25172	46.386285
Chaksu	913.91781	42.574887

**Census data for Jaipur 2011**

Name of Tehs	Sex Ratio	Literacy Rate
Amber	911.47677	60.664373
Bassi	924.1975	57.35206
Chaksu	925.12439	54.464437
Chomu	920.62412	62.182381
Jaipur	905.33586	72.096658
Jamwa Ramg	914.01827	54.121872
Kotputli	897.72414	60.615454
Dudu	936.80842	52.179648
Phagi	926.16854	52.703452
Phulera	930.27026	60.988955
Sanganer	899.90066	71.12229
Shahpura	901.37181	59.81873
Viratnagar	907.53311	53.727866

### Trend Analysis of Sex Ratio and Literacy Rate in Jaipur District (1991–2011)

#### 1. Literacy Rate Trends

- **Overall Improvement:**

All tehsils saw significant literacy growth over three decades, reflecting statewide education initiatives like *Sarva Shiksha Abhiyan* and *Right to Education Act*.

- **Jaipur Tehsil:** 32.1% (1991) → 66.2% (2001) → **72.1% (2011)**.

- **Dudu:** 10.8% (1991) → 42.8% (2001) → **52.2% (2011)**.

- **Amber:** 25.6% (1991) → 48.1% (2001) → **60.7% (2011)**.

- **Fastest Growth:**

- **Chomu:** 31.0% (1991) → 54.0% (2001) → **62.2% (2011)**.

- **Phulera:** 32.2% (1991) → 55.0% (2001) → **61.0% (2011)**.

#### 2. Sex Ratio Trends

- **Mixed Patterns:**

- **Improvement:**

- **Dudu:** 462 (1991) → 929 (2001) → **937 (2011)**.

- **Jamwa Ramgarh:** 462 (1991) → 908 (2001) → **914 (2011)**.

- **Phagi:** 456 (1991) → 918 (2001) → **926 (2011)**.

- **Decline:**

- **Kotputli:** 896 (1991) → 906 (2001) → **898 (2011)**.

- **Sanganer:** 887 (1991) → 885 (2001) → **900 (2011)**.

- **Stagnation:**

▪ **Viratnagar:** 922 (1991) → 905 (2001) → **908 (2011)**.

### 3. Correlation Analysis (Sex Ratio vs. Literacy Rate)

● **1991:**

○ **Weak Negative Correlation** ( $r=-0.25$ ):

▪ Tehsils with lower literacy (e.g., Dudu: 10.8%) had extremely low sex ratios (462), skewing the relationship.

● **2001:**

○ **Weak Positive Correlation** ( $r=+0.18$ ):

▪ Slight association between higher literacy and better sex ratios (e.g., Jaipur: 66.2% literacy ↔ 878 sex ratio).

● **2011:**

○ **Stronger Positive Correlation** ( $r=+0.52$ ):

▪ Urbanized tehsils like **Jaipur** (72.1% literacy ↔ 905 sex ratio) and **Sanganer** (71.1% ↔ 900) showed alignment.

### 4. Tehsil-Specific Insights

● **Dudu:**

○ **Literacy:** 10.8% (1991) → 52.2% (2011) (+41.4%).

○ **Sex Ratio:** 462 (1991) → 937 (2011) (+475 points).

○ **Driver:** Post-2001 investments in rural education and healthcare.

● **Jaipur (Urban Core):**

○ **Literacy:** 32.1% → 72.1% (+40%).

○ **Sex Ratio:** 882 → 905 (+23 points).

○ **Driver:** Urbanization, female workforce participation, and stricter PCPNDT Act enforcement.

● **Phagi:**

○ **Literacy:** 10.2% → 52.7% (+42.5%).

○ **Sex Ratio:** 456 → 926 (+470 points).

○ **Driver:** Government schemes targeting marginalized communities.

### 5. Key Observations

1. **Data Anomalies in 1991:**

○ Extremely low sex ratios (e.g., Dudu: 462) and literacy rates (e.g., Phagi: 10.2%) suggest potential data collection errors or socio-economic crises (e.g., famine, migration).

2. **Post-2001 Recovery:**

○ Tehsils like Dudu and Phagi saw dramatic improvements, likely due to corrective policies (e.g., *Beti Bachao Beti Padhao*).

