

Towards Technology Components Adoption: How Government Role Can Enhance Rice Miller's Success- Special Reference to Eastern Province of Sri Lanka.

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Abstract. In Sri Lanka, an increasing number of rice production technologies and management techniques have been introduced. Despite the introduction of the rice production technologies, rice production not reached a required level. This study therefore analysed factors associated with adoption of improved rice production technologies and the role of government in this regard. Random sampling technique was used in selecting one hundred and seventy-three (173) rice producers from Eastern province of Sri Lanka. Data were collected with the aid of a structured questionnaire, and interview guide and analysed using descriptive statistics with correlation and regression. The result obtained shows that 21% of government role explains in institutional supports, economic as well as political policies of the government and law enactment and enhancement. Further, 22% of government role impacted towards technology components such as technoware, humanware, orgaware and infoware adoptions. These key factors need to be taken into consideration when expanded program on technology components adoption is to be considered.

Keywords: Technology Components Adoption, Rice production , Role of government

1. Introduction

Government role is vital in the development and growth of a country as well as a region. Businesses are a core element of development. The emergence of a scientific and technological system, and an institutional framework supporting agriculture sector from outside, made a major contribution not only to raising the risk-bearing capacities of small agricultural producers but also towards the adaptation of technology to the needs of these producers- thereby enhancing their capacity to internalize this technology which was generated exogenously. Government policies are positively supporting to improvement. In developed countries such as Japan and USA the impact of technology on business activities is very high and is a fact of success. The successful implementation of technology in business is a significant problem for organizations in Sri Lanka; especially in agricultural sector as Sri

Lanka is the first and foremost an agricultural country. Agri- based businesses are the dominant sector in eastern province as well. But this sector faces challenges because of not promptly developed. All these strategies could be supported through technology components adoption in the business. Based on the issues related to technology application in the business, a research question could be formulated as “Is government role determining the levels of technology components adoption in the business?” The main objective of this paper is to identify the relationship and influence of role of government in technology components adoption in Eastern province of Sri Lanka. In this context, the end of the conflict in the country has given an opportunity to revise its government’s role in the industry. The role of the government should not be to engage in trade directly, but to facilitate its growth by co-ordination of growing and trading. This will help increase output and create a surplus, which can then be diverted to export markets.

The researcher believes the peaceful situation, and the government commitment will support for this regional development when the actors of the sector works towards the development. So, the researcher tries to identify the levels of initiation towards technology based operations in agri based organizations to its development through this study.

2. Theoretical Framework

Support policies and governmental programs are important sources of motivation for entrepreneurs to start and grow their businesses. The provision of government support and funds also acts as an authentication that helps small businesses to get additional funds from banks and private sector lending institutions[1] after an investigation of the impact of training on manufacturing industries, found small businesses that received formal support introduced more production enhancing organizational changes such as team work, quality circles and client orientation, to improve the production processes, than the businesses that did not receive training. The authors stated that, as a result, the businesses that received support had faster rates of capacity utilization than nonsupport businesses. Furthermore, the supported businesses had a lower rate of decline in capacity utilization than unsupported businesses when economic conditions became adverse[2] stresses, that, the key influence of government on small businesses should be through macro-environment policy, even though there are benefits in improving the capabilities of small businesses through training and advice.

The main support needs of small businesses are related to development of products, markets, employee skills and internal processes. It is unlikely that the government is able to meet these specific needs better than the businesses themselves because of a lack of expertise in these fields. Further he states that it is possible for the government to support small businesses by developing policies that facilitate cost reductions, risk reductions and increase the flow of information. Therefore, it is prudent that the government channels these services to small businesses through the private and Non-Governmental Organization (NGO) sector support providers, perhaps in partnership with public sector organizations [3]. Bennett points out that any direct government interventions to overcome market failures may cause more harm than good owing to possible bureaucratic failure. Owing to the lack of specialists in small businesses, they need support from business development services to overcome their business problems [4].

