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THAI NGUYEN UNIVERSITY OF ECONOMICS AND
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**THE SUSTAINABILITY OF FARM ECONOMICS
DEVELOPMENT IN PHU THO PROVINCE**

Specialization: Agricultural Economics

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SUMMARY OF DOCTORAL DISSERTATION

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For more information of this thesis you can find at:

DISCLOSURE OF PROJECTS RELATED TO THE THESIS

1. Bui Thi Thanh Tam (2009), "Vietnam farm economics: Current situation and recommendations", *Journal of Science & Technology TNU*, ISSN 1859-2171 2 (50).
2. Bui Thi Thanh Tam, (2012), "Selecting the suitable model of farm economics in Phu Tho province", *A topic of scientific research university level was accepted in April 2013*, TNU.
3. Bui Thi Thanh Tam (2013) "Current situation and recommendations of farm economics development in Phu Tho Province", *Journal of Science & Technology TNU*, ISSN 1859-2171 No. 5 (105).
4. Bui Thi Thanh Tam, Bui Dinh Hoa (2015), "The current situation of farm economics development in Phu Tho Province", *Journal of Science & Technology TNU*, ISSN 1859-2171 No. 15 (145).
5. Bui Thi Thanh Tam, Luu Thi Thuy Linh (2016), "The Solutions of farm economics development in Phu Tho Province during 2016-2020", *Journal of Science & Technology TNU*, ISSN 1859-2171 05 (150).

INTRODUCTION

1. The problem of the thesis

Phu Tho is a notherm mountainous midland province. It has the diversified socio-economic natural condition that is very favorable for the economic development in general and agriculture - forestry - fisheries sectors in particular. In recent years, The agricultural sector of Phu Tho province has grown, including farm economics. It step by step has played an impotant role. But in fact, It develops spontaneously. It does not focus on the efficient use of natural resources to the maximum extent and environmental protection; thus the agricultural sector does not meet the development in sustainable way. The Agricultural Ph.D cadidate choose the thesis title "The sustainability of farm economic development in Phu Tho province" as the subject of her doctoral thesis with the desire to contribute to promoting the development in agriculture - forestry - fisheries sectors in sustainable way.

2. Purpose of the study

- Contribute to clarify some basic theoretical issues, practical farm economics development in sustainable way.
- Analysis and assessment of curent situation of farm economics development in sustainable way in Phu Tho province.
- Analysis and assessment of factors of farm economics development in sustainable way in Phu Tho province.
- Propose some solutions to develop farm economics development in sustainable way in Phu Tho province

3. Scope and limitation of the Study

3.1. Scope of the study

- The issues of theory and practice relating to the farm economics development in sustainable way in Phu Tho province.
- The curent situation indicators relating to the farm economics development in sustainable way in Phu Tho province.
- The factors affecting to the farm economics development in sustainable way in Phu Tho province.
- The solutions to promote the farm economics development in sustainable way in Phu Tho province.

3.2.The limitation of the study

- * The study place: The thesis to be studied in Phu Tho province.
- *Study time: Secondary data is collected in this thesis in the period 2007 - 2014; Primary data is collected survey focusing on 2014; the solutions of the thesis proposal will apply to develop farm economics in 2020.
- * The scope of the content:

The thesis focuses on researching some content such as: theory and practice relating to the farm economics development in sustainable way in Phu Tho province, characteristics of natural conditions, socio-economic indicators covering to evaluate the effectiveness and socio-economic environment of type of the farm economics development in sustainable way in Phu Tho province. Identify factors that affect to the farm economics development, the researcher can propose the solutions to the farm economics development in sustainable way in Phu Tho province.

4. New contributions of the thesis

- The theory: The thesis contributes to clarify the issues and theoretical basis of the farm economics development in sustainable way in Phu Tho province

- The practice: (I) To clarify the characteristics, influencing factors, advantages and difficulties and the problems that arise to be solved in the process of farm economics development at the researched area. (II) To summarise and analyse the developing situation current farm economics development in Phu Tho province. (III) To identify the factors that affect the farm incomes. (IV) To propose the orientations and solutions of the farm economics development in sustainable way in Phu Tho province.

5. Overview of research projects related to the farm economics development in sustainable way.

There have been studies on the farm economics development in Phu Tho province of some domestic and foreign authors, but no author does research on farm economics development in sustainable way, researching specific combination quantitative analysis and qualitative, and research the impact of all the elements that affect farm economics development in sustainable way. It is a chance for me to undertake research this topic in Phu Tho province.

6. The layout of the thesis

Besides the introduction, conclusion and recommendations, list of references, appendices, the thesis is divided into 4 chapters as: Chapter 1: The scientific basis for the farm economics development in sustainable way. Chapter 2: Research Methodology. Chapter 3: The situation of farm economics development in sustainable way. Chapter 4: The views, orientation the sustainability of farm economic development in Phu Tho province to 2020 and 2030 vision.

Chapter 1: SCIENTIFIC BASIS OF THE SUSTAINABILITY OF FARM ECONOMIC DEVELOPMENT

In this chapter, the thesis has been clarified the sustainable farm economic development such as (concepts, characteristics and classification criteria sustainable development ..., Moreover, thesis

has been analyzed the factors that influence the sustainable farm economic development, lessons learned of other countries in the world and in Vietnam as a basis for research of the sustainable farm economic development in Phu Tho province.

Chapter 2: RESEARCH METHODOLOGY

2.1. Statement of the problems

This study intends to achieve the following specific objectives: (i) The concept, the basis of scientific issues related to the sustainable farm economic development? (ii) Lessons learned of other countries in the world and in Vietnam as a basis for research the sustainable farm economic development? (iii) Current status of the sustainable farm economic development in Phu Tho province. Is there any issues that does not develop sustainably? (iv) what are the major solutions?

