

*Full Length Research Paper*

# The evaluation of land tenancy contracts using the analytical hierarchy process in Khyber Pakhtunkhwa Pakistan

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New approaches and tools are needed to enable land tenancy arrangements in the developing countries to specify the landlord-tenant relationship in general and particularly in the targeted study area Khyber Pakhtunkhwa Pakistan. So this research work applied a multi-criteria decision making approach (MCDM) to investigate the important factors which greatly impact on initial signing process of land tenancy contracts between landlords and tenants by using Analytical Hierarchy Process (AHP) as a tool. This qualitative decision making technique has not been used extensively in the country especially in the landlord tenant relations. For the purpose field survey was conducted in August 2015 and interviewed 10 respondents (landlords and tenants) in a hypothetical situation from the baseline survey through a well-developed questionnaire by using Tones method in AHP. However, AHP is a methodology that facilitates respondents to trade off nonmarket factors of land tenancy contracts. Thus, the information was collected for the important factors (criterion) which has great effect in the initial contract agreement in the landlord-tenant relationship in our research area within each tenancy contract (alternative), then the important factors were incorporated in the AHP framework and subjected to the landlord-tenant judgments for each tenancy contract. The finalized factors were character, financial position, men power, experience, reference, land condition and house availability. The results of the AHP application to data collected from six different villages found that landlords' preferences are strongest for character, men power in share cropping, distance, financial position in fixed contract, experience and men power in owner cultivation and the tenant's partialities are strongest for house availability, financial position in share contract, land condition, reference in lease contract and in owner cultivation nothing found important. In overall, it was found that the dominant choice in the tenancy contract for landlords are share contract 45.7%, followed by rent contract 30.9% and less important owner cultivation 22.3% and in case of tenants it was found that the most preferable land tenancy contract is sharecropping 51.7% and fixed contract 41.7%, less effective 6.25% owner cultivation in the selected study villages. This study recommends that the agriculture and extension services departments of Khyber Pakhtunkhwa province to apply AHP as tool in the wide range of multi sector in agriculture decisions, such as to determine best allocation for farm production, adaptation of latest technological tools and choices among different food and cash crop.

**Key words:** Analytical hierarchy process, Pakistan.

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## INTRODUCTION

The land tenancy arrangements have received considerable attention in the literature over the last several decades. However, there is literally a huge amount of famous researches published works on land tenancy contracts, specifically in Asia. The most leading theme in these writing is a land and labor contracts in agrarian economies (“Theories and Facts”) (Otsuka et al., 1992) and (“A Theory of Contractual Structure in Agriculture”) (Eswaran et al., 1985). Also, Herring (1983) landed to the tiller; the political economy of agrarian reforms in South Asia. Most of these studies are discussed; the landlords-tenant’s relationship and their contractual parameters but the common conclusion were discussed in short term land tenancy contracts. In our research work in the study area, the discussion was based on long-term land tenancy and their multiple contracts in the landlord-tenant relationship from the base line survey (2014). The utilization of land natural resources in Pakistan as a whole, and particularly in Khyber Pakhtunkhwa, getting higher attention due to the recent technological changes in agriculture production. The dominant contractual form can vary with the crop, the prevailing technology, the extent of market development and other characteristics of the economic and social environment (Eswaran et al., 1985). Thus, in the selected research area, land resources are utilized by traditional ways of contracts in the landlord-tenant relationship, which were (share, fixed and owner). However, the land tenancy contract and a labor employment contract are alternative ways of resource endowments in an agrarian economy (Otsuka et al., 1992). The important assumption of this research work, was to evaluate an hypothetical situation of each decision maker (landlord and tenant) in these tenancy contracts by applying a multi criteria decision making (MCDM) tool, the Analytical Hierarchy Process (AHP). However, the evaluation of (AHP) as an instrument or tool applied in property sectors from local and global context (Safian et al., 2011; Srinivasan, 1994; Bender et al., 1997, 2000; Chan, 2002). For the initial agreement between the landlord and tenant, there were essential factors (Criteria) which have great impact on these land tenancy contract (Alternative) towards the signing process. Thus, AHP serves the purpose of comparison and finds the important impacting factors of different farming practices (Bhatta and Doppler 2010). However, the selection of a good landlord for a tenant and a reliable tenant for a landlord play key role in these contracts for successful land management. ONI (2010) pointed out in the role of estate surveyors, that a

