TREND IN RICE PRODUCTION AND EXPORT IN VIETNAM

Nguyen Cong Thanh[1] and Baldeo Singh[2]

[1]Cuu Long Delta Rice Research Institute
[2] Division of Agricultural Extension, IARI, New Delhi, India

ABSTRACT

It is necessary to know the trend in rice production and export of the country to learn about the reasons why rice production and export of the country is increased or decreased at specific period. With this meaning, a study on rice production trend and export in Vietnam last 40 years (from 1965 to 2004) has conducted. Compound Growth Rates (CGRs) for overall period (1965-2004), of rice area, yield and production in Vietnam were positive and significant growth at the rate of 1.34; 2.60 and 3.97 per cent per annum, respectively. These were all positive and significant growth at 1 per cent level of probability. The instability analysis for overall period (1965-04), showed that overall area, yield, and production were high instability as compared to each sub-period in which most high instability was found in rice production (CV= 48.13 %); followed rice yield (CV = 31.81 %) and rice area (CV = 16.28 %). The contribution in rice production was reduced by both area effect and yield effect in overall period as compared to each sub-period, and the interaction effect had increased (28.18 %). Therefore, it can be said that rice production for total period was interaction of both yield effect and area effect, which explained for one-third of contribution but more contribution was of yield effect (52.77 %), followed area effect (19.09 %). In rice export, growth rate from 1965-2004 was very high at 25.39 and 26.09 per cent per annum for export quantity, and value, respectively. These were positive and significant at 1 per cent level of probability. With the interesting findings, it can be said that for the increase in rice production in Vietnam, the most concern is to increase rice yield by the application of high yielding and quality varieties with suitable rice production technologies. Because it is difficult to increase in area due to the limitation of this factor and the area has even declined in the certain periods.

INTRODUCTION

There has been special event of rice production in the world in 2004, which was the declaration of 2004 as the International Year of Rice. This event reflects the importance of rice in global concerns regarding food security, poverty alleviation, preserving cultural heritage and sustainable development. This is the first time in which an international year has been focused on one crop. The theme of "Rice is life" is a sign of the importance of rice as a primary food and income source especially in many developing countries. Focusing on rice internationally provides an opportunity for the global community to work toward achieving the internationally agreed Millennium Development Goals, which call for the reduction of poverty and hunger (http://www.globaled/go, 2005).

Vietnam is one of the most important rice producers in the world. It has been contributing significant role in the international food security. Rice production in Vietnam plays a crucial role in the Vietnamese rural economy, with nearly 80 per cent of Vietnamese farmers cultivating rice. Geography of Vietnam is diverse, there are high mountain in North and Central, the Vast highland in South Central known as Central Plateau and two big plains *i.e.* Red River Delta in the North and Mekong River Delta in the South. Vietnamese people cultivated rice since early of their civilization. Rice cultivation started with the Hoa Binh Culture and has been developing along the history of the country, in different geographical regions

from North to South. The Mekong Delta (Cuu Long) has an area of 4 million ha with 16.2 million tons of rice production or half of the total rice production in Vietnam (Bui 2000). With high production, Mekong Delta has contributed about 90 per cent in the total rice export quantity of the country in recent years (Le 2003). The economic contributions to GDP of agriculture, fishery and forestry are 26 per cent, of industry 32.7 per cent and of services 41.3 per cent, respectively. In 2003, rice provided approximately 50 per cent of the agricultural GDP (exclusive of forestry and fisheries) (Dang and Nguyen 2004). In agriculture, plant cultivation produces 81.2 per cent, livestock 16.3 per cent and services only 2.5 per cent. About 30 million tons of rice is produced on 7.3 million ha every year, which leads Vietnam from an importer to second largest rice exporter. Food security, export orientation and rural development are assigned the highest priorities in agriculture policies of Vietnam (UNEP 2004).

It is necessary to know the trend in rice production and export of the country to learn about reasons why rice production and export of the country is increased or decreased at specific period and to plan our strategy and policies accordingly to promote rice production and export. With this meaning, a study on rice production trend and export in Vietnam from 1965 to 2004 was conducted.

METHODS

Trend analysis - Growth rate analysis

The statistical tools were used for the analysis of the secondary data about growth rate of area, production, yield and quantitative export of rice from 1965 to 2004 (40 years) at the national level. This period was divided into 4 sub-periods and each period had 10 years: i) Under-War period (1965-74); (ii) Post-War period (1975-84); (iii) Renovation (Doi moi) period (1985-94); and (iv) Post-Renovation period (1995-04) and the total period (1965-04).

To compute the compound growth rate from these data, the following model was adopted:

$Y_t = ab^t$ (1)

Y_t = Area / production / yield / quantitative export of rice for the year 't'

t = Time variable (1, 2,…..n) for each period / year

a = Intercept

b = Regression co-efficient

The percentage of compound growth rates (r) were computed using the relationship:

$r = (b-1) \times 100$ (2)

Instability analysis

Several measures of variability such as range, standard deviation, variance, and coefficient of variation were used for measuring stability and instability in production, area, yield and export of rice. The time series data on these parameters decomposed firstly by fitting linear regression function According to Mehra (1981), which has been applied by Kumar (2000) and Siddayya, (2002). The instability was measured by estimating the coefficient of variation of production, area as well as yield, quantity of rice export. The coefficients of variation of these parameters were calculated as under:

$$CV\ (\%) = \frac{\text{Standard deviation } (\sigma)}{\text{Mean } (\bar{x})} \times 100$$

