THE DETERMINANTS OF GROWTH ON RICE MILLS IN SHWEBO DISTRICT*

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Abstract

The objectives of this study are to identify the external and internal factors influencing the growth of the rice mills in Shwebo District, and to explore the main determinants on this growth. The growth is measured by the output (tons) and assets value. In external factors, government policy, competition, access to finance, financial support and irrigation support influence the growth of rice mills. With regards to internal factors, management experience, location, business plan and employee training are main influencing factors. It is found that the role of government is crucial for setting policy and providing supports for the development of rice mills. Government should use financial transparency to improve information asymmetry between millers and commercial banks and should initiate to provide supporting programs like modern technologies, better water management and road connectivity, access to electricity and affordable credit. For financial institutions, collateral restrictions should be relieved for rice millers. They should expand the type of assets as collateral, including movable and non-movable assets. They should promote financial services to these firms. The owners/managers should attempt to obtain the relevant knowledge and management competency and should also consider importance of demographic characteristics, supply chain, competition and local tax rate in setting up their mills. They need to apply niche differentiation strategy relevant with the nature of firms. They should keep and use financial data to make business decisions and take advice from experts for the survival of their business.

Keywords: determinants on growth, external and internal factors

Introduction

Agricultural sector is the backbone of Myanmar economy. Myanmar government has set up long-term plans and strategies to construct many dams, reservoirs, canals and river water-pumps to contribute adequate water supply for cultivation of all regions, especially for the dry zones in summer and this adequacy of water supply can help promote agricultural productivity. The

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growth of these firms is essential for an agro-based economy. But until now, there are many limitations and obstacles in this sector.

Among the agricultural products, rice is the most important cereal and main crop for domestic consumption. Traditionally, rice mills are mostly located in Lower Myanmar. Now paddy cultivation is expanding in Shwebo District of Sagaing Region through acquiring more water resource from the emergence of Thaphanseik and Karbo dams. As there is more paddy cultivation and increasing rice production, new rice mills were established in that area. In 2014, there were 152 registered rice mills in this area. Thus, the rice milling sector in this district is prominent for rice trading.

In fact, Myanmar rice milling sector is not in a favorable condition to meet the international standard as the quality of rice of Myanmar is still lower than that of other rice exporting countries such as Thailand, Vietnam, Pakistan and Cambodia. Great competition among those rice exporting countries and ever rising demands of quality of rice by world rice market including food safety put pressures on Myanmar rice industries. Therefore, to upgrade the milling sector is vital for the country. Upgrading this sector requires long-term credits from the government, technical and managerial knowhow and reliable electricity supply with low cost.

Rationale of the Study

Rice is designated as the national crop of Myanmar. Regarding foreign exports, the quality of rice is critical and for that reason, the rice milling sector plays a pivotal role. The more modernized and more advanced the mills are, the better the quality of rice, and for this, the price will be higher. Due to lack of modern machines and technology, the small traditional rice mills cannot produce good quality products in large scale and also create large amount of wastage. Political stability also remains as a problem on rice exportation even though many barriers on agricultural trade are recently abolished. Shwebo District has many advantages in rice industry more than other regions. These include the availability of raw materials, cheap labor, wide location, and smooth transportation with low cost. However, they still have problems and limitations by insufficient infrastructures mainly electricity supply, financial support and skills of workers.

Many researchers have conducted studies and surveys on rice milling sector in previous years. To the best of the present researcher's knowledge, they have identified the opportunities and barriers for the milling industry. But no research has been conducted on the influencing factors on the development of milling firms. And also the historical background of rice milling in the region did not mention in their studies. Thus, this study emphasizes on the determinants influencing the growth of the rice milling industry.

Objectives of the Study

The specific objectives of this study are:

(1) To identify the external factors influencing the growth of the rice mills in Shwebo District,

(2) To identify the internal factors influencing the growth of the rice mills in Shwebo District, and

(3) To explore the determinants on the growth of the rice mills in Shwebo District.

Research Methodology

Regarding the research methodology, descriptive and exploratory methods are used in this study. Moreover, both primary and secondary data were used in this research. The data are collected from face-to-face interviews with owners/ managers using structured questionnaires. The survey instruments were composed of force-choice question and Likert scales. Some of the internal factors were obtained from using dummy variables: Yes or No questions. Based on the primary data, pair comparison T test and Backward Multiple Regression Analysis are applied to determine the important determinants of growth of output and assets of rice mills.

In Shwebo District, there are 152 registered industries in 2014. However, out of 152 mills, only 103 mills are currently in operation. Then, among these 103 running mills, only 98 rice mills have begun their operations either in or after 2007. For this study, 98 rice mills are selected to be observed to acquire the required information.

