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Demand for Consumer Durables in India: Quantile Regression Estimation of Household Expenditure on Durable Goods

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Abstract: Household expenditure on consumer durable goods varies across socioeconomic, demographic, community, literacy, income, and place of residence. The objective of this paper is to analyse the distributional effects of the determinants of durable goods expenditure of households in Tamil Nadu using the NSSO 68th round data, applying the quantile regression method. The study finds a positive relationship between income and durable goods expenditure across all households and such expenditure increases at higher quantiles. There also exist significant differences across regions and communities. The effect of family size on durable goods expenditure is negative. The backward community households spend significantly more on durable goods than the SC/ST households. Households with a regular salary earner and business or self-employment consume more durable goods compared to other households. Households with male heads spent more on durable goods compared to female-headed households. Households with elders spend more on durable goods.

Keywords: Consumer durable goods, household expenditure pattern, socioeconomic background, earnings and income, quantile regression

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Introduction

Generally, households spend on both durable and non-durable goods and services. Durable goods are those goods whose expected lifetime as well as services from them is expected to be longer. As opposed to many goods that are intended for consumption in the short term, consumer durables are intended to endure regular usage for several years or longer before their replacement is required. Durable goods include household appliances like furniture, jewellery, washing machines, air conditioners, automobiles, electrical appliances, etc. Non-durable goods are consumed for short times like food

items, medicines and other consumables. Household spending on such durables is much more volatile than spending on non-durable commodities. Durable goods consumption largely depends on. The household purchase of durables goods is largely influenced by the attitudes, intentions and expectations of consumers as well as by the economic position of the household including assets, credit, prices, etc. Household expenditure on durable goods consumption is determined by household occupation, social group and demographic characteristics. They may also reflect household economic and social status, as well as cultural differences, social distinctions and indeed socioeconomic inequalities. Also, there are other characteristics such as that determine the consumption of durable goods by the households.

This paper analyses the characteristics of the households that consume durable goods. The major objectives of this paper are to examine the consumption pattern of durable goods across households, to analyse the influence of household social and demographic characteristics on expenditure on durable goods, and to analyse the differential impact of the determinants of household consumption of durable goods across the distribution of durable goods expenditure of households. This empirical analysis of household expenditure on durable goods consumption is based on the 68th round (July 2011-June 2012) of NSSO data for Tamil Nadu and the application of quantile regression methodology.

Review of Literature

Empirical studies on household consumption of durable goods generally examine household consumption expenditure on the basis of probability of consumption and non-consumption of durable goods. Few studies analyse the durable goods consumption gap of urban and rural households and public and private sector workers. Initial studies used the probit model and recent studies use the quantile regression methodology.

In an early attempt at household expenditure on the consumption of durable goods, Wu (1965) analyses the probability of purchase of durable goods as determined by the gap between desired and actual stock, using the 1965 Survey of Consumer Finance data and applying the probit model. It is observed that the relative gap between desired and actual stock is important in determining the probability of purchase, while the absolute gap is important in determining the net outlay. There is not much difference with respect to the differential effects of different types of income changes. The empirical evidence also supports the hypothesis that desired stock is a function of expected income.

Fisher (1963) analyses the relationship between liquid assets holding and consumption behaviour using the 1957-1958 Survey of Consumer Finance data

applying the probit model. The study finds that household purchasing behaviour is related to the types of liquid assets holdings and to the previous and current credit use. The results of this analysis also highlight the relationship between purchasing intentions and subsequent behaviour.

Cragg (1971) study the household total outlay on the purchase of durable goods using the 1964 Canadian Survey of Consumer Finances data applying the probit model. The study finds that lagged income is insignificant and has different signs in explaining the decision to purchase durable goods and accounting for the amount spent on such goods. The large effects ascribed to recent marriage and to recently moving into a house are worth noting. These variables are interpreted as being proxies for differences between desired and actual stock of consumer goods.

Ronning and Schulz (2005) use German cross-section microdata (GFK) that contains 9064 households to analyse the relationship between consumption and income using quantile regression. They estimate the Engel curve for the quantity of beer and wine consumption and find that beer consumption has the largest price elasticity for moderate drinkers compared to light and heavy drinkers. The wine consumption price elasticity is positive for moderate drinkers compared to others. There is also aggregate price sensitivity in beer compared to wine consumption.

