



## Levels of Food Consumption Expenditure in Rajasthan: A Statistics Analysis

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### Abstract

In the economic development of the any nation, the three components- income, consumption and saving are most important indicators for the development process. According to Keynes, when income increases the consumption will also increase but not in the same proportion. So, according to Keynes if the gap between income and consumption (saving) is not covered into investment, it does create the problems of unemployment. The component of consumption is, therefore, most important for the development process. As a result of rapid urbanization, rising consumerism and changing lifestyles, the levels and patterns of the country's food consumption expenditure has also begun to change. The consumption expenditure function is a good indicator of the economy status and the standard of living and also shows the relative importance of individual items in the consumption basket .Therefore, in this paper any attempt has been made to analyze and compare the consumption level of some of the most important food items in the urban and rural areas of India. An attempt has been made to estimate the marginal proposed to come consume (MPC) of these items of consumption through regression analysis.

**Key words:** consumption pattern, Marginal propensity to consumption and food items

### Introduction

As a result of rapid urbanization rising consumption and changing lifestyles, the social fabric of the country has been begin to change. Economic development results in increased the levels of income and consumption. Also, because of rising in income, economic development is like to a result in a higher demand for the existing goods and service in the short run and in the long run.it also may change the testes of the populations and may create demand for goods and service that did not exist previously. More over the leading review of developing country surveys reveals that consumption is one of the best measures of The Economist component of living standards. this study examines the consumption expenditure function Keynes's psychological law (Absolute income hypothesis) of consumption function change in his general theory published in 1936 laid the functions of modern macroeconomics according to Keynes, as income increases, consumption increases, but not as much as increase in income.

### Review of literature:

Studies about the consumption pattern of the country, it states and some specific regions have been undertaken by some organization, institution, field experts and different period of time.

NCAER, New Delhi conduct in all India consumer expenditure survey under the title of "pattern of income and expenditure volume" The NCAER undertook this project to study the effect of development on household consumption. The main object was to study and compare the pattern of consumer expenditure in those area which were most expected to development effort-with those area which were the least exposed.

Goyal S.K. and Singh J.P. present a paper entitled "demand versus supply of food gain in India.the data on own consumption expenditure for both rural and urban area work collect from various round of NSSO.

Chatterjee S., Rae R.(2016) examined how the pattern of Indian's foods consumption has been change as a consequence of its faster economic growth.

Object of the study-: the major object of the study are :

To obtained MPC of some of the most important major food items

To examine changes in the consumption pattern of people during various sub periods and over- all period of time with special reference to the major food items.

### Data Collection

The study is exclusively based on secondary source of data. Therefor, published report of selected round of official survey carried out by the central static or relationship and NSS National sampling survey organization the ministry of the statistic and program implement used. statical analysis the basic methodology adopt in the study regression analysis of single equation linear equation model the static is has been done used MS Excel and SPSS of MPCE on various items of consumption and two NSSO survey

Economic growth and economy performance of a country is measured on the basis of economic variables, including national savings, investment, employment, aggregate demand, aggregate supply and total expenditures. per capita income and expenditure on food and non-food consumption are signs of human development but food consumption is a better sign of social welfare. The Indian economy has grown rapidly since liberalization and all its economic variables reflect this growth (Banga and Das, 2012). Per capita expenditures of both states are better than rest India. We can say that MPCE has increased very fast in food and non-food expenses. Consumption of food and non-food expenditure of Rajasthan is better than the whole of India. It raised per capita expenditure and also significantly MPCE, spending on

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food and non-food is found to be considerably higher in Rajasthan, which is evident from table 1.2.MPCE of Rajasthan, was high in both round than India

**Table: 1.1 RAJASTHAN AND INDIA**

States	food		Non-foods		Total	
	2002-03	2012-13	2002-03	2012-13	2002-03	2012-13
Rajasthan	309	806	261	791	570	1597
India	299	757	256	674	554	1430

Source: NSS 62nd and 68th Round

**Trends and pattern of consumption expenditure in Rajasthan, and India**

The consumption expenditure on selected broad groups of items to total in the India and Rajasthan for seven different rounds of NSS is given in tables. Data from successive rounds of NSS consumer expenditure surveys clearly show a rise in consumption usual perusal of the data on MPCE over various NSS rounds from 62<sup>th</sup> and 68<sup>th</sup> reveals that MPCE for each group of items has increased several times as shown in Table 1.1 to 1.2. The MPCE has been on the rise for each group of items. The growth rates differ widely (Table 1.1). Thus it is found that all the food and non-food items were found to be receiving relatively more considerable attention in India and Rajasthan.