Analysis on the contribution of area and yield in total production

Decomposition analysis was carried out to measure the contribution of area and yield in total production. The theory and methodology of decomposition analysis is given as follows: The observed increase in production of a crop could be decomposed into different components, i.e. (i) change in area, (ii) change in yield and (iii) the interaction between area and yield. Further, in order to measure the contribution of area, yield and their interaction effects in the change in production of rice during the period from 1965 to 2004, the following additive scheme of decomposition given by Minhas and Vaidyanathan (1965) which has been applied by Siddayya (2002), was used:

Change in production = Area effect + yield effect + Interaction effect between area and yield

$\Delta P = A' \Delta Y + Y' \Delta A + A \Delta Y$
        Where,

ΔP = Different in production from the base year to last year (periods)

ΔY = Difference in yield from the base year to last year (periods)

ΔA = Difference in area from the base year to last year (periods)

A' = Area in the base year (of each period)

Y' = Yield of rice crop during base year (of each period)

Thus, there are three sources of changes in production (ΔP). Y' ΔA is called as 'area effect', A'ΔY is called 'yield effect' ΔA ΔY is an 'interaction effect', which arises from the simultaneous occurrence of changes in yield and area.

Time series analysis – straight-line trend

This technique was used in the drawing the trend in rice production and export including trend in area, yield, production and export quantity over 40 year (1965 – 2005).

The straight-line trend is represented by the equation:

$$Y_t = a + b\ t$$

Where,

Y_t is used to designate the trend values to distinguish them from the actual Y value,

a is the Y intercept or the computed trend figure of the Y variable when X=0,

b represents the slop of the trend line or amount of change in Y variable that is associated with a change of one unit in X variable.

X variable in time series analysis represents time.

RESULTS AND DISCUSSION

TREND OF RICE AREA, YIELD AND PRODUCTION IN VIETNAM

Table 1: Trend in rice area, production and yield from 1965 to 2004 (5 year average)

Periods	Area (000 ha)	Yield (tons/ha)	Production (000 tons)
1965-69	4,825.4	1.83	8,840.6
1970-74	4,891.6	2.19	10,703.2
1975-79	5,314.0	2.03	10,774.2
1980-84	5,650.2	2.43	13,740.2
1985-89	5,735.2	2.89	16,595.4
1990-94	6,395.8	3.33	21,360.4
1995-99	7,177.4	3.88	27,885.0
2000-04	7,502.4	4.51	33,820.8

Based on FAOSTAT data, last accessed August 2005.

Five-year averages of area, yield and production in Vietnam are presented in the Table1. Fig. 1 also illustrated the trends in area, yield and production in five-year average. The trend in rice production in 40 years from 1965 to 2004 has been divided into 8 sub-periods starting from 1965-69 to 2000-04. The results from Table 1 and Fig. 1 have showed the considerable change in the area, yield and production in Vietnam after 40 years. The change mainly after 1975 was due to the unification of the whole country after war with USA and after following renovation in the government's policies.

The five year average of area of rice production in Vietnam before 1975 did not change much, but after 1975 to 1989 the rice area had increased and reached up to more than 5 million 7 hundred thousands hectares. It continued to increase year after year and the number of rice area in the sub-period 1990-1994 was 6,395.8 million hectares. In the last two sub-periods 1995-99 and 2000-04, the rice areas had reached to 7,177.4 and 7,502.4 million hectares for each sub-period respectively.

The five-year average of rice yield in Vietnam increased rapidly after 1975. Before 1975, rice yield was only 1.83 tons per hectare. But thank to the independence and sharp changes in the government policies to help the farmers to invest more in rice production, the rice

yield increased year after year (Table 1). Rice yield was more than 2 tons per hectare in the years 1979 to 1984 and it reached to around 3 tones per hectare and more in the years after that up to 1990-94. The yield continuously increased and reached nearly 4 tons and 4.51 tons per hectares for sub-periods 1995-99 and 2000-04, respectively.

For rice production, data from Table 1 and Fig. 1 revealed the increase considerably after each sub-period. Before the war (1974), rice production in Vietnam was only 8,840.6 thousand tons. For some years after that, the change in rice production was not much. The reason might be due to inappropriate rice production management by government. But after 1980s, rice production in Vietnam had been increasing more and more following each sub-period and it reached to 21,360.4 thousand tons in 1990-94; 27,885 thousand tons in 1995-99 and 33,820.8 thousand tons in 2000-04.
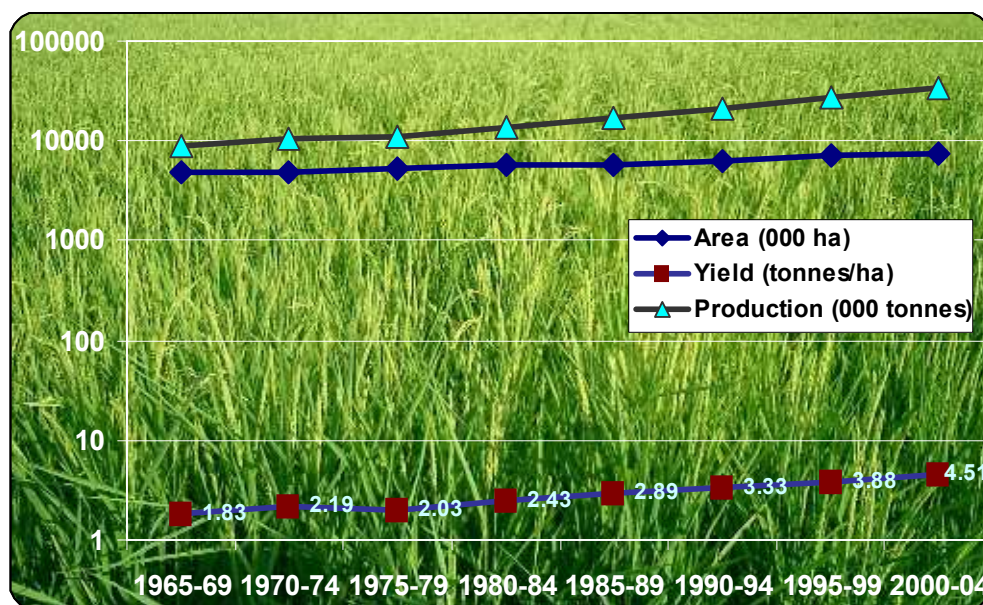
Based on FAOSTAT data, last accessed August 2005.