Saha, Roy and Kar (2014) analyse the wage and consumption gap between private and public sector employees in India using the 61st round of NSSO data for 2004-2005 applying the quantile regression method. The results of quantile regression show that the expenditure on durable goods is not different between the private and public sector workers, though the private sector workers at upper quantiles of income distribution earn more than the public sector workers.

Caglayan and Aster (2012) examine the determinants of household consumption expenditure for rural and urban areas in Turkey for 2009 using a sample of 5658 households. The differential effects are analysed using quantile regression methodology. They observe that the consumption expenditure rises as the income increases, where the increase is higher, especially at upper quantiles. The consumption expenditure of urban residents is nearly twice as high as the ones of rural residents at lower quantiles, this decreases at upper quantiles.

Thus, the empirical studies observe that the probability of purchasing durable goods is influenced by household type and household size, and age, household occupation, gender of the household head, income and state region affect the consumption of durable goods. Studies using quantile regression to analyse the distributional effects of consumption of durable goods observe that the consumption patterns are not the same across the distribution of durable goods consumption expenditure.

Data and Methodology

The paper uses the 68th round (July 2011- June 2012) of NSSO data pertaining to Tamil Nadu. The NSSO conducts nationwide household consumption expenditure surveys at regular intervals as part of its rounds normally of a year's duration. The 68th round is the ninth survey in this series. The 68th household consumer expenditure survey contains information on the level and pattern of consumer expenditure including the household consumption of various goods and services across socioeconomic groups. The sample size for Tamil Nadu is 5442.

Quantile Regression Method

The quantile regression model, very similar to the OLS model in terms of statistical structure, provides a richer characterisation of the data allowing differential impact of covariates on the entire distribution of the dependent variable, not merely its conditional mean as in OLS. The OLS regression analysis estimates the conditional mean or average value of the response variable in terms of the known or fixed variables. A quantile regression models the relationship between explanatory variables and the conditional quantiles of the dependent variable rather than just the conditional mean of the dependent variable. A quantile regression gives a more comprehensive picture of the effects of the independent variables on the dependent variable.

The quantile regression is described by the regression equation,

$$y_i = \beta_q x_i + u_i \tag{1}$$

where β_q is a vector of unknown parameters associated with the q^{th} quantile. While the ordinary least squares minimises the sum of the squares of the errors, Σu_i^2, the quantile regression minimises $\Sigma q|u_i| + \Sigma(1-q)|u_i|$ a sum that gives the asymmetric penalties $q|u_i|$ for under prediction and (1-q) $|u_u|$ for over-prediction. Therefore, the quantile regression is also called median regression or least absolute deviation as it minimises the sum of absolute residuals. The error term is given by,

$$u_i = y_i - \beta x_i \tag{2}$$

On substitution, the q^{th} quantile regression estimator $\hat{\beta}_q$ minimises over β_q the objective function,

$$Q(\beta_q) = \Sigma^n_{i:|y_i| \geq x_i\beta} q|y_i - x_i\beta_q| + \Sigma^n_{i:|y_i| \leq x_i\beta}(1-q)|y_i - x_i\beta_q| \quad (0 < q < 1) \tag{3}$$

where the first term is the actual value of y_i higher than the predictor value and the second term is the actual value of y_i lower than the predictor value. If $L(u) = |u|$, the optimal predictor is the conditional median, med(y|x) and the optimal predictor is that $\hat{\beta}$ minimises $\Sigma\ |y_i - x_i\beta|$. Therefore, the simple minimisation problem yielding

the ordinary sample quantiles in the specific location model is the regression quantiles (Koenker and Bassett, 1978). Then, the q^{th} sample quantile is defined as any solution to the minimisation problem,

$$\min \Sigma^{n}_{i:|y_i|\geq x_i\beta} q\,|\,y_i - x_i\beta_q\,| + \Sigma^{n}_{i:|y_i|<x_i\beta}(1-q)\,|\,y_i - x_i\beta_q\,| \qquad (0<q<1) \tag{4}$$

The case of the median (q = 1/2) is the general result. Thus, quantile regression reveals information about the complete conditional distribution of the response variable without any constraints on the error term. Moreover, the estimation is robust with respect to outliers of the response variable.

