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DETERMINE THE DEMAND CURVE AND PRICE ELASTICITY OF DEMAND OF OYSTER MUSHROOM (*PLEUROTUS* SPP.) IN THE MARKETS OF RAIPUR, DURG AND DHAMTARI DISTRICTS OF CHHATTISGARH INDIA

Adarsh Kumar*, Richa Dhurandher and Reema Thakur

Department of Agricultural Statistics and Social Science (L.), Indira Gandhi Krishi Vishwavidyalay, Raipur, Chhattisgarh, India

Corresponding author E-mail: adarshchandrakar279@gmail.com

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ABSTRACT

Chhattisgarh has been an agricultural state since its inception. Paddy is the principal crop of Chhattisgarh, whose central plains are known as Rice Bowl of central India. Another crop of interest that is grown in Chhattisgarh are Mushrooms, which are actually fleshy, spore-bearing fungal organisms. It is a waste-to-wealth crop, which has excellent medicinal property and the farmers can very easily grow it with minimum facility. This study focuses on the demand curve and price elasticity of demand for oyster mushrooms (*Pleurotus* spp.) in various districts of Chhattisgarh, such as Raipur, Durg, and Dhamtari, based on primary data and using statistical models. The basic principles of the theory of demand for any commodity were applied to analyze the demand curve and determine the price elasticity of demand in the selected three districts of Chhattisgarh. Five weeks of time series data were collected from each of the main mushroom markets in Raipur, Durg, and Dhamtari districts. The statistical method of linear mixed effects models was used to analyze the price elasticity of demand in each of the above markets. The demand of oyster mushroom (*Pleurotus* spp.) was found to be relatively inelastic in the markets of Raipur, Durg and Dhamtari. In other words, the demand was found to be rather inflexible in these markets.

Key words: Demand curve, Price elasticity of Demand, Statistical methods, Linear mixed effect models, Relatively inelastic, Mushroom.

Introduction

Chhattisgarh has been an agricultural state since its inception. Paddy is the principal crop of Chhattisgarh, whose central plains are known as Rice Bowl of central India. Another crop of interest that is grown in Chhattisgarh are Mushrooms, which are actually fleshy, spore-bearing fungal organisms usually arising above the ground surface or its source of nourishment belonging to the botanical class Agaricomycetes and order Agaricales. It is a waste-to-wealth crop, which has excellent medicinal property and the farmers can very easily grow it with minimum facility.

Different people in varied countries have different interpretations of the word “mushroom”. The Romans viewed them as “food of gods” in the ancient times, and the Greeks saw them as a source of power for fighters

in military battles.

In comparison to other crops, mushroom growing requires less vertical area and water. It's a waste-to-wealth crop. Farmers' livelihoods are further bolstered by mushroom farming, which provides consistent farm revenue and job prospects. It is an indoor crop that can be cultivated without the use of sunlight and does not require fertile land. It can also be grown on a small scale because it does not require a large capital input.

This study focuses on the demand of the mushroom, for which primary data were collected from the mushroom growers and the markets of wholesalers belonging to the same districts. The primary data on demand was mostly collected from wholesalers except the disposable income, which was collected from some of the randomly selected consumers of oyster mushrooms (*Pleurotus* spp.) from the same markets.

Materials and Methods

Data & Methodology

There are around 2000 edible fungus species documented around the world, with 200 species available in India. Only six of these species are used in the growing process for commercial reasons in the Country, and they are: *Pleurotus spp.* (Oyster or Tropical mushroom), *Volvariella spp.* (Paddy straw or Chinese mushroom), *Agricus bisporus* (European or White-Button mushroom), *Calocybe indica* (Milky mushroom), *Flammulina velutipes* (Enokitake mushroom) and *Lentinus edodes* (Shiitake mushroom). The species *Pleurotus florida* is very much liked by the people of Chhattisgarh and grown in a wider area than other species of mushroom.

Out of all above types of mushrooms, this study focuses on the oyster mushroom (*Pleurotus spp.*) on the grounds of highest rank score achieved by it, based on seven parameters namely production process (PP), cost of cultivation (CC), popularity (P), affordability (A), nutritiousness (N), availability of substrate (AS) and environmental condition (EC) as shown in above Table.