Fig. 1: Trend in rice area, production and yield in Vietnam from 1965 to 2004

In general, the remarkable increase in rice area, yield and production in the years 1980s, 1990s and later were the result of Doi moi (renovation) policies, especially, in the land and production relations policies of Vietnamese government complying with new directions of the Politburo of the Party Central Committee such as instructions 100 (1979), the resolutions number 10 (1987) and number 5 (1992). Dang (2001) reported that it was huge dynamics of Doi Moi policy, in the 1990s that marked the significant period of Vietnam's agriculture. There had been the large shift from the subsistent, self-sufficient agriculture to commercial agriculture.

GROWTH RATE IN AREA, YIELD AND PRODUCTION OF PADDY RICE FROM 1965 TO 2004

Table 2 indicates the compound growth rates (CGRs) of area, yield and production of rice in Vietnam from 1965 to 2004. As mentioned in the previous section, four sub-periods of Vietnam were i) Under-War period (1965-74); (ii) Post-War period (1975-84); (iii) Renovation (Doi moi) period (1985-94); and (iv) Post-Renovation period (1995-04) and the total period (1965-04) taken into consideration.

The results from the table revealed that in the period (i) under-war period (1965-74), rice area in Vietnam had shown a negative and insignificant growth rate of 0.58 per cent per annum. The growth rates of both yield and production were the lowest at 2.46 and 3.06 per annum and these were the positive significant growth at 5 and 1 per cent levels respectively. It is clear from the lowest growth rate in this period that this was due to the war against the invasion of America.

The period (ii) Post-War period (1975-84) was signified by the new agricultural development of the country after unification of whole country. In this period, the growth rates in area, yield and production were 1.31; 3.30 and 4.65 per cent per annum and these were positive and significant at 1; 5 and 1 per cent levels, respectively.

The period (iii) Renovation or Doi moi (1985-94) indicated the highest growth in both production and area and very high in rice yield. It is also clear that these high growth rates were due to the sharp and creative policies of the leading party and the government in the economic development in general and agricultural development in particular. From this economic reform, rice production had resulted in high CGRs in terms of area; yield and production *i.e.* 2.02; 3.04 and 5.13 per cent per annum, respectively and these growths were positive and significant at 1 per cent levels.

The period (iv) Post-Renovation (1995-04) demonstrated that the country had continuously made innovation in the economy and agriculture. Despite of this sub-period where in country suffered much more from natural calamities, the rice production had increased with the CGRs at 0.95; 3.03 and 4.01 per cent per annum for area, yield and production, respectively. These were found positive growth at 5 per cent for area and 1 per cent levels of significant for both yield and production.

For the overall period (1965-04), the CGRs of rice area, yield and production of Vietnam were positive and significant growth at the rate of 1.34; 2.60 and 3.97 per cent per annum, respectively and these were positive and significant growth at 1 per cent level of probability.

Table 2: Compound growth rates in area, yield and production of paddy rice (%)

Periods	Area	Yield	Production
(i) 1965-1974	0.58[NS]	2.46[*]	3.06[**]
(ii) 1975-1984	1.31[**]	3.30[*]	4.65[**]
(iii) 1985-1994	2.02[**]	3.04[**]	5.13[**]
(iv) 1995-2004	0.95[*]	3.03[**]	4.01[**]
(T) 1965-2004	1.34[**]	2.60[**]	3.97[**]

**; * = Statistically significant at 1and 5 per cent level of probability;
[NS] = Not significant.

INSTABILITY ANALYSIS IN AREA, YIELD AND PRODUCTION OF PADDY RICE

It is very necessary to analyze instability of Vietnamese rice production in terms of area, yield and production. Results from the Table 3 indicate the instability of these terms in the four sub-periods and the entire period (1965-04) based on the coefficient of variations (CVs) of rice area, yield and production.

Results in Table 3 shows that in case of rice area, the coefficient of variations was more stable at (i) sub-period (CV = 2.94 %) as compared to other sub-periods. The most unstable was observed in the (iii) sub-period (1985-94, CV = 6.38 %), followed by (ii) sub-period (1975-84, CV = 4.62 %) and (iv) sub-period (1995-04, CV = 3.99 %). The reason for high instability in these sub-periods might be due to the high growth rates in rice area in these sub-periods.

Table 3: Coefficient of variation in area, yield, and production of paddy (%)

Periods	Area	Yield	Production
(i) 1965-1974	2.94	9.87	10.83
(ii) 1975-1984	4.62	13.64	16.17
(iii) 1985-1994	6.38	9.58	15.74
(iv) 1995-2004	3.99	9.13	11.89
(T) 1965-2004	16.28	31.81	48.13

Based on FAOSTAT data, last accessed August 2005.