**Table 1.2 Average expenditures (Rs) per person per 30 days on group of items of consumption**

Items	Rajasthan		India	
	2002-03	2012-13	2002-03	2012-13
Cereal	82.34	128.00	98.96	152.00
Pulses & their products	12.12	29.82	17.27	41.58
Milk & milk products	102.97	263.88	44.76	114.90
Edible oil	21.24	53.61	24.62	53.44
Egg, fish & meat	3.83	17.62	17.93	68.46
Vegetables	29.47	82.32	35.29	94.62
Fruits (fresh)	5.26	27.24	8.16	32.16
Fruits (dry)	1.12	7.48	1.82	8.36
Sugar	16.17	35.84	10.79	19.77
Spices & Salt	16.25	61.74	14.05	53.02
Beverages etc	18.47	37.87	24.45	31.65
Total Food	308.62	806	298.57	756.39
Pan, tobacco & intoxicants	19.59	61.91	14.28	49.39
Fuel and light	53.32	146.29	51.20	114.11
Clothing	43.18	89.68	38.60	80.81
Footwear	8.65	21.39	5.83	14.16
Educations	13.09	64.65	16.26	49.90
Medical (institutional)	10.97	56.25	10.65	30.81
Medical (non-institutional)	27.68	66.10	28.22	64.37
Entertainment	0.63	10.02	2.97	14.21
Goods for personal care	.79	6.37	1.36	4.65
Toilet articles	11.16	31.02	14.65	29.99
Sundry articles	14.95	33.23	11.85	18.20
Misc. consumer goods	27.51	47.20	30.82	42.80
Consumer services	22.58	42.30	19.39	57.04
Conveyance	19.47	77.96	19.60	60.00
Misc. consumer services	42.05	58.53	37.98	47.50
Rent	0.88	2.08	2.38	6.57
Taxes and cesses	1.02	3.00	1.11	2.30
Misc. consumer goods	71.45	110.50	72.29	98.70
Durable goods	13.04	33.42	18.24	28.20
Non-foods total	260.97	791	255.59	673.70
Total consumer expenditure	569.59	1597	554.15	1430

Source: NSS 62nd and 68th round



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Based on the survey conducted during both rounds of NSS 62nd and 68th Round Survey (2008 and 2013) the total expenditures is shown in Table No.1.1 and presents various items in the food and non-food expenditures (Murthy, 1987). It is seen that all the items included in the survey food and non-food costs have increased rapidly

**1.2 Changes in the MPCE in Rural India and Rajasthan**

The average rural MPCE ratio of Rajasthan and India is shown in the table. Rural MPCE of India and Rajasthan was Rs 625 and Rs 698 in 2004-05. The table shows that Rajasthan's rural MPCE were 1.18 times higher than the India's rural MPCE. In the year 2010-11 India's MPCE increased Rs822 to Rs 2127 and Rajasthan's MPCE increased to Rs 698 to 1598. This table shows that Rajasthan's MPC is 1.18 times less than the MPCE of India..

**Table no 1.3 Average monthly consumption of Rajasthan and India**

States	Rajasthan	India	The ratio of MPCE =Rajasthan/ India
2004-05	698	625	1.11
2005-06	701	625	1.12
2006-07	768	654	1.17
2007-08	801	695	1.15
2008-09	984	772	1.27
2009-10	1179	858	1.37
2010-11	1456	1058	1.37
2011-12	1598	1202	1.33

Source: Self-estimated

In order to assess the income and expenditures (total income, net income, farmer income, food expenditure, non-food expenditures and education expenditures) of the farmers, we assessed the required variables in different data sets. We have specified twelve estimable regression equations for estimating the cultivator Household's income to require in different data set.

**Regression Model 1:**

Total consumption expenditures = f ( Resourcefulness Indices, Salary Income, Pension Income, Years of school, Income Non-Farm, Live stock income, Farm Income, Consumer durable, wage income)

$$\text{Total consumption expenditures} = \beta_0 + \beta_1 \text{Resourcefulness Indices} + \beta_1 \text{Salary Income} + \beta_2 \text{Pension Income} + \beta_3 \text{Years of school} + \beta_4 \text{Income Non-Farm} + \beta_5 \text{Live stock income} + \beta_6 \text{Farm Income} + \beta_7 \text{Consumer durable} + \beta_8 \text{wage income} + u_i$$

**Regression Model 2:**

Total consumption expenditures = f ( Resourcefulness Indices, Salary Income, Pension Income, Years of school, Income Non-Farm, Live stock income, Farm Income, Consumer durable, wage income)

$$\text{Total consumption expenditures} = \beta_0 + \beta_1 \text{resourcefulness indices} + \beta_1 \text{salary income} + \beta_2 \text{pension income} + \beta_3 \text{years of school} + \beta_4 \text{income non-farm} + \beta_5 \text{live stock income} + \beta_6 \text{farm income} + \beta_7 \text{consumer durable} + \beta_8 \text{wage income} + u_i$$