2.2. Analytical framework of the thesis

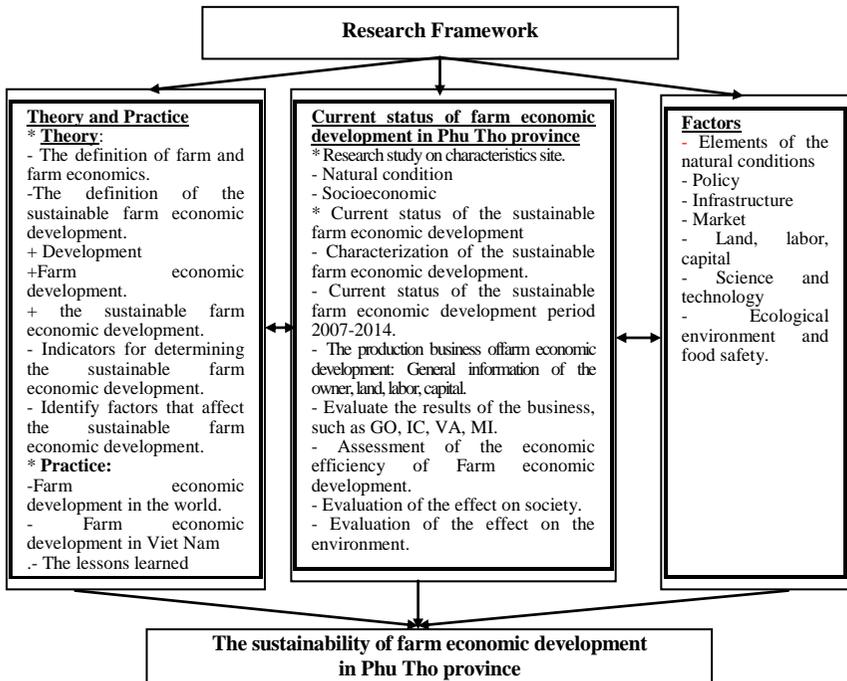


Figure 2.1. Analytical Conceptual Framework for the Study on the sustainable farm economic development

Source: Researcher

2.3. Research Methods

2.3.1. Approaches

2.3.2. Method of information collection: The secondary and primary

2.3.3. Summarize the information

2.3.4. Information analysis methods

2.4. Research indicator System: i) The indicators that reflect socio-economic development of Phu Tho province; ii) The indicators that reflect the productive resources of the farm; iii) The indicators that reflect production and business results of the farm; iv) The indicators reflecting the efficiency resources of the producing farm.

Chapter 3: THE CURRENT SITUATION OF THE SUSTAINABLE FARM ECONOMIC DEVELOPMENT IN PHU THO PROVINCE

3.1. Features of the study

The natural and socio-economic conditions in Phu Tho province has influenced to the development of farm economics. The study selected the types of farm economics to match the condition of Phu Tho. It is very important to promote efficiency potentials, strengths and reduce the difficulties for the development of Phu Tho.

3.2. The current status of the sustainability of farm economic development in Phu Tho province

3.2.1. Features of farm economic development in Phu Tho Province

The study period applies 2 Circular No. 69/2000 / TTLT / BNN-economic organizations and Circular No. 27/2011 / TT-BNN. The whole province had 935 farms in 2010. The change of the circular in 2011 dropped to 65 farms. It rose to 136 farms including 93 farms accounted for 68%, 28 collective farms accounted for 21%, 09 aquaculture farms accounted for 7%, 03 cultivate farms accounted for 2% and 03 forest farms accounted for 2%. " in 2014.

3.2.2. The current status of the sustainability of farm economic development in Phu Tho province period 2007 – 2014

3.2.2.1. Number of farm economic period 2007-2014

During the research on farm economic development in Phu Tho province. There are two phases: Phase 1 from 2007-2010 is to identify the farm under Circular No. 69/2000 / BNN-GSO TTLT of the Ministry of Agriculture and Development rural General statistics (*); Period 2 Period from 2011-2014 was identified farm Circular No. 27/2011 / TT-BNN (**).

- The period from 2007-2010 (*), There were 470 farms in 2007 increasing to 935 farms in 2010, up to 99%.

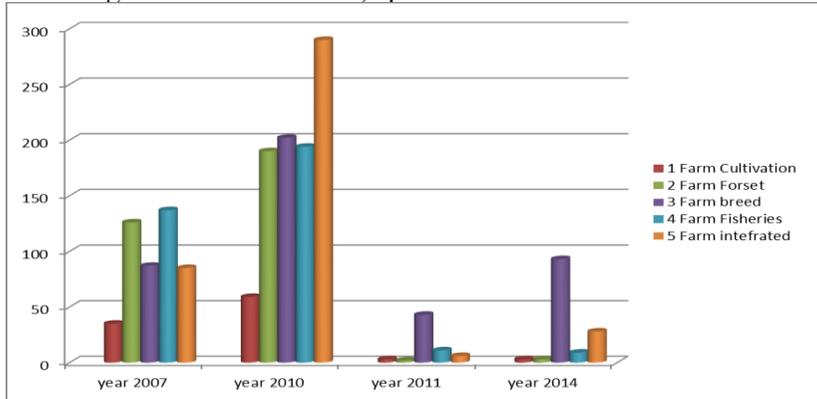


Figure 3.1: The variation in the types of farm economic development period 2007- 2014

- The period from 2011-2014(**) In 2011, there were 65 farms, down 93% compared to 2010. The animal husbandry farms accounted for over 66%, the aquaculture farms accounted for 17%, the forestry and other accounted for less than 10%. In 2014, the number of farms increased almost 10% compared to 2013 and increased by 2 times compared to 2011, the animal husbandry farms increased nearly 41%, collective farms was down 32%, fisheries farms was down 18%, cultivate and forestry farm remained the same.

3.2.2.2. Resources and the value of farm production

a. Land resources in the farm

In 2007, It has total number of 5,004.8 ha farm, 2010 increasing to 8,074 hectares increased 61%. The number of farms decreased in 2011, the total area of 136.6 hectares dropped down nearly 98%. The number of farms increased in 2014 to make the total land use in farms increasing to 1,007.8 ha equally increasing 7.34 times; although the total land use reduced but the area average per farm increased. The origin of the land was mostly delivered, there was a few number of land transfer and land for bidding.

b. Labor resources in the farm

Number of employees regularly used on the farm from 2007 to 2010 increased from 3.515 to 7.188 employees, the number of labor used in farm decreased to 388 labours due to redefine criteria farm in 2011, there was 616 labours in 2014 increasing 59% ,It included types of farms are mainly used, in addition farms hired seasonal labor to serve

production and business. Overall labor force used on the farm were mostly untrained labor, quality of farm labor was not much different from the labor of farmers.

c. The production value of the types of farm.