In case of rice yield, it was seen from Table 3 that more stability (*i.e.* low CVs) was found at two sub-periods (i) and (iv) (CV = 9.87 & 9.13 %, respectively). The reason for this might be the almost same in the growth rates of rice yield at these two sub-periods. The most instability was found at sub-period (ii) (1975-84, CV = 13.64 %), followed by sub-period (iii) (1985-94, CV = 9.58 %). This is due to the agricultural reform policies in these two sub-periods that resulted rapid growth rate and led to more instabilities.

In case of rice production, it was observed that most stable growth was in the (i) period (CV = 10.38 %). For other three sub-periods (ii) 1975-84; (iii) 1985-94 and (iv) 1995-04, it was found that most unstable was (ii) sub-period, followed by (iii) and (iv) sub-period, with the coefficient of variations equal to 16.17; 15.74 and 11.89 per cent, respectively.

For the entire period (1965-04), instability analysis showed that all area, yield, and production were shown high instability as compared to each sub-period, in which high instability was found in rice production (CV= 48.13 %); followed by rice yield (CV= 31.81 %) and rice area (CV= 16.28 %). Production was more unstable than yield and yield was more unstable than area. This means that there was the quantitative increase considerably in term of production followed by yield and area of the entire period as well as compared to each period.

CONTRIBUTION OF AREA AND YIELD IN PADDY PRODUCTION

The change in rice production over time takes place either due to change in area or its yield or a combination of these factors. The contribution of each of these factors towards change in the production of rice in Vietnam was decomposed in terms of area effect; yield effect and interaction effect during last 40 years (1965-2004) and the results are presented in the Table 4. The decomposition of area effect, yield effect and interaction effect in rice production were analyzed for each period.

In (i) sub-period (1965-74) under-war period, rice production in Vietnam was mainly contributed by yield effect which explained of 63.22 per cent change, followed by area effect of 33.04 per cent and the interaction effects of this periods was very small at only 3.75 per cent.

In the (ii) and (iii) period (1975-84 & 1985-94), the increase in rice production was almost in same percentage by area effect (33.40 % and 31.96 %, respectively). The contribution of yield effect somewhat reduced at these two sub-periods (56.99 % and 58.95 %, respectively) and the interaction effect had increased to 9.61 and 9.08 per cent as compared to first sub-period. It means that these two sub-periods were relatively synchronically for all factors of area, yield and production as compared to other sub-periods.

In the (iv) period (1995-04), rice production was mainly contributed by yield effect, which explained for more than two-third of contribution by yield effect (71.16 %). The contribution of area effect was reduced at this sub-period as compared to three previous sub-periods (22.17 %) and the interaction effect was 6.67 per cent.

Table 4: Contribution of area and yield in production of paddy from 1965 to 2004

Periods	Area effect Y' ΔA	Yield effect A' ΔY	Interaction effect ΔA ΔY
(i) 1965-1974	554840 (**33.04**)	1061720 (**63.22**)	62920 (**3.75**)
(ii) 1975-1984	1736280 (**33.40**)	2962160 (**56.99**)	499590 (**9.61**)
(iii) 1985-1994	2449180 (**31.96**)	4517220 (**58.95**)	695990 (**9.08**)
(iv) 1995-2004	2339460 (**22.17**)	7510260 (**71.16**)	703740 (**6.67**)
(T) 1965-2004	4993560 (**19.09**)	13802360 (**52.77**)	7361640 (**28.14**)

- *Figures in parentheses indicate the percentage changes of area, yield and interaction effect on production.*
- *Area (000 ha), Yield (tons/ha) and Production (000 tons)*

For the entire period (1965-04), contribution in rice production was reduced to both area effect and yield effect as compared to each sub-period, and the interaction effect had increased to 28.18 per cent. Therefore, it can be said that rice production for total period was interaction of both yield effect and area effect, which explained for one-third of contribution but more contribution, was of yield effect (52.77 %), followed by area effect (19.09 %).

With the interesting findings, it can be said that for the increase in rice production in Vietnam, the most concern is to increase rice yield by the application of high yielding and quality varieties along with suitable rice production technologies. Because it is difficult to increase in area due to the limitation of this factor and the area has even declined in the certain periods.

TREND IN RICE EXPORT IN VIETNAM

Data in the Table 5, Fig. 2 and Fig. 3 (Fig. 3 for the export per year from 1985-04) present the milled rice export and its export value in 5-year average. It was seen from the Table 5 that in the first three sub-periods (1965 to 1979), milled rice export from Vietnam was around 10 thousand tons and below. In the sub-periods of 1980-84 and 1985-89, milled rice export increased up to 46.26 and 364.60 thousand tones, respectively. This rapid increase in rice export was attributed to the Doi moi policies in agriculture that resulted into more rice surplus for export from this time and maintained the momentum for the later sub-periods also.

