

## Article

# Influential Factors in the Evaluation of Agricultural Lands in the Huambo Province, Angola

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**Abstract:** The possession and appraisal of agricultural fields have significant economic and social impacts. The objective of this study is to examine the perception of farmers in the Huambo Province, Angola, regarding the characteristics that enhance and diminish the value of agricultural lands in the process of buying and selling. The utilized quantitative methodology is based on a questionnaire administered to farmers in the Huambo Province. The sample size consists of 644 respondents. The results allow us to conclude that the income generated from farming activities and the presence of infrastructure greatly facilitate the appraisal of agricultural fields. Conversely, the absence of legal ownership documentation and conflicts related to land ownership reduce the value of the fields. The exploratory factor analysis identified seven determinant factors, responsible for explaining 61.334% of the total variance, in the appraisal of agricultural fields: inherent location characteristics of the property, market dynamics related to agricultural fields, the availability of water on the property, proximity to tourist destinations, physical conditions of the fields, the positive externalities generated, and the advantages offered by the fields. We believe that this study will assist appraisers, farmers, and public administration in understanding the factors that positively and negatively impact the appraisal of agricultural fields.

**Keywords:** agricultural; fields; farmland

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## 1. Introduction

The African continent, as a whole, is undergoing continuous economic and social development. However, when focusing on Angola, it emerges as an independent nation since 11 November 1975, following a turbulent period marked by struggles in the early 1960s, culminating in independence from colonial warfare and subsequent civil conflict. Angola is actively involved in significant economic and social progress, necessitating expertise and knowledge in international practices across various domains, with a specific emphasis on real estate valuation principles, especially in the context of agricultural lands. This need serves as a strong motivation for this study. This study aims to examine the perception of farmers in the Huambo Province, Angola, regarding the characteristics that enhance and diminish the value of agricultural lands in the process of buying and selling.

The primary aim of this research is to gain an in-depth understanding of farmers' perspectives on the theory and practical aspects of agricultural land valuation. Remarkably, there is no prior research addressing this specific issue within the Angolan context. Therefore, this research represents pioneering work, not only within the Huambo Province but throughout Angola.

In assessing agricultural lands and determining transaction prices, a critical factor to consider is the return on investment, which represents the anticipated profit from the use of agricultural land [1]. The appreciation in land and agricultural area values is closely

linked to the demand for land for livestock food production and general agricultural purposes [2].

For those in the agriculture sector, understanding the value of agricultural lands, recognizing the connection between soil quality and productivity, and understanding how this affects land value is essential. No two agricultural properties are identical; each possesses its specificities, positive and negative externalities, and other unique characteristics. Thus, evaluating agricultural properties resides in a paradigm between the science of rational valuation and the emotional appreciation by their owners.

Reference [3] contends that the valuation of agricultural land is a crucial tool, as it provides a comprehensive understanding of various aspects related to the land, including water reserves, intervention areas, and perspectives from authorities. To determine the value of agricultural land, relying on market information is essential [4].

Certain variables are unavoidable when evaluating agricultural lands, with location, parcel dimensions, and the presence of water being particularly significant. The presence of water is pivotal for agriculture, with water resources like perennial rivers and springs significantly enhancing the value of agricultural lands. Reference [5] asserts that the processes of evaluating agricultural lands are comprehensive, encompassing not only the analysis of soil ownership and productivity but also everything existing within them, such as trees, wells, and integrated infrastructure. The value of agricultural lands is closely tied to the growth of public and private structures and the development of the transportation system within a particular state [2]. Initially, prices may appear stable, but due to a combination of endogenous and exogenous factors, agricultural land prices become speculative. The conversion of agricultural lands into residential areas emerges as a prominent factor that adds value to agricultural lands while simultaneously impacting their evaluation [6].

### *1.1. Preponderant Factors in Agricultural Fields Appraisal*

In agricultural land assessment, it's crucial to gather input from individuals involved in the sector. This necessitates selecting participants with direct or indirect land-related involvement [7]. When valuing agricultural land, considerations extend beyond traditional agricultural aspects; monuments, historical sites, and recreational features also play a role, as suggested by Ref. [3]. Furthermore, Ref. [6] emphasizes that land assessment encompasses both price and value determination, with utility level being a key determinant of land value.

Institutional expectations of transforming agricultural land into urban-like zones positively signal potential land value increases in certain regions [1]. For specific land use, evaluations are essential to determine optimal utilization [7].

Variables and factors that impact agricultural land prices, either positively or negatively, are outlined by Refs. [2,8]. These factors encompass spatial location, infrastructure, legal regulations, socioeconomic and political context, climatic properties, production infrastructure, labor availability, land size, and differential rent components.

Land appraisal should consider a range of data, including cultivation history, local knowledge, and global information [7]. The assessment depends on factors like land's physical condition, soil fertility, environmental characteristics, historical productivity, economic potential, and intended usage [6].

Refs. [3,9] emphasize accounting for land's future use and potential in medium to long-term evaluations. Hedonic models are suggested for estimating prices per square meter of diverse rural lands, considering various characteristics and potential cash flows [10,11]. Additionally, the transformation of agricultural land into urban areas and factors such as land ownership, population growth, and pollution expansions must be factored in [3].

Water, infrastructure, and fencing are identified by Ref. [10] as factors increasing agricultural land value. Refs. [12,13] compare three property evaluation methodologies, with market value being most suitable for older forests due to higher appreciation.

Land types and climate significantly affect territorial use potential [14,15]. Factors like land boundaries, shape, angles, and width of cultivation areas influence machinery use, as well as slope, proximity to urban centers, and transportation routes.

Explanatory variables in hedonic studies for land value estimation include land rent, productivity, size, soil quality, non-agricultural factors, and location specifics [16]. The two essential elements for agricultural land evaluation are production capacity and ownership, as stated by Ref. [17]. Error-free land evaluation ensures comparability across contexts [18]. Land fragmentation into smaller parcels negatively impacts land evaluation and value [18]. In land valuation, considerations encompass land quality, physical and legal aspects, location characteristics, and economic and social components [5]. Land value and price are interconnected, with land price representing its market exchange value [19]. Local factors, both physical and social, as well as political factors, influence land prices.

### *1.2. The Positive Amenities*

The appraisal process of agricultural land involves understanding and identifying its characteristics and value-adding qualities, which serve as the basis for creating a desirable model to compare with other homogeneous assets [20]. According to authors Refs. [3,8], agricultural lands can provide essential attributes for well-being, including food and other fundamental elements that relate to entertainment, beauty, and culture. There is significant variability in defining whether a farm is small or large, as each reality has its own specificity [21]. Ref. [22] argue that in the process of evaluating agricultural lands, it is crucial to consider climate and soil, as these factors can be seen as integral components of the potential of agricultural lands.

In the case of lands located in areas where certain services exist, such as markets, national roads, or infrastructure, these lands will be more attractive, which will be reflected in the cost, in the case of renting these lands.

According to Ref. [8], it is undeniable that interventions in agricultural lands lead to benefits and amenities. To some extent, in order to achieve such satisfaction, the owner accumulates several years of production to cover and earn a return on their investment. Amenities are also considered a source of income for landowners. According to Ref. [23], there is an influence of regional aspects such as climate, proximity to networks, and location factors. They argue that soil quality, slope, drainage, as well as aspects related to supply and demand in the market, are elements that affect the composition of legislation for the regulation of agricultural lands in certain countries.