Farm production value of the 2007-2014 period increased steadily over the years, the total production value in 2007 reached 90 VND billion, increased 198 billion in 2010, up 120%, the number of farms were much more but the production value reached lower than estimated in 2010; there was fallen of farms at 93% in 2011 but the production value reached 157 vnd billion. It rose to 300 vnd billion in 2014. Although farm production value continued to increase over the years, but it accounted for only 3.2% of the total production value of agriculture, forestry and fisheries so the development of farm economic was still low.

3.2.3. Production and business situation of farms in 2014

3.2.3.1. Basic information of the farm owners

Farm owners were men accounted for 90%, mainly ethnic Kinh, the farm owners had knowledge low, the ages were mostly 40 to 50 years old, It accounted for 41%, the ages were 50 to 55 years old accounted for 23% and the remaining accounted for the other group.

3.2.3.2. Land of the types of farm

The land average of a farm land was 4.14 ha of agricultural land accounting for 47.45%. It was divided equally annual crops and long term plants; forestry land accounted for 25.37%, aquaculture land accounted for 27.18%. Scale land and area depended on the types of farms. The land of husbandary and other farms were lowest land. It was from 2.64 to 2.95 ha/ farm. In general, the land area of the types of farm in Phu Tho province is higher according to the criteria of land of Circular 27/2011/MARD. There was 74% of all farms in the size of less than 5 hectares, farms in the size of 31 hectares and above occupied 5.15%.

3.2.3.3. Labor of types of farms

The average labor on a farm was 4.3 labors. The majority of workers have not been trained up over 74%, elementary level up over 19%, the remaining 10% is the intermediate level and above. Overall employment was mainly based on the experience to conduct business. The average labor for cultivation farm was 14 people. It got the highest. The average labor for husbandary farm was 3.6 labors which accounts for 67% of farms. The average labor for farm mostly was 5 labors. The average labor for seafood farm mostly was 15 employees because seafood farms have a total large usable area and regular care.

3.2.3.4. Capital of types of farm

Total capital of the average production was 1.17 vnd billion, seafood farms have invested the amount of 1.154 vnd billion. The

lowest farms was 767,2 vnd billion. In general, the average investment level of a farm was high. It was a bit difficult for households investing to become big farms.

The fixed capital accounted for 44% of total capital and working capital accounted for 55%. Sources of capital formation of different types of farms were loans from close friends, and the banks.

3.2.3.5. Evaluate the results, the efficiency of production and the business of farm types

To assess the status of the results of the farm business in 2014 through the following indicators:

- a. The production value of the types of farm economics.

Farm production value may differ significantly because it depends on the size, characteristics and nature of the type of industry, the business, on the other hand it also depends on the management capacity of the farm owner.

Table 3:16. The production value of different types of farms in 2014

Unit: million VND

indicators	BQC	Average indicators				
		Cultivation	husbandary	Forest	Fisheries	Colective
Production value	1.612,36	814,66	1.692,00	1.428,49	1.648,11	1.366,80
I. Agri-foresty and fisheries	1.461,26	793,11	1.614,60	1.094,79	1.617,61	937,80
1. Agriculture	1.244,83	793,11	1.530,90	54,79	177,80	738,80
1.1. Cultivation	196,57	591,95	149,40	12,68	11,30	315,40
1.2. Livestock	1.048,26	201,16	1.381,50	42,11	166,50	423,40
2. Forest	43,00	0	16,20	1.040,00	0	43,60
3. Fisheries	173,43	0	67,50	0	1439,81	155,40
II. Other activities	151,11	21,55	77,40	0	0	429,00

Source: The reseacher

Their main source of farm income is agriculture and forestry, the remain is seafood. Livestock farm reached the highest of 1.692 vnd billion, the lowest is cultivation farms with 814,66 vnd million. The analysis data showed the specialization in the business of farms were high. It also showed the level and scale of the farm business is much higher than the household economy. There was 41% of farms reaching 1-2 vnd billion, nearly 26% getting 2-3 billion, the remaining was below 1 vnd billion production.

b. Intermediate costs of different types of farm economy

Table 3.18. Intermediate costs of different types of farms in 2014

Unit: million VND

Indicators	BQC	Average indicators				
		Cultivation	husbandary	Forest	Fisheries	Colective
<i>Intermediate costs</i>	893,84	408,49	922,33	512,21	922,78	882,81
I. Agri-forestry and fisheries	771,22	392,63	864,97	382,73	898,84	501,00
1. Agriculture	660,06	392,63	821,5	26,84	92,54	402,77
1.1. Cultivation	108,28	297,22	94,31	6,07	6,10	178,25
1.2. Livestock	551,78	95,41	727,19	20,77	86,44	224,53
2. Forest	14,03	-	5,67	355,89	-	11,20
3. Fisheries	97,12	-	37,8	-	806,29	87,02
II. Other activities	122,62	15,86	57,36	129,48	23,94	381,81

Source: the researcher

The cost of an average intermediate farm type was 893.84 million including expenditures for agriculture, forestry and fisheries sector. It accounted for 86.28%. The remaining was spent on other sectors. The highest costs were aquaculture farms with 922.78 million. The lowest cost was cultivation farms with 408 million. Generally, the intermediate cost was high.