In contrast to the OLS and the maximum likelihood estimations, the quantile regression uses linear programming methods in computation. In order to convert the regression problem into a linear programming problem, non-negative variables ε_i and v_i are introduced in the equation,

$$y_i - (\beta_0 + x_i\beta_1) + \varepsilon_i = 0 \qquad i \in (u: y_i \geq \beta_0 + x_i\beta_1) \tag{5}$$

$$\varepsilon_i = 0 i \forall (i: y_i \geq \beta_0 + x_i\beta_1) \tag{6}$$

$$(\beta_0 + x_i\beta_1) - y_i + v_i = 0 \qquad i \in (i: \text{yi} < \beta_0 + x_i\beta_1) \tag{7}$$

$$v_i = 0 i \forall (i: y_i < \beta_0 + x_i\beta_1) \tag{8}$$

Since ε_i and v_i are greater than the complementary sets, equations (5) and (7) can be rewritten as,

$$\text{yi} = (\beta_0 + x_i\beta_1) + \varepsilon_i - v_i = 0 = 0 \qquad \varepsilon\text{i} \geq 0,\ v_i \geq 0, \quad i \in (1, n) \tag{9}$$

Then, the linear regression problem with ε_i and v_i becomes,

$$\min \Sigma^{n}_{y_i \geq \beta_0, x_i\beta_1} q\varepsilon_i + \Sigma^{n}_{iy_i < \beta_0, x_i\beta_1}(1-q)v_i \tag{10}$$

Note that $\varepsilon_i v_i = 0 \ \forall i \in (1,n)$. . Then,

$$\hat{\beta}_1 = \frac{\Sigma^{n}_{i}(x_i - \ddot{x})(y_i - \ddot{y})}{\Sigma^{n}_{i}(x_i - \ddot{x})^2} \tag{11}$$

A significant departure of the quantile regression estimator from the linear regression estimator is that in the quantile regression, the distance of points from a line is measured using a weighted sum of distances, where the weights is (1-q) for points below the fitted line and q for points above the line. The standard conditional quantile is specified as linear,

$$Q_q\,(y_i \,|\, x_i) = x_i\beta_q \tag{12}$$

For the j^{th} regressor, the marginal effect is the coefficient for the q^{th} quantile,

$$\frac{\partial Q_q(y \mid x)}{\partial x_i} = \beta_q \tag{13}$$

Thus, a quantile regression parameter β_q estimates the change at the specified quantile of the response variable y produced by a one-unit change in the independent variable x.

Empirical Results

Table 1 indicates that approximately 36% of households spend Rs.1000 to 5000 on durable goods while 28% of households spend less than Rs.500 on durable goods. About 10% of households spend Rs.50001 to Rs.100000 on durable goods whereas only 0.86% of the households spend more than Rs.100000 on durable goods. About 19% of household expenditure is on residential buildings and land, 16% on jewellery, 14% on furniture, 11% on recreation, and 10% on cookery. The household expenditure on residential purposes is high compared to the other durable goods expenditure in Tamil Nadu. Among the social groups, about 80% of BC community households spend on durable goods and 83% of literate households spend on durable goods.

Table 1: Distribution of Households by Expenditure on Durable Goods

Expenditure	*Percentage of households*	*Expenditure*	*Percentage of households*
Below 500	27.84	Rs.10001-50000	9.67
Rs.501-1000	16.96	Rs.50001-100000	2.32
Rs.1001-5000	35.78	Above Rs.100000	0.86
Rs.5001-10000	6.58		

Table 2 presents the descriptive statistics of the variables used in the empirical analysis of the determinants of household consumer expenditure on durable goods in Tamil Nadu. The mean monthly household income (proxied by the monthly household per capita consumption expenditure) is Rs.9234 in Tamil Nadu. The natural logarithm of mean monthly per capita consumption expenditure is 11.24. The mean consumer expenditure on durable goods in Tamil Nadu is Rs.7380, showing sizable expenditure on durable goods. The large standard deviation of Rs.31731 shows sizable differences in durable goods expenditure of households in Tamil Nadu. The natural logarithm of mean durable goods expenditure is 7.24. Of the consumer expenditure on durable goods, the mean expenditure on furniture and fixtures is Rs.559, on recreation goods is Rs.1883, on crockery and utensils is Rs.494, on cooking and other household appliances is Rs.1878, on therapeutic appliances is Rs.2920, and the mean expenditure of other personal goods is Rs.753. The mean expenditure of residential buildings, land and other durables is Rs.3451 and the mean expenditure of jewellery and ornaments is Rs. 2926.