Collection of Data

The producers were selected from the list of producers, who were associated and trained by the Mushroom Research Laboratory, Department of Plant Pathology, College of Agriculture and Research Station, Indira Gandhi Krishi Vishwavidyalaya (IGKV), Raipur, C.G., mostly belonging to Raipur, Durg and Dhamtari districts of Chhattisgarh. Along with the producers, data were also collected from some randomly selected consumers of some markets where the products of above-mentioned producers were being sold.

The primary data were collected through interview method by personally visiting the mushroom growers and the markets of wholesalers belonging to the same districts or by telephonic interview method. Three questionnaires were prepared for the interviews from the respondents of Raipur, Durg and Dhamtari.

Method

A simple model of demand and supply:

$$\text{Demand: } Q = \alpha_1 P + \alpha_2 X + e_d \quad \dots 1$$

$$\text{Supply: } Q = \beta_1 P + e_s \quad \dots 2$$

where,

P and Q are endogenous variables, and

X is exogenous variables.

The Identification

In a system of M simultaneous equations, which

jointly determine the values of M endogenous variables, at least M – 1 variable must be absent from an equation for estimation of its parameters to be possible. In other words, we can say that the identification of the simultaneous equations is most important process for making their parameters estimable.

When estimation of an equation's parameters is possible consistently, then the equation is said to be *identified*. If fewer than M–1 variable is omitted from an equation, then it is said to be *unidentified*, and its parameters cannot be consistently estimated.

In our supply and demand model, there are M=2 equations, so we require at least M–1=1 variable to be omitted from an equation to identify it. There is a total of three variables: P, Q, and X in simultaneous Equations (1-2).

In the demand Equation (1), none of the variables are omitted; thus, it is *unidentified* and its parameters cannot be estimated consistently. In the supply Equation (2), one variable, i.e., income (X), is omitted; thus, the supply curve is *identified*, and its parameter can be estimated.

The identification condition must be checked before trying to estimate an Equation. If an Equation is not identified, then changing the model must be considered before it is estimated. However, changing the model should not be done in a haphazard way; no important variable should be omitted from an Equation just to identify it.

The Reduced-Form Equations

The two structural simultaneous Equations (1) and (2) can be solved to express the endogenous variables P and Q as functions of the exogenous variable X and this reformulation of the model is called their reduced form given below as Equations (5) and (8).

This reduced form is very important in its own right, which helps in understanding the structural Equation system. To find the reduced form, we solve (1) and (2) simultaneously for P and Q.

To solve for P, we equate the equations corresponding to the equilibrium quantity, Q, of both the demand and supply, as in Equation (3):

$$\beta_1 P + e_s = \alpha_1 P + \alpha_2 X + e_d \quad \dots 3$$

$$\Rightarrow P = \frac{\alpha_2}{\beta_1 - \alpha_1} X + \frac{e_d - e_s}{\beta_1 - \alpha_1} \quad \dots 4$$

$$= \pi_1 X + v_1 \quad \dots 5$$

To solve for Q, substituting the value of P from (4) into the supply Equation (2):

Table 1: Some common mushrooms, their genus and species found in Chhattisgarh.

S. No.	Common Mushroom Name	Genus	Species	Parameter's rank scores (4-highest rank)
1.	Oyster mushroom	<i>Pleurotus</i>	<i>florida, sajor-caju, ostreatus</i>	*PP: 4, CC: 4, P: 4, A: 4, N: 4, AS: 4, EC: 4 = 28
2.	Paddy straw mushroom	<i>Volvariella</i>	<i>volvacea</i>	*PP: 3, CC: 3, P: 3, A: 2, N: 4, AS: 2, EC: 2 = 19
3.	Milky mushroom	<i>Calocybe</i>	<i>indica</i>	*PP: 2, CC: 3, P: 1, A: 3, N: 3, AS: 4, EC: 2 = 18
4.	Button mushroom	<i>Agricus</i>	<i>bisporus</i>	*PP: 1, CC: 1, P: 4, A: 3, N: 4, AS: 2, EC: 1 = 16

Note: * PP= production process, CC= cost of cultivation, P= popularity, A= affordability, N= nutritiousness, AS= availability of substrate, EC= environmental condition.

$$Q = \beta_1 P + e_s$$

$$= \beta_1 \left[\frac{\alpha_2}{(\beta_1 - \alpha_1)} X + \frac{e_d - e_s}{(\beta_1 - \alpha_1)} \right] + e_s \quad \dots 6$$

$$= \frac{\beta_1 \alpha_2}{(\beta_1 - \alpha_1)} X + \frac{\beta_1 e_d - \alpha_1 e_s}{(\beta_1 - \alpha_1)} \quad \dots 7$$

$$= \pi_2 X + v_2 \quad \dots 8$$

The parameters and in (5) and (8) are called reduced-form parameters. The error terms and are called reduced-form errors.