C. The added value of the different types of farm economy

Table 3.19. The added value of farm types in 2014

Unit: million VND

indicators	BQC	Average indicators				
		Cultivation	husbandary	Forest	Fisheries	Colective
<i>added value</i>	718,52	406,17	769,67	916,28	725,33	483,99
I. Agri-forestry and fisheries	690,04	400,48	749,63	712,06	718,77	436,8
1. Agriculture	584,76	400,48	709,40	27,95	85,26	336,03
1.1. Cultivation	88,29	294,73	55,09	6,61	5,20	137,15
1.2. Livestock	496,48	105,75	654,31	21,34	80,06	198,87
2. Forest	28,96	0	10,53	684,11	0	32,40
3. Fisheries	76,31	0	29,70	0	633,52	68,38
II. Other activities	28,49	5,69	20,04	204,22	6,56	47,19

Source: the author

The added value of each types of farm was different. It was not only depending on the production value but also depended on the cost of intermediate, if production value got high and intermediate costs was high so the value added was low. This table shown the forest farms got the highest added value with 916 million and got the lowest intermediate costs; the second is husbandary farm reached 770 million but it had the highest intermediatecosts. The Lowest value added is for cultivate farms.

d. The total cost of production of various types of farm economy
Production costs of different types of farms in Phu Tho province is shown in Table 3:20 detail below:

Table 3:20. The total cost of production of different types of farms in 2014
Unit: million VND

indicators	BQC	Average indicators				
		Cultivation	husbandary	Forest	Fisherie s	Colectiv e
<i>The total cost</i>	1.172,3₉	423,61	1.292,10	661,7₇	980,71	971,34
I. Agri-forestry and fisheries	1.047,3₅	407,41	1.233,87	500,1₅	956,03	584,37
1. Agriculture	928,34	407,41	1.187,25	34,48	125,27	478,07
1.1. Cultivation	110,04	304,53	95,89	6,17	6,27	180,68
1.2. Livestock	818,30	102,88	1.091,36	28,31	119,00	297,39
2. Forest	18,94	-	7,67	465,6 ₇	-	16,63
3. Fisheries	100,07	-	38,95	-	830,77	89,67
II. Other activities	125,04	16,20	58,23	161,6₂	24,68	386,97

Source: the author

The total cost of these types of farms was relatively high, the average 1.172 million/ farm, because the cost of husbandary farms were high. They also accounted for the biggest scales. They made the the average cost quite high. So the farm owners must study intermediary costs to reduce costs in line with the volatility of market prices to maximize farm income.

E. Mixed income of the different types of farm economy

Table 3:21. Mixed income of farm types in 2014
Unit: million VND

indicators	BQC	Average indicators				
		Cultivation	husbandary	Forest	Fisherie s	Colective
<i>Mixed income</i>	439,97	391,05	422,40	766,72	667,40	395,46
I. Agri-forestry and fisheries	413,91	385,70	403,23	594,64	661,58	353,43
1. Agriculture	316,49	385,70	366,15	20,31	52,53	260,73
1.1. Cultivation	86,53	287,42	76,01	6,51	5,03	134,72
1.2. Livestock	229,96	98,28	290,14	13,80	47,50	126,01
2. Forest	24,05	-	8,53	574,33	-	26,97
3. Fisheries	73,36	-	28,56	-	609,04	65,73
II. Other activities	26,06	5,35	19,17	172,08	5,82	42,03

Source: the author

The average mixed income reached 440 million, the forestry farm income reached the highest with 767 million, the second was aquaculture farm mixed income with 667 million, the 3rd was husbandary farms, and the lowest was cultivation and collective farms. The mixed income of cultivation and collective farms was low

but they developed much because of no need to limit the land and the revolving of the year faster than the 4 remaining types of farms

g. Assessment of economic efficiency of different types of farms

Economic effectiveness reflected the quality of the business. It was determined by comparing the results of business at the cost of removal.

The effectiveness of the indicators is described through the following chart:

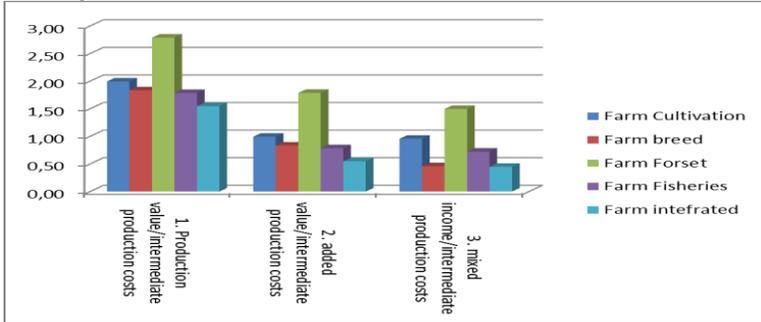


Chart 3.3: Economic effectiveness on intermediate costs

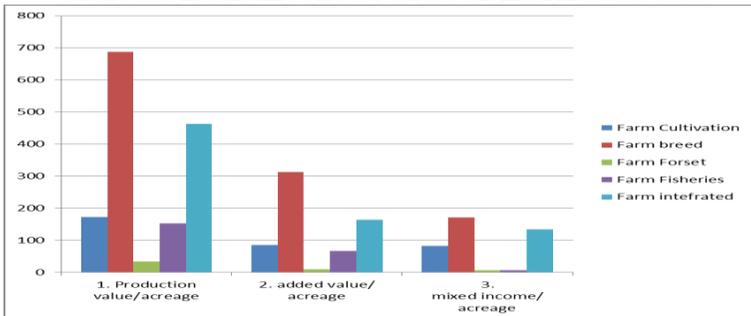


Chart 3.4: Economic effectiveness per unit area

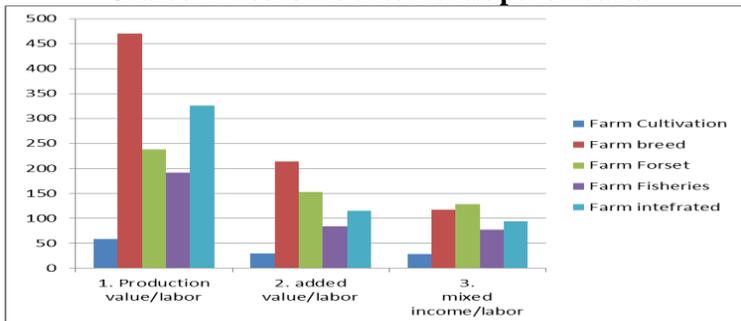


Chart 3.5: Economic effectiveness on labor

The effectiveness on the intermediate for forest farm was the highest. Spent 1 vnd on intermediate cost, gained 2.79 vnd on production value, added value was 1.79 vnd, mixed income of 0.46 vnd, the reason for the low cost of forest trees in the capital was so high efficiency; the lowest was collective farms.