Definition of Rice Mills

Rice milling sector represents a major industry in Myanmar. Rice milling in the country is carried out in three categories: large-sized, medium-sized and small-sized rice mills through the milling capacity among the mills. Most of the rice mills are SMEs in terms of their capacity. In this study, the rice mills are defined as SMEs in accordance with Myanmar SMEs criteria. SMEs definition drafted by the SME Development Center in 2013 February is based only on two dimensions – employee and capital (without land value). This definition is separated for manufacturing and service sector. In manufacturing sector, the firms which have less than 100 employees and with an investment of 300 million kyat in capital (excluding land value) are included in small-sized firms group. Then, the firms which have 100 to 300 workers and have 300-2000 million (kyat) in firms' investment are defined as medium-sized enterprises. In accordance with this definition, the registered rice mills in Shwebo District still stand as SMEs in terms of capital and employees.
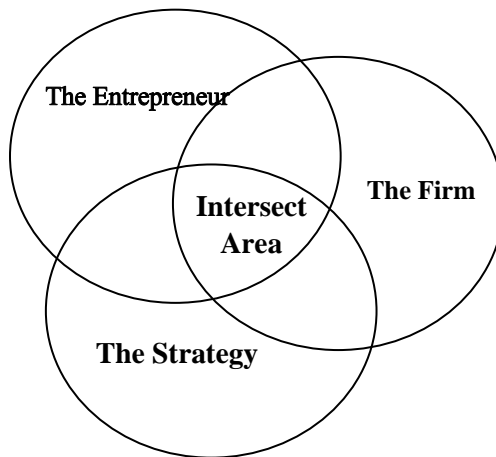
Factors Affecting on Growth of the Firms

There are many factors on the growth of the firms. The internal factors determine the success of the firm in the market structure whereas the external factors account for the additional determinants in affecting the firm's growth potential.

a. Internal Factors Affecting on Growth of the Firms

With reference to the review of recent SME growth literature, company growth is clearly influenced by a wide range of factors. Some of these are internal, and within the competence of owners/ managers to control or at least influence. The others, such as economic factors, are external to the firm and beyond the control of owners/ managers. Storey (1994) has extended this broad view of internal influences on company growth. He concluded that the growth process in small firms was driven by a combination of the three basic components. These are:

1. The characteristics of the entrepreneurs/owners/ managers
2. The characteristics of the small firm
3. The range of business development strategies associated with growth.

Figure 1: Storey's Small Business Growth Framework
Source: Storey D.J (1994). *Understanding the Small Business Sector*. London:
Routledge Press.

The basic three components act as internal factors affecting the growth of small firms directly with the influence of the external factors. All internal factors need to combine appropriately in order for the firm to achieve rapid growth. The inner part of the intersecting area demonstrates the combination of the three factors that determine rapid business growth. Storey (1994) measured the growth of small firms by using various factors shown in the following Table 1 with a combination of three basic components

Table 1: Storey's Internal Growth Process - Factors Influencing Growth

| Characteristics of Entrepreneur	Nature of Firm	Business Strategy
1. Motivation	1. Age	1. Workforce training
2. Unemployment	2. Sector	2. Management training
3. Education	3. Legal form	3. External equity
4. Management experience	4. Location	4. Technological sophistication
5. Number of founders	5. Size	5. Market positioning
6. Prior self-employment	6. Ownership	6. Market adjustment
7. Family background		7. Planning
8. Social marginality		8. New product
9. Functional skills		9. Management recruitment
10. Training		10. State support
11. Age		11. Customer concentration
12. Prior business failure		12. Competition
13. Prior sector experience		13. Information and advice
14. Prior firm size experience		14. Exporting
15. Gender		

Source: Storey D.J (1994). *Understanding the Small Business Sector*. London: Routledge

Storey summarized the individual elements which other researchers have shown through various surveys to have had an impact upon firm growth. Storey's comprehensive summary of the literature to outline the conceptual framework is adopted in this research. It should be noted that Storey's criterion for including a study in his review was that they might have used quantitative (preferably multivariate) analysis.

In this study of rice mills, the research model is derived from Storey's internal growth process. The relevant determinants of this study are chosen from this growth process. For the characteristics of owners/ managers, the determinants are used to test as influencing factors. In the nature of the firm, the age, size and legal form of the firms are tested as independent variables that affect the dependent variable (growth). From the point of view of firm strategies, the independent variables are business planning, marketing strategy, technological sophistication, employee training, new product or process innovation and exporting.

b. External Factors Affecting on Growth of the Firms

      Businesses are affected by external environment that cannot be controlled such as political, economic, social, legal, technological, and environmental factors. These factors can rarely be affected by management decisions because they are external factors beyond the control of SMEs (Morrison (2006)).
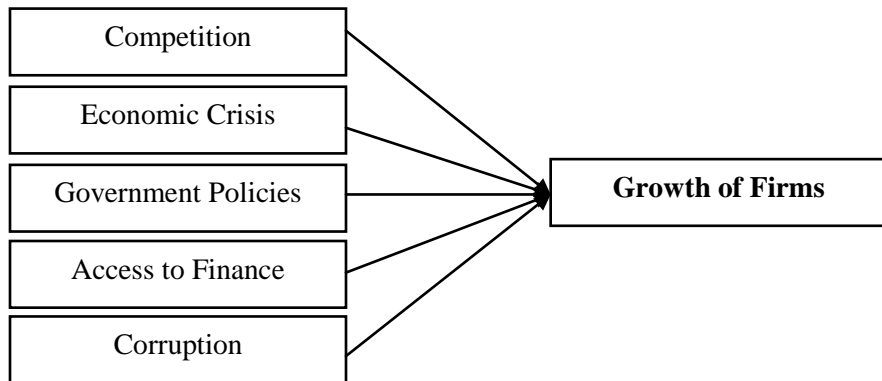
Figure 2: Morrison's External Factors Affecting on Growth of the Firms
Source: Morrison, J., (2006). *International Business Environment:* New York: Palgrave MacMillan.