Thank to the Doi moi policies that after the 1980s, 1990s, rice production in Vietnam has been increasing rapidly and the export has also increased considerably. The milled rice export in the last three sub-periods (1990-94; 1995-99 & 2000-04) had reached to more than 1; 3 and nearly 4 million tons, respectively.
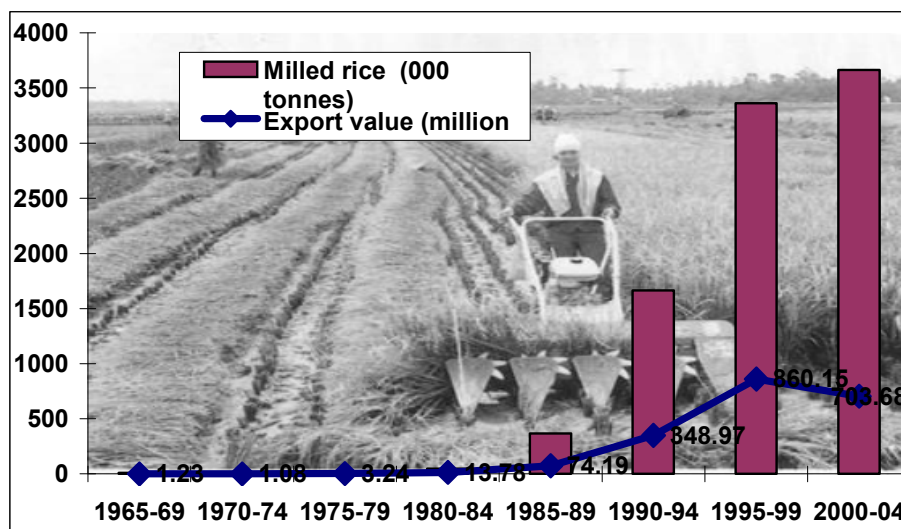
Table 5: Trend in rice export in Vietnam from 1965 to 2004 (5-year average)

Periods	Milled rice (000 tons)	Export value (million USD)
1965-69	8.28	1.23
1970-74	6.30	1.08
1975-79	10.72	3.24
1980-84	46.26	13.78
1985-89	364.60	74.19
1990-94	1661.56	348.97
1995-99	3360.82	860.15
2000-04	3664.48	703.68

Based on FAOSTAT data, last accessed August 2005.

In case of export values, there was also the increase after each period following the export quantity until the last three sub-periods (1990- 94; 1995-99 & 2000-04), which were 348.97; 860.15 and 703.68 million USD respectively.
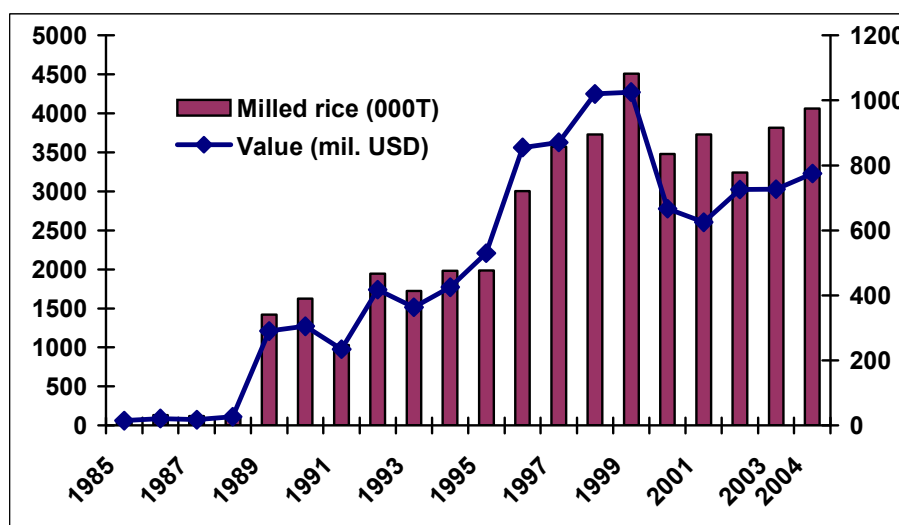
Source: FAOSTAT data, last accessed August 2005.

Fig. 2: Trend in five-year average of rice export and export value from 1965-2004

In general, the success in rice export in Vietnam resulted from the innovation in the economy and agriculture. Dang (2001) stated that in ten years period (1989-99), agricultural production growth had increased continuously and reached to the growth rate of 4.3 per cent per annum. This development was relatively comprehensive and sustainable. Rice yield increased by 33 per cent. National food security was ensured. From an importing country, which every year imported from 600,000 to 1 million tons of rice but until the year 1989-90, Vietnam had started export 1.4 million tons of rice, and rice export continuously increased and reached at the highest of 4.5 million tons in 1999. In the year 2000, the total food grains reached to 35.64 million tons.

Source: FAOSTAT data, last accessed August 2005.
Fig. 3: Trend in total rice export and export value from 1985 to 2004

GROWTH RATE IN RICE EXPORT FROM VIETNAM

Table 6: Growth rates in rice export from 1965 to 2004 (%)

Periods	Milled rice	Value
(i) 1965-1974	-8.38[NS]	-0.57[NS]
(ii) 1975-1984	26.31[*]	27.24[*]
(iii) 1985-1994	53.66[**]	55.02[**]
(iv) 1995-2004	4.56[NS]	-0.32[NS]
(T) 1965-2004	25.39[**]	26.09[**]

*** = Statistically significant at 1 per cent level of probability.*

The results of the growth rate of rice export analysis for both quantity and value have been presented in the Tables 6. It is also divided into 4 sub-periods and entire period as the rice production.

In the (i) period (1965-74) Under-War period, it was found that growth in both export quantity and value was negative and non significant (-8.38 and -0.57, respectively).

For the period (ii) Post-War period (1975-84), the government started their new policies, and it resulted into relatively high growth rate for both export quantity and value (26.31 % and 27.24 % per annum, respectively) and these were positive and significant growth at 5 per cent of probability.

