Stastical Analysis of Migration of Rural and Urban Area in Maharashtra State

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Abstract:

In Maharashtra proportion of migrated population particularly in large and metropolitan cities lives in marginal settlements, rural and urban areas with limited infrastructure services threatening health, environmental degradation and other problems in these areas. The study describes the factors contributing towards rural to urban migration. In rural areas, less employment opportunities, low wages, drought, lack of basic amenities, landlessness, social factors act as push factors and more employment opportunities, higher income, better wages, better facilities activities as pull factors towards the rural to urban migration. In this paper we study the different parameters which cause the migration in rural and urban areas. Lastly we use the different statistical tools to analyze the data and conclude it.

Keywords: E- vehicle, Peoples perspective, Reliability, Statistical Analysis.

Introduction:

Human migration is the movement of people from one place to another. Migrations are caused by a variety of factors including economic, social and political factors. They are briefly described as marriage, work, employment, education, business, etc. Types of migration may broadly classify as rural to urban and urban to urban migration. In rural areas, less employment opportunities, low wages, drought, lack of basic amenities, landlessness, are the factors contributes towards the rural to urban areas. However, in urban areas, more employment opportunities, higher income, better wages, better facilities activities are pull factors for migrants. However, there are some consequences of migration. The loss of a person from rural areas impact on the level of output and development of

rural areas. The influx of workers in urban areas increases competition for the job, houses, school facilities, etc. Having large population puts too much pressure on natural resources, amenities and services.

Objectives:

1. To compare migration from rural and urban areas.
2. To check independence of rural and urban migration.
3. To check independence of gender and migration.
4. To check proportion of male and female migrants.

Methodology:

Descriptive Statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. Together with simple graphics analysis, they form the basic virtually every quantitative analysis of data.

VARIANCE:

Variance is a measure of dispersion which explains the distribution of values around the mean it is the square of S.D. We can calculate variance by dividing the sum of squared deviation of all measured values by the number of all measured value.

$\sigma = \sum (Xi - \overline{X})^2 / N$

Definition of F-Test: F-Test is described as a type of hypotheses test that is based on Snedecor's F-distribution under the null hypothesis. The test is performed when it is not known whether the two populations have some variance.

F-Test can also be used to check if data confirms to regression model, which is acquired through least square analysis. When there is multiple linear regression analysis, it examines the overall validity of model or determines whether any of independent variables is having a linear relationship with the dependent variable. A number of prediction can be made through, the comparison of the two data set. The expression of the F-Test value is in ratio of variances of the two observations which is shown as under

$F_{value} = \sigma_1^2 / \sigma_2^2$

Where, σ^2 = Variance

- ❖ The assumptions on which F-test relies are:
- ❖ The population is normally distributed.
- ❖ Samples have been drawn randomly.
- ❖ Observations are independent.
- ❖ H_0 may be one sided or two sided.

F-test Analysis: Graphical Analysis

PARAMETER	RURAL	URBAN
EMPLOYMENT	1790	5115
WORK	38	155
EDUCATION	212	392
MARRIAGE	10691	4177
AFTER BIRTH	3105	2004
WITH FAMILY	2603	4585
OTHER	4011	2837
TOTAL	22450	19265