      Among the main external factors that affect the development and growth of SMEs are access to finance, and not neglecting here the other factors such as corruption, competition, government policies etc. Lack of capital from financial resources was a major barrier of SMEs. Also, SMEs in developing countries have difficulties in accessing bank loans as a consequence to the high risk for failing loans, low profitability and lack of collateral required by bank.

Measurement of Growth Rate

      From the perspective of growth measurement, the firm growth measure is heterogeneous. Some studies measure growth by absolute sales growth over a period whereas other studies measure growth by relative employment growth over a period of time The difference of measures of growth is mostly due to the purpose of the research as well as its perspectives.

Most previous researchers pointed out the growth of SMEs by measuring sales growth because it is not too difficult for researchers who would like to assess the data of the firm in comparison with other indicators.

Based on extensive reviews of the literature, Delmar (2003), Storey (1994) and Davidsson *et al. (*2006) list a range of growth indicators, which were used to measure growth, including assets, employment, market share, physical output, profits, sales, etc. There are three choices of indicators among the above alternatives:

(1)   Using a multiple indicator index,
(2)   Using alternative measures separately, and
(3)   Using the best and most appropriate indicator (Davidsson *et al.,* 2006).

The underlying theory for using a multiple indicator index (e.g., assets, employment sales and others) is that the same explanatory factors that facilitate or hinder growth across firms, but that this growth for some firms consists of only radically increased sales turnover without much change in assets or employment, whereas for other types of firms the result is a moderate and balanced growth across assets, employment and sales.

To use alternative measures separately, the underlying theory predicts that certain predictors would be related to growth in sales and market share, for example, whereas other predictors are regarded as influencing growth in employment and profits, respectively. If so, an appropriate approach is to include and analyze different growth indicators separately based on the different predictors (Davidsson *et al.,* 2006). The third choice would be to confine the study to only the growth indicator that is best matched with the proposed theory. This trend seems to receive an emerging consensus.

The most preferred indicator should be sales growth because it is not too difficult for researchers who want to assess the data of the firm in comparison with other indicators. The information on the sales of a firm is always in the financial statements of all firms. It is the most basic information that a firm could announce to the concerned people and organizations.

The next most popular indicator is employment growth, which represents 29.1 percent of the reviewed studies by Delmar *et al* (2003). The indicator of employment growth is often applied to some purpose such as
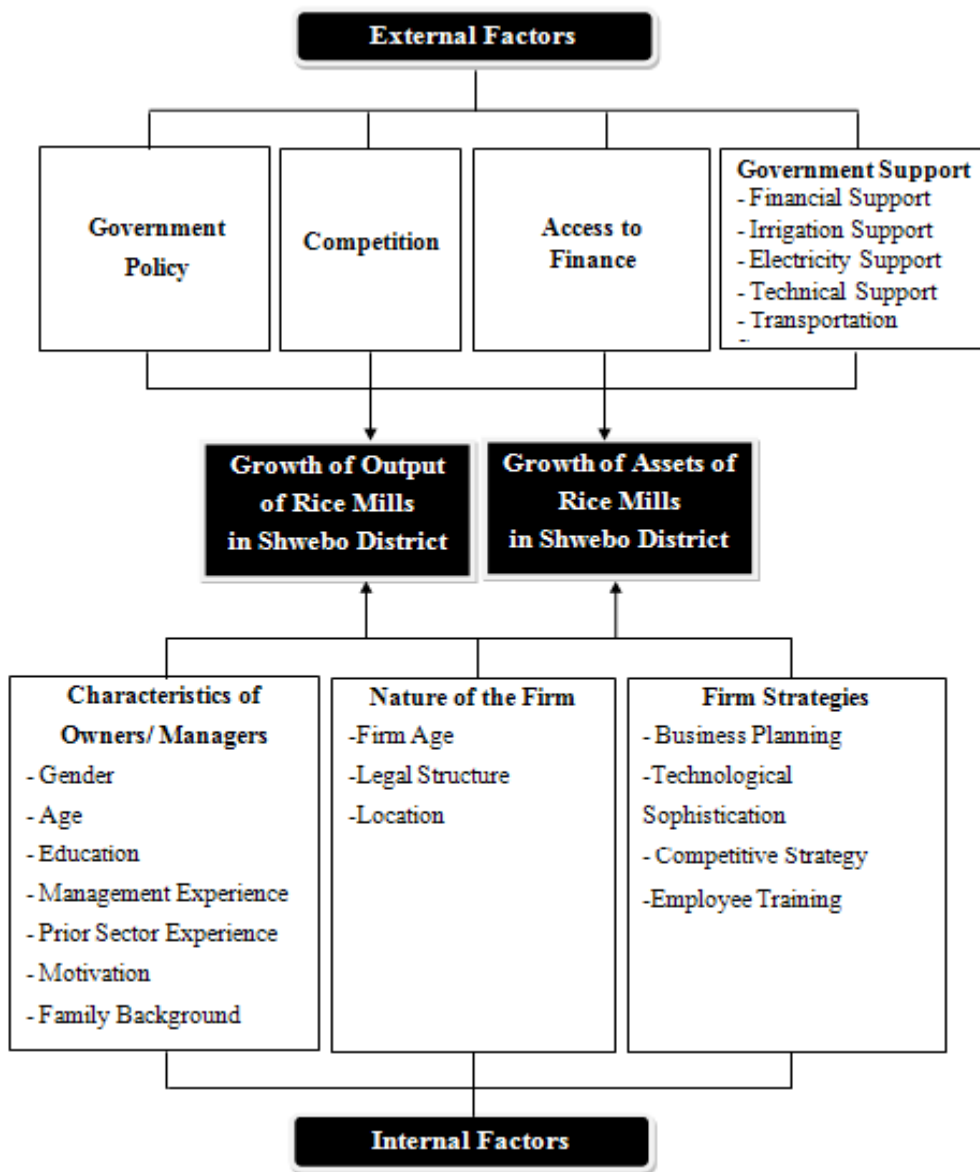
policy makers' interest in fostering employment growth through entrepreneurship and for reasons of data availability.