The period (iii) renovation period (1985-94) witnessed rapid increase in rice export in the country, which was gained from the results of renovation in economic and agricultural development. This sub-period recorded the highest growth rate so far in both export quantity and value with 63.66 and 55.02 per cent per annum, respectively. These were the positive and significant growth at 1 per cent level.

In the last period (iv) post-renovation period (1995-04), the growth was stable in rice export of the country (around 3 – 4 million tons for almost ten years of this sub-period). The export growth rate was low at 4.56 per cent per annum, a non significant growth. For export value, the growth rate was negative (-0.32 % per annum) and also non significant. The reason for this negative growth in export value might be due to the decrease in rice export price during this sub-period.

For entire period (1965-04), the growth rate was very high at 25.39 and 26.09 per cent per annum for export quantity and export value respectively, and these were positive and significant at 1 per cent level of probability.

INSTABILITY ANALYSIS OF RICE EXPORT IN VIETNAM

The study also attempted to analyze the instability of rice export in terms of both quantity and value. The results of these analyses are presented in the Table 7.

It can be seen from the Table 7 that the quantity of milled rice export and its values were mostly stable in the (iv) period (1995-04) (CV = 19.31 and 20.74 %, respectively).

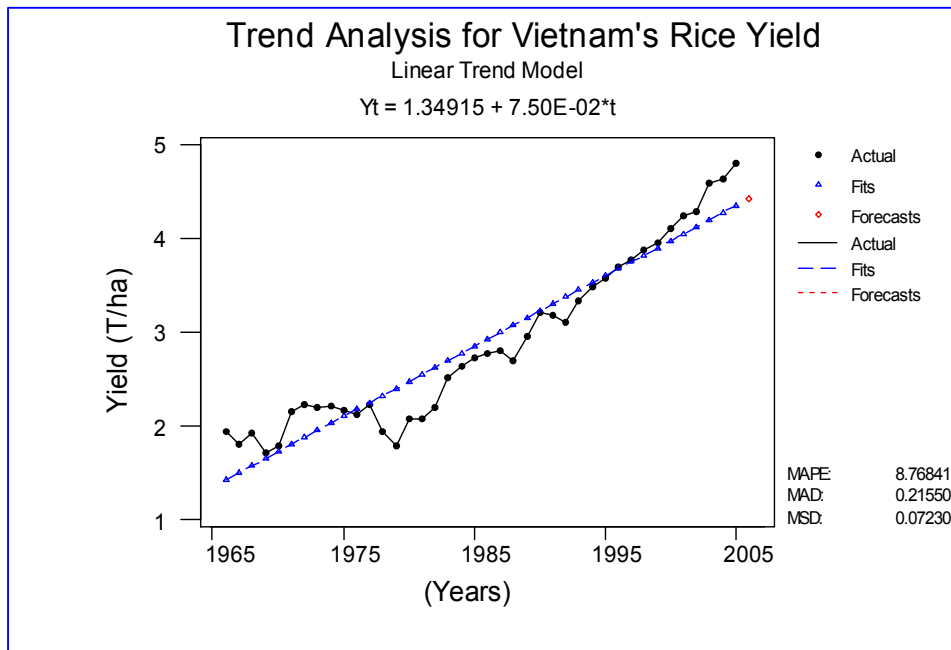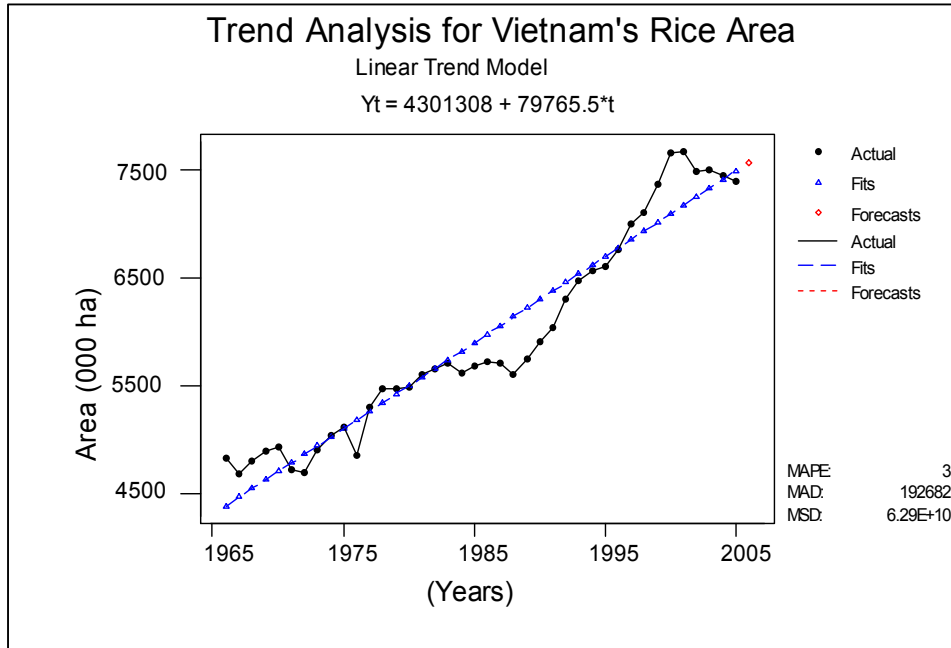Table 7: Coefficient of variation of rice export from 1965 to 2004 (%)

Periods	Milled rice	Value
(i) 1965-1974	97.04	95.08
(ii) 1975-1984	111.10	108.52
(iii) 1985-1994	81.83	82.30
(iv) 1995-2004	19.31	20.74
(T) 1965-2004	134.67	136.30

Source: FAOSTAT data, last accessed August 2005.