prospective tenant must possess physical appearance, social status, income, while in some cases such attributes are imposed by the owner. The implications of theoretical models which are reliable with several stylized facts about land tenancy in developing countries agriculture and landlord-tenant preferences for these contract choice. However, the tenancy contracts tend to be rationed according to the initial endowments of wealth among prospective tenants (Shetty, 1988), thus most empirical research works discussed the important factors for non-marketed inputs tenant’s superior endowments such as managerial ability, credit, family labor and bullocks or production technology (Reid, 1976; Zusman, 1979; Bliss et al., 1982; Pant, 1983) for which markets are highly imperfect. On the other hand, the ignorance on the part of landlords about tenant’s abilities and assets is quite inappropriate for most rural communities because there is little mobility and information about it is easily available (Eswaran et al., 1985). Moreover, in the landlord-tenant relationship, the personal character of both parties play effective role in the contracts choice in general and specifically in our study area, so from the landlord side, to helps his tenant in bad production years by reducing rent (fixed) and timely division of output in share contract, also solved his family and political issues. However, in response the tenant pays loyal services for his and his family in farm production as well as in political and social activities. According to Otsuka et al. (1992), the small communities in agrarian economies, social interactions among people are intense, therefore both parties may be discouraged from behaving opportunistically giving the high expected cost of losing reputation by discovery of dishonest behavior. Also, the enduring contractual relationship between the landlord and tenant in a relative closed village society, are circumstances in which reputation has a significant effect in enforcing the terms of the contract. However, Bell et al. (1989), pointed out, empirical research, which attempts to identify the factors of contract choice with due consideration of household characteristics is still lacking. In the literature, researchers argue, in order for the contract to be perfectly enforceable, its term and conditions must be verifiable not only to the contracting parties but also to a third party (Holmstrom, 1983; Clive Bull, 1987). Moreover, in the one period contract, the tenant will maximize his utility without regard to the depletion of soil fertility and other damage to the land which will adversely affect its future productivity, thus the tendency is likely to be stronger under the fixed-rent

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**Table 1.** Saaty's scale of pair-wise comparisons.

Intensity of importance	Definition	Explanation
1	Equal importance	Two factors contribute equally to the objective
2	Weak or slight	-
3	Moderate importance	Experience and judgement slightly favor
4	Moderate plus	-
5	Strong importance	Experience and judgement strongly favor
6	Strong plus	-
7	Demonstrated importance	Activity is favored very strong over another
8	Very, very strong	-
9	Extreme Importance	The evidence favoring one activity over another is of the highest possible order of affirmation
2,4,6,8		Intermediate values when compromise is needed
Reciprocals of above nonzero	If factor i has one of the above non-zero number assigned to it when compared with factor j, then j has the reciprocal value when compared with i	

Source: Thomas L. Saaty (2008), with author modification.

contract than the share and fixed wage contracts because the former implies greater returns from the neglect of the land (Otsuka et al., 1992). Alexander (2012), AHP was developed to optimize decision making when one is faced with a mix of qualitative, quantitative and sometimes conflicting factors that are taken into consideration. Saaty (2008), pointed out, the AHP is a theory of measurement through pairwise comparisons and relies on the judgments of experts to derive priority scale. Bayazit (2005), the approach of the AHP involves the structuring of any complex problem into different hierarchy levels with a view to accomplishing the stated objective of a problem. Chauhan et al. (2008), described that the AHP allows better, easier and more efficient identification of selecting criteria, their weighting and analysis.

Eagan and Wienberg (1999), the method permits comparison of alternatives with respect to multiple attributes, particularly useful for complex problems. Sato (2005), pointed out, the AHP has the subjective judgment of each decision-maker as input and the weight of each alternative as output. Saaty (1990) explained perhaps the most creative task in making a decision is to choose the factors that are important for that decision. Johnson (1980) said that AHP in solving problem involves four steps. Step 1, Setting up the decision hierarchy by breaking down the decision problem into a hierarchy of interrelated decision elements. Step 2, Collecting input data by pairwise comparisons of decision elements. Step 3, Using the "eigenvalue" method to estimate the relative

weights of decision elements. Step 4, Aggregating the relative weights of decision elements to arrive at a set of ratings for the decision alternatives (Zahedi, 1986). The objective of this study was to find out the importance of each type of contract in the landlord-tenant relationship in the study area. Also, to check out the important factor, from landlord and tenant point of view in these land tenancy contracts by using AHP (Table 1).