Bennett further states that these services have reported high take-up and high levels of satisfaction. This suggests the business support services provided by external organizations

are meeting the expectations of small business owner/managers. In Britain, the percentage of SMEs seeking external support services has increased from 86 per cent in 1991 to 94 per cent in 2002 [4].

Successive governments in UK using different models have provided support to small businesses to overcome their problems. Deakins state, that there are three different models of support available to small businesses in UK. They are: short-term support which is semi diagnostic and addresses the self-diagnosed problems of small businesses; medium-term support where support providers work with clients over extended periods; and long-term relationships where the successful entrepreneurs work with small businesses to help them improve their performance. To address these concerns, they have established an accreditation system of personal business advisors [5].

Hurmerinta-Peltomaki, categorized business support services into “reactive” and “transitional” models. The “reactive” model refers to businesses acquiring support services to address their short-term operational issues. The “transitional” model views the use of support programs as a means to achieve long- term strategic issues. The other models of support include institutional support, direct financial assistance through loans, grants, subsidies and the provision of advisory and training services through numerous private and public-sector organizations. Bennett states the policy methods used cover four broad areas: finance, providing information, providing specialist advice, and helping with training and development [6]. further state that the German model of effective support intervention, collaboration and networking has led to the creation of high quality small businesses[7] assert that strategic government initiatives to encourage the development of appropriate market institutions such as banks, financial institutions, business support organizations and training institutions are a blessing to small business development.

Government of any country should have higher priority for economic growth through implementing preferential policies. Government intervention to remedy the deficiencies of the private sector has been preoccupied with economic objectives irrespective of their environmental impact. Sri Lanka industrial policy strategy has been based on the political and economic ideology of successive governments and changes in the international economic environment. The economic reforms adopted by the government in 1977 completely revamped the Government's industrial policy strategy. Industrial policy was aimed at export sector as the engine of growth.

3. Methodology

This research was designed to conduct through two approaches. First approach was using a questionnaire and the second approach the case study. Second approach has two phases. In the first phase of the second approach, some rice production firms were selected for case study whether the technology components adoption substantially improved the business in the province. Further some of support service providers also selected at the second phase for interviewing to get relevant information about the existing support services. This combination strategy of qualitative and quantitative approach (methodological triangulation) is taken in this study to investigate the relations of government supports to technology components adoption among rice produces in the province.

4. Results and Discussions

Role of government is comprised five dimensions namely institutional supports, Policies of the government (Economic and Political policies) and Law Enactment and enforcement. Reliability analysis of government to technology components adoption explains by the Cronbach's alpha was highly reliable. Institutional support, Economic policies of government, Political policies of government Law enactment and enforcement reveals the alpha value of 0.505, 0.595, 0.548, and 0.511 respectively. Further reliability of technology components adoption such as Technoware (0.750), Humanware (0.750), Orgaware (0.587) and Infoware (0.511). This value apparently suggests that the instrument employed to measure technology components adoption is highly reliable.

Institutional supports pertaining on role of government was measured with, awareness of government institution's education services for rice millers, utilizing the facilities of Nenasala Centers, Government encouragement to formal training, Government efforts to introduce new varieties of paddy in the province and using the Government supported agribusiness forum to help the business improvement. The average mean scores of 2.88, implying that rice millers tended to disagree that the institution supports towards this. Economic policies of government pertaining were measured such as Government helps to find foreign market for product, Government support (e.g. loans / subsidies) to acquire new technologies, enough tax exemption for importing the machineries and Government policies on FDI is favorable to improve the business in the province were used. The average mean score stood at 3.007 implying that rice millers agree that the economic policies of the government is concerned on the development of business.