The other indicators are less generally used or they are only applied in particularly narrow situations. The market share indicator may not clear differences in market share and may be not relevant for small firms, and comparing shares of firms operating in different markets may be not appropriate. The value of assets depends on the capital intensity of industries and it is difficult to assess knowledge assets. Physical output is not easy to be compared across industries. They reflect many other aspects of a firm and its size. Besides, it is perfectly possible for a large and/or growing firm to be unprofitable.

Therefore, in this study, the growth of rice mills is measured by using two growth measurements: assets growth and physical output (tons) growth during the selected duration because the growth cannot be easily measured by only one indicator.

Conceptual Framework

The 'determinants of growth' is a term for the purpose of this study to represent a range of possible positive or negative elements that, in isolation or in combination with other identifiable elements, may lead to the growth of a firm. In this study, the growth of rice mills is measured by using assets growth and physical output growth during the selected duration. This research has two main foci. The first part deals with internal and the second one deals with external growth factors. The empirical work has concentrated mainly on the investigation of effects of certain factors on growth of rice mills in Shwebo District. The analytical framework for this study is shown in Figure 3.

External Factors

			Government Support
Government Policy	Competition	Access to Finance	- Financial Support - Irrigation Support - Electricity Support - Technical Support - Transportation

Growth of Output of Rice Mills in Shwebo District

Growth of Assets of Rice Mills in Shwebo District

Characteristics of Owners/ Managers	Nature of the Firm	Firm Strategies
- Gender - Age - Education - Management Experience - Prior Sector Experience - Motivation - Family Background	-Firm Age -Legal Structure -Location	- Business Planning -Technological Sophistication - Competitive Strategy -Employee Training

Internal Factors

Figure 3: Analytical Framework of the Study
Source: Own Compilation based on Previous Studies

Based on this comprehensive review of the literature, the framework of growth on rice mills in this study identified four key variables which were examined to assess their relative impact on small firm growth: characteristics of the owner-manger, the nature of the firm, the firm strategies and the external factors, and the study examined their relationship with firm growth. Among growth measurement, physical output and asset absolute value are used as dependent variables in this study.

Results/Finding
Effects of Rice Policy Changes on Growth of Output

In analyzing of the effects of rice policy change, the output tons of rice mills in Shwebo District are firstly used. This measurement is more reliable than assets because of the change in monetary exchange rate.

Table 2: Testing on Growth of Output

	t	df	Significant P-value
Output (2010)- Output (2009)	1.66	97	.101
Output (2011)- Output (2010)	3.49 ***	97	.001
Output (2012)- Output (2011)	-.147	97	.883

Source: SPSS Output
Notes: ** indicates that 't' is significant at 5% level,
        *** indicates that 't' is significant at 1% level.

In 2010 and 2011, the calculated "t" value is significant at 1% level and the sign is positive. According to these results, the output growth of rice mills in Shwebo District is influenced by the effect of policy change in 2011. The calculated "t" value is not significant in comparing 2009 and 2010. Therefore it can be concluded that the output of 2010 is not appreciable in comparing with the output of 2009. Then, the output in 2012 is not substantial in comparing with the output in 2011 because the output tons decrease in 2012. In 2012, the production area decrease in Shwebo District as farmers shift their cultivation preferences to beans and pulses during the dry season and others exit farming due to prevailing low prices.

Effect of Rice Policy Changes on Growth of Assets

The effect of rice policy change is analyzed by using the value of assets invested by rice mills in Shwebo District.

