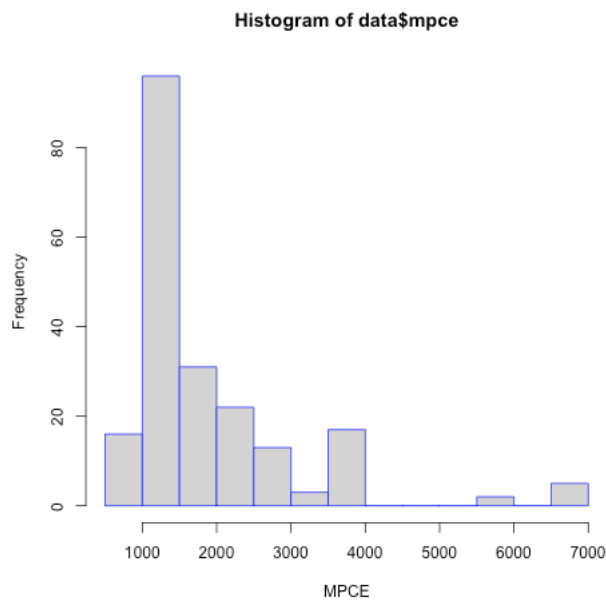


Econometrics Assignment Solution (Nitin Gautam - HES207035)

Q.1 Comment on the distribution of MPCE in the state.

Sol.



Summary statistics of MPCE in the state

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
751.8	1312.4	1409.8	1942.5	2197.5	6742.5

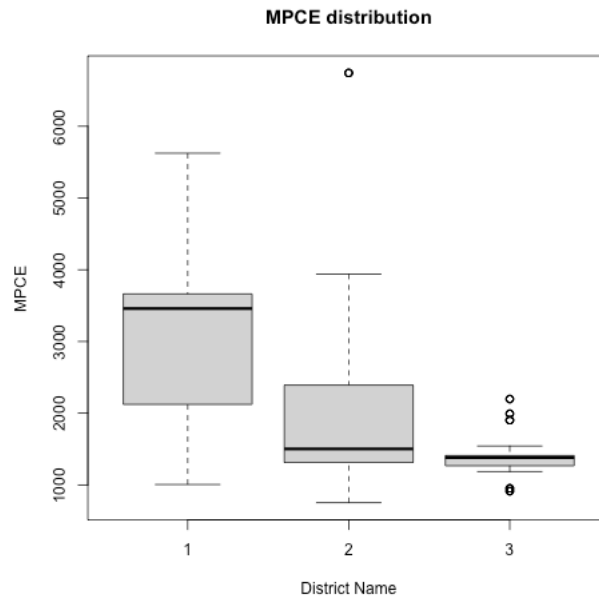
Skewness of MPCE distribution = 2.271841 (right skewed or positive skewed)

Kurtosis of MPCE distribution = 8.986607

Comments :

1. MPCE distribution of state is right skewed, with large number of household concentrated at lower level of MPCE.
2. Few households (outliers) have very large MPCE.

Q.2 Examine the standard of living in each district (you can use the MPCE as a proxy of the standard of living).



Row Labels	Count of mpce	Min. of mpce	Max. of mpce	Average of mpce2	StdDev of mpce
1	30	1005.96	5624.51	3067.352333	1168.574346
2	91	751.76	6742.51	2057.702198	1341.545505
3	84	913.44	2197.53	1415.882024	313.2894838
Grand Total	205	751.76	6742.51	1942.466146	1155.096972

Notes:

1. Row labels indicates district name.
2. Count of mpce indicates count of household.
3. Pivot table is extracted from excel (not R), while figure of box plot from R.

Comments:

1. Box plot for district 1 is comparatively long. Therefore, households in district 1 have different level of mpce.
2. Box plot for district 2 is comparatively long. Therefore, households in district 2 have different level of mpce.
3. Box plot for district 3 is comparatively short. Therefore, households in district 3 have similar level of mpce.
4. District 1 has household with higher level of median mpce comparing District 2 & 3 (which have comparable median mpce level) but households in all three district have different distribution of mpce.