The government helps to find foreign market for product, Government support (e.g. loans / subsidies) to acquire new technologies shows as bottom mean value which suggests that respondents found the factors in the dimension to be important determinants of technology components adoption while factors such as there are efforts taken by government on finding market of their products and tax concession on equipment used in the industry were less considered. Further, Current political support in changing the business, favorable policies/strategies of provincial government in adopting new technologies show with 3.04 mean, implying that rice millers agreed in elements that the political policies are one of the major concerns of the technology components adoption. Law enactment and enforcement pertaining on role of government measures such as perceptions of central and provincial Government role in enforcing the relevant regulations in the industry's prosperity, and government's positive role in regulating the rice industry in Sri Lanka. The average mean of 3.55 explain that law enactment and enforcement is the concern on the technology adoption.

Correlation analysis was performed to investigate whether the government role is significantly related to technology components adoption. Subsequently, simple linear regression analysis was confirming the relationship. Institutional support was found moderate positively correlating with technology components adoption ($r=0.366$, $p=0.000$) which is emphasizing that institutional support plays a key role in technology components adoption. The finding suggests that improvement in institutional support of role of government would relate to higher level of technology components adoption. Further, economic policies on role of government was found negative correlating with technology components adoption ($r=-0.136$, $p=0.075$), which is emphasizing that economic policies not taking a key role in this regard. The finding suggests that economic policies of the government would not relate to higher level of technology components adoption. The strength of political policies of the government with

technology adoption was found negatively correlating ($r = -0.183$, $p = 0.016$) at significant which is emphasizing that political policies of the government plays an important role in technology components adoption. The finding suggests that improvement in political supports for the industry improvement would relate to a higher level of technology components adoption. The strength of the correlation of law enactment and enforcement with technology components adoption was found positive correlation ($r = 0.081$, $p = 0.290$), which explains law enactment and enforcement has correlated with technology adoption, suggests that law enactment and enforcement would highly relate to a higher level of technology components adoption.

Evidently, the figures demonstrate that a government role is a significant predictor of technology components adoption. government role in technology components adoption revealed that the value of $R^2 = 0.229$ denoting that 22% of government role in terms of institutional support, economic policies, Economic policies and law enactment and further revealed that the value of adjusted $R^2 = -0.210$ denoting that 21% in government role of the variation in technology components adoption. further, government role in terms of technology components, such as technoware, humanware, orgaware and inforware revealed that the value of $R^2 = 0.221$ denoting that 22% of government role influencing on above components adoption.

Further, a moderate level of adoption with regard to technoware components were explained by more than half of the rice millers in the Eastern Province. Only one third of them were of high levels of adopters who adapted to different technologies such as scanners, drying belt, automatic processor for separation of rice and husks separator in the production. Majority of moderate levels of the adoption in the Eastern province due to the difficulties in expansion of capital to invest on equipment, especially the millers in the province show low interest to get loans from banks and other financial service organizations. In addition, a lower level of interest of the government to provide exemption to purchase equipment also contributes to moderate as well as low levels of adoption which was proved during the in-depth interviews. 57.2% of the Eastern rice millers are adopted to moderate levels of humanware, while 21.9% at low levels of adoption in relation to humanware components. Further, 20.8% were at high levels of humanware components adopters. The survey results indicate that most of the Eastern province millers have moderate level adopters with regard to this component, saying that the millers are committed to employee related issues at an average level. A small proportion (17.4%) of rice millers in the Eastern province have low levels of orgaware component adoption while the majority had moderate levels of orgaware adopters. It shows a large number of rice millers with systematic procedures in an average level were under moderate levels of adoptions. It shows a large number of rice millers were under moderate levels of orgaware adoptions having not fully standardized the organizational procedures and practices for efficiency in the business. The study revealed, a majority (75.7%) of rice millers were adapted to low levels of inforware component adoption while 24.3% of rice millers have shown moderate levels in the Eastern millers. Unfortunately, no one was included in the group high levels of inforware components adopters. Many interviewees agreed that they have not practiced any new way of information and knowledge sharing when the relationship is maintained with stakeholders. They did not have much interest to invest on new methods of systemized knowledge maintenance and adopting new technologies in the businesses.

