

# **Applicability of the International Valuation Standards in Estimating the Market Value of Agricultural Lands in Leyte, Philippines**

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# INTRODUCTION

- The **IVSC** is the international body governing the valuation profession and is responsible for setting up the **International Valuation Standards (IVS)**

# INTRODUCTION

**IVS** is still very new in the Philippines- adopted the standards in October 2009

These standards have not yet been fully implemented and tested by the target users like the Provincial, City and Municipal Assessors including all the Department of Finance (DOF) agencies

# DEPARTMENT ORDER NO. 37-09

Subject: Prescribing the Philippine Valuation Standards (1st Edition)- Adoption of the IVSC Valuation Standards under Philippine Setting.

# INTRODUCTION

The Philippines is still using the traditional approach using the *Schedule of Base Market Values* – a tabulation of market values in which the only major basis is by political class

Values in the schedule do not have enough theoretical basis and clearly undervalued

# INTRODUCTION

- Land valuation is important
  - *means of measuring changes in net worth in a market sense*
  - *widely used as a basis for financial and commercial decision making*
  - *provides basis for real property taxes*

# INTRODUCTION

- Recognizing the importance and benefits from land valuation/appraisal, the conduct of an assessment study using the various valuation approaches specified by the IVSC and or by the new Philippine Valuation Standards is therefore necessary

# OBJECTIVES

## **General:**

Assess the market value of agricultural lands in Leyte, Philippines using the International Valuation Standards

## **Specific:**

1. To estimate the market value of agricultural lands in Leyte using the international valuations standards approaches
2. To determine the strengths, weaknesses and applicability of different land market valuation approaches adopted in this study;



# OBJECTIVES

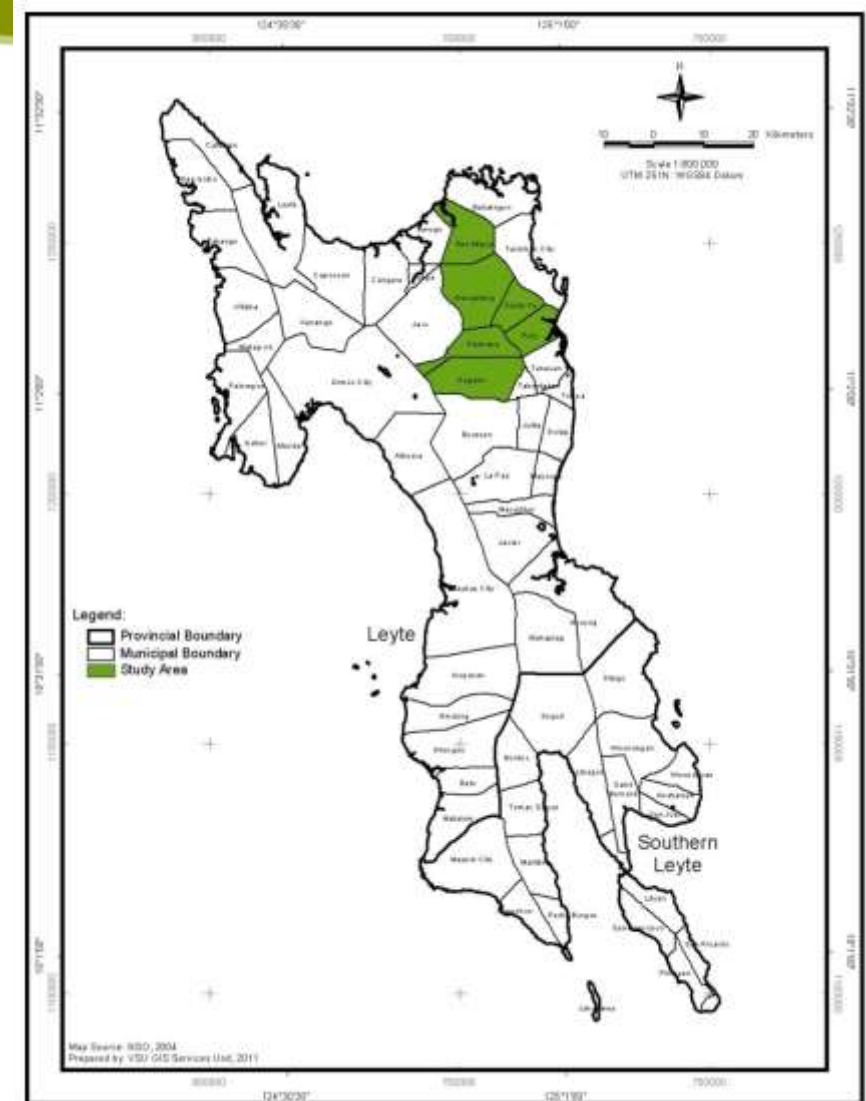
## Specific:

3. To compare the land values obtained from using the IVSC standards in relation to the traditional approach; and
4. To provide recommendation on a more appropriate valuation method that can be adopted by assessors/ appraisers and other concerned sectors of the government

# METHODOLOGY

## Study Sites:

- ⤴ Alang-alang
- ⤴ Dagami
- ⤴ Palo
- ⤴ Pastrana
- ⤴ San Miguel
- ⤴ Sta. Fe



# METHODOLOGY

## Secondary data

- Market Value Assessment for Public and Private Lands in Leyte, Philippines” by Tambis et al. in 2008

Municipality	Actual number of respondents		
	Interviewed	Previous study	This study
Alang-Alang	20	18	18
Dagami	20	19	17
Palo	20	20	20
Pastrana	20	20	20
San Miguel	20	20	19
Sta. Fe	20	20	19
Total	120	117	113
Total actual parcels/cases		171	164

# METHODOLOGY

## **Adjustments made from the first data set**

- lands which are not agricultural were deleted from the original data set to conform to this study dealing only on agricultural lands.
- the public and private land concept used in the previous study was also removed in consideration to earlier findings that public or private land classification did not in any way significantly affect land values.

# METHODOLOGY

## **Adjustments made from the first data set**

- some cases were also removed in the data set due to inconsistencies such as those outliers and going in opposite direction.

# METHODOLOGY

## Data Analysis

- ⤴ Descriptive statistics
- ⤴ Quantitative computations

## Valuation Approaches

- ⤴ Market or sales comparison approach
- ⤴ Income approach
- ⤴ Cost approach

# METHODOLOGY

**Market or sales comparison approach –**  
obtained from respondents (lack of database)

- Comparison of similar properties sold close to valuation date to subject property
- Adjustments made for differences (financing, condition and date of sale, physical characteristics, and location)

# METHODOLOGY

## **Income approach**

- 20-year Income stream projected based on 5-year financial income and expense statements
- Discounting of net income/cash flow using 18% discount rate



# METHODOLOGY

## Income Approach

$$LV = \frac{R_n}{(1+r)^t}$$

where:

LV = Land value

R<sub>n</sub> = Income at time t

r = Discount rate

# METHODOLOGY

## Cost approach

- Computed reproduction and replacement cost
- Land value,  $LV = OV + NVI$

$$NVI = CI - (DC \times NB)$$

OV = original value of the land

NVI = net value of improvement

CI = cost of improvement

DC = depreciation cost

NB = number of years being utilized



# RESULTS

# Characteristics of Respondents

<b>Variable</b>	<b>(n=113)</b>
<b>Educational attainment (formal years in school)</b>	8.20
<b>Sex (%)</b>	
Male	49.60
Female	50.40
Total	100.00
<b>Civil status (%)</b>	
Single	3.50
Married	71.70
Widow/widower	24.80
Total	100.00
<b>Household size (mean)</b>	5.00

# Characteristics of Respondents

<b>Variable</b>	<b>(n=113)</b>
<b>Tenure status (%)</b>	
Owner	70.90
Tenant	19.40
Leasee	7.90
Combination	1.80
Total	100
<b>Number parcels cultivated (%)</b>	
1	53.10
2	44.20
3	1.80
4	0.90
Total	100.00
<b>Average land area (ha)</b>	2.57
<b>Average area cultivated (ha)</b>	2.39

