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Reasons for developing or exiting business in the primary sector – A study of milk farmers in central-west Sweden

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Abstract- The aim of this research was to study empirically what characterize farms and farmers that choose to develop the milk production at their farms. The background was that several farms have exited milk production, which threatens both goals about rural development and also the activities of the dairies. Based on survey data from 313 milk producing farms in central-west Sweden and structural equation analysis, it was concluded that farms that are accustomed to changes will develop their milk production further. The results also showed that farms which are more dependent on their milk production are more likely to develop their milk production. Furthermore, it was indicated that satisfactory supply of qualified labour stimulates development of milk production, as do location of the farm at a longer distance from common facilities. The results also showed that the farmers who develop their farms have more positive expectations about profitability in milk production and are also less risk averse. Finally, the results indicated that information through trade magazines and similar one-way communication channels are used by those who develop their milk production and that farmers who develop their milk production are those who take actions to evaluate their strategic decisions more seriously.

Keywords- farm management, rural development, strategic decision making

I. INTRODUCTION

This paper summarizes the main findings of a research project aiming at studying reasons for developing or exiting dairy production in Sweden.

A consequence of the CAP-reform, where support levels are decoupled from farm production, is that the agricultural sector goes through a major structural change where the farmers change their productions towards the market demand. Farmers that cannot run their farms in a profitable way are likely to exit the primary sector and start working in other sectors. This

implies that the agricultural production will take place at fewer entities in the future and possibly also at other locations. When studying milk producing farms in Sweden, this trend is highly visible. During the years 2000 to 2006, the number of dairy farms decreased by 37% [1]. Even though the average herd size has increased by 41% to 46 cows during the same period of time, the increase in farm size is no longer sufficient to compensate the decrease in the amount of milk produced. During the years 1995 to 2000 the amount of milk produced was relatively steady, with only small fluctuations, but after year 2000 it has decreased [1]. This trend clearly threatens goals about rural development. For instance, in a public investigation made on behalf of the Swedish government it was stressed the exit of livestock farms can also lead to other business experiencing negative effects and that the service to the local community is threatened. Furthermore, when the milk production decreases, the activities of the dairies are threatened.

Even though micro economic theory suggests that increased output prices to the farmers will prevent the negative trend outlined above, the literature also stresses that farmers typically have other values than profit maximization, and that the other values influence on their decision making more [2, 3]. This implies that not only the prices will explain why farmers choose to quit milk production. Furthermore, competition from the world market of e.g. milk powder, cheese and butter, determines the price levels also in Sweden, making it difficult to increase output prices significantly.

To assist the rural community and the milk industry it is important to understand what characterizes the firms that do develop their milk production. This is also important to forecast the future development of the milk producing farms, and thus to understand the

developments of the rural community. Therefore, the aim of the present study was to analyze empirically what characterize farmers that either develop or exit their milk production.

II. MATERIAL AND METHOD

Description of data

This study is based on survey data from a sample of milk producing farmers situated in the north -west of Sweden. During the autumn 2007, the survey was sent to 500 randomly selected farmers who are members of the dairy cooperation in the area of interest. About half of the members of that dairy cooperation were included in the sample. Questions about their intended strategy for the coming five years were asked, as well as questions about the farm, its surrounding environment and the farmer him- or herself. In total, after two reminders, 313 usable answers were received, which corresponds to a response rate of 63%. Table 1 shows the distribution of the intended strategies for the coming five years.

Table 1: Distribution of the intended strategy for the coming five years.

<i>Intended strategy</i>	<i>Number of farms</i>
Develop the milk production within two years	27
Develop the milk production within two to five years	18
Continue as usual, i.e. neither quit nor develop the milk production	193
Quit milk production within two to five years	32
Quit milk production within two years	40

The figures in Table 1 suggest that a majority of the farmers will continue farming as usual for the coming five years, i.e. they neither develop nor quit their milk production. However, 72 farms will quit their milk production within the coming five years, whereas 45 will develop their milk production.

Method

Based on a literature review, a hypothetical model of what affect the strategic choice of developing or exiting dairy production was formulated. Adapting a resource based view it was assumed that differences in access to resources determine the outcome of a strategic choice such as developing or exiting a certain production line. In particular, resources grouping into the following four groups were defined: *the internal environment – the firm, the micro-social environment – network factors, personal characteristics of the farmer, and management systems at the farm.*

The model was estimated with the aid of path analysis with latent variables and where necessary, structural equation modelling, both using the LISREL computer program. This method has been used previously to test models of farmer behaviour [3, 4, 5]. Several of the variables included in the hypothetical model are not possible to measure directly, but based on the survey answers the farmers provided it was possible to construct measurement variables of the latent variables [6]. The LISREL computer program allows for different covariance matrices to be used, depending of the scale at which the variables were measured.

III. SUMMARY OF RESULTS AND DISCUSSION

The analysis of the *internal environment – the farm* showed that farms with previous experience of changes in the milk production are more likely to develop their milk production further. The results also showed that farms that are more dependent on milk production tend to develop it further. This implies that we can expect further developments of milk production at farms that have previously made developments at their farms and at those that are the more dependent on milk production.

The analysis of the *micro-social environment – the network factors* showed the significance of supply of qualified labour for the decision to develop milk

production, suggesting that farmers are more willing to develop their milk production if they perceive a sufficient supply of labour. The results also showed that farms further away from towns, villages, farm advisors and colleagues are more likely to develop their milk production. An explanation for this result may be that closeness to e.g. towns, villages and colleagues can create options for other production lines at the farm, making the development of the milk production less appealing. Closeness to towns may also cause problems with handling manure.

When considering *personal characteristics of the farmer*, the results showed that farmers with more positive expectations about profitability in dairy farming were more likely to develop their milk production. Further, the results showed that positive expectations of profitability depended on instrumental values as well as on internal locus of control. Thus, this implies that the farmers that develop their milk production have more instrumental values and also a higher degree of internal locus of control, compared to farmers who are likely to exit milk production. Further, the results showed that those who develop their milk production are less risk averse and also less experienced. The role of experience suggests that we can expect development at farms with younger managers.

The analysis of the *management systems* showed that farmers who develop their production use one-way communication information sources such as trade magazines and Internet to find information prior to investments. Further, these farmers have developed systems to discuss and check the outcome of their investments. This finding may imply that they are better prepared to make investments, because they have a better feedback system.

IV. CONCLUSIONS

This research suggests that we may expect already developed dairy farms to develop even further in the future. Moreover, development of dairy production is likely to take place at farms located at some distance from towns and villages and at farms that are highly dependent on milk production. This research also suggests that those farmers who have more instrumental values, who

feel that they are in control of their situation and are not risk averse are likely to develop their milk production.

In the same way, the research suggests that farms that have not made larger changes before and farms that are located close to towns will exit dairy farming. Further, farmers not having instrumental goals, do not feel that they are in control and those who are risk averse are likely to exit milk production.

Based on this research, actions to stimulate developments of milk production can be to educate young people in agriculture to satisfy the labour need at the farms that develop their production. Further, actions to reduce risk aversion can stimulate developments.

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