Two-Stage Least Squares Estimation (2SLS):

- i. Least squares estimation of the reduced-form Equation for P and the calculation of its predicted value, \hat{p} .
- ii. Least squares estimation of the structural Equation in which the right-hand-side endogenous variable P is replaced by its predicted value \hat{p} .

Result and Discussion

Since supply and demand work together to establish the amount and price of items in the market and achieve some equilibrium, they do so at specific price and quantity coordinates for the target markets, such as Raipur, Durg, and Dhamtari in the current context.

Equations (1) and (2) already provide the supply and demand forces as simultaneous econometric models. These models are modified to meet the needs of the current study and are produced below in Equations (9) and (10), which explain the quantity and price behaviors of oyster mushrooms in the Raipur, Durg, and Dhamtari markets according to the equilibrium reached in each market.

Demand: $Q = \text{Int.} + P + PS + DI \quad \dots 9$

Supply: $Q = \text{Int.} + P + PF \quad \dots 10$

In order to solve the simultaneous equations model Equations (9) and (10), the market dictated two substitute commodities of oyster mushroom, namely, soybean and chicken. Therefore, three simultaneous equations have been solved, each-consisting of substitutes soybean,

chicken and chicken + soybean combine together.

Identification

In M simultaneous equations, which jointly determine the values of M endogenous variables, at least M-1 variable must be absent from an equation for estimation of its parameters to be possible.

Here in supply and demand's model there are M = 2 equations, so require at least M-1=1 variable to be omitted from an equation to identify it. There is a total of three variables: P, Q, and DI. In the demand Equation none of the variables are omitted; thus, it is *unidentified* and its parameters cannot be estimated consistently. In the supply Equation, one variable, income (DI), is omitted; the supply curve is *identified*, and its parameter can be estimated.

Derived reduce form for the Equation (9) and (10)

Derived reduced form Equation for the simultaneous equations model with soybean substitute commodity are as follows:

Quantity: $25.7925* -0.0154PSCH+ 1.2743DI^{***} - 0.3157PF^* \quad \dots 11$

Price: $-23.6508+2.3723PS^{***}-3.6457 DI^{***}+ 2.2103PF^{***} \quad \dots 12$

Derived reduced form Equation for the simultaneous equations model with chicken substitute commodity are as follows:

Quantity: $10.3117*+0.7774PS^{***}+0.5248DI^{**}- 0.3510PF^{**} \quad \dots 13$

Price: $37.4930 -0.1331PSCH -1.3606DI^*+ 2.2958 PF^{***} \quad \dots 14$

Derived reduced form Equation for the simultaneous equations model with soybean + chicken substitute commodity are as follows:

Quantity: $9.5583+0.7793PS^{***}+0.0045PSCH+ 0.5231DI^{**}-0.3500PF^{**} \quad \dots 15$

Price: $-11.2774+2.3411PS^{***}-0.0734PSCH- 3.6172DI^{***}+2.1928PF^{***} \quad \dots 16$

Determination of demand curve and price elasticity of demand for oyster mushroom (*Pleurotus spp.*) for the Raipur market.

Table 2: Results of analyses of price elasticity of oyster mushroom demand in the market of Raipur:

lmer() linear mixed effect model using R	
Estimation of parameters of the model:	
$(\log f) = (\log c) - \eta_0 (\log p)$	
<pre>> summary(demand.lmer,cor=T) Linear mixed model fit by REML. t-tests use Satterthwaite's method [lmerModLmerTest] Formula: log(quantity.d) ~ (1 week) + log(price.d) Data: RPR REML criterion at convergence: -11.5 Scaled residuals: Min 1Q Median 3Q Max -2.3598 -0.6995 0.1729 0.5957 2.2830 Random effects: Groups Name Variance Std.Dev. week (Intercept) 0.00000 0.0000 Residual 0.03669 0.1915 Number of obs: 35, groups: week, 5 Fixed effects: Estimate Std. Error df t value Pr(> t) Int.(log c) 6.3683 0.8203 33.0000 7.763 6.06e-09 *** log(price.d) -0.5829 0.1630 33.0000 -3.577 0.0011 ** --- Signi.codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1 Correlation of Fixed Effects: (Intr) log(pric.d) -0.999 optimizer (nloptwrap) convergence code: 0 (OK) boundary (singular) fit: see ?isSingular</pre>	
ANOVA	
<pre>> anova(demand.lmer) Type III Analysis of Variance Table with Satterthwaite's method Sum Sq Mean Sq NumDF DenDF F value Pr(>F) log(price.d) 0.46931 0.46931 1 33 12.793 0.001099 ** --- Signi.codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1</pre>	

For the analyses of price elasticity of demand of oyster mushroom in the Raipur market, the statistical method of linear mixed effect model, has been applied because the demand data was collected for a random number of 5 weeks, neither for the whole year nor for any given season, therefore week may affect the demand of oyster mushroom in a random way. Hence statistically speaking, for fitting the demand curves it is more befitting to consider week as a random effect instead of being a simple fixed effect. The price is considered as fixed effect. Thus, the results of fitting the linear mixed effect model are given in the Table 2 followed by subsequent discussion.

From Table 2 the linear mixed effect model for the demand curve has been estimated using R as in Equations 4.1-4.2, where both the constant coefficient and the price

elasticity coefficient of demand were found to be highly significant:

$$(\log f) = 6.3683^{***} - 0.5829^{**} (\log p) \quad \dots 4.1$$

$$f = 583.0658 p^{-0.5829} \quad \dots 4.2$$

The expected values of demand as per the model Equation 4.1-4.2 were computed and then the average raw observed data of demand and price along with these expected values have been plotted in a graph, see Fig. 1, to assess the behavior of demand curve of oyster mushroom in the market of Raipur.

Some of the following observations on the above demand-price analysis for the market of Raipur are as follows:

- The weekly average maximum demand of oyster mushroom (*Pleurotus spp.*) in Raipur was estimated is 37.57143 kg/week with weekly average maximum price to be Rs. 120 per kg.
- The weekly average minimum demand of oyster mushroom (*Pleurotus spp.*) in Raipur was estimated is 27.42857 kg/week with weekly average maximum price to be Rs. 210 per kg.
- The price elasticity of oyster mushroom (η_0) has been estimated to be -0.582, whose absolute value is less than one, which indicates that the price elasticity of demand of oyster mushroom is highly significant and relatively inelastic. It means that the changes in the demand of oyster mushroom is significantly less affected by the changes in its price.
- The average demand of oyster mushroom (*Pleurotus spp.*) decreases in general in Raipur as its average price increases.
- Two points of inflexion of the demand curve of

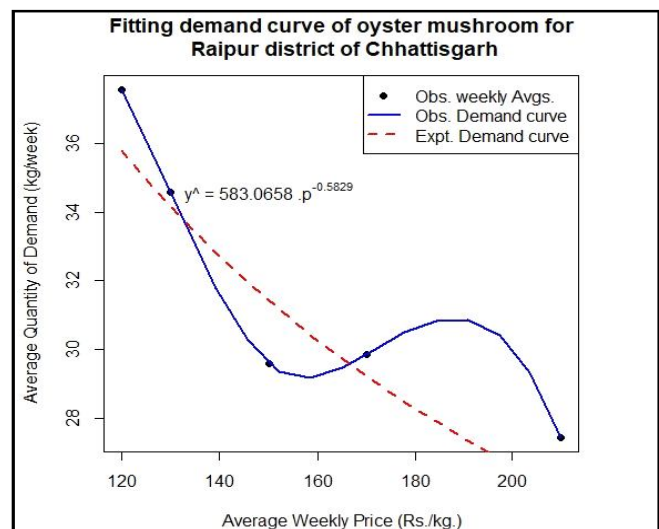


Fig. 1: Demand curve of oyster mushroom (*Pleurotus spp.*) for Raipur district of Chhattisgarh.