Figure 3 represents comparison of the attributes and their importance in the land tenancy contracts. For example, the pairwise comparison of factor character versus men power indicates the selected survey respondent's judgment that both factors are equally important for making the first-hand contract in the landlord tenant relationship. On the other hand, the comparison matrix also specifies the reciprocal axiom of the respondent judgment (Figures 1 and 2; Tables 2 and 3).

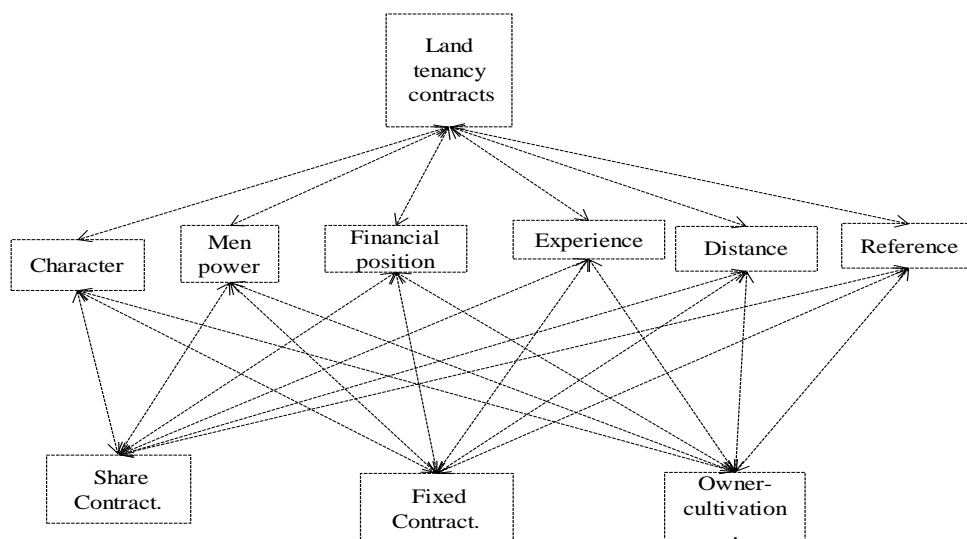
## METHODOLOGY

### Study area

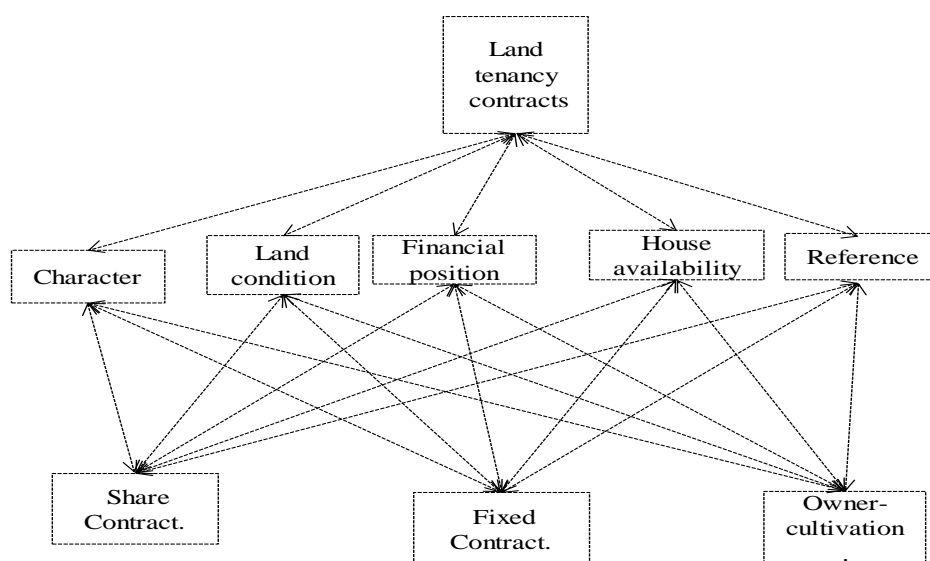
The study area was Khyber Pakhtunkhwa Pakistan, which was selected during the baseline survey in year 2014.

