



## **Determinants to Accept Compensation by Affected Households in New Capital Region of Andhra Pradesh**

**Shailaja T, Uma Devi K, Raghunadha Reddy G and Srinivasa Rao V**

Department of Agricultural Economics, Agricultural College, Bapatla 522 101, Andhra Pradesh

### **ABSTRACT**

India requires land in terms of both area and quality for the ongoing developmental projects. Land acquisition is a prerequisite to economic development and it appears logical that Governments need to acquire always more land to support an adaptive urban development process (Chiaravalli, 2012). The need for land acquisition arises for developmental projects because it is the first step towards completion of any major project. Land acquisition is fundamentally coercive. When a state notifies farmers that it seeks to acquire their land, “the potential use of violence backs this intent.” If the farmers refuse to vacate their land, the threat of coercion becomes actual violence (Levien, 2015). This paper highlights factors influencing affected households to accept compensation offered by state government to new capital region development of A.P. and constraints faced by affected households due to land pooling. Binary logistic regression was used to assess determinants of households to accept compensation in which variables like pressure, present value of future compensation, fair compensation policy, and percent of family members in labour showed significant influence on willingness to accept compensation. Important constraints were analyzed by Garrets’ ranking technique and found that no further occupation, increased consumption expenditure, search for other income sources inadequate and delayed compensation as main constraints faced by affected households. Most of the affected households suggested that there should be an increase in compensation package especially money compensation, provision of other alternative occupation and speedy implementation of the package.

**Key words:** *Acquisition, Compensation, Constraints, Suggestions, Willingness.*

The concept of land pooling is based on The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Amendment) Bill, 2015 that was introduced in Lok Sabha on February 24, 2015. Pooling of privately held land parcels by a public agency is variously known as land pooling and reconstitution (LPR). The land value gain for owner far exceeds the money value of the un-serviced land given to the public agency in rapidly urbanizing areas. LPR is considered one of the viable solutions that “unlocks land for urban use in a politically acceptable manner (Mathur, 2013). The broad objective of LPS is to do justice to affected families by the construction of a live able and sustainable capital city for the state of A.P. by making the land owners and local residents as partners in development. Land acquisition is fundamentally coercive. When a state notifies farmers that it seeks to acquire their land, “the potential use of violence backs this intent.” If the

farmers refuse to vacate their land, the threat of coercion becomes actual violence (Levien, 2015).

By naming the new capital as Amaravathi, the A.P. chief minister, N. Chandra Babu Naidu, propped up the pride of Andhra, who have been hurt with the loss of Hyderabad, after bifurcation. The government of A.P was bifurcated into separate Telangana and the residual A.P with the effect from 2 June, 2014. Post bifurcation of Telangana and A.P. in 2014, decided to locate a new capital, named Amaravathi, the “Peoples’ capital”, in an area spread over 25 villages and four hamlets in Thullur, Tadepalli and Mangalagiri mandals of Guntur District, on the right bank of the Krishna River. The state government entered into an agreement with International Enterprise, Singapore to prepare a master plan and develop a “world class capital city” thus becoming the “first outsourced capital city” in India. (Rajappa, 2015).

The villages marked for the capital region include both irrigated and dry lands with complete

linkages from farm to market and large sections of people deriving livelihoods including landowners, share croppers, tenants and agricultural workers earning secure livelihood from agriculture. Drastic urbanization of these areas due to land pooling policy may adversely impact food security of these areas and state as well. Parcels of land in these capital city areas, which had no buyers for 8 lakhs per acre at the same time last year, now command a price of 80 lakhs to 1 crore per acre. On the highways and in places within a radius of 25 kilometers from Vijayawada city limits, it is impossible to find land priced less than 1.5 to 2 crores per acre - even for lands with forged documents. One year back, people would have an opportunity to sell some of the land in more distant parts (20-25 kilometers from Vijayawada) at 50 lakhs. Even in places that are 5-8 kilometers beyond the city limits land is now being sold at not less than 4 crores per acre (Ananth, 2014).