The most instable period was found in the sub-period (ii) (1975-1984) with coefficient of variations equal to 111.10 and 108.52 per cent for export quantity and value. For the overall

period, the situation was highly unstable in term of export quantity and value (134.67 & 136.30 % respectively). The reasons for this unstable and stable growth of each sub-period can be found out from the above explanations.

Fig. 4a, 4b, 4c and 4d depict the trend in rice area, yield and production of India from 1965 to 2004, which was drawn based on the technique of Time series analysis – straight line trend ($Y_t = a + bt$).

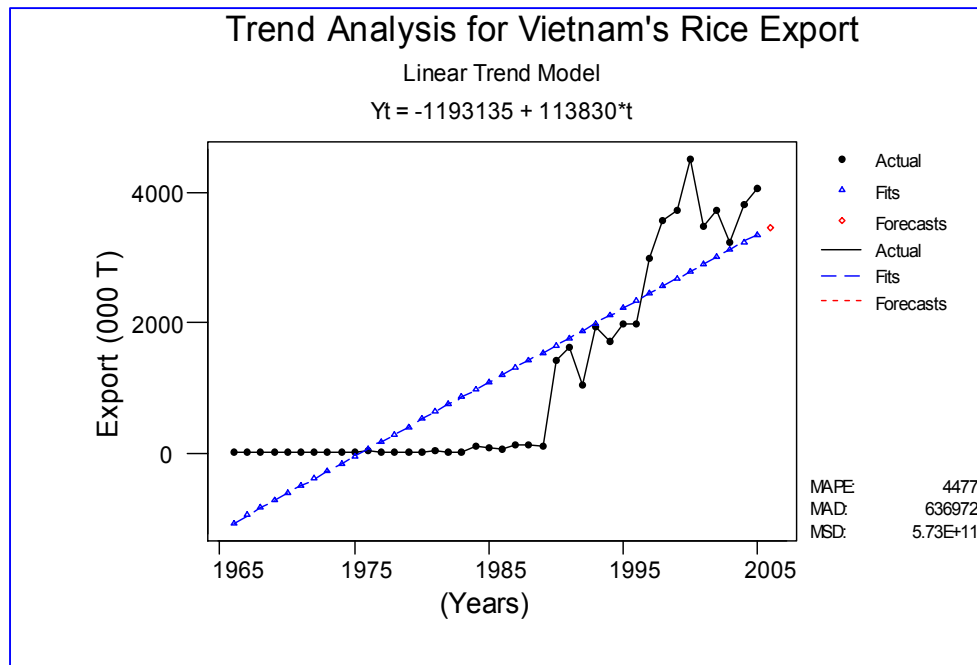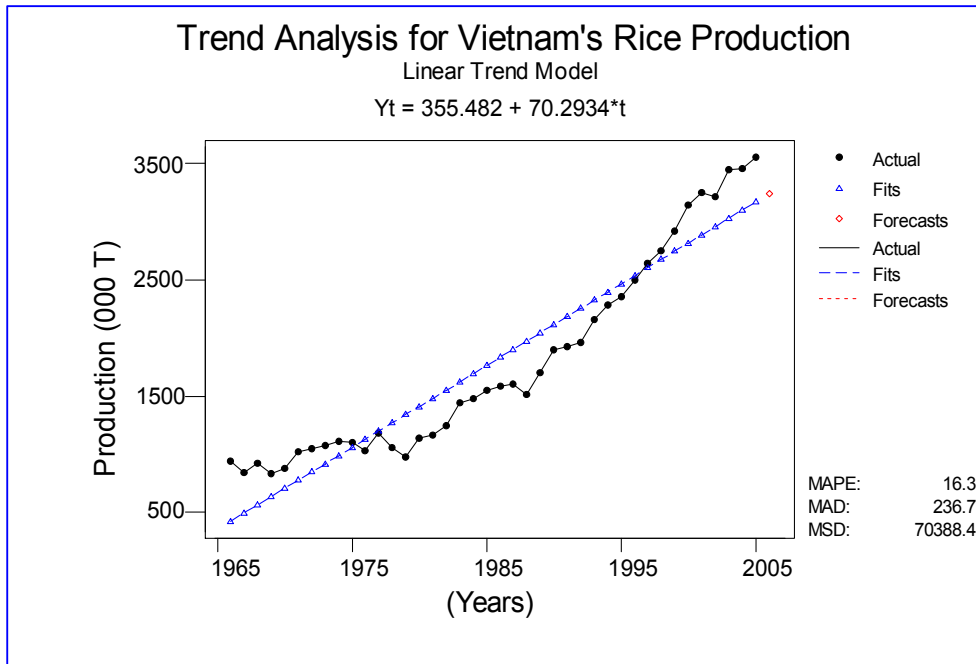**Trend Analysis for Vietnam's Rice Area**
Linear Trend Model
$Y_t = 4301308 + 79765.5*t$

MAPE: 3
MAD: 192682
MSD: 6.29E+10

Trend Analysis for Vietnam's Rice Yield
Linear Trend Model
$Y_t = 1.34915 + 7.50E-02*t$

MAPE: 8.76841
MAD: 0.21550
MSD: 0.07230

Trend Analysis for Vietnam's Rice Production
Linear Trend Model
Yt = 355.482 + 70.2934*t