### Sampling

In the first step, 10 respondents were selected from the base line survey, conducted in 2014, second 6 landlords and 4 tenants were meaningfully selected and not randomly on the bases of their deep local knowledge, educational and farming skills from the different



**Figure 1.** A hierarchical representation of the landlord in the land tenancy contract. Source: Author Field Survey (2015).



**Figure 2.** A hierarchical representation of the tenant in the land tenancy contract. Source: Author field survey (2015)

district and villages in the research area. So in the third step, the factors were finalized which are important for signing the initial land tenancy contracts process in the study area, from the view point of landlord and tenant. Finally, the pairwise comparison was made of all the important factors and then made its comparison with in each alternative by constructing AHP model, which was developed by Saaty (1980) (Table 4).

**Questionnaire and Implementation**

A comprehensive excel sheet questionnaire was developed to

collect the data and information related to the important factors which greatly affect the initial contract process in land tenancy contracts and for making a set of pair-wise comparison in AHP. Also, a (Saaty), pair-wise comparison scale from 1-9 in (AHP) is applied, to get the data for input matrix and checking out the priority decision weights of landlord and tenant towards each selected factor with in each alternative (Fixed, Share and Owner). Therefore, each (respondent) is interviewed personally at his home/or/field during the field visits to the study area in (2015).

The interview schedule was pre-tested in the field accordingly from 13th of August 2015 which was finished in 11th of September 2015. From which the information was collected about different

**Table 2.** Impacting factors for landlords in the AHP with their definition.

No.	Factors	Definition
1	Character	The tenant is honest, hardworking (pay proper and due attention towards Agriculture production), socially acceptable in a close village society and utilize his inner potentiality in a sound miner to develop a long-term tenancy and personal relationship with landlord and his family. Such attitudes of tenants in the land tenancy contracts reduce the “monitoring and bargaining cost”
2	Financial position	Wealth of the tenant such as pay rent in time (fixed). Expenditure on production and their own bullocks or tractor in 50:50 share contract
3	Men power	Adult labor male (2-3) of tenant family are more concern for a landlord because most of the farm work is still done by human labor like plantation, fertilization, spraying, especially in 50:50 share tenancy
4	Experience	The tenant working experience in field of agriculture (5-10 years), aware from latest technology changes. Such as experience tenants are certain much preference in operational decision, efficient used of land in (share) and taking care of the land quality in (fixed). The phenomena of “transaction monitoring cost”
5	Reference	A person in the same village will play the role of middle-man (facilitator) in the initial signing process in these informal tenancy contracts. The most acceptable person for landlord. Such as to know the landlord and tenant families very well. Such facilitator provides structure to the tenancy contracts, also resolve the initial disputes among the contract parties and help out in all types of present “transaction cost”
6	Distance	The landlords cultivated area close to his home, distance away or very far. Incase very far, in such circumstances prefer to make fixed rent contract. Which is also the “phenomena of transaction cost”

**Table 3.** Impacting Factors for Tenants in the AHP with their definition.

No.	Factors	Definition
1	Character	The landlord which has a kind behavior, respect the tenant and his family such as not only support the tenant in farm production but also socially and morally. Equally and timely distribute the crop yield in share tenancy (50:50). Giving such feeling to tenants in land tenure will improve contracts efficiency and reduction in “monitoring and bargaining cost”
2	Financial position	The landlord to helps his tenant in the marketed inputs such as (fertilizer, hybrid seeds, etc) specially in the peak of crop season (growing or harvesting) in (share) and treat the tenant in a good way in bad agriculture production year in (fixed)
3	Land condition	Before making the contract, the tenant wants to know the quality of land, either land is irrigated such as (canal or tube-well) irrigation and the fertility of the soil as well in both contracts. Especially in fixed contract the rent per acre depends upon on the quality of landlord available land
4	House availability	The tenant preferences the availability of house in the landlord farm specially in share contract, if not available he demands for house before signing the contract. In case of fixed contract, the opportunity is not available for tenant or pay the rent for it
5	Reference	Actually the condition from a landlord side for his new tenant such as a tenant recently came to the study area.

Source: Author Field Survey (2015)

factors which were important from both sides. Then, analyzed all the decision using Tone’s Method in AHP.