**Regression Model 3:**

Annual food expenditures = f (farm income, live stock income, income non-farm, wage income, pension income, salary income, consumer durable)

$$\text{Annual food expenditures} = \beta_0 + \beta_1 \text{farm income} + \beta_2 \text{live stock income} + \beta_3 \text{income non-farm} + \beta_4 \text{wage income} + \beta_5 \text{pension income} + \beta_6 \text{salary income} + \beta_7 \text{consumer durable} + u_i$$

**Regression Model 4:**

Annual Non Food Expenditures = f (farm income, live stock income, income from non-farm, wage income, pension income, salary income, consumer durable)

$$\text{annual non food expenditures} = \beta_0 + \beta_1 \text{farm income} + \beta_2 \text{live stock income} + \beta_3 \text{income non-farm} + \beta_4 \text{income non-farm} + \beta_5 \text{pension income} + \beta_6 \text{salary income} + \beta_7 \text{consumer durable} + u$$

All these variables have been already defined in table no number (3.4)

**Regression Model 5:**

Annual non food expenditures = f (Consumer durable, Resourcefulness Indices, Net income from all, Years of school, Age of head, Years of school, Land size, Farm saving)

$$\text{Annual non food expenditures} = \beta_0 + \beta_1 \text{Consumer durable} + \beta_2 \text{Resourcefulness Indices} + \beta_3 \text{Net income from all} + \beta_4 \text{Years of school} + \beta_5 \text{Age of head} + \beta_6 \text{Years of school} + \beta_6 \text{Land size} + \beta_7 \text{Farm saving} + U_1$$

**Relationships among total income and other variables**



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The correlation matrix explain in the table 1.4 has been developed to understand the relation between the total income, total consumption, resourcefulness index, consumer durable, years of school and expenditures on education for the year 2016-17 using the data of both the Rajasthan and India. It shows that the total consumption expenditure of the farmers of both and the other consumption is important. Table1.4 shows that Correlation Matrix among total income, total consumption, resourcefulness index, wealth index and education .It can be derived that there is low positive and significant correlation between total income(.142) ,total consumption(157) and expenditures on education(.098) but years of schooling and consumer durable are significant but negative. And the highlighted cell below that the correlation between expenditures on education and resourcefulness is 0.397, which indicates that they are weakly positive correlated.

Table 1.5 Correlation Matrix among total income, total consumption, resourcefulness index, consumer durable and education level Data

	Total income	Total consumption	Resourcefulness Index	Consumer durable	Years of school	expenditures on education
Total income	1	.142**	.157**	-.013	-.240**	.098
Total consumption	.007	1	.448**	.551**	.166**	.923**
Resourcefulness	.003	.000	1	.766**	.116*	.397**
Consumer durable	.812	.000	.000	1	.228**	.538**
Years of school	.000	.002	.028	.000	1	.163**
expenditures on education	.063	.000	.000	.000	.002	1

Source: Computed by Researcher Based on data taken from secondary data

**Correlation relationships among total income and other sources of income (multiple sources of income)**

For example, the highlighted cell below shows that the correlation between income from all and income from farming (salary income, farm income, live stock income, non-farm, wage income pension income remittance income). In Table1. 6, the data of all type income and total income of the farmer is analyzed; there is a positive relation between the total income of the farmer and income from other means.

Table 1.6 Correlation Matrix among total income and other relative income level Data

	Income from all	Salary income	Farm income	Live stock income	non-farm	wage income	Pension income	Remittance income
Income From All	1	0.394**	0.536**	0.181**	0.616**	.532**	.141**	0.007
Salary Income	.000	1	0.130*	0.233**	0.258**	.0.329**	0.027	0.017
Farm Income	.000	.013	1	.129*	.256**	.349**	.011	.071
Live Income	.001	.000	.015	1	.051	.098	.051	.105*
INCOME NON-Farm Income	.000	.000	.000	.339	1	.921**	.046	.129*
Income Wage	.000	.000	.000	.064	.000	1	-.067	.162**
Pension Income	.008	.605	.842	.333	.387	.206	1	.176**
Remittance Income	.900	.750	.180	.047	.015	.002	.001	1

Source: Computed by Researcher Based on data taken from secondary data

**6.2.6 Relationships among net income from all sources and consumption (total consumption, food expenditure non-food expenditure and education expenditure) variable**

In these results, the Spearman correlation between net income and total consumption is 0.142, which indicates that there is a positive but very week relationship between the variables. Table 6.2.6 analyzes the total income and total



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consumption of the farmer. There is a positive relation between total income and total consumption but not more positive.