The mean household size is 3 persons per household. Among the household heads, 80% have at least primary education. About 85 percent of households have male headship indicating the patriarchal system of Indian society. Among the social groups, 78% of households belong to the OBC category, 17% to the SC category, and 3% to other social groups. Region-wise, 29% of households belong to the coastal northern region, 18% coastal region, 27% southern region and 24% inland regions. Nearly 49% of households have children below the age of 14 years while 31% of households have elders above 60 years of age in the family. A household residing in own house is more likely to spend on durable goods consumption while a family with a regular wage/salary earner is less likely to spend on durable. Among the social groups, households belonging to backward communities are the highest proportion of households that send on durable goods. A sizable number of households with elderly persons also spend on durable goods.

Table 2: Descriptive Statistics of Variables

Variable	*Description*	*Mean*
HDGExp	Household expenditure on durable goods	7380.06 (31731.67)
ln(HDGExp)	Log of household expenditure on durable goods	7.24 (1.69)
MPCE	Total household monthly expenditure (excluding household expenditure on durable goods) (income proxy)	9234.48 (62660.57)
ln(MPCE)	Log of household monthly consumption expenditure	11.24 (0.64)
HHSize	No. of persons living in the household	3.67 (1.64)
Literate	Household head at least primary educated=1, 0 otherwise	0.80 (0.40)
Malehead	Household head is male=1, 0 otherwise	0.85 (0.36)
WageEmp	Household head is employed regular wage/salary=1, 0 otherwise	0.29 (0.45)
SelfEmp	Household head is self-employed in agriculture/non-agriculture=1, 0 otherwise	0.34 (0.47)
Casulab	Household head is casual labour in agriculture/non-agriculture=1, 0 otherwise	0.29 (0.26)
OthEmp	Household head is in other work=1, 0 otherwise	0.09 (0,28)
BC	Household belongs to backward community=1, 0 otherwise	0.78 (0.41)
SC/ST	Household belongs to SC/ST community=1, 0 otherwise	0.19 (0.39)
OthCom	Household belongs to other community=1, 0 otherwise	0.08 (0.17)
Northcoast	Household lives in northern coastal region=1, 0 otherwise	0.30 (0.46)
Coast	Household lives in other coastal region=1, 0 otherwise	0.19 (0.39)
South	Household lives in southern region=1, 0 otherwise	0.27 (0.44)
Inland	Household lives in inland region=1, 0 otherwise	0.25 (0.43)
Age14	Household has children below 14 years age=1, 0 otherwise	0.49 (0.50)
Age15-60	Household has adults between ages 15 and 60 years=1, 0 otherwise	0.95 (0.22)
Age60+	Household has elders above 60 years age=1, 0 otherwise	0.31 (0.47)
N	No. of observations	5442

Note: Standard deviations are in parentheses.

The causal effects of the determinants of household expenditure on durable goods consumption are usually estimated by the OLS regression analysis. However, the OLS estimates are the same throughout the distribution of household durable goods expenditure. Therefore, the quantile regression model is applied to identify the differential effects at the 25th, 50th and 75th quantiles of the distribution of household consumption expenditure on durable goods. Table 3 presents the estimated results for both OLS and quantile regression models. As can be observed the quantile regression model has relatively much better and significant coefficient estimates compared to the OLS model.