The land use productivity of husbandary farms was the highest efficiency and obtained specific production value 687.8 million/ ha, the value added got 312.87 million/ ha, the mixed income reached the highest is 171.71 million/ ha, the average income for the year of forest land divided to the annual year got a low value leading to lower soil productivity, production value gained nearly 35 million/ ha, the added value was 9.16 million/ ha, the mixed income reached nearly 8 million/ ha.

For labor efficiency of husbandary farm was the highest. The annual production value for a labour got 470 million , the added value was 214 million, the mixed income got over 117 million, on the other hand this types of farms used in many machine tools automatically fine-reducing manual labor. The lowest effective was cultivation farms, because of hand working mostly.

3.2.4. Comments of farm owners to expand production scales.

To develop the farm economy in sustainable way. They should focus on expanding the scale of the farm business, expanding the scope of each types of different farms were aggregated through 3:23 table.

Table 3:23 Comments of farm owners on farm economic development

Indicators	Total (TT)	rate (%)	Quantity as types of farms (%)				
			Cultivation	husbandary	Forest	Fisheries	Colective
Total of farms	136	100,00	2,21	68,38	2,21	6,62	20,59
1. expanding scales							
- Agri	6	4,41	50,00	-	-	-	50,00
- Fisheries	64	47,06	1,56	43,75	3,13	14,06	37,50
- Forest	6	4,41	-	-	33,33	-	66,67
- husbandary	127	93,38	1,57	73,23	2,36	7,09	15,75
2. Need							
- Training scientific knowledge and management skills	135	99,26	2,22	68,89	1,48	6,67	20,74
- Deliver seed, animals to raise	58	42,65	5,17	55,17	3,45	10,34	25,86
- Was granted with certificates land use rights	24	17,65	-	37,50	8,33	33,33	20,83

Source: the author

To develop farm economic development was solving the existing difficulties. According to the farmers, the most difficult problem in developing was selling products, manufacturing services, training of scientific knowledge on the technical and managerial skills. Despite agriculture and extension centers in Phu Tho province also had many programs to train farmers in agricultural production but It did not have its own training courses on techniques for farm owners. To develop and expand the farm, the farmer wanted the State and the relevant authorities (the State, scientists, businessman, farm owners) tried to find the way on how to help farm owners on scientific and technical issues, product consumption to be assured of business scale expansion.

3.3. Analysis of factors affecting to the sustainability of farm economic development in Phu Tho province

3.3.1. Natural conditions

3.3.2. Infrastructure elements

3.3.3. Market factors

3.3.4. Capital

3.3.5. Scientific and technological factors

3.3.6. Ecological environmental factors and food safety

3.3.7. State policy factors

3.3.8. Risk factors for the development of the farm economy

3.3.9. Analysis of factors affecting production and business results of the farm by the Cobb-Douglass production function

* Description of the variables used in the model

Table 3.34: Description of the variables used in estimating Cobb-Douglass

<i>Variables</i>	<i>Definition</i>	<i>Expectation</i>
Production value	<i>The total value of production value of farm production (million)</i>	X
Age	<i>Age of the farmer (years)</i>	+/-
Skills	<i>Qualifications (1 = untrained; 2 = trained but not certified; 3 = elementary occupations; 4 = Vocational College, professional secondary; 5 = vocational colleges; 6 = college; 7 = university or higher)</i>	+
Employees	<i>number of farm laborers, including family labor and outsourced labor (labor)</i>	+
Land	<i>total land area of agriculture, forestry, fishery farms (ha)</i>	+/-
Bank loans	<i>Total bank loans of farms (million)</i>	+
Loáns from friends	<i>Total loans from friends and relatives of the farm (million)</i>	+
Gender	<i>Gendered of farm owners (1 = male; 0 = female)</i>	+/-
Farms	<i>production area of the farm business (1 = model specialist livestock farms; 0 = other models)</i>	+/-

Source: Author

Table 3:35: The estimates Cobb-Douglass factors affect the total value of production per 1 farm

Name variable	Coefficient estimate	Standard error	t statistic	significant level
Variables	K	tolerance	Statisitic	Meaning
TUOI	0,0051789	0,004375	1,18	0,239
CMON	0,0448459**	0,0213871	2,10	0,038
lnLDONG	0,134773**	0,0554533	2,43	0,016
lnDAT	0,0361902	0,0364184	0,99	0,322
lnVON_VAYNH	0,1583977***	0,0278798	5,68	0,000
lnVON_VAYNGUOITHAN	0,1122234***	0,0132128	8,49	0,000
D_GIOI	0,190495	0,1176675	1,62	0,108
D_CN	0,5759875***	0,1151215	5,00	0,000
Hãng số	4,978493***	0,2883298	17,27	0,000
R ²	0,7192			
N (Số quan sát)	136			
R ² điều chỉnh	0,7015			
F(8, 127)	40,65			
Prob > F	0,0000			
Breusch-Pagan / Cook-Weisberg test (chi ²)	3,02			
Prob > chi2	0,827			

*Note: ** $p < 0.05$; *** $p < 0.01$*

Source: Estimates from the CD function by Stata from survey data

The estimation results showed that F-value statistics by 40.65 at the statistical significance $p < 0.01$, suitable regression model statistically. VIF coefficients of each variable in the model were less than 10, this suggests that the model has no multicollinearity phenomenon. Accreditation Breusch-Pagan / Cook-Weisberg with p-value results > 0.05 , the variance of the error in the model had not changed. The results of the model showed that the use of the independent variables mentioned above were suitable to explain the fluctuation of the value of farm production. Specifically, all the independent variables in the model explained 70.05% of the variation in the total value of production per farm. The estimated coefficients from the model were elasticities, reflecting volatility as a percentage of production value when the value of the explanatory variables fluctuate 1%.

At the policy level interventions and the interest of the farmers, marginal productivity of the inputs were more concerned (Table 36). In this section, subject mainly to explain the meaning of the marginal

productivity of independent variables that estimated coefficients of the variables are statistically significant at $p < 0.05$.