Farms near urban centers have better and easier access to markets and seaports, resulting in lower transportation costs [10,24]. These farms also offer the possibility of being used for leisure and recreational activities for nearby populations, as well as for construction purposes, making this variable significant in determining the prices of rural lands. Ref. [25] take into account factors such as the land's ability and potential to generate income, its ease of cultivation, available natural water resources (riverbanks, land with various perennial and intermittent springs, ponds, etc.), artificial water resources (cisterns, artesian wells, reservoirs, water tanks, troughs, etc.), access to the property (paved or dirt road), and water and electricity supplied by public utilities.

Ref. [26] distinguishes rural amenities that enhance attraction to the area, specifically referring to the following amenities: natural landscapes, tranquility, nature, clean environment, beach/river pool, churches and chapels, and other monuments. The development of infrastructure, provision of public utilities, and public safety can increase land prices in the outskirts of cities, as optimistic expectations drive up prices [27]. Ref. [27] work also demonstrates that “indecisive” planning has a negative effect on land prices in urban peripheries, and it was found that orchard prices in the outskirts of cities depend on factors that facilitate the transportation of agricultural products to markets.

The factors influencing the higher or lower valuation of agricultural lands are not homogeneous across all countries or localities [28]. The value of agricultural land is directly influenced by security factors to which the lands are subject [2]. This insecurity

reaches its peak during the property transaction process, where certain protective procedures are followed.

### *1.3. The Negative Externalities*

The fact that agricultural lands are located in areas distant from urban centers is an indicator of less relevance in terms of their evaluation [1]. Similarly, the costs associated with transportation and the availability of a market capable of supporting the transaction process are also factors that reduce the price of land value. Ref. [29] state that one of the limitations to agricultural development is the phenomenon of drought, which in turn affects the productivity level of households. Despite the influence of climate change on food production, its repercussions are uncontrollable and unpredictable, to the extent that it can negatively impact food production and lead to scarcity in availability [21].

The authors in Ref. [29] emphasize the need to assess the risk of drought in order to manage uncertainties, which often take a different course than anticipated, particularly in the agricultural field. According to Ref. [18], the subdivision of land into smaller parcels carries a range of negative aspects, including those that interfere with the economic component as well as those related to people's lives, such as social differences.

One aspect that generally negatively influences the value of land is the presence of natural phenomena, which occur worldwide and can be abundant in certain areas, rendering the respective land valueless or with a low price [30]. This phenomenon is responsible for the low productivity in high-risk areas, such as cyclones, erosion, floods, and tsunamis. The degree of dependence on agriculture is related to the extent of water consumption, meaning that if the proportion of water consumption is high, the damages will be greater [29]. According to Ref. [18], one problem that can arise due to the division of agricultural land is the occurrence of social tensions caused by disputes over land, which to some extent undermines social stability within a territorial jurisdiction. Ref. [31] state that when assessing land, they take into account amenities that remain unchanged over time, starting from the local area where the land is situated.

Other elements that do not add value and incentives to agricultural land include the long distance from irrigation points and roadways, which are pessimistic factors that reduce the value of agricultural land [32]. In an effort to optimize their resources, individuals seek to acquire land at low prices. According to Ref. [6], these low-priced lands are typically located far from urban centers and lack social infrastructure, which influences the decrease in land value, despite having considerable value from the perspective of the owners.

Regarding negative externalities in the real estate market, Ref. [33] have identified several, notably: proximity to highways and other sources of noise; exposure to undesirable visual and olfactory stimuli; proximity to high-voltage power lines; land contaminated by pollutants; irreversible and irreparable damage to the natural environment; proximity to landfills; coal-fired power plants; chemical refineries; nuclear power plants; activities contributing to environmental contamination; deposition of debris in landfills; presence of a nearby landfill site. It is important to note that contamination adversely impacts the value and property rights of real estate.

### *1.4. Public Policies*

The authors in Refs. [21,32,34] state that the role of public and private authorities is important as their decisions influence investment attraction and the partial increase in land and labor productivity. According to Ref. [23], the provision of agricultural production subsidies by various governments has been one of the reasons for the increase in agricultural land prices. In the evaluation of rural agricultural land, prices will depend on a range of factors, such as legislative structure, as well as regional aspects such as climate change, proximity to power grids, and water channels Ref. [23]. Ref. [18] highlight available solutions to address the negative impact of land fragmentation on agricultural land, including prevention through land consolidation.

Agricultural land has been at the core of various conflicts, and therefore it is important for authorities to ensure the elimination of risks that contribute to the insecurity of families [35]. Ref. [36] state that the search for available areas for infrastructure construction has an impact on agricultural land, which has been subject to transformation. The authors concluded that the loss of these areas for urbanization purposes often occurs in zones where agricultural production has achieved high levels of productivity.

### *1.5. The Proximity to the Urban Centres*

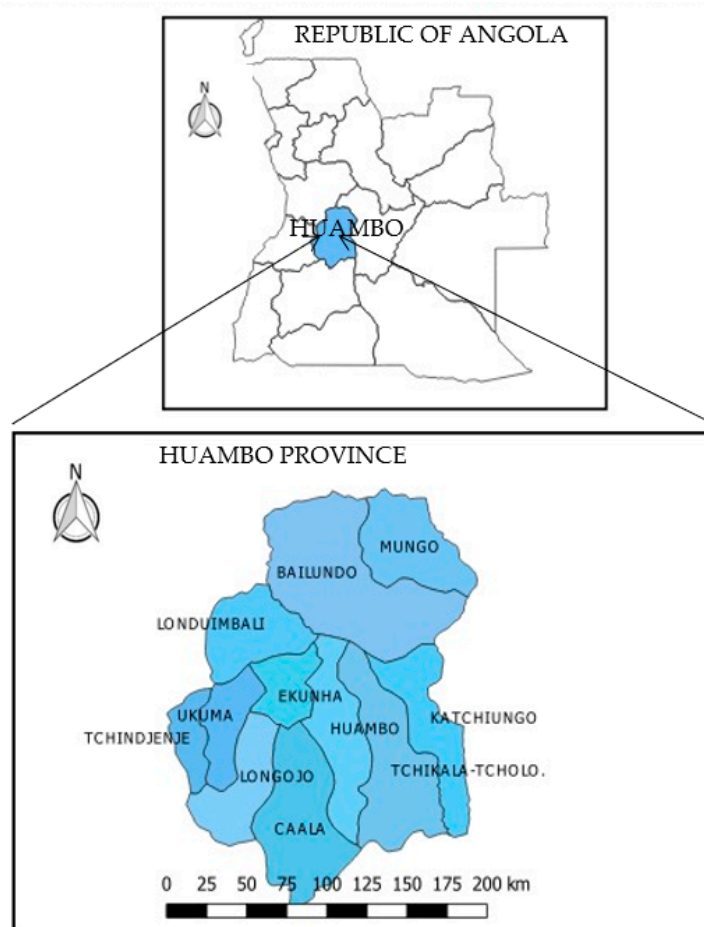
The price of agricultural land is directly related to the distance between the location of the agricultural land and the nearest city or metropolitan area [37]. According to the authors, the further the agricultural land is located, the lower the prices and the less attractive it will be for commercial transactions and other purposes. The conversion of land for urban purposes has been the main cause of the transformation of agricultural land for non-agricultural uses [32]. Similar transformations occur to a large extent in developing countries with low planning indices. The development of rural areas and agricultural land requires the creation of essential conditions to achieve such objectives [38].