#### MATERIAL AND METHODS

Guntur district of AP was purposively selected for the research study because capital formation is mainly concentrated in the Thullur mandal of Guntur district. A number of 8 owners, 8 tenants, 4 agricultural labourers were selected randomly from each village of top six villages having highest area under land pooling and land acquisition, constituting 48 owners, 48 tenants, 24 agricultural workers making a total sample of 120 affected households. Primary data on various aspects like details about compensation offered, compensation received, determinants to accept compensation etc., were collected from affected households for the agricultural years 2014-15 and compensation particulars during 2015-16, problems faced by affected households due to land pooling and acquisition and suggestions stated by them to overcome those problems through field survey by interview and recall memory method with the help of a pre-tested and well-structured schedule. The secondary data like population of villages in mandals, no. of owned and tenant farmers, agricultural labours, total land under pooling and acquisition etc. was obtained from various sources like mandal offices, CRDA office, AP government official websites and CRDA website (<http://www.ap.gov.in/APCRDA/userinterface/loginform.aspx>).

Binary logistic regression model was used for identifying determinants of household's decision to accept compensation under land pooling.

In this technique, the probability of a dichotomous outcome is related to a set of potential explanatory variables. Here dependent variable Y is dichotomous.

Where,

Y= 1 if households accepted compensation willingly

Y= 0 otherwise i.e., if household accepted compensation due to other reasons

This can be represented in the equation as follows

$$Y=P+e = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + e$$

Where

$\beta_0$  = intercept

$\beta_1, \dots, \beta_k$  = coefficients of explanatory variable  $X_1, \dots, X_k$

e = error term.

$$P/1-P = \exp[-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k)]$$

Where P/1-P is the 'odds' of the outcome such as willingness of the households to accept offered compensation. The logarithm of the odds, or simply log odds, was a linear function of the explanatory variables, X's as

$$\log[P/(1-P)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

Since P was assumed to follow a logistic distribution, maximum-likelihood methods can be used to estimate the coefficients  $\hat{\alpha}_1, \dots, \hat{\alpha}_k$ . Exp ( $\hat{\alpha}$ ) represents the expected change in the odds of households to accepting compensation willingly per unit change in the explanatory variable, other things being equal. This logistic analysis was done using SPSS 16.0

Table 1, describes the variables used in binary logistic regression for assessing determinants of households to accept compensation. Ghatak *et al.*, 2012 used binary logistic regression for analyzing various determinants of the probability of owners in accepting compensation offered in Singur. In this, dependent variable is dummy variable, if compensation accepted coded as 1, otherwise 0.

Households decision to accept compensation represent whether the individual accepted the offered compensation was either out of their interest and willingness or with a thought that there is no other way except to accept the

**Table 1. Particulars of variables used in binary logistic regression analysis to assess determinants of households to accept compensation**

S.No.	Variable	Units	Type of variable
1	Willingness of households to accept compensation	0,1( If given willingly=1 Otherwise = 0)	Discrete
2	Fair compensation Policy	0,1( If fair compensation =1 Otherwise = 0)	Discrete
3	For future development purpose	0,1(if for future development purpose =1 Otherwise = 0)	Discrete
4	Labour problem	0,1(if Labour problem=1 Otherwise = 0)	Discrete
5	Peer pressure	0,1(if due to pressure=1 Otherwise = 0)	Discrete
6	Present value of future compensation offered per acre	Rs (present values of offered compensation)	Continuous
6	Land type	0,1(if irrigated=1 if dry = 0)	Discrete
7	Per cent of agriculture income to household income	Percentage	Continuous
8	Per cent of family members as labourers	Percentage	Continuous