Table 3: Results of analyses of price elasticity of oyster mushroom demand in the market of Durg:

lmer() linear mixed effect model using R	
Estimation of parameters of the model:	
$(\log f) = (\log c) - \eta_0 (\log p)$	
<code>> summary(demand.lmer,cor=T)</code>	
Linear mixed model fit by REML. t-tests use Satterthwaite's method [lmerModLmerTest]	
Formula: $\log(\text{quantity.d}) \sim (1 \text{week}) + \log(\text{price.d})$	
Data: Durg	
REML criterion at convergence: -30.3	
Scaled residuals:	
Min	1Q Median 3Q Max
-2.48176	-0.50168 -0.07559 0.49275 2.71304
Random effects:	
Groups	Name Variance Std.Dev.
week	(Intercept) 0.00000 0.0000
Residual	0.02152 0.1467
Number of obs: 35, groups: week, 5	
Fixed effects:	
	Estimate Std. Error df t value Pr(> t)
Int.(log c)	5.3202 1.0999 33.0000 4.837 2.98e-05 ***
log(price.d)	-0.4624 0.2262 33.0000 -2.044 0.049 *

Signi.codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1	
Correlation of Fixed Effects:	
	(Intr)
log(pric.d)	-1.000
optimizer (nloptwrap) convergence code: 0 (OK)	
boundary (singular) fit: see ?isSingular	
ANOVA	
<code>> anova(demand.lmer)</code>	
Type III Analysis of Variance Table with Satterthwaite's method	
	Sum Sq Mean Sq NumDF DenDF F value Pr(>F)
log(price.d)	0.089968 0.089968 1 33 4.1798 0.04895 *
Signi.codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1	

oyster mushroom (*Pleurotus* spp.) for Raipur are being observed corresponding to 29.5 kg/week with price Rs. 158 per /kg and 31 kg/week at Rs. 193 per kg.

(f) The curve of price elasticity of demand is concave in nature.

Determination of demand curve and price elasticity of demand for oyster mushroom (*Pleurotus* spp.) for the Durg market.

For the analyses of price elasticity of demand of oyster mushroom in the Durg market, the statistical method of linear mixed effect model, has been applied because the demand data was collected for a random number of 5 weeks, neither for the whole year nor for any given season, therefore week may affect the demand of oyster mushroom in a random way. Hence statistically

speaking, for fitting the demand curves it is more befitting to consider week as a random effect instead of being a simple fixed effect. The price is considered as fixed effect. Thus, the results of fitting the linear mixed effect model are given in the Table 3 followed by subsequent discussion.

From Table 3 the linear mixed effect model for the demand curve has been estimated using R as in Equations 4.3-4.4, where both the constant coefficient and the price elasticity coefficient of demand were found to be significant:

$$(\log f) = 5.3202*** - 0.4624** (\log p) \quad \dots 4.3$$

$$f = 204.4248 p^{-0.4624} \quad \dots 4.4$$

The expected values of demand as per the model Equation 4.3-4.4 were computed and then the average raw observed data of demand and price along with these expected values have been plotted in a graph, see Fig. 2, to assess the behavior of demand curve of oyster mushroom in the market of Durg.

Some of the following observations on the above demand-price analysis for the market of Durg are as follows:

- (a) The weekly average maximum demand of oyster mushroom (*Pleurotus* spp.) in Durg was estimated is 23.85714 kg/week with weekly average maximum price to be Rs. 110 per kg.
- (b) The weekly average minimum demand of oyster mushroom (*Pleurotus* spp.) in Durg was estimated is 20.57143 kg/week with weekly average maximum price to be Rs. 140 per kg.
- (c) The price elasticity of oyster mushroom (η_0) has been estimated to be -0.462, whose absolute value is less than one, which indicates that the price