Table 3 OLS and QR Estimates of Household Consumption Expenditure on Durable Goods

Dependent variable: ln(HDGExp)

Variable	*OLS*	*25th quantile*	*50th quantile*	*75th quantile*
ln(MPCE)	1.49* (3.36)	1.25* (3.94)	1.36* (3.38)	1.74* (4.46)
HHSize	-0.12* (7.50)	-0.10* (4.86)	-0.10* (5.64)	-0.14* (6.59)
Literate	0.09 (1.59)	0.07 (0.88)	0.14** (2.27)	0.20** (2.40)
Malehead	0.03 (0.58)	0.17*** (1.87)	0.03 (0.46)	-0.01 (0.12)
WageEmp	0.15** (2.03)	0.05 (0.63)	-0.05 (0.91)	0.14*** (1.72)
SelfEmp	0.21* (3.91)	0.23* (3.29)	0.19* (3.56)	0.14*** (1.92)
Casulab	0.008 (0.08)	-0.01 (0.09)	0.05 (0.91)	0.16 (1.11)
BC	0.28* (2.59)	0.25* (2.78)	0.29* (2.85)	0.33* (2.91)
SC/ST	-0.04 (0.80)	-0.05 (0.67)	-0.07 (1.18)	-0.07 (0.87)
Age15-60	-0.21 (1.55)	-0.15 (0.84)	-0.32** (2.33)	-0.20 (1.07)
Age60+	0.14* (2.98)	0.16* (2.60)	0.10** (1.98)	0.17** (2.53)
Coast	0.59* (9.76)	0.37* (4.72)	0.60* (9.63)	0.78* (9.27)
South	0.72* (3.39)	0.62* (4.81)	0.86* (5.48)	0.89* (7.72)
Inland	0.51* (9.10)	0.56* (7.68)	0.59* (8.35)	0.68* (7.46)
Constant	-9.74* (6.45)	-8.11* (3.60)	-8.36* (7.85)	-11.71* (8.35)
R^2/Pseudo R^2	0.25	0.14	0.15	0.15

Note: Absolute t-values are in parentheses *, **, *** Significant at 1, 5, 10% levels.

In the OLS estimates, a one percentage increase in income will significantly increase the household consumption expenditure on durable goods by 1.49%. In quantile regression estimates, income is positively associated with the consumption of durable goods. All the coefficients of income are positive and statistically significant at the 1% level. In the 25th quantile, an increase in income increases durable goods consumption expenditure by 1.25%, by 1.26% in the 50th quantile and by l.75% in

the 75th quantile. Thus, the income effect on durable goods consumption is not the same across the distribution of household consumption expenditure on durable goods and it increases with the increase in household income. In fact, the income effect increases by 0.50% at the upper quantile of the expenditure distribution. With regard to employment, self-employed households like agricultural and business households spend more on the consumption of durable goods. The coefficient estimates are positive and statistically significant both in the OLS and quantile estimates. However, neither wage-employed nor casual labour households spend much on durable goods consumption. The coefficient of wage employment at the 50th quantile is in fact negative and insignificant. The other wage employment coefficients are weak and none of the casual labour coefficients are significant.

The negative effect of household size is higher at the upper quantile. The male head of the household has a positive effect on durable goods consumption expenditure at the 25th quantile only. In the quantile regression estimates literacy has a positive effect on the consumption of durable goods. The coefficients of literacy are statistically significant at the upper quantiles. Households with elders also spend a significant amount on durable goods consumption relative to households with young children. Significantly, the household expenditure on durable goods consumption decreases with more adults in the household. The age group 15-60 has a consistently negative effect on durable goods expenditure at all the quantiles. In both OLS and quantile estimates, households belonging to backward communities spend more on durable goods compared to other communities. The coefficient estimates are consistently positive and statistically significant. Further, households in the upper quantiles spend more on durable goods relative to households in the lower quantiles. For households belonging to the SC/ST community, the coefficient estimates are negative but statistically insignificant. The backward class community is more status concerned, therefore incurs more on durable goods consumption. An increase in household size significantly decreases household consumption expenditure on durable goods. Households in the interior regions of Tamil Nadu incur significant expenditure on durable goods consumption. The positive effect is statistically significant at all quantiles of the durable goods expenditure distribution. In the 25th quantile, inland household expenditure on durable goods consumption is higher by 0.57, by 0.59 in the 50th quantile and by 0.68 units in the upper quantile compared to northern coastal region households. The effect of other regions is also positive and statistically significant and the effect increases with higher quantiles in the distribution. The southern region's household expenditure on durable goods is higher than all other regions both in the OLS and quantile estimates.