For the authors [32], it is necessary to consider that the economic value of agricultural land has often been stimulated rapidly through its transformation for residential purposes, which is the main cause of the appreciation of agricultural land. Ref. [6] state that if two pieces of land are compared, one designated for agricultural practice and the other for a different purpose, particularly residential development, it is easy to see that the lower value will be associated with agricultural land. Ref. [6] confirm that land plays a crucial role in the lives of rural and peri-urban societies as a source of their subsistence. The conversion of agricultural land into urban land is driven by population growth pressure in major cities [39].

## **2. Methodology**

To study the preferences regarding agricultural land mentioned in the literature review, a survey was conducted. The survey was designed to collect data on owners' preferences for agricultural land and was administered in the Huambo Province, Angola, during the months of May, June, July, and August 2022.

According to the agricultural zoning classification, it falls under zone 24 and is situated in the most plateau region of Angola, located 1500 m above sea level [40]. The central plateau of Huambo, in its extent, covers an area of 79,040 square kilometers, which corresponds to a territorial occupation of Angola of 6.33%. The province has a population of approximately 2,645,080 inhabitants, with 36% of this population concentrated in the capital municipality, while the remainder is distributed across the 11 municipalities that make up the province. Figure 1 depicts the map of Angola, along with the location of the Huambo Province and its 11 municipalities.



**Figure 1.** Presentation of the municipalities of Huambo Province.

The sample was taken from the population of individuals who work on agricultural lands in the Huambo Province. Therefore, only individuals engaged in farming, that is, those who work in agricultural fields, regardless of whether it is their main profession or not, responded to this survey. The snowball statistical methodology was employed, serving as a valuable tool in quantitative research. To obtain this sample, the non-probabilistic snowball sampling method was used, given the ease of operation of the entire process Ref. [41]. This approach entails the identification of study participants and the collection of questionnaire responses, which are subsequently quantitatively processed. Particularly advantageous for studies involving specific groups, this methodology functions akin to a snowball, steadily expanding as new participants are identified and incorporated into the study.

To test the survey model on property preferences for agricultural land in the Huambo Province at the municipal level, a pilot test was conducted with 30 surveys to assess any inaccuracies that might be encountered in the proposed survey model for data collection. After the designated period for testing the model, the final survey model on property preferences in the Huambo Province was obtained. The SPSS 26 software was used for survey data analysis. The sample size used for this study consisted of 644 observations. The margin of error in the collected data was quantified at 0.1553%. The dispersion of the data, characterized by the probabilities  $p$  and  $q$ , was both set at 0.5. These parameters were instrumental in ensuring the statistical rigor and robustness of the analysis conducted in this research.

Huambo boasts a population density of 56.5 inhabitants per square kilometer. Furthermore, the Huambo province exhibits an active population of 45.9%, predominantly comprising a youthful demographic with an average age below 25 years. Within the

regions of Huambo, exemplified by areas characterized by prominent topography and fertile soils, such as the northern region of Bailundo Municipality and along the drainage of the Cunene River in the southern region of Caála Municipality, a higher population concentration is observed [40].

The ownership of livestock is limited due to the substantial costs associated with acquisition, leaving many families without such resources. Those who do possess these animals utilize them not only for their own agricultural plots but also to lease them to others for work, generating income from the labor contributed by the animals [42].

The rural population residing in the Huambo province is primarily engaged in agricultural activities. Additionally, a segment of the population in areas proximate to rivers and lakes is involved in fishing. The prevailing agricultural practice among the rural populace of Huambo is predominantly rain-fed agriculture [40].

### 3. Empirical Study

#### 3.1. Descriptive Analysis of the Results of the Agricultural Land Survey

For the present study, the sample consisted of 644 agricultural individuals located in the province of Huambo. Out of the total respondents, in terms of gender distribution, 61.3% were male and 38.7% were female.

Regarding the age of the individuals, the average age was 36 years ( $\bar{x} = 36.1$ ), with a minimum age of 18 years and a maximum age of 72 years. It was found that 99.8% of the respondents were Angolan nationals. Regarding the marital status of the sample, 49.4% were single, and approximately 2% were widowed. Separated/divorced and married/cohabiting accounted for 5.3% and 43.6%, respectively.

Regarding the educational level of the respondents, 41.5% have completed Cycle I, which includes classes up to ninth grade. Furthermore, 23.6% have a bachelor's degree, 17.1% have never attended school, 13.7% have completed ninth grade, and only 4.2% have a Master's or PhD. In terms of household income, 49.2% consider it difficult to manage their resources, 36.3% find the available resources sufficient for managing their family, 11.5% believe that the resources they have are good enough to cope with family difficulties, and only 3% consider their income very good for covering family expenses.

As for other sources of livelihood besides agriculture, out of the 644 respondents, 66.3% stated that they have another source of income, while 33.7% responded that they have no other income.

As for the variables related to the purchase of agricultural land, as shown in Table 1. These items have mean values above three on a five-point Likert scale. The five-level Likert scale is widely employed in social sciences to measure individual attitudes and perceptions, providing a clear and quantitative framework for data collection and analysis. This tool helps researchers gain a deeper understanding of social phenomena and people's opinions. There are five high means that are considered of greater importance by the respondents, namely: rents of lands near urban areas have higher values ( $\bar{x} = 3.94$ ;  $s = 1.027$ ), areas with higher population density have higher land values ( $\bar{x} = 3.92$ ;  $s = 1.107$ ), lands with national roads and other infrastructures have higher value ( $\bar{x} = 3.89$ ;  $s = 1.142$ ), drier lands with water scarcity have lower value ( $\bar{x} = 3.88$ ;  $s = 1.047$ ), lands with access to electricity grid have higher value ( $\bar{x} = 3.87$ ;  $s = 1.134$ ), and the soil type is important in determining the land value ( $\bar{x} = 3.87$ ;  $s = 1.098$ ). The variable with the least importance and lowest mean value is related to purchasing land adjacent to one that is already owned, even if the value is high ( $\bar{x} = 3.09$ ;  $s = 1.391$ ). Regarding the most valued attributes in the purchase of agricultural lands, they align with the literature review, particularly with the works of authors Refs. [1–3,7]. Concerning the variables that have a negative impact on agricultural land, specifically the lack of water, it is consistent with the findings presented in the literature review by author Ref. [29].