Q.3 It is generally believed that more wealthy individuals tend to spend more on consumables. Do you agree? (you can use land ownership for wealth and MPCE for consumable)

Sol.

Note:

1. 3 data points were deleted during analysis as null value in land_own attribute.

Both the attributes – land ownership and MPCE are continuous variables, correlation coefficient between them is 0.1429927 (which is low degree of correlation).

Hence, contrary to belief held, more wealthy individuals tend not to spend more on consumables.

Coefficients	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	1816.1084	93.2350	19.479	<2e-16 ***
reg_data\$land_own	0.4094	0.2004	2.043	0.0423 *

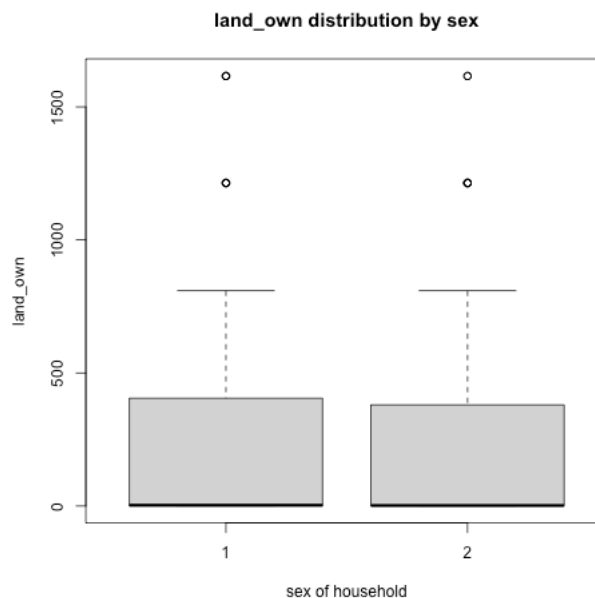
Significant codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				

Residual standard error: 1132 on 200 degrees of freedom				
Multiple R-squared: 0.02045, Adjusted R-squared: 0.01555				
F-statistic: 4.175 on 1 and 200 DF, p-value: 0.04234				

p-value = 0.04234 (i.e. p-value < 0.05) hence land ownership and MPCE are correlated. But not significantly correlated.

Q.4 Does land ownership vary by the gender of the household?

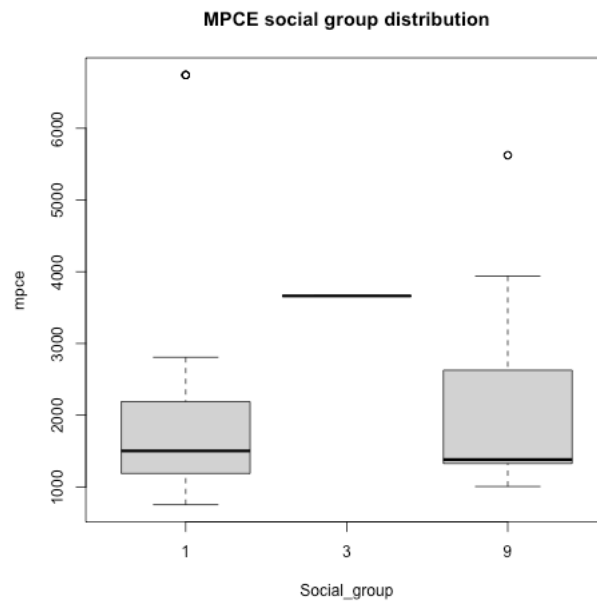
Sol.



From the box plot, it can be interpreted that there is a difference in distribution of land ownership by sex but not significant. Box plot has same median for sex but difference in distribution of land ownership.

Q.5 Are social group and MPCE related?

Sol.



From the box plot, it can be interpreted, that MPCE varies across social group. Hence, social group and mpce are related.

Social_group is categorical variable and mpce is a continuous variable, correlation between mpce and social_group requires ANOVA analysis and other techniques (but box plot is sufficient to answer question).