Table 3: Testing on Growth of Asset

	t	df	Significant P-value
Assets (2010) - Assets (2009)	1.861	97	.066
Assets (2011) - Assets (2010)	9.112***	97	.000
Assets (2012) - Assets (2011)	8.427***	97	.000

Source: SPSS Output

Notes: ** indicates that 't' is significant at 5% level,
   *** indicates that 't' is significant at 1% level.

The calculated "t" value of 2009 and 2010 is not significant. Therefore it can be concluded that the value of assets in 2010 is not significant in comparing with the assets of 2009. In 2011 which is one of the years of policy change, the calculated "t" value is significant at 1% level and the sign is positive; so it can be concluded that the assets value in 2011 is greater than these in 2010. In comparing 2011 with 2012, the calculated "t" value is also significant at 1% level. According to these results, the assets growth of rice mills in Shwebo District is influenced by the effect of policy change in 2011.

Analysis on External Influencing Factors on Growth of Rice Mills

In analyzing the external influencing factors, the government policy, competition, access to finance, and government supports are used as independent factors. Among many varieties of supports, the financial support, irrigation support, technical support, electricity support and transportation support are mainly measured in this study. The following multiple regression model is employed.

$$G_t = \beta_0 + \beta_1 PE_t + \beta_2 C_t + \beta_3 AF_t + \beta_4 FS_t + \beta_5 IS_t + \beta_6 TS_t + \beta_7 ES_t + \beta_8 TrS_t + \varepsilon_i \text{-----(1)}$$

where, G_t = the growth of the rice mills,
   PE_t = Policy effect on rice mills,
   C_t = Competition of rice mills,

$$AF_t \ = \ \text{Access to Finance of the rice mills,}$$
$$FS_t \ = \ \text{Financial Support of the rice mills,}$$
$$IS_t \ = \ \text{Irrigation Support of the rice mills,}$$
$$TS_t \ = \ \text{Technical Support of the rice mills,}$$
$$ES_t \ = \ \text{Electricity Support of the rice mills,}$$
$$TrS_t \ = \ \text{Transportation Support of the rice mills , and}$$
$$\varepsilon_i \ = \ \text{random error term.}$$

This model is estimated by using the backward methods. The growth of rice mills is measured by physical output and assets between 2007 and 2014, as dependent variables. The independent variables are analyzed as the influencing factors on the growth on rice mills.

(a) External Influencing Factors on Growth of Output

In analyzing the external influencing factors on the growth in physical output, the growth is measured by tons per year in 2007 and 2014. In the Backward Multiple Linear Regression Model, the growth in physical output of the selected rice mills is considered as dependent variables and the external influencing factors are considered as independent variables.

Table 4: Effects of External Factors on Growth of Output

	Unstandardized Coefficient		Standardized Coefficients	Calculated 't' value	Sig P-value
	B	Std. Error	Beta		
1 (Constant)	-168.46***	29.31		-5.75	.000
Policy Effect	22.65***	7.36	.359	3.18	.002
Competition	14.51**	7.12	.193	1.97	.052
Access to Finance	32.71***	8.54	.421	3.83	.000
Financial Support	16.02**	8.18	.183	1.96	.053
Irrigation Support	18.32**	9.01	.197	2.03	.045
Technical Support	18.13**	8.62	.226	2.10	.038

Source: SPSS Output

Notes: ** indicates that 't' is significant at 5% level and
        *** indicates that 't' is significant at 1% level.

When the results are calculated by using the backward method, the best filled estimated multiple linear regression model is

$$\widehat{GO}_t \quad = \quad \text{-166.46} \quad + \; 22.65 \; PE_t + \; 14.51 \; C_t \; + \; 32.71 \; AF_t \; +$$
$$16.02 \; FS_t \; + \; 18.32 \; IS_t \; + \; 18.13 \; TS_t$$

According to estimated results, the firms' growth depends on competition, policy effect, access to finance, financial support, irrigation support and technical support on rice mills at 1% and 5% significant level respectively. It can be concluded that the more there are competition, policy effect, access to finance and other supports, the more there will be growth of rice mills in Shwebo District.

(b) External Influencing Factors on Growth of Assets

For the external influencing factors on the growth of assets, the growth is measured by current value of fixed assets in 2007 and 2014. The growth of assets of the selected rice mills is considered as dependent variables and the external influencing factors are considered as independent variables.

Table 5: Effects of External Factors on Growth of Assets

		Unstandardized Coefficient		Standardized Coefficients	Calculated 't' value	Sig P-value
		B	Std. Error	Beta		
1	(Constant)	-92153834.04***	11016978.00		-8.365	.000
	Policy Effect	8992310.614***	2101994.741	.256	4.278	.000
	Competition	5267312.487**	2243119.634	.140	2.348	.021
	Access to Finance	5932581.248**	2683816.786	.134	2.211	.030
	Technical Support	7608770.092***	2502947.519	.211	3.040	.003
	Irrigation Support	6664694.383***	2135332.722	.185	3.121	.002
	Financial Support	9290752.792***	2861864.480	.257	3.246	.002

Source: SPSS Output

Notes: ** indicates that 't' is significant at 5% level and *** indicates that 't' is significant at 1% level.