**Table 1.** Variables that one faces in the purchase of an agricultural field.

	Mean	Median	Mode	Standard Deviation	Completely Disagree	Disagree	I am Undecided	I Agree	Completely Agree
The fields' rents near urban areas have higher values.	3.94	4	4	1.027	4.3	5.4	13.7	45.3	31.2
In zones where more people live, land value is higher.	3.92	4	4	1.107	6.1	4.8	14.4	40.1	34.6
Fields that have national streets and other infrastructures nearby have more value.	3.89	4	4	1.142	6.2	6.5	14.1	37.9	35.2
If the fields are dry and lack water they have less value.	3.88	4	4	1.047	4.7	5.6	16.6	43.2	30.0
Fields with electricity have more value.	3.87	4	4	1.134	6.1	6.5	15.5	38.0	33.9
The kind of soil has an importance in the land's value.	3.87	4	4	1.098	5.3	7.9	12.3	43.9	30.6
Fields that are next to urban zones have more value.	3.86	4	4	1.07	5.1	7.0	13.2	45.8	28.9
Flat fields are worth more than declivous ones	3.86	4	4	1.053	4.2	7.1	16.8	42.2	29.7
The soil quality and the cultivation made there affect the field's value.	3.85	4	4	1.024	4.7	5.9	15.2	48.1	26.1
Fields next to the agricultural product selling markets have more value.	3.85	4	4	1.098	5.4	7.9	12.7	44.4	29.5
Climate changes have impact on property value.	3.84	4	4	1.073	5	7.8	14.0	45.3	28.0
The lower the drainage of the land, the lower its value.	3.80	4	4	1.061	5	7.0	17.2	44.4	26.4
A field that permits the use of agricultural equipment (tractors) has more value.	3.80	4	4	1.112	5.4	8.2	16.6	40.5	29.2
The more the declivous, the minor its value.	3.78	4	4	1.053	5	7.6	15.8	47.2	24.4
The smaller agricultural fields produce less.	3.78	4	4	1.16	7.8	7	13	43.9	28.3
The fields' value is determined by the rent they offer.	3.75	4	4	1.142	7.8	6.2	15.4	44.4	26.2
Land value is the reflection of agricultural and forest cultures that it offers.	3.74	4	4	1.019	5.1	7.0	16.3	51.7	19.9
The land in less windy areas has higher value.	3.73	4	4	1.115	6.1	8.1	18.6	41.3	25.9
The bigger the property, the less its value per square meter is.	3.63	4	4	1.172	7.3	10.4	18.8	38.8	24.7
The land next to one that is already owned should be purchased, even if the value is high.	3.09	3	4	1.391	20	16.3	15.1	32.3	16.3

Source: Own elaboration.

Table 2 refers to the variables related to the sale of agricultural lands, considered of greater importance by the respondents. In this context, there are five variables whose means are above four.



**Table 2.** Variables encountered in the sale of agricultural land.

	Mean	Median	Mode	Standard Deviation	Completely Disagree	Disagree	I am Undecided	I Agree	Completely Agree
Lands with good water drainage are more valued.	4.15	4	4	0.923	3.3	2.5	9.3	46.3	38.7
The better the quality of the soil, the higher its value.	4.13	4	4	0.97	3.4	4.2	8.2	44.3	39.9
Agricultural lands in safer areas (with fewer thefts and disturbances) have a higher value.	4.07	4	4	0.981	3.4	4.2	12.0	43.3	37.1
Lands with year-round water springs have a higher value.	4.06	4	4	1.013	3.3	5.7	11.8	40.5	38.7
Lands located on riverbanks where water flows all year round have a higher value.	4.04	4	4	1.019	3.9	4.5	13.4	40.7	37.6
Lands near tourist attractions are more sought after and have a higher value.	3.99	4	4	0.99	3.6	4.2	15.4	43.3	33.5
Lands with easy access for machinery have a higher value.	3.98	4	4	1.004	3.4	5.7	13.8	43.8	33.2
Flat or gently sloping lands have a higher value.	3.95	4	4	0.979	3.0	5.4	16.1	44.1	31.4
Lands with ponds or water reservoirs have a higher value.	3.95	4	4	1.004	2.8	7.1	14.4	43	32.6
Lands closer to transportation networks have a higher value.	3.95	4	4	1.003	3.1	6.5	14.9	43.6	31.8
Farmers, in general, face financial difficulties in acquiring large plots of land.	3.94	4	4	1.037	3.9	6.4	14.3	42.5	32.9
Lands near natural beauty spots have a higher value.	3.94	4	4	1.022	3.6	5.6	17.2	40.7	32.9
Lands near recreational areas are more attractive and have a higher value.	3.94	4	4	1.048	4.8	5.3	13	44.4	32.5
In areas with a higher population growth, lands have a higher value.	3.94	4	4	1.022	3.6	6.7	13.8	44.4	31.5
Areas with greater rural development have higher land values per square meter.	3.93	4	4	1.104	7	3.0	13.7	42.7	33.7
Lands with fruit tree plantations have a higher value.	3.92	4	4	1.003	3.9	5.1	15.7	45.3	30
Lands where irrigation systems can be used have a higher value.	3.91	4	4	1.014	3.7	6.1	16	44.4	29.8
Lands with higher population density have a higher value.	3.90	4	4	0.963	3.1	5.3	17.2	47.0	27.3
Lands near locations with historical heritage have a higher value.	3.89	4	4	1.026	3.7	5.6	19.3	40.4	31.1
Lands with artificial water resources (artesian wells, ponds, dams, watering holes, water tanks) have a higher value.	3.86	4	4	1.063	4.3	7.1	16.6	41.6	30.3
Lands with difficult access for machinery have a lower value.	3.83	4	4	1.075	4.3	8.9	15.1	43	28.7
Lands in pollution-free environments have a higher value.	3.83	4	4	1.061	5.4	5.6	16.6	45	27.3
Lands at risk of waterlogging have a lower value.	3.83	4	4	1.075	5.7	5.6	16.5	44.4	27.8

Lands with a larger labor force available have a higher value.	3.83	4	4	1.04	4.2	6.5	19.1	42.2	28
Lands with higher rainfall have a higher value.	3.82	4	4	1.077	5.3	6.5	17.4	42.7	28.1
Older farmers possess more land than younger farmers.	3.81	4	4	1.15	5.9	8.5	16.3	37.1	32.1
Lands in animal hunting areas have a higher value.	3.81	4	4	1.067	4.3	8.4	16.6	42.9	27.8
Lands with rainfed crops have a lower value.	3.80	4	4	1.015	3.7	7.5	19.1	45	24.7
Lands closer to urban areas have a higher value.	3.80	4	4	1.046	5.3	5.3	19.4	44.7	25.3
Lands with surrounding walls or fences have a higher value.	3.79	4	4	1.107	5.9	7.1	16.8	42.1	28.1
Lands with forest plantations have higher market values.	3.77	4	4	1.085	5.3	7.9	17.4	43.2	26.2
Lands with regular shapes (square, rectangle) have a higher value.	3.70	4	4	1.127	5.9	9.5	19.4	39.6	25.6
Lands near churches, chapels, and other monuments have a higher value.	3.70	4	4	1.147	5.7	10.1	20.7	35.7	27.8
Smaller plots of land are more sought after than larger ones.	3.40	4	4	1.268	9.6	17.7	17.9	33.1	21.7

Source: Own elaboration.

This group comprises the following variables: land with good water drainage is more valued (in accordance with Ref. [29]); higher land quality corresponds to greater value (similar to what Refs. [16,17], mentioned); agricultural lands in safer areas (with fewer thefts and other disturbances) hold higher value (supported by Refs. [35,36]); lands with year-round water springs hold higher value (in line with Refs. [25,26]); and lands situated along riverbanks with year-round water flow hold higher value (also mentioned by Refs. [8,26]). The variable least considered by the respondents is that smaller plots of land are more sought after than larger ones.

### 3.2. Exploratory Factor Analysis

Factor Analysis assumes the existence of a smaller number of unobservable variables underlying the data that express what is common among the initial variables.