**Table 2. Characteristics of affected sample households.**

Particulars	Owners	Owner + tenant	Pure tenants	Tenant + labour	Agricultural labour
<b>Number</b>					
Household Size	28	20	42	6	24
No. of adults	68 (2.43)	58 (2.9)	100 (2.38)	16 (2.67)	61 (2.54)
No. of children	12 (0.43)	25 (1.25)	35 (0.83)	5 (0.83)	24 (1)
<b>Occupation (per cent of family members in)</b>					
Cultivation	55.29	53.25	62.61	59.16	0
Business	25	25	25	43	6.43
House work	45	23.33	31.67	25	35
Labour	25	35	12.33	25	65.48
Services (government / private)	12.33	6.12	0	0	0
<b>Education level of family head (per cent)</b>					
Illiterate	25	45	33.33	66.66	8.34
Primary	14.28	25	23.81	16.67	41.662
Secondary	39.28	25	33.33	16.67	9.16
Inter	17.86	5	9.53	—	20.84
Degree	3.58	—	—	—	—

Note : Figures in parenthesis indicates average values

compensation. If they accepted willingly it was coded 1, otherwise 0

Fair compensation policy indicates that the compensation offered by government under land pooling was considered fair by the farmers who gave their lands for New Capital Region development. If they considered compensation policy to be fair, they were assigned 1, otherwise 0.

Future development purpose states that, though farmers are losing their lands, their livelihood, felt that their land given would help in development of New Capital Region. This development would benefit them in future in providing employment to their children, fully developed residential and commercial plots which are of huge monetary value would increase their income and assets position. If the individual gave land for the future development purpose, they were given 1, otherwise 0.

Labour problem variable quotes that high labour charges, shortage during peak periods, thus increasing cultivation costs, resulted farmers to think, that giving up their occupation as a better option than to continue with losses. If compensation accepted was due to labour problem, it was given 1 otherwise 0.

Peer pressure variable represents that farmers who surrendered their lands was due to pressure from government officials or other farmers from neighboring villages etc. If compensation accepted was due to pressure, it was assigned 1, otherwise 0.

Present value of future compensation per acre for owners was present value of future compensation in the form of money, residential and commercial plots. While for tenants and agricultural labour, Present value of future compensation per households was considered. This was taken as values in rupees and was a continuous variable.

Land type variable represents the land surrendered by individual households for New Capital Region was either irrigated or dry. If land surrendered, was irrigated then 1 was assigned, otherwise 0.

Percentage of income from agriculture to total household income represents contribution of income from crops to total household income of individual. This percentage value was the continuous variable in the analysis.

Percentage of family members as labourers represents number of households as labourers to total household size and their percentage values were calculated and was taken as a continuous variable in the analysis.

For constraints analysis, Opinion survey results were analyzed using Garret ranking technique. Some major prevailing opinions highlighted during preliminary survey and the order of the merit given in ascending order was converted into ranks by using formula.

$$\text{Percent position} = \frac{100 * (R_{ij} - 0.50)}{N_j}$$

where

$R_{ij}$  = Rank given for  $i^{\text{th}}$  item by  $j^{\text{th}}$  farmer

$N_j$  = Number of items ranked by  $j^{\text{th}}$  farmer

The constraint for which the score value highest or with lowest rank was considered the most important problem faced by affected households.

Percentages were calculated for the suggestions stated by affected households to overcome those problems

Table 2 shows that, the sample of 120 were affected households, due to land pooling and were classified as owners, owner cum tenants, tenants, tenants cum agricultural labour and agricultural labour. There were 28 owners; their household size consists of 68 adults with an average of 2.43 and 0.43 children per family. Education level of head of the household of this category shows that 25 per cent were illiterates, 14.28 per cent had got primary level of education, 39.28 per cent were secondary level educates, 17.86 per cent were inter level educates and only 3.58 per cent had education up to degree level. Among these 28 farmers, 55.29 per cent were in cultivation, 25 per cent were in business, 45 per cent were engaged in household work, 25 per cent were involved in labour and 12.33 per cent in services. For Owner cum tenant farmers who were 20 in the sample, there were 58 (2.9 per family) adults and 25 (1.25 per family) children on an average. Education level of head of the household of this category shows that 45 per cent were illiterates, 25 per cent had got primary level of education, 25 per cent were secondary level educates, and only 5 per cent completed intermediate. From these 20 farmers, 53.25 per cent