The household consumption expenditure on durable goods by literacy and social groups are presented in Tables 4 and 5 respectively. The estimates of OLS and quantile regression show more or less the same effects of the variables as in the general estimates. The effect of income is significantly positive in all estimates and the quantile regression estimates show an increasing effect of income over regression quantiles. In households with literacy, none of the coefficients of wage/salary employment is significant, whereas wage employment has some effects at the bottom quantile of the household durable goods expenditure. While self-employment has a significant effect at the upper end of the expenditure distribution of illiterate households, the effect is strong and significant at the lower end of the durable goods expenditure. The coefficients of casual labour are positive and significant among the illiterate households, in illiterate households the effect is insignificantly negative. In illiterate households, community background has no significant effect on household expenditure on durable goods, but the literate backward community spends significantly positively on durable goods consumption in Tamil Nadu. Similarly, the presence of elders contributes to increased expenditure on durable goods in literate households, but in illiterate households, there is no significant effect on aged persons.

Among the social groups, income has a positive and significant effect on household expenditure on durable goods and the effects are strong in the upper quantiles of the expenditure distribution. The effect of household size is significantly negative in all quantiles among the SC/ST and backward class communities but has no significant effect in other communities. Male headship has some effect in other communities at the lower part of the expenditure distribution while it has no effect in both SC/ST and backward class communities. Similarly, the employment status has no significant effect on durable goods consumption expenditure in SC/ST and other communities, in backward class community households salary/wage employment and self-employment have positive and significant effects in all quantile and OLS estimates. Interestingly, literacy has a significant and positive effect on durable goods consumption in the backward class community households while education has no role in the consumption of durable goods either in SC/ST or other community households. The presence of elders significantly positively contributes to durable goods expenditure in only the backward class community households and has no significant effect in other community households.

Irrespective of region of residence, both in the literate and illiterate households and among the social groups, generally all households in Tamil Nadu incur substantial expenditure on durable goods and it increases with the increase in quantiles of the expenditure distribution. Overall, there is some difference between the literate and illiterate households and among the social groups in the expenditure on durable goods.

Table 4 OLS and QR Estimates of Household Consumption Expenditure on Durable Goods by Literacy

Dependent variable: ln(HDGExp)

Variable	*OLS*	*25th quantile*	*50th quantile*	*75th quantile*
Literate households				
ln(MPCE)	1.50* (3.79)	1.27* (2.56)	1.37* (4.14)	1.83* (6.19)
HHSize	-0.13* (7.28)	-0.11* (5.09)	-0.12* (6.72)	-0.17* (6.50)
Malehead	0.07 (0.85)	0.25** (2.34)	0.11 (1.25)	-0.17 (1.42)
WageEmp	0.08 (1.18)	0.03 (0.32)	0.008 (0.12)	0.04 (0.45)
SelfEmp	0.19* (3.09)	0.23** (2.23)	0.19* (2.93)	0.07 (0.78)
Casulab	-0.08 (0.76)	-0.08 (0.55)	-0.05 (0.49)	-0.13 (0.80)
BC	0.30* (2.47)	0.33** (2.23)	0.29** (2.35)	0.21 (1.27)
SC/ST	-0.07 (1.18)	-0.06 (0.81)	-0.06 (0.85)	-0.09 (0.98)
Age15-60	-0.21 (1.25)	-0.20 (0.93)	-0.23 (1.32)	-0.17 (0.70)
Age60+	0.17* (3.06)	0.20* (2.87)	0.15* (2.73)	0.19** (2.50)
Coast	0.58* (8.74)	0.38* (4.57)	0.59* (8.56)	0.75* (7.88)
South	0.71* (7.34)	0.61* (8.11)	0.85* (6.74)	0.84* (9.90)
Inland	0.53* (8.56)	0.58* (7.33)	0.60* (9.20)	0.60* (6.70)
Constant	-9.68* (8.02)	-8.20* (6.05)	-8.39* (5.91)	-12.24* (5.91)
R^2/Pseudo R^2	0.23	0.13	0.13	0.15
Sample size	4498			
Illiterate households				
ln(MPCE)	1.48* (4.49)	1.21* (7.73)	1.44* (8.74)	1.62* (7.65)
HHSize	-0.07** (2.28)	-0.06 (1.28)	-0.06*** (1.76)	-0.07 (1.65)
Malehead	-0.02 (0.25)	0.04 (0.26)	0.06(0.54)	-0.002 (0.02)
WageEmp	0.32* (2.29)	0.41*** (1.92)	0.20 (1.37)	0.16 (0.90)
SelfEmp	0.20*** (1.81)	0.07 (0.46)	0.11 (1.03)	0.23*** (1.73)
Casulab	-0.48** (2.07)	0.23 (0.65)	0.60** (2.50)	0.71** (2.40)
BC	-0.23 (0.56)	-0.005 (0.01)	-0.36 (0.85)	-0.18 (0.35)
SC/ST	0.09 (0.89)	0.02 (0.15)	-0.008 (0.09)	0.04 (0.31)
Age15-60	-0.11 (0.49)	-0.25 (0.71)	-0.28 (1.19)	-0.11 (0.39)
Age60+	0.07 (0.74)	0.16 (1.06)	-0.004 (0.04)	0.08 (0.65)
Coast	0.60* (4.21)	0.38*** (1.73)	0.50* (3.41)	0.63* (3.51)
South	0.83* (6.16)	0.92* (4.50)	0.98* (7.15)	0.91* (5.40)
Inland	0.39* (3.18)	0.35*** (1.89)	0.53* (4.31)	0.53* (3.48)
Constant	-7.63* (4.85)	-7.63* (4.85)	-9.27* (8.84)	-10.87* (8.45)
R^2/Pseudo R^2	0.30	0.14	0.19	0.22
Sample size	944			