**Table 1.7 Correlation Matrix among total farmer income, total consumption expenditures, food expenditures, education expenditure and non-food expenditures level Data**

	Net income from all	Total consumption expenditures	food expenditures	expenditures on education	Non -food exp
Net income from all	1	.142**	.123*	.098	.176**
Total consumption expenditures	.007	1	.852**	.923**	.851**
food expenditures	.020	.000	1	.659**	.737**
expenditures on education	.063	.000	.000	1	.624**
Non -food exp	.001	.000	.000	.000	1

**Source: Computed by Researcher Based on data taken from secondary data**

Notes: The Upper Right Triangle shows the Karl Pearson’s Correlation. The Lower Left Triangle shows the respective significant p- values.

\*Shows significant at 5%; \*\* shows significant at 1% and simply bold values are significant at 10%

**Multiple regression analysis**

Data should be normal distribution, linearity, homoscedasticity and absence of co linearity or multicollinearity. We developed (sex income relative models and eight consumption expenditures relative models) regression models related to farmer's income expenditures and farmer's income and expenditures derived from all means but only significant models and significant variables that we have interpreted, so we can say that we have explanation only statistical significant variables in farmer's income and expenditures related regression models have been explained by us.

**Model 1** is specified

The specified model is given below:

$$\text{total income} = \beta_0 + \beta_1 \text{ food expenditures} + \beta_2 \text{ expenditures on education} + \beta_3 \text{ non. food expenditure} + \beta_4 \text{ total member of family} + u_i$$

Table 1.7 shows the numerical estimates for Model-1, We note that the working members' coefficient is estimated at 10345.205 both Rajasthan 7412.595 and India 14811.703 and is at a positive and statistical significant of both. It means that increase in one working member in the family would lead to increase Rs 10345 in the both, Rs 7412 in Rajasthan and Rs 14811 in India . The coefficient of expenditure on food items is 2.167 in Rajasthan statet,2.321 in India and 3.138 in both , so it is positive and statistically significant on food items 1% level of both districts, while food expenditure in India and Rajasthan is 5% Is positively and statistical important at the level. There is a positive correlation between the expenditure on education and income, which is statistically significant at Rajasthan, India and both at 1% level, the coefficient of expenditure on education is 0.753 in both districts, 0.617 in Rajasthan and 0.730 in India .The coefficient of expenditures on non-food item is 0.962 in Rajasthan ,0.973 in India and 0.962 in both which is statistically significant at 1% level of both India and 5% level of Rajasthan and India.

**Table 1.7 Regression result of total income for the cultivators in the Rajasthan and India**

Dependent Variable: ( Annual cultivators total Income)(P<0.01=1%,P<0.05=5%,P<0.1=10% Represents the coefficients are significant at 1,5 and 10 percent respectively)							
Method: Least Squares and Included observations							
	R	R Square	Adjusted Square	R	F-Ratio	df	D-W(d <sub>L</sub> =0.56, d <sub>U</sub> =2.21) at 5% level of sig
Both	.689 <sup>a</sup>	.475	.469		80.174 <sup>#</sup>	4,355	1.729
Rajasthan	.630 <sup>a</sup>	.397	.383		28.817 <sup>#</sup>	4,179	1.813
India	.733 <sup>a</sup>	.537	.526		50.699 <sup>#</sup>	4,179	1.776
	Variable	Both districts		Rajasthan		India	
		Coef (B)	t	Coef (B)	t	Coef(B)	t
β <sub>0</sub>	(Constant)	32150.365	.614	46774.761	1.570	21462.886	0.832
β <sub>1</sub>	Food Expenditures	1.135	3.138 <sup>#</sup>	1.199	2.167*	1.064	2.321*
β <sub>2</sub>	Expenditures On	.753	5.491 <sup>#</sup>	.617	2.773 <sup>#</sup>	.730	4.269 <sup>#</sup>



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	Education						
$\beta_3$	Non -Food Exp	.962	3.588 <sup>#</sup>	.963	2.345*	.973	2.822 <sup>#</sup>
$\beta_4$	Total working Member Of Family	10345.205	3.914 <sup>#</sup>	7412.595	1.742*	14811.703	4.553 <sup>#</sup>

We discussed the income and expenditure of farmer families and regression results were obtained because from the data of farmer's income and expenditure, it is possible to analyze the expenditure on consumption (food expenditures, on-food expenditures and consumption expenditures) by all means of the farmer. We have considered the relevant relationship between explanatory variables related to income and expenditure. Income and expenditure are explained through regression models. We considered socioeconomic population function for both regression analysis and combined data sets to understand the patterns of income and expenditure.

**Limitation of the study**

Econometric study usually has limitations even when the models are rigorously specified. The study also may suffer from such limitations, which are mentioned below: The study is based on the secondary data obtained from NSSO, which collect the primary data through nationwide Sample Survey. the accuracy of the estimate and conclusion drive of the studies there for affected to the extent that the sample drive from actual representation Plus analysis done many may not capture the conjunction pattern of newly introduce product the total expenditure as a proxy of income is used due to unavailability of reliable.

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