To determine if Factor Analysis is appropriate, we calculated the KMO statistic and conducted Bartlett's test. To check that this factor analysis is adequate, we calculated the Kaiser–Meyer–Olkin (KMO) statistics and applied the Bartlett test. The KMO statistic evaluates the proportion of shared variance among observed variables relative to the total variance of the variables. The ranges of the Kaiser–Meyer–Olkin test are as follows: [0.9–1.0] are excellent; [0.8–0.9] are very good; [0.7–0.8] are good; [0.6–0.7] are fair; [0.5–0.6] are poor; and KMO  $\leq$  0.5 are inadequate [43]. The performed factor analysis yielded a KMO value of 0.944, which, according to Refs. [40,42], indicates an excellent Factor Analysis. Bartlett's test yielded a significance level of 0.000. Based on this, we can conclude that Factor Analysis is suitable for the questions regarding the different variables to consider when purchasing agricultural land. If this were not the case, the use of this factor model should be reconsidered.

Table 3 presents the extraction of seven factors. We also observe in Table 3 that the eigenvalues of the seven factors are all above 1 (Kaiser's criterion). Several attempts were made to ensure that the loading of each variable was above 0.5, meaning that variables with loading below 0.5 were successively removed (Table 4).

The Factor Analysis resulted in the extraction of seven factors, which account for 61.334% of the total variance (Table 3). The unexplained variance, 38.666%, may be related to other less relevant factors resulting from different combinations of variables.

**Table 3.** Total explained variance.

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	% Accumulative	Total	% of Variance	% Accumulative	Total	% of Variance	% Accumulative
1	12.504	35.727	3.727	12.504	35.727	35.727	4.551	13.003	13.003
2	2.496	7.13	4.857	2.496	7.13	42.857	3.368	9.621	22.624
3	1.422	4.064	46.921	1.422	4.064	46.921	3.159	9.025	31.649
4	1.418	4.05	50.971	1.418	4.05	50.971	3.115	8.899	40.549
5	1.287	3.677	54.648	1.287	3.677	54.648	2.916	8.331	48.879
6	1.235	3.529	58.177	1.235	3.529	58.177	2.18	6.228	55.108
7	1.105	3.157	61.334	1.105	3.157	61.334	2.179	6.226	61.334

We will now describe how the selected factors from the principal component analysis and results (Tables 3 and 4) were named and interpreted. We can analyze Cronbach's Alpha to confirm that the factors are mutually consistent. Cronbach's Alpha is a statistical measure that assesses the internal consistency of a measurement scale or questionnaire, providing information about the reliability of the obtained results. Cronbach's alpha ranges from 0 to 1, with values closer to 1 indicating higher internal consistency. However, in general, a value above 0.7 is considered satisfactory for most studies [41]. The Cronbach's Alpha indicates the consistency of each factor as presented in Table 4.

Regarding factor 1, the observation of the variables that contribute to explaining this factor allows us to conclude that we are dealing with aspects related to the intrinsic location characteristics of the property. Thus, this factor consists of the following items: agricultural lands in animal hunting areas, lands with a higher labor force, lands closer to the urban fringe, lands closer to transportation networks, lands with fruit tree plantations, lands with higher rainfall, and lands where irrigation systems can be used have higher value. The variables that decrease the value of the land are lands at risk of waterlogging have lower value, and lands with dryland crops have lower value. These items show good consistency (Cronbach's Alpha).

In factor 2, the observation of the variables that contribute to explaining this factor allows us to conclude that we are dealing with aspects related to the dynamic characteristics of the agricultural land market. Thus, this factor is characterized by the variables: smaller agricultural lands have lower productivity, areas with higher population have higher land value, areas with less wind have higher land value, rents of lands near urban areas have higher values, climate change has an impact on property value, and larger properties have lower value per square meter. This factor shows good consistency.

**Table 4.** Rotated components matrix.

Items	Component							Factors Interpretation
	1	2	3	4	5	6	7	
Wildlife hunting areas have higher value.	0.693	0.146	0.008	0.274	0.122	0.057	0.101	Characteristics intrinsic to the property's location
Land with more labor availability has higher value.	0.664	0.129	0.329	0.001	0.084	0.120	0.213	
Land closer to urban areas has higher value.	0.650	0.257	0.125	0.238	0.074	0.080	0.248	
Land closer to transportation networks has higher value.	0.632	0.203	0.050	0.351	−0.011	0.227	−0.006	
Land with a risk of waterlogging has lower value.	0.620	0.061	0.287	0.170	0.289	0.011	−0.006	
Land where irrigation systems can be used has higher value.	0.606	0.132	0.427	0.111	0.163	0.091	0.107	
Land with dryland crops has lower value.	0.604	0.210	0.240	0.055	0.014	0.092	0.381	
Land with fruit tree plantations has higher value.	0.604	0.096	0.402	0.146	0.124	0.090	0.108	
Land with higher rainfall has higher value.	0.582	0.111	0.234	0.254	0.249	0.012	0.091	

Smaller agricultural land has lower productivity.	0.184	0.705	0.014	.043	0.161	0.055	0.227	Dynamic characteristics of the agricultural land market
Higher population areas have higher land value.	0.087	0.699	0.255	0.169	0.156	0.180	−0.003	
Less windy areas have higher land value.	0.195	0.691	0.054	0.186	0.172	0.035	−0.089	
Rents in land near urban areas are higher.	0.080	0.688	0.236	0.173	0.106	0.259	0.122	
Climate changes impact property value.	0.155	0.548	0.139	0.127	0.268	0.206	0.135	
Larger properties have lower value per square meter.	0.215	0.547	−0.034	0.080	0.263	0.042	0.210	Importance of water availability on agricultural land
Land on riverbanks with year-round water flow has higher value.	0.244	0.153	0.706	0.230	0.091	0.118	0.178	
Land with ponds or pools has higher value.	0.278	0.092	0.649	0.252	0.100	0.059	0.122	
Land with year-round water springs has higher value.	0.262	0.068	0.632	0.240	0.104	0.182	0.040	
Land with artificial water resources has higher value.	0.321	0.203	0.620	0.143	0.175	0.005	0.160	
Land near recreational areas is more attractive and has higher value.	0.230	0.140	0.095	0.710	0.108	0.084	0.258	Proximity to tourist destinations
Land near historical heritage sites has higher value.	0.251	0.179	0.161	0.707	0.191	0.091	0.103	
Land near natural attractions has higher value.	0.218	0.163	0.265	0.682	0.160	0.112	0.188	
Land near tourist destinations is in higher demand and has higher value.	0.243	0.128	0.325	0.603	0.121	0.056	0.144	
Better soil quality correlates with higher land value.	0.194	0.203	0.362	0.537	0.106	0.197	0.142	
Land with steeper slopes has lower value.	0.171	0.162	0.129	0.080	0.762	0.088	0.101	Physical characteristics of the land
Soil quality and suitable crops affect land value.	0.161	0.133	0.002	0.111	0.682	0.292	0.129	
Flat land is more valuable than sloped land.	0.087	0.246	0.121	0.238	0.665	0.075	0.039	
Poor drainage reduces land value.	0.057	0.327	0.257	0.032	0.585	−0.003	0.170	
Land near urban areas has higher value.	0.154	0.207	0.056	0.129	0.575	0.329	0.044	
Land with national roads and other infrastructure has higher value.	0.104	0.137	0.197	0.113	0.148	0.762	0.033	Positive externalities created
Land with access to electricity has higher value.	0.140	0.174	0.230	0.045	0.180	0.728	0.007	
Land value is influenced by agricultural and forestry crops it can support.	0.063	0.142	−0.110	0.136	0.158	0.675	0.202	
Land surrounded by fences or walls has higher value.	0.162	0.107	0.212	0.152	0.125	0.175	0.744	Improvements made on the property
Land with forest plantations has higher market value.	0.150	0.204	0.232	0.289	0.095	0.011	0.670	
Land with regular shape has higher value.	0.299	0.090	0.019	0.254	0.209	0.084	0.647	
Cronbach's alpha	0.897	0.828	0.821	0.856	0.807	0.721	0.865	

Source: Own elaboration.