Legend:
- ● Actual
- △ Fits
- ◇ Forecasts
- — Actual
- -- Fits
- ···· Forecasts

MAPE: 16.3
MAD: 236.7
MSD: 70388.4

Production (000 T) vs (Years)

Trend Analysis for Vietnam's Rice Export
Linear Trend Model
Yt = -1193135 + 113830*t

Legend:
- ● Actual
- △ Fits
- ◇ Forecasts
- — Actual
- -- Fits
- ···· Forecasts

MAPE   4477
MAD: 636972
MSD: 5.73E+11

Export (000 T) vs (Years)

Fig. 4a, 4b, 4c and 4d

Note: *MAPE = Mean Absolute Percentage Error (%), MAD = Mean Absolute Deviation and MSD = Mean Squared Deviation*

CONCLUSION

Rice production in Vietnam had increased rapidly in rice area, yield and production in the years 1980s, 1990s and after that were the result of Doi Moi (renovation) policies, especially in the land and production relations renovation policies of Vietnamese government complying with new directions of the Politburo of the Party Central Committee such as instructions 100 (1979), the resolutions number 10 (1987) and number 5 (1992). Dang (2001) reported that thank to the huge dynamics of Doi Moi (Reform, Innovation) policy, in the 1990s that was marked the significant period of Vietnam's agriculture. There was the large-scale shift from the subsistent, self-sufficient agriculture to commercial agriculture

The CGRs for the overall period (1965-04), of rice area, yield and production in Vietnam were positive and significant growth at the rate of 1.34; 2.60 and 3.97 per cent per annum, respectively. These were all positive and significant growth at 1 per cent level of probability. The instability analysis for overall period (1965-04), showed that overall area, yield, and production were high instability as compared to each sub-period in which most high instability was found in rice production (CV= 48.13 %); followed rice yield (CV= 31.81 %) and rice area (CV= 16.28 %). Production was more unstable than yield and yield was more unstable than area. These meant that there was the quantitative increase considerably in term of production following yield and area of the entire period as well as compared to each period.

The contribution in rice production was reduced by both area effect and yield effect in overall period as compared to each sub-period. The interaction effect had increased (28.18 %). Therefore, it can be said that the rice production for total period was the interaction of both yield effect and area effect which explained for one-third of contribution but more contribution was of yield effect (52.77 %), followed area effect (19.09 %).

In rice export, the growth rate from 1965-04 was very high at 25.39 and 26.09 per cent per annum for export quantity, value,

respectively. These were positive and significant at 1 per cent level of probability.

The most instability was found in the both sub-period (ii) (1975-1984) with CV equal to 111.10 and 108.52 per cent for export quantity and value. And the overall period was highest unstable in term of export quantity and value (134.67 and 136.30 %, respectively).

With the interesting findings, it can be said that for the increase in rice production in Vietnam, the most concern is to increase rice yield by the application of high yielding and quality varieties along with suitable rice production technologies. Because it is difficult to increase in area due to the limitation of this factor and the area has even declined in the certain periods.

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Phân tích chiều hướng phát triển của sản xuất và xuất khẩu lúa gạo ở Việt Nam

Người ta muốn biết chiều hướng phát triển của sản xuất và xuất khẩu lúa gạo của một nước để tìm hiểu lý do tại sao sản xuất và xuất khẩu lúa gạo tăng hoặc giảm tại một thời kỳ cụ thể. Với ý nghĩa này, chúng tôi đã tiến hành nghiên cứu về chiều hướng phát triển của sản xuất và xuất khẩu lúa gạo của Việt Nam trong 40 năm qua (từ 1965 đến 2004). Kết quả chủ yếu của nghiên cứu là: tỷ lệ tăng trưởng phối hợp (CGRs) của cả thời kỳ (1965-04), diện tích 1,34% năm, năng suất 2,60%, và sản lượng lúa ở Việt Nam 3,97%. Sự gia tăng này đều có ý nghĩa thống kê ở mức 1%. Phân tích tính chất không ổn định cho cả thời kỳ (1965-04), cho thấy: diện tích, năng suất và sản lượng đều có tính không ổn định cao khi so sánh với mỗi thời kỳ; trong đó tính không ổn định cao nhất tìm thấy ở sản lượng lúa (CV= 48.13%); năng suất (CV= 31.81%), diện tích lúa (CV= 16.28%). Sự đóng góp vào sản lượng lúa giảm bởi cả hai tác động: diện tích gieo trồng và năng suất trong cả thời kỳ, khi so sánh với mỗi thời kỳ nhỏ và sự tác động tương quan đã gia tăng 28,18%. Sản lượng lúa cho cả thời kỳ là sự phối hợp tác động tương quan của cả hai yếu tố: năng suất và diện tích; chúng đóng góp 1/3 vào sản lượng. Trong đó riêng năng suất tác động (52.77%), theo sau diện tích tác động (19.09 %). Đối với xuất khẩu, tỷ lệ tăng trưởng từ năm 1965-04 rất cao, với 25.39% về số lượng và 26.09% về giá trị. Sự tăng trưởng này là tăng trưởng dương và có ý nghĩa thống kê ở mức 1%. Muốn gia tăng sản lượng lúa ở Việt Nam, chúng ta cần phải gia tăng năng suất lúa bằng việc áp dụng những giống năng suất và chất lượng cao, cùng với kỹ thuật sản xuất tiến bộ. Bởi vì chúng ta sẽ rất khó gia tăng diện tích do sự giới hạn của yếu tố này và thậm chí diện tích còn bị giảm sút trong vài thời kỳ nhất định.