**Table 3. Willingness of households to accept compensation (N =120).**

S.No.	Particulars	$\beta$ (SE)	Exp $\beta$	P value
1	Fair compensation Policy	-5.62*(1.70)	0.00	0.00
2	For future development purpose	1.84(5.12)	6.30	0.71
3	Labour problem	2.05(1.89)	7.81	0.27
4	Peer pressure	6.23*(2.08)	508.77	0.02
5	Present value of future compensation per acre	4.55E07*(0.00)	1.00	0.02
6	Land type	1.59(2.09)	4.93	0.44
7	Per cent of agriculture income to household income	0.13(0.03)	1.01	0.70
8	Percentage of family members as labourers	-0.75*(0.04)	0.92	0.10
	Constant	-5.186(4.80)	0.00	0.28
	-2 log likelihood	18.934		
	chi <sup>2</sup> (8)	141.32		
	Prob > chi <sup>2</sup>	0.00		

Cox & Snell R Square = 0.69 , Nagelkerke R Square =0.94

\*Indicates at 5% level of significance \*\* Indicates at 10% level of significance

were in cultivation, 25 percent were in business, 23.33 per cent were engaged in household work, 35 per cent were involved in labour and 6.12 per cent in services. In case of 42 tenant farmers, there were 100 (2.38 per family) adults and 35 (0.83 per family) children on an average. Education level of these 42 farmers was 33.33 per cent illiterates, 23.81 primary educates, 33.33 per cent secondary educates while 9.53 per cent were educated up to intermediate. Among these 42 tenants, 62.61 percent were in cultivation, 25 percent were in business, 31.67 per cent were engaged in household work, 12.33 per cent were involved in labour. Regarding 6 tenant cum agricultural labourers, house hold size was 16 adults (2.67 per family ) and 5 (0.83 per family) children on an average. Among these 6 farmers, 66.67 per cent were illiterates, 16.67 primary educates, 16.67 per cent secondary educates. Among these 6 tenant cum labourers, 59.16 per cent were in cultivation, 43 per cent were in business, 25 per cent were engaged in household work and 25 per cent were involved in labour. Apart from these four types of cultivators, there were 24 agricultural labourers with 61 (2.54 per family) adults and 24 (1 per family) children on an average. Among them, 8.34 per cent were illiterates, 41.66

percent had education up to primary level, 29.16 were secondary educates and 20.84 percent were educated up to intermediate. Among these 24 labourers, 6.43 per cent were in business, 35 per cent were engaged in household work, 65.48 per cent were involved in labour. Percentage of family members in cultivation was more in case of pure tenants followed by tenant cum agricultural labour, owner and owner cum tenants. whereas, percentage of family members in labour was more in case of agricultural labourers. In case of percentage of education level of household head, majority of the owners were secondary level educates, while majority of owner cum tenants were illiterates. In case of tenants, illiterates and secondary educates were 33.33 per cent. Majority of households in tenant cum agricultural labours were illiterates (66.67 per cent) and agricultural labour were primary educates (41.66 per cent).

#### **DETERMINANTS TO ACCEPT COMPENSATION BY SAMPLE HOUSEHOLDS**

Binary logistic regression was used to analyze the determinants of households' decision to accept compensation under land pooling. Here

**Table 4. Constraints faced by the affected sample households.**

Constraints	Ranks				
	Owner (28)	Owner + Tenant (20)	Tenant (42)	Tenant + Agril.labour (6)	Agril.labour (24)
No further occupation	1	1	4	3	7
Decreased Annual Income	6	7	1	2	3
Increased consumption expenditure	2	3	5	5	6
Search for other income sources	3	2	6	6	4
Increased transportation expenses	7	6	7	7	5
Inadequate compensation	5	4	2	4	1
Delayed compensation	4	5	3	1	2

dependent variable (Y) taken was willingness of households to accept compensation. Ghatak *et al.*, 2012 used binary logistic regression for analyzing various determinants of the probability of owners accepting compensation offered. In this dependent variable is dummy variable, if compensation accepted willingly coded as 1, otherwise 0.