Factor 3 refers to the variables that contribute to the value of water availability on agricultural land. Thus, this factor is composed of variables, such as land on riverbanks where water flows year-round has higher value, land with ponds or pools has higher value, land with year-round water springs has higher value, and land with artificial water resources has higher value. This factor shows good consistency (Cronbach's Alpha).

In factor 4, we observe the variables that contribute to the value of proximity to tourist destinations. Thus, this factor includes variables that state that land near recreational areas is more attractive and has higher value, land near historical sites has higher value, land near natural beauty has higher value, land near tourist destinations is in higher demand and has higher value, and higher land quality corresponds to higher value. This factor shows good consistency.

Factor 5 comprises variables related to the physical characteristics of the property. Thus, this factor includes the following variables: higher slope (inclination) of the land leads to lower value, the quality of the soil and the crops that can be cultivated affect the value of the land, flat land is more valuable than sloping land, lower land drainage corresponds to lower value, and land near urban areas has higher value. This factor shows good consistency.

Factor 6 indicates the variables that contribute to the value of positive externalities created on the land. Thus, this factor suggests that land with national roads and other infrastructure has higher value, land with electricity has higher value, and the value of the land is reflected by the agricultural and forestry crops it can offer. This factor shows acceptable consistency.

Factor 7 presents the variables that contribute to the value of improvements made on the property. Thus, this factor indicates that land with surrounding walls has higher value, land with forest plantations has higher market values, and land with regular shape (square, rectangle) has higher value. This factor shows good consistency.

### 3.3. Mean Differences

#### 3.3.1. The Difference in Means in the Variables Encountered When Purchasing Agricultural Land between Males and Females

Table 5 presents statistically significant mean differences in various survey items related to the purchase of agricultural land in terms of gender differences. As observed, there is one item where the difference is statistically significant, with a higher mean reported by females (The land next to one already owned should be purchased even if the value is high), and another item where the difference is statistically significant, with a higher mean reported by males (Land where irrigation systems can be used has greater value).

**Table 5.** The *t*-test for difference in means: gender—items related to the purchase of agricultural land.

Items	Levene Test for Variance Equality (Do We Accept HO?)				Test for Means Equality
	<i>t</i> -Test	<i>t</i> -Test ( <i>p</i> -Value)	Male	Female	<i>t</i> -Test ( <i>p</i> -Value)
The land adjacent to one already owned should be purchased, even if the value is high.	−2.557	0.002	2.97	3.96	0.011
Land where irrigation systems can be used has greater value.	2.202	0.011	3.97	3.80	0.028

Source: Own elaboration.

#### 3.3.2. Difference between People Who Only Work in Agriculture and Those Who Have Another Job in Addition to Agriculture

Table 6 presents the statistically significant differences in means for various survey items related to variables encountered in the purchase of agricultural land, concerning the difference between people who have (or do not have) another type of job in addition to agriculture. As observed, there is a set of items where the differences are statistically significant, and in all of these items, higher means are reported by individuals who have another type of job in addition to agriculture.

**Table 6.** The *t*-test for difference in means: additional job besides farming—items related to the purchase of agricultural land.

Items	Levene Test for Variance Equality (Do We Accept HO?)				Test for Means Equality
	<i>t</i> -Test	<i>t</i> -Test ( <i>p</i> -Value)	Yes, Has Another Job Besides Agriculture	Does Not Have Another Job Besides Agriculture	<i>t</i> -Test ( <i>p</i> -Value)
The value of land reflects the agricultural and forestry crops it can offer.	2.057	0.005	3.80	3.63	0.040
Land close to urban areas has a higher value.	2.294	0.000	3.93	3.73	0.022
Land that allows the use of agricultural equipment (tractors) has a higher value.	2.119	0.033	3.86	3.67	0.034
In areas with higher population growth, land has a higher value.	2.561	0.007	4.01	3.79	0.011
Land with year-round water springs has a higher value.	2.266	0.002	4.12	3.93	0.024

Source: Own elaboration.

### 3.4. Results Discussion

In the previously presented results, we observed that survey respondents' perception of the impact of different hedonic variables, in terms of both value appreciation and depreciation, closely resembles the understanding found in the international market, particularly in the European and American contexts.

In the context of attributes most highly prioritized when purchasing agricultural land, the findings closely align with the extant literature, particularly congruent with the research of Refs. [1–3,7]. In relation to variables exerting an adverse impact on agricultural land, specifically the scarcity of water, our results correspond with the evidence presented in the literature review conducted by Ref. [29].

In the analysis of the results, it is noticeable that farmers perceive that climate changes impact land value [21]. Furthermore, there are perceptions that inadequate drainage and steep terrain have a negative impact on the value of agricultural land [23]. On the other hand, there is also an observed positive relation between soil quality and the monetary value of the property [20].

Within the context of the other examined hedonic variables, it is observed that lands with adequate water drainage exhibit higher valuations Ref. [29]; greater soil quality is positively associated with higher value (Refs. [16,17]); agricultural areas located in regions considered safer, characterized by lower incidences of theft and other disturbances, command higher values (supported by Refs. [35,36]); lands with perennial water sources are evaluated more favorably (in line with the findings of Refs. [25,26]); and lands situated along riverbanks with constant water flow also record higher values (as highlighted by Refs. [8,26]).

Furthermore, it is noted that farmers, in general, encounter difficulties in acquiring large-sized plots of land and tend to prefer lands with natural beauty (Refs. [21,22]). Areas with abundant water resources are of higher value (Refs. [8,12,16]). Other valued aspects include rural lands in areas where the hunting of animals is permitted and lands suitable for the cultivation of forestry species for industrial exploitation (Ref. [12]).

Regarding the results of the exploratory factor analysis, seven factors were identified, explaining 61.334% of the variables influencing the valuation of agricultural lands. In

Table 7, we observe these factors along with the authors who mentioned these variables in previous studies and are included in the literature review.

**Table 7.** Factors from the exploratory factor analysis and their references.

Factors Interpretation	Authors
Characteristics intrinsic to the property's location	According to what was mentioned by the authors: Refs. [2,8,16,22,42].
Dynamic characteristics of the agricultural land market	In line with the authors: Refs. [2,14,16,17,29].
Importance of water availability on agricultural land	In accordance with Refs. [12,23,25].
Proximity to tourist destinations	In agreement with the authors: Refs. [3,6,8,10,28].
Physical characteristics of the land	In harmony with the authors: Refs. [3,10,23].
Positive externalities created	Adhering to the authors: Refs. [8,19].
Improvements made on the property	Mentioned by the authors: Refs. [10,12,14].