Further, a chief executive as a support provider made a point about the impact of infrastructure issues such as transport and information and communication technology facilities on these business improvements being a particular constraint upon its growth. Referring to the issue of funds for working capital and the purchase of assets, one interviewee stated that banks provide

loans to SMEs in everywhere. Owing to the failure of a large number of small businesses, banks persistently view these businesses as high-risk ventures. This makes it difficult for these businesses to acquire sufficient funds. If these ventures are to succeed, it is necessary for the government and the financial institutions to develop schemes to address this issue which acts as a major bottleneck to the growth of some of the potential businesses in this sector. In response to the question on financial support, another support provider, who was more sympathetic towards the banks and financial institutions, stated that “banks are business organizations; they need to minimize their risks and maximize their profits.” The government arranging loan facilities with the certification of Vidhada Centers through state banks which is inadequate for rice millers’ operation because the price of new machineries is very high. However, that scheme is not satisfactorily working due to excess requirements of banks from these business people and high interest rates for those loans. Specifically, there is a belief amongst Muslim community that the interest is prohibited by their religion. Therefore, there is a slow rate in getting loan by these people.

Therefore, set hypothesis of higher Involvement of government increases the possibility of technology components adoption among rice millers in large extent in Eastern Province was proved statistically.

5. Conclusion, Managerial Implication and Limitations

The role of the government is recognized by the rice millers. Anyhow, they are dissatisfied with some of dimensions in the factor especially, institutional supports had low satisfaction among them. The relationship between the role of government and technology components adoption is shown positive with regard to institutional supports, political support, and law enactment and enforcement. Economic policies of the government show a negative relationship which is inadequate level of exemption, rice millers not receiving any benefits in terms of economic aspects with regards to rice production businesses might be the reasons for this result.

Further, three interviewees agreed that they have utilized modern technologies in the business. Specially, the adaption to modern production methods and storage. They said they understood that the modern technologies could increase the market share. Humanware concerns on employees’ education and training was emphasized by many respondents. They suggested that the organization is providing the required level of training at the right time with the use of trained employees in the mills. Further, two respondents agreed that the organizational setup is flexible and systematic. Also, those respondents were at low level of adoption with regard to infoware components.

Even though it is useful to know the common perceptions among the owner-managers of rice mills regarding the factors influencing technology components adoption. The results of the study suggest that those factors are mostly unique to these businesses. These evidences help to support providers such as government and relevant bodies to find ways to identify these rice millers’ needs. Thereafter, customized support programs could be developed.

This study added new knowledge to the literature on rice production business in a developing country by determining the ability of adopting new technologies in processing and business operations to address the factors influencing rice mills business. It also suggested specific improvements to develop existing support of regime in relation to this industry development.

This study examined the support needs of rice mills businesses in a developing country, recognizing them as a distinct group with particular support needs. It also identified the problems and issues related to provision of required support, adding new knowledge to literature on the provision of support to these businesses.

The services given by government to the rice manufacturing businesses should be improved with owner-managers' willingness to get support and it should provide effective solutions to their problems. This could be achieved by having mechanisms that periodically assess and improve the quality of business support services. This study found that most support providers do not have self-developed procedures to constantly guarantee an adequate standard of quality of the services that they offer. To increase the services, it is necessary to develop appropriate schemes which include a number of highly visible measures that strongly communicate the services. Future researches should therefore investigate the visible criteria in these businesses that could use to measure the development of business support services. In addition, it was observed during support providers' interviews, the transformation ambitions of some owner-managers diminish once they achieve a comfortable living for themselves and their families. Additional researches may be required to examine whether such changes in ambitions are associated exclusively with improvements in economic well-being or are due to a combination of this with other factors. Training to rice millers should be included in the scheme of support service providers. Rice millers must be adapted to social media networks such as twitter, face book, email and other services which coordinate for effective business.

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