## Sources of Annual Household Income

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<b>Source of annual income</b>	<b>Amount (Php)</b>	<b>Percent(%)</b>
Farm income	44 ,569.81	59.55
Non-farm income	863.36	1.15
Off-farm income	29 ,406.21	39.29
Total	74 ,839.39	100.00

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## Farming Systems Employed

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<b>Annual household income (PhP)</b>	<b>Percent (%)</b>
Rice + Coconut farming	38.90
Rice farming	34.50
Coconut farming	18.60
Rice/Coconut + other crops/livestock	8.10
Total	100.00

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# Characteristics of Land Parcels

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<b>Variable</b>	<b>Values</b>
<b>Total number of parcels</b>	164
<b>Average size per parcel (ha)</b>	1.65
<b>Total land area cultivated (ha)</b>	270.06
<b>Total land area owned (ha)</b>	290.85
<b>Titling status (%)</b>	
Titled	78.00
Untitled	22.00
Total	100.00

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# Characteristics of Land Parcels (continued...)

<b>Variable</b>	<b>Values</b>
<b>Mode of acquisition (%)</b>	
Inherited	51.20
Purchased	31.10
Tenanted	5.50
Given	7.30
Rented	3.70
Purchased/Inherited	1.20
Total	100.00
<b>Topography (%)</b>	
Flat	93.30
Rolling	4.30
Hilly	2.40
Total	100.00



# Characteristics of Land Parcels (continued...)

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Variable	Values
<b>Perceived soil fertility (%)</b>	
Very fertile	19.50
Fertile	67.10
Less fertile	12.80
Infertile	0.60
Total	100
<b>Major crops planted (%)</b>	
Rice	57.90
Coconut	40.90
Others	1.20
Total	100.00

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# Characteristics of Land Parcels (continued...)

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Variable	Values
<b>Source of water (%)</b>	
None	49.40
Irrigated	50.60
Total	100.00
<b>Annual productivity of the land (Php/ha)</b>	40,270.36
<b>With improvements made (%)</b>	
With improvement	45.70
Without improvement	54.30
Total	100.00
<b>With structures built (%)</b>	
With structures	43.30
Without structures	56.70
Total	100.00
<b>Average value of improvements and structures (Php/ha)</b>	724.20

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# Distance of Land to Road and Public Areas

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<b>Variable</b>	<b>Min</b>	<b>Max</b>	<b>Value</b>
Average distance of land parcels to market road (km)	<1	6	0.79
Average distance of land parcels to main market (km)	<1	30	4.54
Average distance of land parcels to recreational facilities (km)	<1	10	1.18
Average distance of land parcels to educational centers (km)	<1	10	1.16

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**The approaches...**

# Comparison approach

No available database – just using alternative procedures

1. Respondents were asked if they heard of any land or property similar to the one they owned/cultivated being sold recently.
2. If they answered *yes*, they were then asked for the selling price, date the property was sold and reason(s) for selling.
3. They were also asked some details of the similarity between the land sold recently and the one they owned/cultivated.

# Comparison approach

No available database – just using alternative procedures

4. In case they have to sell the land, they were asked if they would offer their land at the same price to the one recently sold. Those who answered *yes* would offer their land at the same selling price per unit area to the one sold recently. Meanwhile, those who answered *no* were required to adjust the price based on the condition of sale, date of sale, location and other physical characteristics affecting the price.
5. Respondents who answered *no* in number 1 or who did not hear of any similar property they can compare with, were still asked for the perceived worth of their land based on their understanding of the current market situation and to the physical characteristics and location affecting the value of their lands.