**RESULTS AND DISCUSSION**

The AHP result of landlords:

$$\begin{matrix} \text{Character} \\ \text{Men power} \\ \text{Experiences} \\ \text{Financial position} \\ \text{Reference} \\ \text{Distance} \end{matrix} = \begin{matrix} \text{Share contract} & \text{Fixed contract} & \text{Owner cultivation} \\ \left[ \begin{matrix} 0.5820 & 0.3667 & 0.0513 \\ 0.5169 & 0.0775 & 0.4036 \\ 0.4898 & 0.0948 & 0.4134 \\ 0.3106 & 0.5408 & 0.1150 \\ 0.4500 & 0.4936 & 0.0524 \\ 0.1782 & 0.7514 & 0.0704 \end{matrix} \right] \end{matrix}$$

$$\begin{matrix} \text{Character} \\ \text{Men power} \\ \text{Experience} \\ \text{Financial position} \\ \text{Reference} \end{matrix} = \begin{matrix} \text{[Character Men power Experience Financial position Reference]} \\ \begin{bmatrix} 1 & 1 & 3 & \frac{1}{3} & 1 \\ 1 & 1 & 5 & 1 & 3 \\ \frac{1}{5} & \frac{1}{5} & 1 & \frac{1}{5} & \frac{1}{2} \\ 3 & 1 & 5 & 1 & 1 \\ 1 & \frac{1}{3} & 2 & 1 & 1 \end{bmatrix} \end{matrix}$$

**Figure 3.** A hypothetical comparison of factors within tenancy contracts. **Source:** Author field survey, 2015

**Table 4.** Sample selection and demographics with basic statistics

Sample selection, demographics with basic statistics													
Classification	No of HHS			No of Landlord HH (Mean)					No of Tenant HH (Mean)				
	(No of LHH)	(No of THH)	Total	Age (years)	Education (years)	Farm size (Acre)	Actual contract		Age (years)	Education (years)	Farm size (Acre)	Actual contract	
Villages							Share	Fixed				Share	Fixed
Karnal Sher Killi	2	–	2	48.5	14	17.5	S	–	–	–	–	–	–
Fazle abad	1	2	3	55	16	3	S	–	51.5	7.5	6	S	–
Kaludair	–	1	1	–	–	–	–	–	47	0	5	S	–
kadame	–	1	1	–	–	–	–	–	49	10	7	S	F
Shewa Killi	1	–	1	50	12	35	S	F	–	–	–	–	–
Asfandari	2	–	2	50	12	35	S	F	–	–	–	–	–
Total	6	4	10	50.88	13.5	22.63	S	F	49.17	5.83	6	S	F

**Source:** Author Field Surveys (2014-15)

The resulting matrix indicates the landlord’s pairwise comparisons judgment for each of the alternatives with respect to each criterion. However, their demand was easily captured for nonmarket contractual parameter, when they were making a contract with landless labors in a

competitive labor market to utilize their land endowment in study area. Therefore, the weights of the alternative in the resulting set clarify the landlord’s judgment preferences for each factors. For example, in case of share contract, the dominant factors weights were character 58.2%,

men power 51.6% and experience 48.9%, respectively. However, the observation was based on the field visits to the research area that the landlords have the full bargaining power in the informal land tenancy contract arrangements to impose clearly contract demands on their

counterparts. Therefore, the character of the tenants was more concern in the share contract, especially in 50:50 output ratio, the importance of human labor force was still the main source of agriculture production in the region as whole and particularly in the research province due to the unavailability of latest agriculture technological tools. In the share contract, the landlords were demanding for male labor force of the tenant’s family, depends upon their cultivated area to perform timely farm related task such as (plantation, irrigation and spraying, etc.) for crop production, when they were signing the contract. However, the demand for experience and skillful tenants were increasing due to the recently development in the hybrid varieties of seeds, intercropping and change in the agriculture market for the high quality products, such as different vegetable and cash crops. Therefore, the landlords were to achieve the first best efficiency from their share partner in share contract. On the other hand, the observed weights of financial position, reference and distance was 31.06, 45 and 17.82% as reported in the share contract. However, in fixed contracts, the responding resulting weights were in contrast of share contract in the study villages. The reported important weights of criterion were distance 75.1%, financial position 54.08% and reference 49.3%, respectively. In general, it was observed from the behavior of the landlords in these study villages that they were mostly concerned with timely payment issues of the tenants and the cultivated area which were far from their home town or absentee landlords they prefer to make a fixed rent contract. Therefore, from the observed weights, it is clear