Table 3:36: Performance boundary of factors affecting the total value of production per 1 farm

<i>variable</i>	<i>regression</i>	<i>coefficient editing performance</i>
lnLDONG	0,134773	31,89**
lnVON_VAYNH	0,1583977	1,04***
lnVON_VAYNGUOITHAN	0,1122234	1,65***
Hàng số	4,978493	
R ²	0,7192	
N (Số quan sát)	136	
R ² điều chỉnh	0,7015	
F(8, 127)	40,65	
Prob > F	0,0000	

** $P < 0.05$; *** $P < 0.01$. performance records only for the continuous explanatory variables and statistical significance in the model estimates of CD

Source: Results of the efficiency of fishing from CD content

Table 3:36 indicated that under conditions other factors constant, labor will increase the total production value of 1 person added 31.89 million/farm/ \year, the professional qualifications of owners had a positive effect to farm production results, the development policy of rural labor markets in order to facilitate the accessment to the farm labor force will have a positive impact on the results of farm production, capital sizable loan to affect production value.

3.4. Analysis of strengths, weaknesses, opportunities and threads (SWOT) in the sustainability of farm economic development in Phu Tho province

To analyze the strengths, weaknesses, opportunities and challenges of the sustainability of farm economic development in Phu Tho province will provide the basis for decisions choice of solutions for the development

3.5. General assessment of the development of the the sustainability of farm economic development in Phu Tho province

3.5.1. Result

3.5.1.1. Economics

* Analysis of development divided into 2 stages: 2007-2010 and 2011-2014.

- In the period 2007-2010: in 2007, It had a total of 470 farms. It increased to 935 farms in 2010 up 99%. The commodity production value reached 90 VND billion in 2007 to 198 VND billion in 2010; The labor resources used in farms also increased significantly as: the amount of labor used frequently in farm labor in 2007 was 3.515 labours. It got 7.188 labours. It increased 2 times; The used land for farming in 2007 was 5.005 ha increased to 8.074 ha in 2010. It increased 3.069 hectares or increased 61%; The structure changed as follows: The seafood farms got 29% in 2007 downed to nearly 21% in 2010, but the growth was 41.61%; The second was forestry farms. It got 27% in 2007 decreased to nearly 20.3% in 2010, But the growth got 50.7%; The third was cultivation farms decreased from 7.45% in 2007 to 6.3% in 2010, but the growth was 65.7%. The most increased farm was aggregate farm increasing from 18.1% in 2007 to 31% in 2010, but the growth rate got 2,41 times.

- The period 2011-2014: The number of farms in 2011, there was 65 farms increasing to 136 farms in 2014 with up 2.1 times; the commodity production value reached 157.34 billion in 2011 increasing to 300.1 billion in 2014. It was up to 91%; The average production value was 2.4 vnd billion per farm per household. It reached 1.6 vnd billion per farm per household in 2014, decreased 800 million per farm. The farms in 2011 were husbandary farm. The used resources in farms also increased rapidly: the number of workers regularly used farm labor in 2011 was 388 increasing 228 616 workers with up 59%; land area used on the farm was 137 hectares in 2011 increasing to 1.009,872 ha in 2014 equalvalent to 7.4 increasing times; The structure changed as follows: The seafood farms fell the most, accounting for 17% in 2011 to 6.6% in 2014. The rate was down 18%; The second was cultivation farm which accounted for 4.6% in 2011 decreasing to nearly 2.2% in 2014. The third was forest farm which accounted for 3.1% in 2011 decreasing to nearly 2.2% in 2014. The rate was up 50 %. The most increasing farms was mix farms accounted for 9.2% increasing nearly 20.6% in 2014, The rate was 3.67 times.

3.5.1.2. Society

- The period 2007-2010: The average production value of a farm reached 191.36 million; The average production value per employment reached 25.59 million; The average income per farm reached 52.97 million, the average income per employment reached 7.08 million in 2007.

The average production value of a farm reached 211.62 million equivalent up to 10.6% or 20.26 million; The average production value

per employment reached 27.53 million equivalent up to 7.6% or 1.94 million ; The average income per farm reached 89.92 million equivalent up to 69.8 % or 36.95 million, the average income per employment reached 11.7 million equivalent up to 65 % or 4.61 million in 2010;

increased by 65.34% increased 58.45 million.

- The period 2011-2014: The average production value of a farm reached 2.420,58 million; The average production value per employment reached 405.51 million; The average income per farm reached 533.95 million, the average income per employment reached 89.45 million in 2011.

The average production value of a farm reached 2.9 billion equivalent up to 20.31% or 492 million ; The average production value per employment reached 643 million equivalent up to 59% or 237.52 million ; The average income per farm reached 147.9 million equivalent up to 65.34 % or 58.45 million in 2014.

- The number of employees in the farm has increased significantly, settling jobs for the local workforce. The farm economics development in Phu Tho province has seen frequent outsourced labor of farm economics development in Phu Tho province.

- Structural infrastructure investment was supported of the State through development assistance programs farm economics development in Phu Tho province and the contribution of the farmers' income by increasing farm, the rural changed, to contribute to narrow the wealthy and the poorn, social security and social safety was enhanced by the employment income stable.

3.5.1.3. Environment

The farm economics development in Phu Tho province mainly contribute to grow the trees of barren land, soil erosion control. Some farms used recycle things for the production to reduce environmental pollution. It also created clean products to ensure food safety. But there were many farms still using too many plant protection drugs. The weight gain made food product quality affecting the health of consumers and the environment.

3.5.1.4. General assessment

Although the average production value per farm in 2014 decreased compared to 2011 with the amuont of 800 million because 2011 was the first year implementing the change in the criteria determining. The farm had more high value. There were a lot of old farms reaching the standard according to the new criteria in 2012, so the average value decreased. For the old farm household in 2011, the production value increased over the years. The farm households contributed to the social economic

development of the province. The farm economics development in Phu Tho province was assessed as sustainable development towards the socio-economic. For environmentally sustainable, there was a few evident, whereas increasing the environmental pollution was specific analysis in section 3.3.6.

3.5.2. These difficulties and causes

3.5.2.1. Difficulties

- Economic aspects:

+ Most of the farms were small and medium scale. The exploitation were limited, the efficiency was not high compared to the available potential. Phu Tho was estimated to have the potential and advantages to develop farm economics development but there were a lot of small and medium farms in terms of quantity so the exploitation did not meet to have a potentially effective way. the strength of the local potential was land and forest. So there were a few farm households contributing to the economic development of the province.