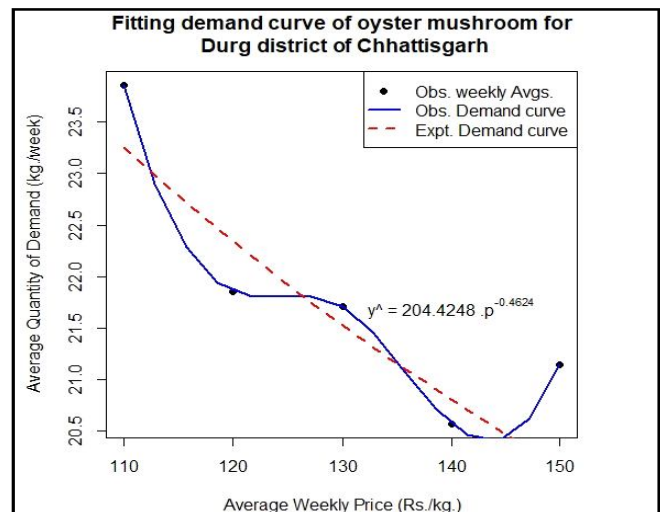


Fig. 2: Demand curve of oyster mushroom (*Pleurotus* spp.) for Durg district of Chhattisgarh.

Table 4: Results of analyses of price elasticity of oyster mushroom demand in the market of Dhamtari:

Imer() linear mixed effect model using R	
Estimation of parameters of the model:	
$(\log f) = (\log c) - \eta_0 (\log p)$	
<pre>> summary(demand.lmer,cor=T) Linear mixed model fit by REML. t-tests use Satterthwaite's method [lmerModLmerTest] Formula: log(quantity.d) ~ (1 week) + log(price.d) Data: DMT REML criterion at convergence: -10.5</pre>	
Scaled residuals:	
Min	1Q Median 3Q Max
-1.98656	-0.71695 -0.02306 0.72809 1.92255
Random effects:	
Groups	Name Variance Std.Dev.
week	(Intercept) 0.001177 0.0343
Residual	0.038523 0.1963
Number of obs: 35, groups: week, 5	
Fixed effects:	
	Estimate Std. Error df t value Pr(> t)
Int.(log c)	7.0845 1.5594 3.0000 4.543 0.0200 *
log(price.d)	-0.8387 0.3228 3.0000 -2.598 0.0805 .

Signi.codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1	
Correlation of Fixed Effects:	
	(Intr)
log(pric.d)	-1.000
ANOVA	
<pre>> anova(demand.lmer) Type III Analysis of Variance Table with Satterthwaite's method Sum Sq Mean Sq NumDF DenDF F value Pr(>F) log(price.d) 0.26008 0.26008 1 3 6.7512 0.08049 Signi.codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1</pre>	

elasticity of demand of oyster mushroom is significant and relatively inelastic. It means that the changes in the demand of oyster mushroom are significantly less affected by the changes in its price.

- (d) The average demand of oyster mushroom (*Pleurotus spp.*) decreases in general in Durg as its average price increases.
- (e) Three points of inflexion of the demand curve of oyster mushroom (*Pleurotus spp.*) for Durg are being observed the first point of inflexion is observed corresponding to 21.7 kg/week with price Rs. 121 per kg and second is 21.5 kg/week at the price of Rs. 131 per kg. while third point of inflexion is 20 kg/week at Rs. 145 per kg.
- (f) The curve of price elasticity of demand is concave in nature.

Determination of demand curve and price elasticity

of demand for oyster mushroom (*Pleurotus spp.*) for the Dhamtari market.

For the analyses of price elasticity of demand of oyster mushroom in the Dhamtari market, the statistical method of linear mixed effect model, has been applied because the demand data was collected for a random number of 5 weeks, neither for the whole year nor for any given season, therefore week may affect the demand of oyster mushroom in a random way. Hence statistically speaking, for fitting the demand curves it is more befitting to consider week as a random effect instead of being a simple fixed effect. The price is considered as fixed effect. Thus, the results of fitting the linear mixed effect model are given in the Table 4 followed by subsequent discussion.

From Table 4 the linear mixed effect model for the demand curve has been estimated using R as in Equations 4.5-4.6, where both the constant coefficient and the price elasticity coefficient of demand were found to be significant:

$$(\log f) = 7.0845* - 0.8387** (\log p) \quad \dots 4.5$$

$$f = 1193.326 p^{-0.8387} \quad \dots 4.6$$

Since the standard deviation of the week is a random effect, its standard deviation is estimated to be 0.0343 using lmer() model from the “lmerTest” package of R. Therefore, it is expected that the week will have significant impact on the mean square error to some extent. The expected values of demand as per the model Equation 4.5-4.6 were computed and then the average raw observed data of demand and price along with these expected values have been plotted in a graph, see Fig. 3, to assess the behavior of demand curve of oyster mushroom in the market of Dhamtari.