# Comparison approach

thesis data agricult 2007 version for printing on appendices [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Add-Ins

$f_x$  =AVERAGE(DI3:DI166)

	A	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DI
2	Parcel	propsold	muchsold	datesold	resold	simparce	simlties	sizesold	featsold	smpri	reprice	Market value	Size (ha)	Market value/ ha
154	152	none										80,000	0.75	106,666.67
155	153	none										150,000	1	150,000.00
156	154	none										85,000	0.75	113,333.33
157	155	none										30,000	0.125	240,000.00
158	156	none										50,000	0.256	195,312.50
159	157	none										75,000	1.5	50,000.00
160	158	none										250,000	3.5	71,428.57
161	159	none										125,000	1.5	83,333.33
162	160	none										50,000	0.46	108,695.65
163	161	none										100,000	0.6	166,666.67
164	162	none										100,000	0.4	250,000.00
165	163	none										300,000	3	100,000.00
166	164	none										100,000	0.6	166,666.67
169													Average =	196,373.47

The approaches Substituting regression analysis guide Tenure

Ready 100%

**Portion of comparison approach result**

**No available comparisons**

**Most of the generated values were based only on the respondent's perceived worth of the land (Step 5 of the alternative procedure)**





# Cost approach

thesis data agricult 2007 version for printing on appendices [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Add-Ins

$f_x$  =NPV(FK\$2,EO166:FH166)

	A	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL
2	Parcel	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	NPV	NPV/ha	0.18	rate
153	151	18720	19160	19600	20040	20480	20920	21360	21800	22240	22680	23120	90,306.31	147,921.88		
154	152	15000	16000	17000	18000	19000	20000	21000	22000	23000	24000	25000	57,797.78	77,063.70		
155	153	28000	29000	30000	31000	32000	33000	34000	35000	36000	37000	38000	127,383.48	127,383.48		
156	154	17000	17500	18000	18500	19000	19500	20000	20500	21000	21500	22000	79,749.98	106,333.31		
157	155	4196	4418	4640	4862	5084	5306	5528	5750	5972	6194	6416	17,466.59	139,732.68		
158	156	15000	15500	16000	16500	17000	17500	18000	18500	19000	19500	20000	69,044.49	269,705.03		
159	157	28760	29280	29800	30320	30840	31360	31880	32400	32920	33440	33960	142,248.41	94,832.27		
160	158	13080	13820	14560	15300	16040	16780	17520	18260	19000	19740	20480	53,368.79	15,248.23		
161	159	15000	15500	16000	16500	17000	17500	18000	18500	19000	19500	20000	69,044.49	46,029.66		
162	160	37500	38000	38500	39000	39500	40000	40500	41000	41500	42000	42500	189,481.28	411,915.83		
163	161	28500	29000	29500	30000	30500	31000	31500	32000	32500	33000	33500	141,306.57	235,510.94		
164	162	12500	13000	13500	14000	14500	15000	15500	16000	16500	17000	17500	55,662.62	139,156.55		
165	163	24760	25280	25800	26320	26840	27360	27880	28400	28920	29440	29960	120,837.43	40,279.14		
166	164	25000	26000	27000	28000	29000	30000	31000	32000	33000	34000	35000	111,325.24	185,542.07		
167																
168																
169													Market value	153,089.47	138,692.63	

The approaches Substituting regression analysis guide Tenure

Ready 100%

Portion of cost approach result using a spreadsheet

# Estimated Market Values of Land

Valuation Approach	Market Value (Php/ha)		
	Min	Max	Mean
Market or sales comparison	16,666	1,250,000	196,373.47
Income	3,171	1,340,473	138,692.63
Cost	8,462	1,250,000	202,415.03
Traditional approach *			62,093.81

*\*Highest value given for agricultural land in the Schedule of Base Market Values*



# **CONCLUSION and RECOMMENDATIONS**

# CONCLUSIONS *and* RECOMMENDATIONS

- Market values of agricultural lands can be assessed using sales or market comparison approach, income approach and cost approach
- The **income approach** provided the most credible estimate of market values because it has so far had the most complete information needed for the analysis

# CONCLUSIONS *and* RECOMMENDATIONS

- The **market approach** performed best in parcels with available credible comparisons
- The **cost approach** performed best in parcels having a recent and market-based sales record and actual costs incurred