Logistic regression was performed for the whole sample of 120 affected households. Determinants like fair compensation policy, future development purpose, labour problem, due to pressure, present value of future compensation per acre for owners and per household for tenants and agricultural labour, land type, per cent of agricultural income to household income and per cent of family members in labour were taken as explanatory variables. Out of these, determinants like Fair compensation policy, due to pressure, present value of future compensation per acre, per cent of family members in labour significantly influenced households' willingness to accept compensation. This analysis was done using software SPSS 16.0.

The overall model fits the data well and statistically significant with chi square value of 141.32 and  $p = 0.00$ . In other words, there was a significant relationship between the log odds of accepting the compensation with the explanatory variables.

The scheme was voluntary and made all farmers, stakeholders in the new capital development but fair compensation policy showed negative significant influence, because owners surrendered their lands as they were adequately compensated but expressed the uncertainty in

receiving commercial and residential plots, which they would be receiving after 10 years, while tenants and agricultural workers had no other choice except to accept compensation, though it was not enough to meet their expenditure needs, and it was affecting their incomes and livelihood.

The peer pressure variable had positive significant influence indicating that there was pressure from government officials or other neighboring villagers for surrendering the land to government for capital development as reported by few farmers. They were lured by the long term benefits they would be getting, if they surrendered their lands, while tenants and agricultural labour had no other choice except to accept compensation. Though some farmers were not in favour, when everyone around them surrendered, they had to do so. Some claimed that peer pressure was one of the reasons for parting with land.

Present value of future compensation per acre showed positive significant influence indicating compensation offered value at present was profitable for the sample famers. For each additional unit of present value of future compensation per acre and peer pressure occurs, the log odds of accepting compensation increases by 4.55E07 and 6.23 that is, the odds of accepting compensation increases by a factor of 1 and 508.77 respectively.

Per cent of family members as labourers showed negative significance. It might be due to labour and tenants, as the number of family members increased in labour they used to get more income per household earlier, but now they receive only Rs. 2500 per family per month hence it was

**Table 5. Suggestions given by Sample households ( N = 120) (Percentages).**

Suggestions	Owner (28)	Owner + Tenant (20)	Tenant (42)	Tenant + Agril.labour (6)	Agril.labour (24)
Provision of other alternative occupation	6.13	33.33	20	25	22
Increase the compensation package	12.33	8.33	35	30	10.22
Increase the money compensation	33.33	12.33	6.13	15.33	33.33
Physical allotment of residential and commercial plots	45	42	0	0	0
Reduction in migration problem	0	0	11.54	7.13	6
Provision of compensation in time without delay	3.12	4.01	12	9	16.33

negative on households' decision to accept compensation. For each additional percentage of family members as labourers, the log odds of accepting compensation decreases by 0.75 that is the odds of accepting compensation decreases by a factor of 0.92.

The Land Pooling Scheme had become an opportunity for few of the owners, as their children were not interested in farming. Political and caste factors have also played a role for parting with land and all the villagers are still awaiting clarity on the compensation and as to where the developed land would be allotted.

Similar study was conducted by Ghatak *et al.*, 2012, in which binary logistic regression was employed to study determinants of probability of accepting compensation by the households. Independent variables like reported market value less compensation, whether owned in land was irrigated, percentage contribution of agriculture in household income, percentage of adult members of household in labour showed significant influence on whether compensation offered was accepted in the study.

Constraints faced by the affected households after land acquisition and pooling were identified and analyzed using Garrett's ranking technique and analytical findings were presented in Table 4. As reported by the affected households, constraints faced by them were ranked and analyzed.