Source: Own elaboration.

We can observe that, despite the unique idiosyncrasies of the Huambo Province in Angola, the variables influencing the valuation of agricultural lands in this African region are in alignment with the international literature, particularly that of Europe and the United States. These findings are undoubtedly significant, given that Angola has experienced a substantial portion of its recent history in conflict, including both the colonial war and subsequent civil war. Despite these challenges, there is a discernible awareness of the hedonic models used for agricultural land valuation in other global contexts.

#### 4. Conclusions

This study aimed to examine the perception of farmers in the Huambo Province, Angola, regarding the characteristics that enhance and diminish the value of agricultural lands in the process of buying and selling. Regarding the perceptions of the factors that contribute to the appreciation of agricultural land, the majority of respondents state that demand is the main element, followed by the profitability of agricultural plots and the surrounding infrastructure of agricultural areas. In terms of factors that inversely reduce the value of agricultural land, land conflicts are indicated, followed by the lack of land ownership (deeds) and, finally, the absence of social infrastructure.

In terms of selling agricultural land, respondents express concerns about land information, access, location, and area security. Conversely, buyers focus on bureaucratic complexities, infrastructure-related investment costs, and credibility issues among parties involved in transactions. These considerations, encompassing land data, area security, transaction bureaucracy, and stakeholder reliability, are critical. This stems from Angola's war-ridden history in the latter part of the 20th century, causing a lack of legal documentation for many properties.

For purchasing agricultural land, various factors influence the process, including proximity to urban areas, national roads, and social infrastructure. When selling, significant variables include effective water drainage, secure locations, perennial water springs, and riverside settings.

Seven factors were extracted in the Exploratory Factor Analysis. The first factor refers to the intrinsic location characteristics of agricultural land properties, the second factor is related to the dynamic characteristics of the agricultural land market, the third factor is linked to the variables concerning the importance of water availability in agricultural land, the fourth factor relates to proximity to tourist locations, the fifth factor pertains to the physical characteristics of the land, the sixth factor is associated with positive externalities, and the seventh factor is related to variables regarding improvements made to the property.

The results obtained in this study are important for land appraisers, agricultural engineering universities, the agricultural population in general, and the public administration. The findings of this study allow us to understand and correlate the determining variables with positive and negative impacts on the evaluation of agricultural land.

The study acknowledges its own limitations. It is categorized as exploratory research and was conducted in a specific province of Angola. The unique features and circumstances of this province make it inappropriate to extend the findings of this study to apply universally across all provinces of Angola or to the entirety of the African continent.

In future research within this academic domain, it will be imperative to investigate the agricultural land market by analyzing real-world transactions, with the aim of determining whether the market aligns with these perceptual findings or if it diverges from the conclusions drawn in this study. Additionally, a crucial avenue for future inquiry involves the development of a hedonic model employing market values of agricultural land, wherein the variables derived from the exploratory factor analysis undertaken in this study can be rigorously tested. Furthermore, it is of utmost importance to delve into the multifaceted impacts that Angola's historical context has exerted on agricultural development, with a specific focus on the agriculture sector within the Huambo Province.

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## References

1. Tione, S.E.; Holden, S.T. Urban proximity, demand for land and land shadow prices in Malawi. *Land Use Policy* **2020**, *94*, 104509. <https://doi.org/10.1016/j.landusepol.2020.104509>.
2. Lima, D.A.; Nóbrega, M.L. Análise do preço de terras agrícolas no tocantins: Decifrando os caminhos do agronegócio. *Raega-O Espaço Geográfico Em Análise* **2017**, *40*, 163–176. <https://doi.org/10.5380/raega.v40i0.46275>.
3. Sardaro, R.; La Sala, P.; Roselli, L. How does the land market capitalize environmental, historical and cultural components in rural areas? Evidences from Italy. *J. Environ. Manag.* **2020**, *269*, 110776. <https://doi.org/10.1016/j.jenvman.2020.110776>.
4. Del Río, B.S.G.; Marqués-Pérez, I. Spatial analysis of agricultural land prices. *Econ. Agrar. Y Recur. Nat.-Agric. Resour. Econ.* **2018**, *18*, 135–159. <https://doi.org/10.7201/earn.2018.01.06>.
5. Xu, F.; Ho, H.C.; Chi, G.; Wang, Z. Abandoned rural residential land: Using machine learning techniques to identify rural residential land vulnerable to be abandoned in mountainous areas. *Habitat Int.* **2019**, *84*, 43–56.
6. Somantri, L.; Ridwana, R.; Himayah, S. Land value analysis in the suburban of Bandung and agricultural land availability impact. *IOP Conf. Ser. Earth Environ. Sci.* **2021**, *683*, 012088. <https://doi.org/10.1088/1755-1315/683/1/012088>.
7. Herzberg, R.; Pham, T.G.; Kappas, M.; Wyss, D.; Tran, C.T.M. Multi-criteria decision analysis for the land evaluation of potential agricultural land use types in a hilly area of Central Vietnam. *Land* **2019**, *8*, 90. <https://doi.org/10.3390/land8060090>.
8. Tavares, V.C.; Tavares, F.; Santos, E. The Value of Farmland and Its Determinants—The Current State of the Art. *Land* **2022**, *11*, 1908. <https://doi.org/10.3390/land11111908>.
9. Everest, B.; Everest, T. Çiftçilerin Arazi Kullanım Türlerine Karar Vermelerinde Etkili Olan Faktörlerin Analizi: Kumkale Ovası Örneği. *ANADOLU Ege Tarımsal Araştırma Enstitüsü Derg.* **2020**, *30*, 221–228. <https://doi.org/10.18615/anadolu.834940>.