Note: Absolute t-values are in parentheses *, **, *** Significant at 1, 5, 10% levels.

Table 5 OLS and QR Estimates of Household Consumption Expenditure on Durable Goods by Social Groups

Dependent variable: ln(HDGExp)

Variable	*OLS*	*25th quantile*	*50th quantile*	*75th quantile*
	SC/ST households			
ln(MPCE)	1.55* (5.35)	1.26* (6.23)	1.55* (4.07)	1.68* (6.34)
HHSize	-0.13* (4.04)	-0.14* (3.75)	-0.15* (4.19)	-0.09*** (1.85)
Malehead	0.05 (0.35)	0.12 (0.69)	0.02 (0.09)	-0.09 (0.40)
WageEmp	-0.03 (0.20)	0.09 (0.69)	0.16 (1.34)	0.05 (0.29)
SelfEmp	0.09 (0.76)	0.22*** (1.67)	-0.02 (0.11)	0.18 (1.02)
Casulab	-0.26 (0.82)	-0.31 (0.89)	-0.25 (0.73)	-0.17 (0.36)
Literate	-0.008 (0.07)	0.01 (0.10)	0.11 (0.89)	0.18 (1.06)
Age15-60	-0.31 (0.76)	-0.52 (1.15)	-0.24 (0.54)	-0.75 (1.24)
Age60+	0.12 (1.08)	0.13 (1.04)	0.12 (0.99)	0.19 (1.14)
Coast	0.43* (3.31)	0.19 (1.28)	0.44* (3.11)	0.61* (3.16)
South	0.73* (5.97)	0.83* (6.10)	0.89* (6.73)	0.91* (5.01)
Inland	0.42* (3.48)	0.47* (3.50)	0.63* (4.81)	0.59* (3.34)
Constant	-10.11* (9.40)	-7.63* (6.38)	-10.20* (4.73)	-10.96* (6.93)
R^2/Pseudo R^2	0.26	0.15	0.17	0.17
Sample size	935			
	Backward community households			
ln(MPCE)	1.47* (9.35)	1.22* (8.14)	1.34* (5.74)	1.76* (4.97)
HHSize	-0.11* (6.35)	-0.09* (3.54)	-0.08* (4.39)	-0.15* (6.04)
Malehead	-0.01 (0.17)	0.14 (1.34)	0.02 (0.31)	-0.12 (1.06)
WageEmp	0.17** (2.50)	0.07 (0.80)	0.12*** (1.76)	0.17*** (1.86)
SelfEmp	0.25* (4.14)	0.23* (2.83)	0.25* (3.93)	0.15*** (1.76)
Casulab	0.01 (0.11)	-0.01 (0.07)	0.12 (1.08)	0.14 (0.89)
Literate	0.13** (1.98)	0.12 (1.29)	0.13*** (1.78)	0.21** (2.11)
Age15-60	-0.13 (0.91)	-0.14 (0.66)	-0.21 (1.35)	-0.13 (0.62)
Age60+	0.14* (2.62)	0.17** (2.39)	0.09*** (1.73)	0.15** (1.99)
Coast	0.59* (8.66)	0.37* (3.99)	0.58* (8.10)	0.75* (7.71)
South	0.71* (9.49)	0.55* (6.57)	0.81* (8.59)	0.86* (9.87)
Inland	0.50* (7.97)	0.56* (6.50)	0.55* (8.32)	0.54* (6.06)
Constant	-9.67* (8.83)	-7.87* (8.25)	-8.21* (7.25)	-11.89* (6.26)
R^2/Pseudo R^2	0.25	0.12	0.15	0.16
Sample size	4323			
	Other community households			
ln(MPCE)	1.71* (7.36)	1.82* (8.05)	1.52* (4.96)	1.76* (4.51)
HHSize	-0.10 (1.01)	-0.13 (1.39)	-0.009 (0.07)	-0.09 (0.57)
Malehead	1.15* (2.68)	1.36* (3.25)	0.46 (0.81)	0.53 (0.73)
WageEmp	0.29 (0.61)	0.71 (1.55)	0.63 (1.01)	0.53 (0.67)
SelfEmp	-0.36 (0.77)	0.48 (1.07)	0.72 (1.19)	0.74 (0.96)