+ Competitiveness weak farm: Most farm households did not pay much attention to the branding for their products. Level of equipment and application of science to production was still limited.

+ The cooperation was weak, the farm owners did not cooperate to each other. They still had the old way of thinking "Self strong concern" so there were the lack of linkage of the households to be the major sources of quality goods towards higher overseas exports. There was a few linkage between farm owners and the enterprises, the percentage of products to be put into processing was very little.

+ There was a positive direction of farm restructuring but It was still slow, The farm households were spontaneous breaking of local planning, lack of stability. According to the plans of districts and the provincial agencies in Phu Tho province was stepping up development of forms of cultivation and mix farms to promote the advantages of each region to be balance, The current husbandary farms accounted for nearly 70%.

- Social aspect:

+ The ability to attract labor, creating jobs on the farms was limited, due to less number of farms, farm size was small (farm laborers accounted for only 0.14% of the total labor force in agriculture, forestry and fisheries). Jobs and income for farm workers were mainly seasonal irregular workers except for farms, so the income level of workers was also unstable.

+ Most farm owners had almost no attention to protect the rights of workers; hiring and paying according to the agreement signed by

mouth without a written contract, the workers employed mostly just in time to receive the day's work with the unit price of the deal, they did not insurance premiums.

+ There were little farm contributing to narrowing the gap between rich and poor, but they had to contribute to the household economy communication on the application of science and technology in production manufacturing, production experience, management, funding support, ...

- Environmental aspects: The local farms made the environment more polluted because of the number of farms were fisheries and husbandary farms. They accounted for 75% of the total number of farms, although the farms had always been prompt to not contaminate the environment for sustainable development, in addition to the type of cultivation farm used of inorganic fertilizers, stimulants, plant protection drugs, ... has made rapid land quickly faded. There was no plan for exploitation of water, so the water was polluted and the same wwith air pollution.

3.5.2.2. *The causes*

- Firstly, the internal capacity of the farm: The capacity of the farm was an important factor affecting the development of the farm. So, we could say one of the most important cause making farm economics development in Phu Tho province not sustainable development capacity of the farm. It was limited:

+ Nearly 50% of the farms were lack of funds to meet the needs of business, purchase of machinery and equipment, restructuring of crops and livestock or agricultural reserve price fluctuations.

+ Mainly farm laborers were untrained; manufacturing experience and access to low-tech science; for farm owners were mainly farmers working with experience, They did not have been trained through training courses on agricultural knowledge, business knowledge management. Most farms did not have accounting books, They had only a normal notebook.

+ The processing technology and post-harvest preservation were not attached to farm owners to add value to products. Actually there were a number of farms in the areas of investment vehicles, machinery and process execution processing of agricultural products, but there was small-scale farms, they had primitive technology, low efficiency. So, most of farm products sold immediately after harvest (though low, were sold at low prices), led to the competitiveness of the product were low.

+ The farm owners were still developing under the main movement, the development of products had been accepted by the

market much. The majority of the farmers do not have the ability to build business plans, remain passive in response to market volatility.

- Secondly, the topographic and climatic complexity of Phu Tho province affected the effectiveness of the sustainability of farm economic development in Phu Tho province: general conditions of Phu Tho weather had prolonged dry seasons, the dry soil affected the operation of farm production such as: all kinds of fruit trees in the flowering period, the amount of water to irrigate drought should affect crop yields, no water aquaculture area also shrunk. The rainy season, the water of the Red River and Lo river went up cause more flooding.

- Thirdly, the development policy was not comprehensive and lacks breakthrough, It was slow adjustment and additional time. Farm economy was not creating conditions for the development and benefit from the policies encouraged by the State. The implementation of policies to support the development of farm economy remained slow. In recent years the Party and State had many guidelines and policies to promote farm economics development but there were still many obstacles in the process of implementation in particular:

+ Policy development planning the sustainability of farm economic development in Phu Tho province was inconsistencies such as planning, land use planning at the district and commune levels. Land use plan was not close to the sustainability of farm economic development in Phu Tho province. It was not planning to use planning for different types of farms as farm owners were not confident in investing in production.

+ Policies on land during the deployment were still many shortcomings, such as issuing certificates of land use rights has been slowly, caused by some local officials still limited degree, the real embarrassment, there were some localities have not yet actively directing full attention and regular; no method of propagating the people participating in the program "cornered land and fields to create the large sample field" so fragmented land was still restrict small farm development. It was forest and cultivation farms.

+ Credit mobilization mechanism of the farm: Although the mechanism of bank deposited more open, but the money was without collateral, the loan amount was not enough to fairly low investment to farm economics development, in addition to the loan duration was too short, but some types of farm, the turnaround time was longer than the capital. With that reality, adopting a short-term loan term for these farms were clearly a huge shortcomings in the credit policy of the banking system, but the state did not intervene more deeply because most most banks were equitized and they also had to limit the risk of bad debts especially in agriculture.

+ Policy support farm product sales had not achieved high results. The local government agencies also had the policies as a legal framework to support the farmers in general and farmers in particular, but It did not promote the effect of the policy objectives.

- Fifth, the control operation of the farm had not been taken care in the right way. The majority of farm owners came from farmers working accustomed arbitrary types, according to their own subjective bring selfishness concerned only their profits. They did not pay attention to the issue of environmental pollution, harmful to the health of the patient and the health of the community. There was the lack of inspection and supervision in the activities of the authorities and the local agencies to the farm activities to be followed the compliance with the development plan of the local socio-economy.

Chapter 4: THE SOLUTIONS OF THE SUSTAINABILITY OF FARM ECONOMICS DEVELOPMENT IN PHU THO PROVINCE IN 2020 AND VISION TO 2030

4.1. Point of view, the basis of orientation, and the sustainability of farm economics development in Phu Tho province by 2020 and vision to 2030

- The views on the sustainability of farm economics development in Phu Tho province.

- The factors of construction-oriented to the sustainability of farm economics development in Phu Tho province.

- The orientation for the sustainability of farm economics development in Phu Tho province by 2020 and vision to 2030.