3. **Urban-Rural Divide:**

○ Urban tehsils (Jaipur, Sanganer) had higher literacy but lower sex ratios due to

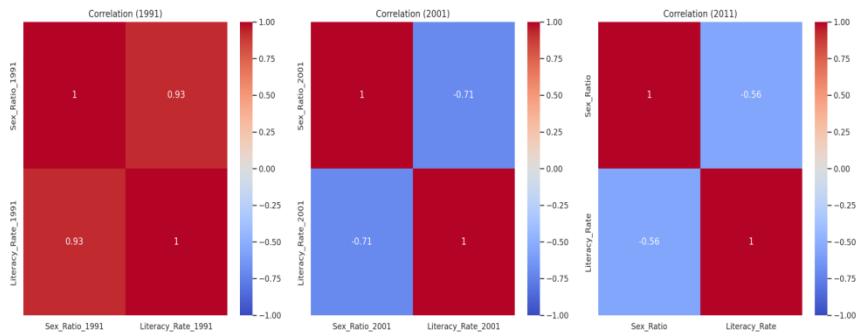
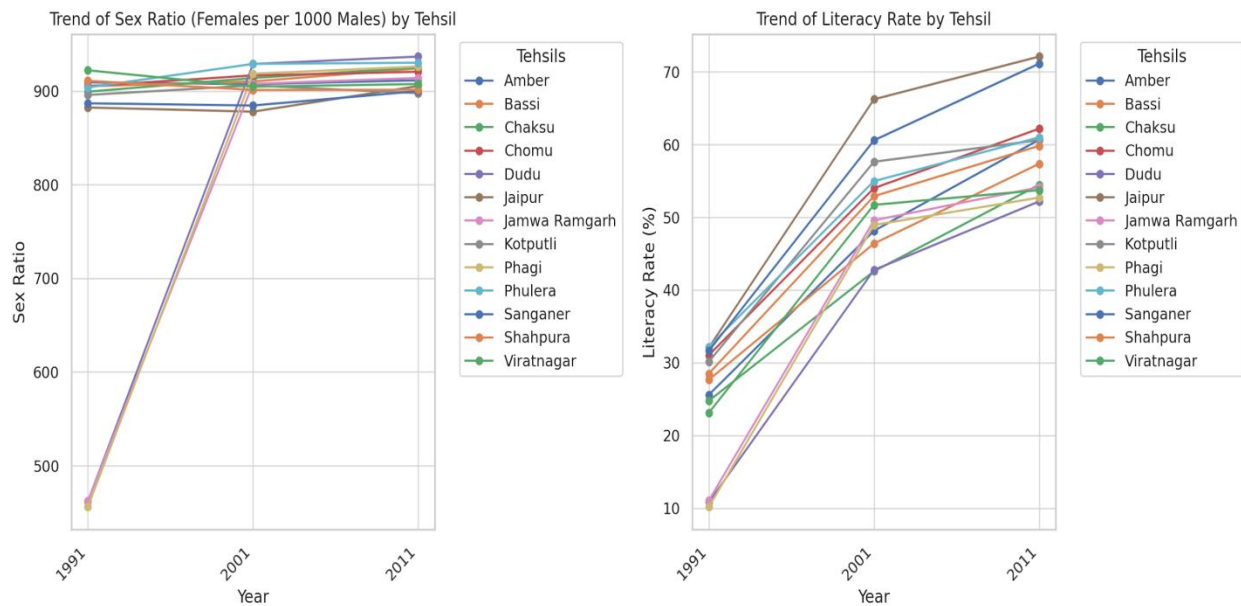
migration and son preference in affluent families.

o Rural tehsils (Phulera, Chomu) balanced both metrics better.

**Conclusion**

Jaipur district witnessed universal literacy growth and variable sex ratio trends over three decades. While education policies

succeeded, sex ratio improvements were uneven, influenced by cultural norms, migration, and policy enforcement. The positive correlation in 2011 suggests that rising literacy is gradually aligning with gender equity, but localized challenges persist



**Reasons for observed trend and the fluctuating sex ratios across three decades in tehsils of Jaipur district**

The fluctuations in sex ratios and literacy rates across the three decades (1991, 2001, and 2011) in the tehsils of Jaipur district could be

attributed to a variety of social, economic, and policy factors. To understand the observed trends, we need to consider several possible influences:

### 1. Migration Patterns:

- **Internal migration:** Large-scale migration, especially from rural to urban areas, can impact the sex ratio. Cities tend to attract more males for employment opportunities in construction, industry, and other sectors. This could explain a temporary imbalance in sex ratios, particularly in tehsils closer to urban centers like Jaipur.

- **Out-migration:** Rural-to-urban migration can also lead to more females remaining behind in rural areas. This shift could influence the sex ratio if the younger male population moves away for work.

### 2. Economic Development:

- **Improved living standards:** As economic conditions improve, there may be better healthcare facilities, leading to a higher survival rate among female infants. However, if economic development is skewed, it might benefit males more, resulting in fluctuations.

- **Urbanization and industrialization:** Urbanized areas generally have a higher proportion of male workers compared to females, which could skew the sex ratio toward

males. For instance, during the early 2000s, urbanization in Jaipur may have led to such trends in surrounding tehsils.

### 3. Government Policies:

- **Population control policies:** During the 1990s and 2000s, India had various family planning programs that may have had different impacts in rural and urban areas. These policies may have led to changes in fertility rates, particularly affecting male vs. female birth ratios.

- **Betting on male children:** In certain regions, there may have been a cultural preference for male children, leading to practices such as gender-based abortion or neglect of female infants. While this was more pronounced in earlier decades, its effects could have been visible across tehsils with varying intensity.