that they were not much concerned with the other characteristics of the tenant’s households. In both contracts, the matrix set indicates that reference such as a third party play comparatively equal role because without knowing the tenants background the landlords were not making the contracts with them and if any conflict raised in the beginning he was play the role as a facilitator. The other reported weights were character 36.6%, 7.75% men power and experience 9.48% as reported from these villages in case of fixed contract. In case of owner cultivation, the landlords were managing all the farm task by himself with the help of their own family labor and were hiring the tenants as a causal labor on fixed wage. The data set important weights for owner cultivation of the landlord’s judgments were experience 41.3%, men power 40.3% and 11.5% financial position as reported.

Finally, the portions of the landlords’ judgments to be allocated to each land tenancy contract were found by determining the product of the factors priorities and the alternative weights as shown subsequently. In the pairwise comparison judgments of the landlords within the attributes, the important weights were men power 24.8%, reference 24.22%, experience 17.9% and financial position 17.6%, respectively. The composite score indicates the final judgments of the landlords for their natural resource utilization through land tenancy contracts.

Therefore, 45.7% were willing to make share contract, 30.1% to made fixed contract and 22.3% to work as owner cultivator.

$$\begin{bmatrix} \text{Share contract} \\ \text{Fixed contract} \\ \text{Owner cultivation} \end{bmatrix} = 0.1631 \times \begin{bmatrix} \text{Character} \\ 0.5820 \\ 0.3667 \\ 0.0513 \end{bmatrix} + 0.2482 \times \begin{bmatrix} \text{Men power} \\ 0.5169 \\ 0.0751 \\ 0.4036 \end{bmatrix} + 0.1790 \times \begin{bmatrix} \text{Experience} \\ 0.4898 \\ 0.0948 \\ 0.4134 \end{bmatrix} \\
 + 0.1768 \times \begin{bmatrix} \text{Financial position} \\ 0.3106 \\ 0.5408 \\ 0.1150 \end{bmatrix} + 0.0645 \times \begin{bmatrix} \text{Distance} \\ 0.1782 \\ 0.7514 \\ 0.0704 \end{bmatrix} + 0.2422 \times \begin{bmatrix} \text{Reference} \\ 0.4500 \\ 0.4936 \\ 0.0524 \end{bmatrix} = \begin{bmatrix} \text{Overall} \\ 0.4571 \\ 0.3099 \\ 0.2234 \end{bmatrix} .$$

However, in general, in the studies villages, most of the landlords were working in long term informal land tenancy contracts and their dominant contract was shared, followed by fixed contract and some were owner cultivator (base line survey 2014). So, the AHP results in hypothetical situation proved the landlord’s preferences for each criterion within the alternative for their new tenants before signing the contracts with them and showed their importance weights for each decision in the pairwise comparison.

The AHP results of tenants are as follows:

	Share contract	Fixed contract	Owner cultivation
Character	0.6420	0.2849	0.0672
Land condition	0.3667	0.5820	0.0513
House availability	0.6887	0.2292	0.0763
Financial position	0.6729	0.2362	0.0783
References	0.4737	0.4737	0.0526

The resulting matrix of the tenant’s respondents showed the importance weights within the alternative. Therefore, in case of share contract, the dominant criterion weights were house availability 68.8%, financial position 67.2%

and character 64.2% reported from the study villages, when tenants were entering to the share tenancy arrangements with landlords. However, from the discussion of long term tenancy contract duration (author 2014), it was observed that most of sharecroppers lived in the country as whole and specifically in the research area, houses developed by their landlords. Actually, one of the priority demand of the tenants during the initial contract signing process, when they were entering in share tenancy relationship such as 50:50 ratio, with their landlords, because, their economical position was not very strong, compared with those tenants which were working in fixed rent tenancy. In contrast, those tenants involved in fixed rent tenancy were living in their own houses or pay the rent to the landlord. In case of financial position of the landlords for the tenants in share contract in the research area were important in many ways, like some time a sharecropper need advanced money for their family oriented issues such as death, marriages, etc., circumstances, so first they want to borrow money from their own landlords and some time they need credit for agriculture marketed inputs, such as fertilizer, weedicide and pesticide to buy. Also, among the landlords' families, the wealth differences existed directly depending on their land size in the study villages. On the other hand, the less important factors judgments weights in share contract were 47.3% reference and 36.6% land condition as reported. In case of fixed contract in the resulting set for the tenants when they were making the initial contract settlement with their landlords, the important priority weights were, land condition 58.2% and reference 47.37%, respectively. However, due to the contract