When the results are calculated by using the backward method, the best filled estimated multiple linear regression model is

$$\widehat{GA}_t = \text{-92153834.04} \quad + \quad 8992310.614 \; PE_t + \; 5267312.487 \quad C_t$$
$$+ \; 5932581.248 \; AF_t \quad + \; 7608770.092 \; TS_t \quad +6664694.383 \; IS_t$$
$$+ \; 9290752.792 \; FS_t$$

In accordance with the results, the firms' growth of assets depends on the policy effect, competition, access to finance, technical support, irrigation support and financial support of rice because they are significant at 1% and 5% level respectively.

Analysis on Internal Influencing Factors on Growth of Rice Mills

In analyzing the internal influencing factors on the growth of rice mills in Shwebo District, the growth in physical output and assets of the selected rice mills are also assumed as dependent variables. The factors of the characteristics of owners/ managers, the natures of the firms and the business strategies are assumed as the independent variables. To examine the possible relationships of these variables to growth, the following multiple regression model will be employed.

$$G_t = \beta_0 + \beta_1 G + \beta_2 A + \beta_3 EL + \beta_4 PSE + \beta_5 ME + \beta_6 M + \beta_7 FB + \beta_8 FA + \beta_9 LS + \beta_{10} L + \beta_{11} BP + \beta_{12} CS + \beta_{13} ET + \beta_{14} TS + \varepsilon_i \text{ ----------- (2)}$$

where,

G_t	=	the growth of the rice mills,
G	=	Gender,
A	=	Age,
EL	=	Educational Level,
PSE	=	Prior Sector Experience,
ME	=	Management Experience,
M	=	Motivation,
FB	=	Family Background,
FA	=	Firm Age,
LS	=	Legal Structure,
L	=	Location,
BP	=	Business Planning,
CS	=	Competitive Strategies,
TS	=	Technology Sophistication,
ET	=	Employee Training and
ε_i	=	Random error term and ε_i follows normal distribution with mean zero and constant variance σ_ε^2.

In analyzing the main determinants on the growth of rice mills in Shwebo District, the dependent and independent variables are measured by using regression analysis. The physical outputs and assets of these firms are measured between 2007 and 2014, as the dependent variables and the regression model runs separately in terms of dependent variables.

(a) Internal Influencing Factors on Growth of Output

The growth in physical output of rice mills is measured by tons per year in 2007 and 2014. The growth of output of the firms is considered as dependent variables and the influencing factors are considered as independent variables. The backward multiple linear regression model is used to explain the relationship between the growth of output of the rice mills and their internal influencing factors. When investigating the significant factors, the calculated 't' value for each coefficient is examined.

Table 6: Effects of Internal Factors on Growth of Output

	Unstandardized Coefficients		Standardized Coefficients	Calculated 't' value	Sig P-value
	B	Std. Error	Beta		
(Constant)	64.745***	11.712		5.528	.000
Management Experience	87.632***	12.611	.562	6.949	.000
Location	29.046**	11.309	.208	2.568	.012

Source: SPSS Output

Notes: ** indicates that 't' is significant at 5% level and*** indicates that 't' is significant at 1% level.

When the results are calculated by using the backward method, the best estimated multiple linear regression model is

$$\widehat{GO}_t \quad = \quad 64.745 + 87.632\ ME_t + 29.046\ L_t$$

According to the above table, management experience is significant at 1% significant level. The management experience is the skills and competencies needed for successful entrepreneurship as being forecasting and decision making under conditions of uncertainty. Furthermore, location is the influencing factor on the growth of rice mills in Shwebo District at 5% significant level. It can be found that Shwebo and Kantbalu Townships are

more developed and the water supplement is better than that of other townships.

(b) Internal Influencing Factors on Growth of Assets

For the growth of assets of rice mills, the values included current values of fixed assets such as machines, buildings, warehouses, engines, transformers, motor vehicles and others, except land. Current assets such as paddy, debtors and prepaid expenses are excluded in identifying the assets value. The assets value of rice mills is measured by current value in 2007 and 2014. In the multiple-linear regression model, the growth of assets of the firms is considered as dependent variable and the influencing factors are considered as independent variables.

Table 7: Effects of Internal Factors on Growth of Assets

	Unstandardized Coefficients		Standardized Coefficients	Calculated 't' value	Sig P-value
	B	Std. Error	Beta		
(Constant)	27294117.6***	8360649.7		3.265	0.002
Management Experience	37227451***	5799343.4	.524	6.419	0.000
Location	10856862.7**	4870707.7	.170	2.229	0.028
Employee Training	24098039.2**	9429395.1	.206	2.556	0.012

Source: SPSS Output

Notes: ** indicates that 't' is significant at 5% level and *** indicates that 't' is significant at 1% level.

When the results are calculated by using the Backward Method, the best estimated Multiple Linear Regression Model is

$$\widehat{GA}_t = 27294117.6 + 37227451\ ME_t\ 10856862.7\ L_t\ 24098039.2\ EIT_t$$

According to the results, management experience is significant at 1% significant level. It can be found that the owners who have more management experience will attain growth of the firms. Furthermore, location is the influencing factor on the growth of rice mills in Shwebo District at 5% significant level. Therefore, it can be concluded that the location of the rice mills is a factor which influences their performance. In addition, the employees' training is significant at 5% level. It can be concluded that the more they trained the employees, the more they achieved the growth.