MIGRANTS FROM MAHARASHTRA 2001

RURAL
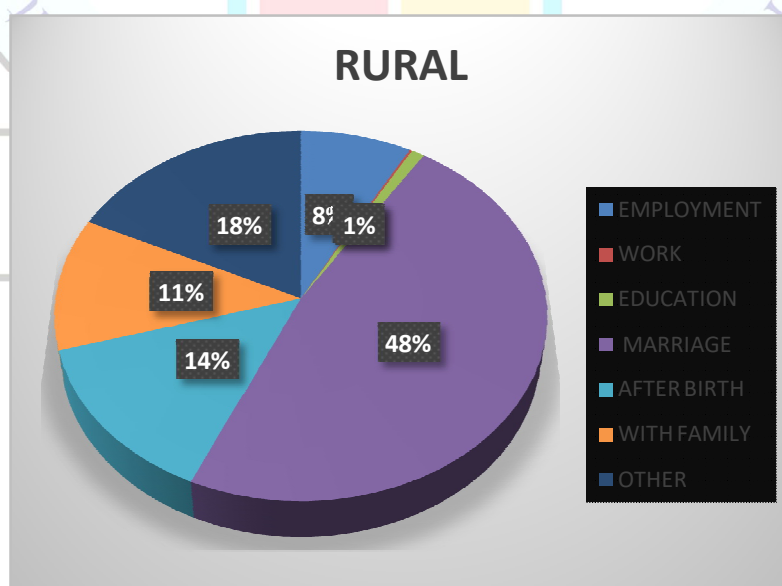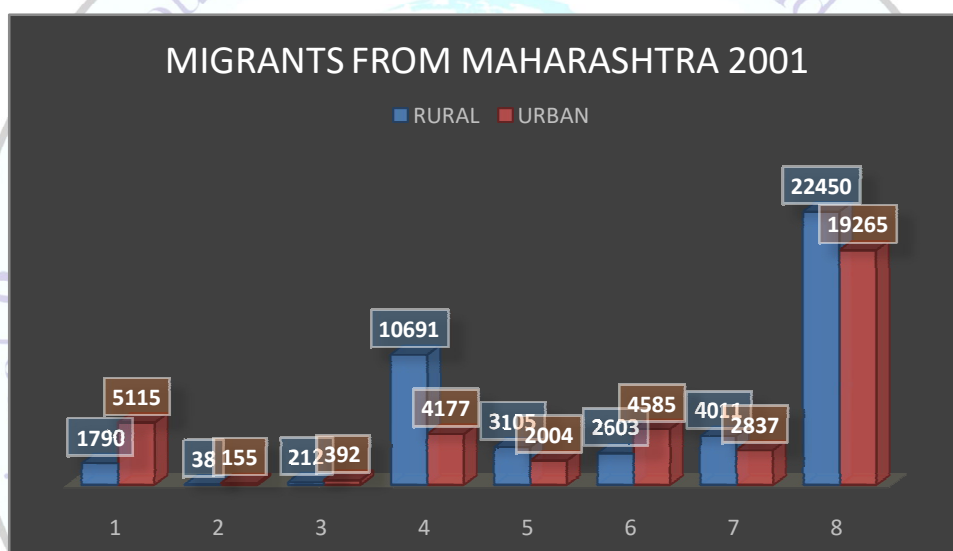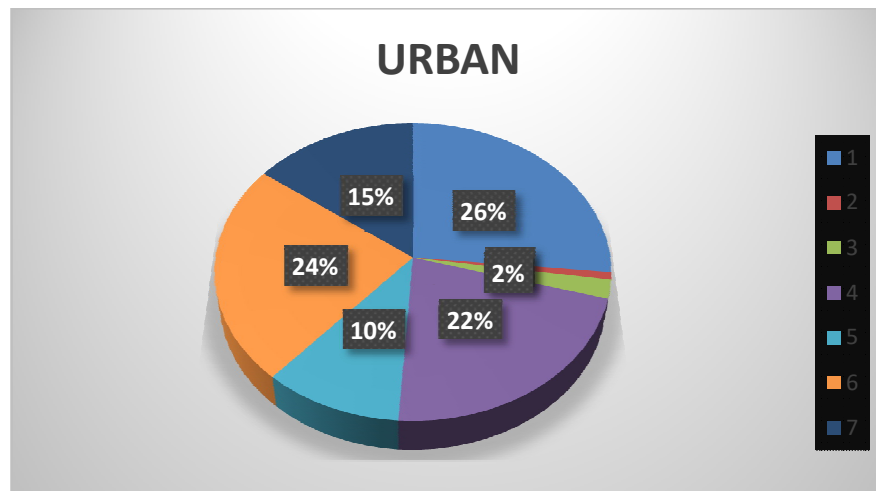
PARAMETER	MALE (In lakhs)	FEMALE (In lakhs)
EMPLOYMENT	62.32	6.73
WORK	1.67	0.26
EDUCATION	4.41	1.63
MARRIAGE	1.14	147.54
AFTER BIRTH	31	20
WITH FAMILY	29.74	42.14
OTHERS	37.26	31.26
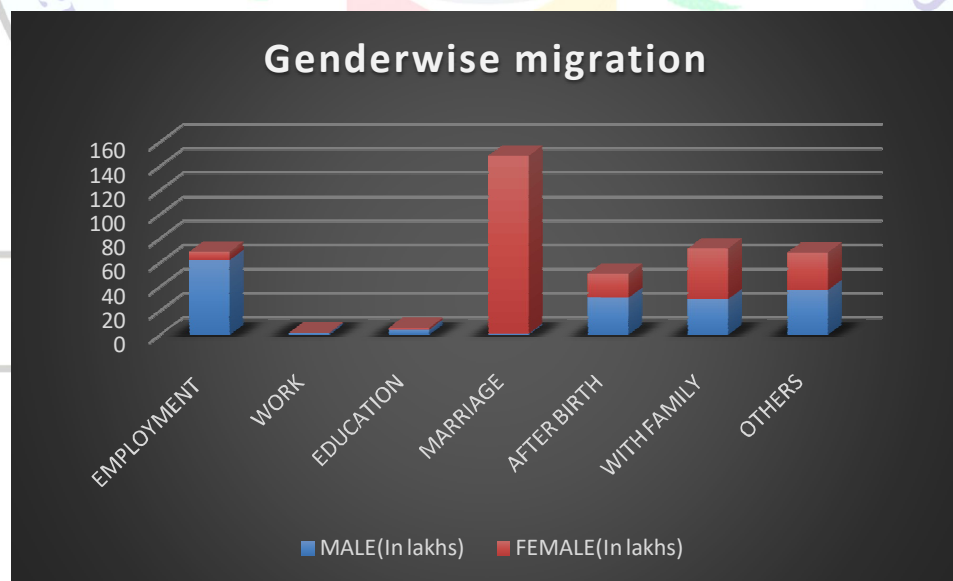
PARAMETER	Total
EMPLOYMENT	69.05
WORK	1.93
EDUCATION	6.04
MARRIAGE	148.68
AFTER BIRTH	59.09
WITH FAMILY	71.88
OTHERS	68.48
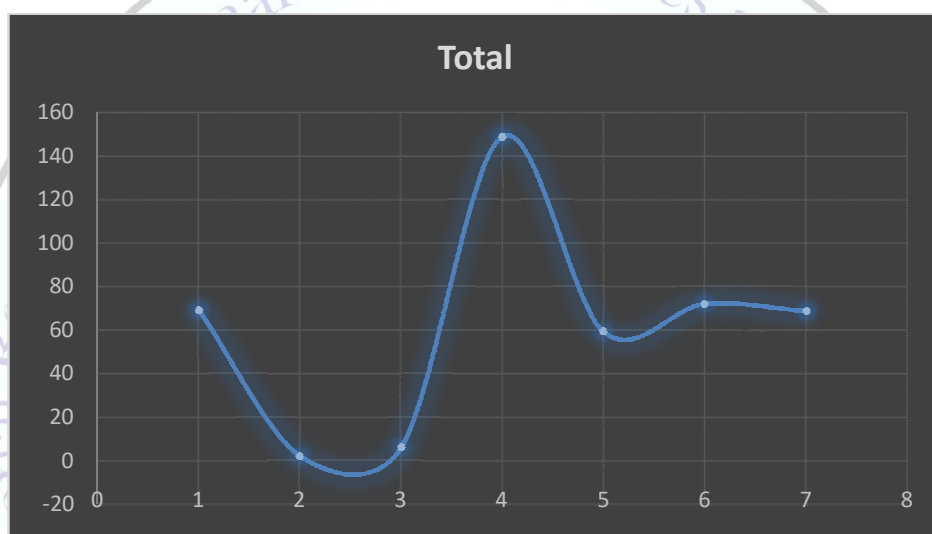
PARAMETER	X_1	X_2	X_1^2	X_2^2
EMPLOYMENT	1790	5115	3204100	26163225
WORK	38	155	1444	24025
EDUCATION	212	392	44944	153664
MARRIAGE	10691	4177	114297481	17447329
AFTER BIRTH	3105	2004	9641025	4016016
WITH FAMILY	2603	4585	6775609	21022225
OTHER	4011	2837	16088121	8048569
TOTAL	22450	19265	150052724	76875053
MEAN	3073.167	2752.143		

Calculations: We have, $n_1 = n_2 = 7$

$\bar{X}_1 = 3207.1428$

$\bar{X}_2 = 2752.1428$

$$\sum X_1^2 = 150052694$$

$\sum X_2^2 = 76875053$

HYPOTHESIS: $H_{0=}\sigma_1^2 = \sigma_2^2$

V/S

$H_1 = \sigma_1^2 \neq \sigma_2^2$

CALCULATION:

$\sigma_1^2 = 1/n_{1-1} [\sum X_1^2 - n_1 \bar{X}_1^2]$

$\qquad = 1/6[150052694 - 7(3207.1428)^2] = 13008744.19$

Similarly, $\sigma_2^2 = 3975854.99$

$F_{cal} = \sigma_1^2 / \sigma_2^2$

$F_{cal} = 3.2719$

$F_{tab} = F_{[6,6,0.05]} = 4.284$

$F_{cal} < F_{tab}$

RESULT : We accept H_0. We reject H_1.

$H_{0=}\sigma_1^2 = \sigma_2^2$

CONCLUSION:

1. There is equality of variance of migration in rural and urban areas.

2. Female migrants are more in number than male migrants due to marriage parameter.

3. There is no significant difference between observed and expected frequency. Hence we accept null hypothesis.

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