norms and condition in the study area, the landlords were not bounded to provide any assistance to his lease and the tenants were only thinking about the landlords cultivated land condition such as soil fertility, irrigated or unirrigated, etc., collect all this information before signing the contract and pay rents in accordance such as advance or after the harvest of cash crop. The reference role was more important in both cases, actually a condition from the landlord's side in general in the study villages. Also, the opinion is based on the field visits, that it, not the tenant's preferences in the initial land tenancy arrangements but the demand of their opponents. In addition, the factor reference provides a structure to these informal land tenancy contracts and resolved the initial dispute between the contraction parties. Therefore, the other priority weights in fixed contract were 28.4% character, 23.6% financial position of the landlords and house availability 22.9% as reported from the studies villages. It was based on neglecting the discussion related to owner cultivation because the tenants were not concerned with the landlords but if tenants want, they only work with a landlord as casual labor or permanent labor. However, the AHP resulting matrix set identified judgments weights of each criterion within each alternative of the tenant's respondents, the weights showed their choices for each tenancy contracts before starting the contracts with their landlords. Finally, the proportions of the tenant's decisions to be apportioned to each land tenancy contract are instituted by determining the product of the attributes and the alternative weights as follows:

$$\begin{bmatrix} \text{Share contract} \\ \text{Fixed contract} \\ \text{Owner cultivation} \end{bmatrix} = 0.1183 \times \begin{matrix} \text{Character} \\ \begin{bmatrix} 0.6420 \\ 0.2849 \\ 0.0672 \end{bmatrix} \end{matrix} + 0.3961 \times \begin{matrix} \text{Land condition} \\ \begin{bmatrix} 0.3667 \\ 0.5820 \\ 0.0513 \end{bmatrix} \end{matrix} + 0.2229 \times \begin{matrix} \text{House availability} \\ \begin{bmatrix} 0.6887 \\ 0.2292 \\ 0.0763 \end{bmatrix} \end{matrix} \\
 + 0.0804 \times \begin{matrix} \text{Financial position} \\ \begin{bmatrix} 0.6729 \\ 0.2362 \\ 0.0783 \end{bmatrix} \end{matrix} + 0.1113 \times \begin{matrix} \text{Reference} \\ \begin{bmatrix} 0.4737 \\ 0.4737 \\ 0.0526 \end{bmatrix} \end{matrix} = \begin{matrix} \text{Overall} \\ \begin{bmatrix} 0.5178 \\ 0.4170 \\ 0.0625 \end{bmatrix} \end{matrix} .$$

In the pairwise comparison decisions of the tenants within the factors, the important weights were land condition 39.6%, reference 11.1%, house availability 22.2% and character 11.8%, respectively. However, the combined score indicates the final judgments of the tenants for their human resource deployment through land tenancy contracts. However, 51.7% prefer to make share contract, 41.7% to make fixed contract and 6.2% to work as causal labor in the selected studies villages.

**Conclusion**

Most of the land tenancy literature discussed the landlord

tenant relationship and their decision making behavior in farm production area. This study uses AHP to identify the important attributes in land tenancy contracts that the landlords and tenants are demanding before signing the contract. The AHP application presented provides informatics results of each relative factors in tenancy contracts and clarity of the finding of each respondent judgments in different villages of the targeted area. Thus, the dominant factors for landlords that influence the land tenancy choices show that character, men power, experience in share contract and distance, financial position of the tenant's household in fixed contract were most influential factors for signing the agreement. On the



opposite side, the significant factors for tenants' choices in land tenancy shows that house availability, financial position, character in share contract and land condition, reference in fixed contract of the landlord's household are main important factors. In addition, all the important factors and their weights found by AHP tool for new contract were to ensure a secure tenure between the contracting parties. Also, the factor character, reference, experience and distance have played key role in the reduction of transaction cost phenomena for the contracting parties in the land tenancy contracts in study area. The quantification of the impacting factors of the land tenancy contracts is an important piece of information that will contribute to the landlord's tenant's decision making in agriculture production and development in general and particularly in the region.

## CONFLICT OF INTERESTS

The authors have not declared any conflicts of interest.

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