Analysis on External and Internal Influencing Factors on Growth of Rice Mills

In analyzing the main influencing factors on growth of output and of assets of the rice mills, the external and internal factors are analyzed simultaneously with a regression model. Therefore, the characteristics of owners/ managers, the nature of the firms, the business strategies, government policy, government support and competition are used as independent factors. The growth of assets and physical output (tons) of the rice mills is assumed as dependent factors. To study these factors of rice mills, the backward multiple linear regression model is used. Therefore the multiple linear regression model of firm's growth can be described as

$$
\begin{aligned}
G_t = \ & \beta_0 + \beta_1 G + \beta_2 A + \beta_3 EL + \beta_4 PSE + \beta_5 ME + \beta_6 M + \beta_7 FB + \\
& \beta_8 FA + \beta_9\, LS + \beta_{10}\, L + \beta_{11} BP + \beta_{12}\, CS + \beta_{13} ET + \beta_{14} TS + \\
& \beta_{15}\, PE_t + \beta_{16} C_t + \beta_{17}\, AF_t + \beta_{18}\, FS_t + \beta_{19}\, IS_t + \beta_{20}\, TS_t + \\
& \beta_{21}\, ES_t + \beta_{22}\, TrS_t + \varepsilon_i 3) \text{ ----------------- (3)}
\end{aligned}
$$

(a) External and Internal Influencing Factors on Growth of Output

In analyzing the influencing factors on the growth of physical output, the growth is measured by tons per year in 2007 and 2014.

Table 8: Effects of Internal and External Factors on Growth of Output

	Unstandardized Coefficient		Standardized Coefficients	Calculated 't' value	Sig P-value
	B	Std. Error	Beta		
1 (Constant)	-158.18***	28.426		-5.565	.000
Management Experience	37.194***	12.155	.242	3.060	.003
Location	19.697**	9.516	.133	2.070	.041
Business Plan	37.956**	16.311	.166	2.327	.022
Employee Training	47.304**	20.761	.185	2.278	.025
Policy Effect	16.128***	5.588	.258	2.886	.005
Competition	14.791**	6.317	.196	2.342	.021
Access to Finance	25.284***	7.805	.312	3.112	.003
Irrigation Support	30.557***	7.499	.332	4.075	.000
Financial Support	14.066**	6.374	.178	2.207	.030

Source: SPSS Output

Notes: ** indicates that 't' is significant at 5% level and *** indicates that 't' is significant at 1% level.

When the results are calculated by using the backward method, the best filled estimated multiple linear regression model is

$$\widehat{GO}_t = 158.187 + 37.194\ ME_t + 19.697\ L_t + 38.956\ BP_t + 47.304\ ET_t + 16.128\ PE_t + 14.791\ C_t + 25.284\ AF_t + 30.557\ IS_t + 14.066\ FS_t$$

According to the above table, management experience, location, business plan, employee training, policy effect, competition, access to finance, irrigation support and financial support are the main influencing factors on the growth of output of rice mills in Shwebo District when analyzing both internal and external factors.

(b) External and Internal Influencing Factors on Growth of Assets

For the internal and external influencing factors on the growth of assets, the growth is calculated by current value of fixed assets in 2014 and the assets values are measured from 2007 to 2014. In these values, the land values and current amount of cash are not considered in this study. The calculated 't' value for each coefficient are examined.

Table 9: Effects of External and Internal Factors on Growth of Assets

	Unstandardized Coefficient		Standardized Coefficients	Calculated 't' value	Sig P-value
	B	Std. Error	Beta		
1 (Constant)	-54710250.79***	10108190.68		-5.412	.000
Management Experience	14833506.22***	4576564.77	.207	3.241	.002
Location	8571305.65**	3611417.09	.126	2.373	.020
Employee Training	20529977.61***	7198568.74	.175	2.852	.005
Policy Effect	5179040.57**	2386765.65	.149	2.170	.033
Competition	9181591.62***	2364753.57	.265	3.883	.000
Access to Finance	13680352.90***	3018034.45	.384	4.533	.000
Irrigation Support	10698147.14***	2732873.17	.260	3.915	.000
Financial Support	6383861.63***	2260424.91	.176	2.824	.006

Source: SPSS Output
Notes : *** indicates that 't' is significant at 1% level and** indicates that 't' is significant at 5% level.

When the results are calculated by using the backward method, the best filled estimated multiple linear regression model is

$$\widehat{GA}_t = -54710250.79 \quad + \quad 14833506.22 \, ME_t + \quad 8571305.65 \, L_t \; + \\ 20529977.61 \, ET_t \quad + \quad 5179040.57 \, PE_t \; + \quad 9181591.62 \, C_t \; + \\ 13680352.90 \, AF_t \quad + \quad 10698147.14 \, IS_t \quad + \quad 6383861.63 \, FS_t$$

According to estimated results, the firms' growth depends on the management experience of rice mills owners, location, employee training, competition, policy effect, access to finance, irrigation support and financial support at 1% and 5% significant level respectively.