Casulab	0.32 (0.52)	-0.03 (0.06)	-0.15 (0.18)	-0.36 (0.35)
Literate	0.04 (0.07)	-0.30 (0.56)	0.42 (0.56)	0.52 (0.58)
Age15-60	-0.91 (1.54)	-1.00*** (1.74)	-0.54 (1.21)	-0.55 (0.55)
Age60+	0.22 (2.81)	-0.05 (0.23)	-0.05 (0.22)	0.36 (0.79)
Coast	1.09* (2.81)	1.47* (3.90)	0.79 (1.55)	1.60** (2.46)
South	1.17* (3.72)	1.44* (4.69)	1.04* (2.50)	1.02*** (1.93)
Inland	0.80** (2.54)	1.01* (3.28)	0.96** (2.30)	1.05** (1.99)
Constant	-12.85* (4.59)	-14.54* (5.81)	-1029* (3.02)	-12.57* (2.90)
R^2/Pseudo R^2	0.31	0.24	0.19	0.20
Sample size	4323			

Note: Absolute t-values are in parentheses *, **, *** Significant at 1, 5, 10% levels.

Conclusion

The objective of this paper is to examine the pattern of household expenditure on durable goods and to analyse the distributional effects of the determinants of durable goods expenditure of households in Tamil Nadu using the 68th round (July 2011- June 2012) of NSSO data. The literate households have high consumption expenditure on durable goods compared to illiterate households. The household consumption expenditure on durable goods is analysed by quantile regression. The ordinary least square estimation explains the average effects of the explanatory variable, while the quantile regression explains the distribution effects in the different quantiles. The study finds a positive relation between income and durable goods expenditure across all households and such expenditure increases at higher quantiles. The effect of family size on durable goods expenditure is negative. There also exist significant differences across regions and communities. The backward community households spend significantly more on durable goods than the SC/ST households. The consumption expenditure on durable goods of the coastal and southern district's households is more compared to the other regions. The households with a regular salary earner and business or self-employment consume more durable goods compared to the other households. The households with male heads spent more on durable goods compared to the female-headed households. Households with elders spend more on durable goods. The quantile regression estimates show the distributional effects of consumption expenditure on durable goods – most of the variables in the upper quantile show higher effects on household consumption of durable goods. The effects of variables are increasing from the lower quantile to the upper quantile in the case of all major determinants of consumer expenditure on durable goods.

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