# CONCLUSIONS *and* RECOMMENDATIONS

- Valuation approaches generated higher values than Assessors' Offices
- Adoption of valuation approaches can increase values of agricultural lands in study areas

# CONCLUSIONS *and* RECOMMENDATIONS

- ✦ Adaptability of approaches depend on
  - availability of data needed for each approach
  - Purpose of valuing land
  - Time to perform valuation
  - Availability of expertise to perform valuation

# CONCLUSIONS *and* RECOMMENDATIONS

- ✦ Validate results by conducting similar activity in other sites
- ✦ Features or attributes that could significantly affect the market value of the land should be considered in order to improve the hedonic model



# The Hedonic approach

- Market value was determined based on the characteristics of the land
- Regression was used to derive the coefficients of each of the characteristics (independent variables )known to affect land values
- Actual market values for each land were estimated by substituting the derived coefficients of each variable and the actual values of variables back into the model.

# Empirical Model

$$P_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_{10} X_{10} + \varepsilon$$

where

$P_i$  = price of land (P/ha)

$X_1$  = annual productivity of the land (pesos/ha)

$X_2$  = distance to market road

$X_3$  = distance to public areas

$X_5$  = presence of improvements and structures; 1 = with; 0 = without

$X_6$  = tenure status; 1 = owner; 0 otherwise

$X_7$  = perceived soil fertility; 1 = fertile; 0 otherwise

$X_8$  = titling status; 1 = titled; 0 otherwise

$X_9$  = topography; 1 = flat; 0 otherwise

$X_{10}$  = land type; 1 = upland; 0 lowland

# Hedonic approach result

*Market Value = 129195.025*

*+ (1.893\*productivity)*

*+ (3.028\*distance to market road)*

*+ (2.220\*average distance to public areas)*

*+ (-22276.403\*tenure status)*

*+ (-15936.615\*presence of water source)*

*+ (66265.615\*perceived soil fertility)*

*+ (-16885.913\*topography)*

*+ (54375.545\*land type)*

*+ (-24513.579\*titling status)*

*+ (12142.212\*presence of improvements and structures)*

*+ error term*

Market Value = Php 241,435.77

# Factors Affecting Market Value of Land

Variables	Coefficient	t-value
Constant	129195.025*	1.699
<b>Productivity</b>	<b>1.893***</b>	6.747
Distance to market road	3.028	0.229
Distance to public centers	2.220	0.285
Tenure status	-22276.403	-0.804
Presence of water source	-15936.615	-0.567
<b>Perceived soil fertility</b>	<b>66265.615**</b>	2.105
Topography (flat vs. otherwise)	-16885.913	-0.334
<b>Land type (upland vs. lowland land)</b>	<b>54375.545*</b>	1.869
Titling status (titled vs. untitled)	-24513.579	-0.814
Presence of improvements and structures	12142.212	0.414
R2	.263	
Sig	.000***	

# Strengths and weakness of land market valuation approaches

Strengths...

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## Market Valuation Approaches

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### Sales comparison

### Income

### Cost

### Hedonic

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- Easy and straight-forward

- Appropriate if the purpose of buying the land is for profit

- Sets the value at the actual cost or price of the property

- Derives the value based on the actual features of the land

- Value is connected to the actual market

- Analysis is very detailed and can derive specific conclusion
- Values are derived from actual income and its projections

- Can still derive values even without any financial data available

- Very scientific

# Strengths and weakness of land market valuation approaches

Strengths...

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## Market Valuation Approaches

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### Sales comparison

- Difficult to locate similar property transactions to compare with especially in the absence of sales database
- Not appropriate in places where land sales database are absent

### Income

- More complicated than the comparable sales method

### Cost

- Relies upon other valuation methods to derive the value
- One property might be cheaper than another but can generate higher income
- More appropriate to lands that have undergone previous sales transaction

### Hedonic

- Most complicated among the approaches
- Requires careful estimation and inclusion of the factors affecting the value
- Requires a strong hedonic regression model