Findings and Discussion

The rice mills in the sample are family-owned businesses and which are commercial organizations in which decision-making is influenced by multiple generation of a family, related by blood or marriage and also who are closely identified with the firms through leadership or ownership.

Moreover, the owners/managers only give internal training to their employees. However, the training often takes place in the form of informal competence and skills development and on-the-job training. The majority of owners do not give external training to employees such as how to operate and repair machines, computer training courses because almost all the employees had low educational levels. In accordance with the regression results, the employee training is a main determinant on the growth of output and of assets of rice mills. The lack of skills, low productivity, high turnover rate and lack of employees' training were among the main problems facing these mills and slow down growth.

In analyzing the external factors, it was found that government policy changes affected the growth of output and of assets of rice mills. In this study, before 2007, the estimated number of mills in Shwebo District was 96 which produced 15 tons and above a day and it increased to 140 mills after 2007. In 2007, the government of Myanmar allowed the private sector in rice trading not only in domestic markets but also in oversea markets after the rice procurement system had been abolished in 2003. So the millers, brokers and agents tried to possess the opportunities to export, distribute to local or foreign markets, to buy paddy from farmers or brokers, to mill themselves or purchase rice from others; and to advance cash to the farmers or to collect paddy from the brokers.

Competition also influences both the growth of outputs and of assets of the firms studied. It can be said that the more competition the firms face, the more likely they are to achieve growth. Obviously, in the short term, intense competition influences negatively on the growth of the firms. It means that the more competition the firm has to face, the less the growth is.

In addition, the government support has a strong effect on growth of assets of rice mills. To a large extent, the government support for business has been neglected, but there has been a growing emphasis by many programs providing more favorable environment for the private sector. From a variety of supports, irrigation support can increase the rice output. The main financial support provides businesses to achieve objectives and goals. Lack of and limited financial support from the government impedes businesses growth. In this study, most of the firms use their investment capital from personal savings or borrowing from friends and loans from commercial banks. Besides these supports, technical support also influences the growth of these mills. In this rice milling industry, this support is required for sophisticated technical knowledge, market opportunities and technological information to establish an efficient industry.

This study applied a model that captures only the direct effects on growth. Actually, the growth of rice mills may be influenced by many conditions such as weather condition, land condition, the quality of seeds and other geographical conditions, however all these factors are not considered in this study. The future studies should also consider other effects such as mediated or moderated effects. These effects may show better results.

Further studies should also consider many important external factors as variables in the analysis. For instance, corruption, globalization, laws and regulations, etc. in Myanmar appear as interesting variables for the analysis.

Additionally, in this study, the growth of rice milling is measured by only two factors: physical output and assets. In reality, the growth is measured by several variables such as market share, employees, sale and other performance. Therefore, the other measurements should be included in a continuing research area. This is a potentially important form of growth that should be considered in the design of future studies.

Moreover, in this study, the rice mills are studied only in Shwebo District because of limited time and effort. This study cannot consider the main area of rice production, Ayerwaddy Delta in Lower Myanmar. Therefore, all the areas which mainly produce rice in Myanmar should be studied in further researches.

Finally, in this research, the effects of financial market imperfections and market uncertainty are not examined separately using information from the same set of private rice millers. Both factors exhibit significant effects on investment of private rice millers. Therefore, further research should strongly emphasize on the financial and market conditions of rice milling industry.

Summary

Myanmar's agriculture has enormous potential given its abundant resources and excellent market positioning. With the right reforms and targeted investments, the country can look forward to large growth in this sector that can foster dramatic and inclusive development across the economy. The relevant support should be provided not only for the rice millers but also for the farmers. Besides, the main purpose for the agriculture sector is to export rice and pluses. To do so, quality control and extensive support to farmers for multi source of seeds need to be improved. Major investments are needed to improve irrigation and drainage so as to restructure what appears to be growing weather instability. Moreover, improving in economic regulations and policies are the most powerful instruments to help Myanmar trigger structural changes along its rice value-chain necessary to capitalize on new market opportunities. Due to the lack of external training in machine maintenance and repairs, the costs of rice mills maintenance increase because these firms need to hire technicians from foreign countries to repair their machines. To do so, they should provide their employees with more education, know-how, and necessary training programmes. Both financial market imperfections and uncertainty appear to hurt investment of private rice millers in Shwebo District. The private rice millers mainly use internal funds to finance investment because their access to credit is limited. Thus, the banks should have a much clear understanding of the characteristics of those SMEs which survive and grow, compared with the enterprises which fail to survive.

The government policy plays an important role in increasing competitiveness of rice mills in the liberalization process. It is needed to enhance financial transparency from the side of private rice millers so as to improve the acute problem of information asymmetry between millers and commercial banks. Besides, the Ministry of Agriculture and Irrigation (MOAI) or the government should formulate some rules and regulations or laws that stimulate informal lending sources to become formal ones.

Acknowledgements

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