4.2. The main solutions to the sustainability of farm economics development in Phu Tho province

To achieve the orientation that the province should implement synchronized solutions: 1) To renew the awareness of the role of farm economics development in agricultural development and rural development in the province; 2) To complete the plan to choose the kinds of farm economics development suiting each ecological region, the province's natural towards sustainable development; 3) To complete the allocation of land and granting land use right certificates facilitate accumulation of land to develop farm economics development; 4) The solutions to facilitate capital of farm economics development; 5) The solutions to market, product sales and building the infrastructure development farm economics development; 6) The solutions on technical science and technology to the sustainability of farm economics development in Phu Tho province; 7) The solutions

to improve the quality of human resources to develop the sustainability of farm economics development in Phu Tho province; 8) The solutions to complete business and legal environment to develop the sustainability of farm economics development in Phu Tho province; 9) The solution to strengthen State management role for developing the sustainability of farm economics development in Phu Tho province ; 10) The solution to strengthen linkages to development the sustainability of farm economics development in Phu Tho province; 11) The solution to minimize environmental pollution.

CONCLUSIONS AND RECOMMENDATIONS

1. Conclusions

Farm economics development was a critical requirement for social and economic development of Phu Tho province in general and the process of agricultural restructuring towards higher added value in particular to raise incomes for people. The process of study and implementation of the thesis was to draw some conclusions:

1.1. Theoretical studies on the sustainability of farm economic development in Phu Tho province showed, besides ensuring inheritance concepts and content farm economic development, the thesis should complement and complete more about views, inner meaning, criteria for evaluating the the sustainability of farm economic development in Phu Tho province. It was absolutely necessary and in accordance with the context of research on the sustainability of farm economic development in Phu Tho province in the current period.

1.2. The sustainability of farm economic development in Phu Tho province had started moving to the direction of sustainable development through the indicators of quantity and quality of the farm households. For the fact that the province's farm households had created a volume of agricultural commodity value which were much higher than household economy. It also contributed to the economic restructuring towards rural agricultural production goods, moving the implementation and modernization of rural agriculture in the current period.

1.3. To evaluate the positive impact of the the sustainability of farm economic development in Phu Tho province to local sustainability in all 3 aspects: economic, social and environmental development. We could confirm the farm economic development in Phu Tho province that was appropriate choices of agriculture rural Phu Tho province. But reaching sustainability was not high, each farm types only achieved in each specific aspect, especially the

contents of the social impact and the environment was achieved with negligible levels because the farm households were not really interested in and aware of this aspect besides the State's sanctions were not strong enough to do, especially in the field of environment and food safety.

1.4. The sustainability of farm economic development in Phu Tho province affected by the external factors include: elements of state policy; market factors; natural conditions, socio-economic conditions; international economic integration and subjective element groups including intrinsic factors such as farm land, labor, capital, management skills ..., scientific and technical applications.

1.5. Seven factors affecting the value of production of the sustainability of farm economic development in Phu Tho province such as age, qualifications, labor, land, bank loans and loans from relatives and the gender of the farm owners are the factors affecting to the sustainability of farm economic development in Phu Tho province efficiency.

1.6. The proposed solutions towards: Business planning and perfecting land policies should be regarded as innovative solutions to farm economics development in sustainable way; On the other hand the provincial authorities need to strengthen capital do farm economics development precondition for development; Push up the consumer market to promote the construction of infrastructure and farm economics development; Scientists have considered engineering and technology is an important driving force for the development of the sustainability of farm economics development; Capacity building for workers and farm owners need to be more concerned; The business and legal environment to develop farm economics development in sustainable way content was to be implemented; State management role for farm economics development is an indispensable solution to Phu Tho sustainable farm economics development.

2. Some recommendations

2.1. For the State, at all levels, the central sector

On the basis of guidelines and orientation for farm development, the State should continue the strategic planning and more specific policies on farm economics development. Especially the construction of infrastructure such as transport, agriculture and forestry products processing, product markets and supply base materials, equipment, fertilizers, plant protection products and seeds, pet.

- The Government should direct the focus to strengthen links together for investments, discussions and completion of farm economics development projects for local.

- The state should have reasonable policies to farm economics development steady, sustainable land policy, investment policy, credit, tax policy, price policy ...

- Strengthening activities of the mass media in the dissemination of policies, the advanced models, business models effective farm.

- The state should establish farm associations.

- To recommend the Ministry of Agriculture and Rural Development to advise the Government should promulgate policies to encourage the farm economics development, to support removing difficulties and promote the development of the sustainability farm economics development. Funding support training farm owners and modeling of typical farm, effective activities to direct and implement replication.

2.2. For all levels, local agencies of the province

- Proposing an annual budget to submit to the provincial people's committee for approval. To implement the policies to encourage farm economics development in the province facilitating support for business investment farm households.

- Recommendation to the district people's committees to allocate, issue certificates of land used rights for the farm owners and households according to regulations; farm certification for eligible households in accordance to the farm owners enjoy the preferential policies of the State.

- To invest in construction of processing plants and storage of agricultural and forest products of small and medium scale according to the enhancement of the value of the goods.

- To organize training courses raise the level of understanding of science and technology and farm households about business management, study tours to help the farm households improving their knowledge, expanding the market.

- To continue to review and plan restructuring of crops and livestock to suit the advantages of each region and each locality in the province.

- To set up the products insurance fund for the farm-planned development of their region to produce long-term business.

- Each local authority should establish a farm representative to facilitate agro-forestry products to the end users directly, not through intermediaries, reduce or imposing price ...

2.3. For farm households

- Clarify objectives and orientation of its business methods, remove the animal and plant inefficiencies, intensive farming to increase productivity, increase the competitiveness of the product on market.

- Farm households must actively learning more knowledge, to collect market information in order to have the ability to grasp the opportunity, new science and technology.

- To meet the criteria of the production value of Circular No. 27/2011/TT-BNN, the farm households should combine mixed business.

- The farm households needed to pay more attention to the recording, monitoring and accounting of the business process from the farm to assess the situation that production (loss/ benefit) of farms, avoid the loss without knowing.

- To overcome the limitations of the land limits, the farm households should be linked together to be a joint venture to combat farm land accumulation, to simply the conditions for the signing of contracts for sale of products, especially forest products. That is the basis for the State to consider to give the forest certification and licensing of operators easier.