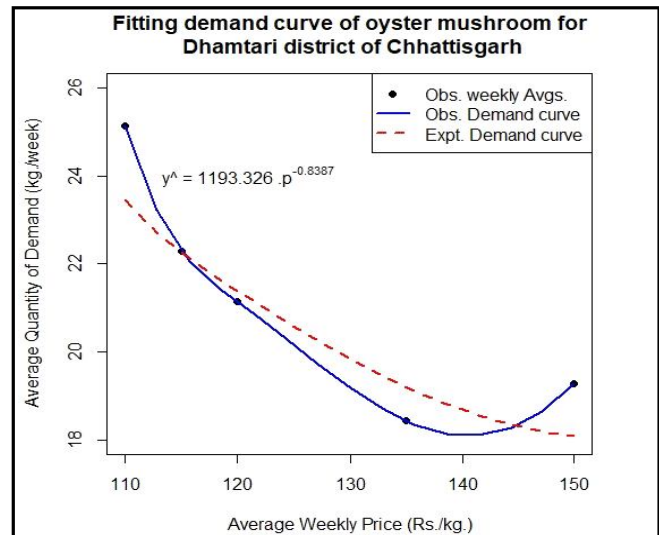


Fig. 3: Demand curve of oyster mushroom (*Pleurotus spp.*) for Dhamtari district of Chhattisgarh.

Some of the following observations on the above demand-price analysis for the market of Dhamtari are as follows:

- The weekly average maximum demand of oyster mushroom (*Pleurotus* spp.) in Dhamtari was estimated is 25.14286 kg/week with weekly average maximum price to be Rs. 110 per kg.
- The weekly average minimum demand of oyster mushroom (*Pleurotus* spp.) in Dhamtari was estimated is 18.42857 kg/week with weekly average maximum price to be Rs. 135 per kg.
- The price elasticity of oyster mushroom (η_0) has been estimated to be -0.838, whose absolute value is less than one, which indicates that the price elasticity of demand of oyster mushroom is highly significant and relatively inelastic. It means that the changes in the demand of oyster mushroom is significantly less affected by the changes in its price.
- The average demand of oyster mushroom (*Pleurotus* spp.) decreases in general in Dhamtari as its average price increases.
- Two points of inflexion of the demand curve of oyster mushroom (*Pleurotus* spp.) for Dhamtari are being observed point of inflexion is observed corresponding to 22 kg/week with price Rs. 117 per kg and another point of inflexion is 18.25 kg/week at the price of Rs. 140 per kg.
- The curve of price elasticity of demand is concave in nature.

Summary and Conclusion

This research is a case study of oyster mushroom (*Pleurotus* spp.) with the objective of determining its demand along with its respective price elasticities in the markets of Raipur, Durg and Dhamtari.

From the analyses of demand curves the some of the salient points are as follows: (i) the demand of the oyster mushroom (*Pleurotus* spp.) in the markets were relatively inelastic, i.e., the price fluctuations least affected the demand.

Putting together all the relevant variables and the sampled responses in the three districts of Raipur, Durg and Dhamtari two relevant simultaneous equations models, out of three estimated for oyster mushroom (*Pleurotus* spp.) are reproduced below:

Model I

Demand: $Q = 6.5555 - 0.1588 P^* + 1.1541 PS^{***} - 0.0541 DI$...5.1

Supply: $Q = 10.944682 - 0.1280 P + 1.0045 PF^{**}$...5.2

Model II

Demand: $Q = 30.9480 - 0.1375 P - 0.0337 PSCH + 1.0871 DI^{***}$...5.3

Supply: $Q = 35.2781 - 0.8487 P + 1.7791 PF^{**}$...5.4

Model I was found to be best among the three models estimated where the substitute commodity to oyster mushroom (*Pleurotus* spp.) was preferred as soybean among the general consumers, whereas Model II was found to be suitable for only those consumers who had their disposable income more than those of the general consumers and who preferred chicken as their substitute to oyster mushroom (*Pleurotus* spp.).

The present investigation focuses on the study of oyster mushroom (*Pleurotus* spp.). The demand of oyster mushroom (*Pleurotus* spp.) was found to be relatively inelastic in the markets of Raipur, Durg and Dhamtari. In other words, the demand was found to be rather inflexible in these markets.

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