Owners and owner cum tenants ranked no further occupation first because they lost the ownership of their land as well as source of occupation on which they were depending since a

long time. Owners ranked increased consumption expenditure as second because when they were in cultivation earlier they grew some vegetables in their fields for household purpose, but after acquisition they had to buy everything from outside markets. As they lost their occupation, they were in search of other income sources, so as not to affect their household income and expenses, hence ranked it as third. Owner cum tenants felt that there was an urgent need for search of other income sources because of increased consumption expenditure and hence ranked them as second and third respectively. Tenants felt that there had been decline in annual income as they lost the land they earlier leased in for cultivation, hence considered it as main constraint. They felt that compensation offered to them was inadequate and delayed hence ranked them as second and third. Tenant cum agricultural labour ranked delayed compensation as main constraint due to which, there was decline in annual income hence, ranked it as second. Due to no further occupation and inadequate compensation, and increased consumption expenditure, there was a need for search of other income sources which may result in migration leading to increased transportation expenses, hence the constraints were given third, fourth, fifth, sixth and seventh ranks respectively by them. While in case of agricultural labour, they felt that the compensation offered to them was inadequate and delayed in first and second places. Due to decline in annual income, there was need for them to search for other income sources, which may involve migration from one place to other places thus increasing transportation expenses, hence respective constraints were ranked third, fourth, fifth by agricultural labour respectively.

Even if Amaravati develops as planned, and the city becomes the focus of economic growth, A.P. will lose agricultural production from some of its most fertile lands. This in turn might reduce its climate resilience and increase its vulnerability to food shock Table 5. shows the suggestions as started by affected households during the survey.

Out of 28 owners, 33.33 per cent suggested that there should be an increase in monetary compensation even though they were adequately compensated, as the amount would not be sufficient for meeting their family needs. They expressed uncertainty of getting back their developed plots as this would happen only after 10 years and by that time government may change and development of capital city may get delayed. Hence 45 percent of owners and 42 per cent of owner cum tenants suggested that physical allotment of commercial and residential plots need to happen immediately and land surrenders need to have legal rights on their plots. Out of 20 owner cum tenant farmers 33.33 per cent of them felt that there was dire need for provision of alternative occupation and 12.33 per cent felt that their annual income needed to be increased through increased money compensation which was Rs. 30,000 per acre for dry land owners and Rs. 50,000 per acre for irrigated land owners. Out of 48 tenants, 42 pure tenants (35 per cent) and 6 tenants cum agricultural labour (30 per cent) felt that there should be an increase in compensation package and 20 per cent of tenants and 25 per cent of tenants cum agricultural labour felt that there was requirement for provision of other alternative occupation. Out of 24 agricultural labourers, 33.33 per cent felt that there is need for increase of annual income through increased money compensation and 22 per cent felt that other alternative occupations need to be provided.

## CONCLUSION

Owners accepted compensation as they felt that they were adequately compensated in the form of money, residential and commercial plots but expressed the uncertainty in receiving commercial and residential plots, which they would be receive after 10 years. Tenants and Agricultural labour had no other choice except to accept compensation. Hence present value of future compensation per acre and peer pressure showed positive significance in analysis while fair compensation policy and per cent of family members as labourers showed negative significance. Other variables like for future development, labour problem, land type, per cent of agriculture income to household income also influenced the households' decision to accept compensation but were not significant.

## LITERATURE CITED

- Ananth S 2014** The Real Estate of bifurcation. *Economic and Political weekly*. 49 (26-27).
- Chiaravalli L 2012** Exploring Alternatives to Land Acquisition. Center for Public Policy Research. 1- 31.
- Ghatak M, Mitra S, Mookherjee D, Nath A 2012** Land acquisition and Compensation in Singur: What really happened? [www.bu.edu/econ/files/2010/05/Singurmarch29-2012.pdf](http://www.bu.edu/econ/files/2010/05/Singurmarch29-2012.pdf)
- Levien M 2015** From Primitive Accumulation to Regimes of Dispossession. Six theses on India's Land Question. *Economic and Political Weekly*. 30 May, 50 (22): 146 – 157.
- Mathur S 2013** Use Of Land Pooling and Reconstitution for Urban Development: Experiences from Gujarat, India. *Habitat International*. 38: 199 – 206.
- Rajappa S 2015** Thus capital. *Statesman*. 2 june. <http://www.crda.ap.gov.in/APCRDA/userinterface/loginform.aspx>.

(Received on 8.07.2016 and revised on 14.02.2017)