10. Lima, A.; Soares, V.S. Modelo de avaliação hedônico de terrenos rústicos e seus desafios: O estudo de caso da realidade da Região do Porto, Norte de Portugal. *Popul. E Soc.* **2015**, *23*, 145–159.
11. Relógio, A.T.; Tavares, F.O. An Evaluation of Passenger Satisfaction among Users of Huambo Airport in Angola. *Urban Sci.* **2023**, *7*, 57. <https://doi.org/10.3390/urbansci7020057>.
12. Silva, M.L.; Rocha, R.R.; Cordeiro, S.A.; Silva, M.L.; Bezerra, A.F. Estudo comparativo de três métodos de avaliação de terras florestais. *Cerne* **2011**, *17*, 209–213. <https://doi.org/10.1590/S0104-77602011000200008>.
13. Santos, E.; Tavares, F.; Tavares, V.; Ratten, V. Comparative Analysis of the Importance of Determining Factors in the Choice and Sale of Apartments. *Sustainability* **2021**, *13*, 8731. <https://doi.org/10.3390/su13168731>.
14. Meneses, T.G. Desarrollo de la valoración catastral de fincas rústicas. Aplicación a la Comunidad Foral de Navarra. *CT Catastro* **2003**, 63–74.
15. Tavares, F.O.; Almeida, L.; Pinto, A.; Tavares, V.C. The Role of Stakeholders in Thermal Tourism: A Bibliography Review. In *Stakeholder Entrepreneurship*; Ratten V., Braga V., Eds.; Springer: Singapore, 2021. [https://doi.org/10.1007/978-981-16-7091-6\\_4](https://doi.org/10.1007/978-981-16-7091-6_4).
16. Caballer, V. Nuevas endências en la valoración territorial. *CT/Catastro* **2002**, *45*, 135–146.
17. Middelberg, S.L. Agricultural land valuation methods used by financiers: The case of South Africa. *Agrekon* **2014**, *53*, 101–115. <https://doi.org/10.1080/03031853.2014.922033>.
18. Kilić, J.; Rogulj, K.; Jajac, N. Fuzzy expert system for land valuation in land consolidation processes. *Croat. Oper. Res. Rev.* **2019**, *10*, 89–103. <https://doi.org/10.17535/croirr.2019.0009>.
19. Pacheco, L.; Lote, E.; Tavares, F. Empresas Agrícolas e Desenvolvimento Económico: Potencialidades da Província do Huambo, em Angola. *Rev. Em Agronegócio E Meio Ambiente Mar.* **2017**, *10*, 1051–1076. <https://doi.org/10.17765/2176-9168.2017>.
20. Sal, A.G.; García, A.G. A comprehensive assessment of multifunctional agricultural land-use systems in Spain using a multi-dimensional evaluative model. *Agric. Ecosyst. E Environ.* **2007**, *120*, 82–91. <https://doi.org/10.1016/j.agee.2006.06.020>.
21. Ardakani, Z.; Bartolini, F.; Brunori, G. New Evaluation of Small Farms: Implication for an Analysis of Food Security. *Agriculture* **2020**, *10*, 74. <https://doi.org/10.3390/agriculture10030074>.
22. Gracia, A.; Pérez, L.; Sanjuán, A.I.; Hurlé, J.B. Análisis hedónico de los precios de la tierra en la provincia de Zaragoza. *Estud. Agrosoc. Y Pesq.* **2004**, *202*, 51–69.
23. Buday, Š.; Roháčiková, O.; Rumanovská, L. Analysis of the agricultural land market transactions in selected regions of Slovakia in the years 2007–2016. *Acta Reg. Environ.* **2018**, *15*, 28–37. <https://doi.org/10.2478/aree-2018-0006>.
24. Tavares, F.; Santos, E.M. Validation of an Information Asymmetry Scale in the Portuguese Real Estate Market. *Rev. Bus. Manag.* **2021**, *23*, 586–599. <https://doi.org/10.7819/rbgn.v23i4.4136>.
25. Gripp, J.R.J.; Marques, M.É.T.; Gonçalves, R.P.; Andrade, R.J. Avaliação de imóveis rurais. In *Congresso Brasileiro de Cadastro Técnico Multifinalitário*; UFSC: Florianópolis, Brazil, 2006; Volume 15.
26. Ruivo, P. Amenidades rurais-que contributo? Estudo de caso em territórios rurais. In *III Congresso de Estudos Rurais*; Universidade do Algarve: Faro, Portugal, 2008.
27. Nguyen, C.H. Factors Affecting the Development of Cultural Tourism in the Mekong Delta, Vietnam. *J. Asian Financ. Econ. Bus.* **2022**, *9*, 123–133. <https://doi.org/10.13106/jafeb.2022.vol9.no3.0123>.
28. Kocur-Bera, K. Determinants of agricultural land price in Poland—a case study covering a part of the Euroregion Baltic. *Cah. Agric.* **2016**, *25*, 25004. <https://doi.org/10.1051/cagri/2016013>.
29. Luo, D.; Ye, L.; Sun, D. Risk evaluation of agricultural drought disaster using a grey cloud clustering model in Henan province, China. *Int. J. Disaster Risk Reduct.* **2020**, *49*, 101759. <https://doi.org/10.1016/j.ijdrr.2020.101759>.
30. Zhao, F.; Hitzhusen, F.; Chern, W.S. Impact and implications of price policy and land degradation on agricultural growth in developing countries. *Agric. Econ.* **1991**, *5*, 311–324.
31. Wentland, S.A.; Ancona, Z.H.; Bagstad, K.J.; Boyd, J.; Hass, J.L.; Gindelsky, M.; Moulton, J.G. Accounting for land in the United States: Integrating physical land cover, land use, and monetary valuation. *Ecosyst. Serv.* **2020**, *46*, 101178. <https://doi.org/10.1016/j.ecoser.2020.101178>.
32. Rondhi, M.; Pratiwi, P.A.; Handini, V.T.; Sunartomo, A.F.; Budiman, S.A. Agricultural land conversion, land economic value, and sustainable agriculture: A case study in East Java, Indonesia. *Land* **2018**, *7*, 148. <https://doi.org/10.3390/land7040148>.
33. Santos, E.; Tavares, F. The profile of Portuguese people when choosing an apartment. *Real Estate Manag. Valuat.* **2021**, *29*, 38–51. <https://doi.org/10.2478/remav-2021-0012>.
34. Zhao, Q.; Bao, H.X.; Zhang, Z. Off-farm employment and agricultural land use efficiency in China. *Land Use Policy* **2021**, *101*, 105097. <https://doi.org/10.1016/j.landusepol.2020.105097>.
35. Schwarcz, P.; Bandlerová, A.; Schwarczová, L. Selected issues of the agricultural land market in Slovak Republic. *J. Cent. Eur. Agric.* **2013**, *14*, 1102–1115. <https://doi.org/10.5513/JCEA01/14.3.1314>.
36. Szturc, J.; Karásek, P.; Podhrázská, J. Historical Changes in the Land Use Connected with Appropriation of Agricultural Land—Case Study of Cadastral Areas Dolní Věstonice and Modřice (Czech Republic). *Eur. Countrys.* **2017**, *9*, 658–678. <https://doi.org/10.1515/euco-2017-0038>.
37. Plantinga, A.J.; Miller, D.J. Agricultural land values and the value of rights to future land development. *Land Econ.* **2001**, *77*, 56–67. <https://doi.org/10.2307/3146980>.
38. Tezcan, A.; Büyüktaş, K.; Aslan, Ş. A multi-criteria model for land valuation in the land consolidation. *Land Use Policy* **2020**, *95*, 104572. <https://doi.org/10.1016/j.landusepol.2020.104572>.

39. Livanis, G.; Moss, C.B.; Breneman, V.E.; Nehring, R.F. Urban sprawl and farmland prices. *Am. J. Agric. Econ.* **2006**, *88*, 915–929. <https://doi.org/10.1111/j.1467-8276.2006.00906.x>.
40. Bahu, A.M. A Comercialização do Carvão Vegetal Versus Insustentabilidade das Florestas Naturais Baseado num Estudo de Caso nas Aldeias de Nazaré e Calombo nos Municípios de Longonjo e Caála, Província do Huambo, Angola. Doctoral Dissertation. Universidade de Lisboa, Lisbon, Portugal, 2015.
41. Marôco, J. *Análise Estatística com o SPSS Statistics*, 7th ed.; ReportNumber: Lisboa, Portugal, 2018.
42. Mendelsohn, J.; Weber, B. *An Atlas and Profile of Huambo: Its Environment and People*; Development Workshop: Luanda, Angola, 2013; 80p.
43. Pestana, M.; Gageiro, J. *Análise de Dados para Ciências Sociais: A Complementaridade do SPSS*, 6th ed.; Edições Sílabo: Lisboa, Portugal, 2014.

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