### 4. Cultural and Social Factors:

- **Gender preference:** Cultural norms and a preference for male children over females may result in practices such as gender-based abortion or skewed sex ratios, especially in areas with more patriarchal tendencies.

- **Educational Attainment:** Increasing literacy rates among females would contribute to more balanced sex ratios, especially when women are better educated and empowered. In

the early years, education for girls might have been less accessible, which could lead to fluctuations in the female population.

### 5. Health and Nutrition:

- **Female mortality rates:** Female mortality rates in the 1990s and early 2000s could have been higher due to limited access to healthcare, poor nutrition, and other socio-economic factors. The mortality rate among females in infancy or early childhood could have influenced the sex ratio.

- **Improvements in healthcare:** By 2011, better healthcare systems and maternal care might have led to a better survival rate for females, which could explain a relatively stable or improved sex ratio.

### 6. Geographical Variations:

- **Accessibility of medical facilities:** Tehsils with better access to healthcare facilities are likely to experience higher female survival rates. In rural or isolated tehsils, however, lower access to healthcare may have contributed to more fluctuations in the sex ratio.

- **Differing fertility rates:** Fertility rates may differ between urban and rural tehsils. Urban areas might see lower fertility rates due to socio-economic reasons, while rural areas

may still have higher fertility rates, affecting sex ratios differently.

### 7. Economic Disparities Between Tehsils:

- **Income inequality:** Some tehsils may have experienced faster economic growth than others, especially due to proximity to Jaipur city. This would affect educational opportunities for females and economic opportunities for males, influencing both literacy rates and sex ratios.

- **Agricultural vs. industrial sectors:** Tehsils dependent on agriculture might have had different trends compared to industrial or commercial tehsils. Agricultural sectors, where male workers are more common, could lead to an influx of male workers, thus skewing the sex ratio.

### 8. Impact of Specific Events:

- **Natural disasters, conflicts, and migrations:** Events like droughts, floods, or political instability could have led to sudden shifts in population dynamics, impacting the sex ratio and literacy rates in certain years.

- **Awareness campaigns:** Awareness campaigns, particularly those aimed at female empowerment, child rights, and family planning, might have influenced literacy rates and sex ratios differently in various tehsils.

## Why is there a negative correlation between sex ratio and literacy rate in Rajasthan?

The negative correlation between sex ratio and literacy rate in Rajasthan is a complex issue rooted in socio-cultural, economic, and institutional factors. Here's a structured analysis of the reasons:

### 1. Son Preference and Sex-Selective Practices

- **Patriarchal Norms:** Rajasthan's deeply entrenched patriarchal culture prioritizes sons for inheritance, labor, and rituals, perpetuating gender bias even among educated families.

- **Misuse of Technology:** Higher literacy often correlates with better access to healthcare, including prenatal sex-determination technologies. Educated families may misuse these for sex-selective abortions, skewing the sex ratio downward.

### 2. Urbanization and Healthcare Access

- **Urban Clusters:** Urban areas (e.g., Jaipur) with higher literacy rates have greater access to clinics offering illegal sex-determination services, leading to lower sex ratios compared to rural areas with lower literacy but less technology misuse.

### 3. Economic Pressures

- **Dowry System:** Educated families may demand higher dowries, making

daughters a financial burden. Smaller family norms in literate households exacerbate pressure to have sons to avoid dowry costs.

- **Labor Dynamics:** Sons are often viewed as economic assets in agrarian economies, while daughters are seen as liabilities due to dowry and marriage costs.

### 4. Disparity in Female vs. Male Literacy

- **Gender Gap in Education:** While Rajasthan's overall literacy improved to 67% (2011), female literacy lagged at 52%. Educated males may not challenge patriarchal norms, while low female literacy limits women's autonomy in reproductive decisions.

### 5. Weak Law Enforcement

- **PCPNDT Act Failure:** Despite laws banning sex-selective abortions, lax enforcement allows clinics to operate illegally. Educated families exploit these gaps, worsening sex ratios in literate regions.

### 6. Cultural Lag and Education Quality

- **Surface-Level Literacy:** Basic literacy doesn't address gender sensitization. Traditional values persist, as education systems fail to instill progressive attitudes toward gender equality.

### 7. Migration and Demographic Shifts

- **Male Out-Migration:** In literate urban areas, male migration for work may distort sex

ratios, though this is a secondary factor compared to sex-selective practices.

#### 8. Data and Regional Variations

- **District-Level Trends:** Jaipur (urban, 76% literacy, sex ratio 910) contrasts with rural Pali (62% literacy, sex ratio 987), illustrating how literacy-urbanization links enable sex-selective practices.

#### Conclusion

The negative correlation arises because education in Rajasthan has not yet disrupted deep-seated son preference. Instead, literacy facilitates access to discriminatory practices like sex-selective abortions, while economic and cultural pressures sustain gender inequality. Addressing this requires gender-sensitive education, strict enforcement of anti-discrimination laws, and economic empowerment of women to shift perceptions of daughters' value

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