The consolidation phase: Survival strategies of farmers stabilizing and developing their businesses

Leena Rantamäki-Lahtinen[1] **and Minna Väre**[2]
MTT Agrifood Research Finland, Economic Research
Latokartanonkaari 9, 00790 Helsinki, Finland
1) leena.rantamaki-lahtinen@mtt.fi, 2) minna.vare@mtt.fi

The consolidation phase: Survival strategies of farmers stabilizing and developing their businesses

Abstract In earlier studies, past succession is found to contribute positively to the farm growth. However, there is lack of information on how are the farms succeeding after the starting phase. In this study, it is analysed how farmers that have recently started their farm enterprise differ from more experienced farmers in some key farm management areas such as farm and farmer characteristics, strategic objectives and development plans. The data were collected by postal survey from Salo region in South-Western Finland. In the study, farmers are divided in to three different groups according to the farmer's age and experience. According to the results, early phase farmers are in certain areas better equipped than older generations. They have better education and better networks than others. Moreover, the younger entrepreneurs consider their networks more important than their senior colleagues. Like expected, at early phase farmers had invested significantly more and have more liabilities than the others. In addition, the early phase farmers are the most active also for developing their farms. The late phase farmers were the least active, even if they were going to have succession within the next years. This might be problematic for the successor, too. However, in order to improve the viability of whole farming sector, the farms should be developed as continuum.

Keywords: farm management, multivariate data analysis

1. Introduction

Starting new business and transferring the family firms to next generation are vital for preserving the jobs and for the maintaining the livelihood of countryside. Past succession is also found to contribute positively to subsequent firm growth after a consolidation phase of some years (Diwisch et al. 2009). The positive effect of succession on farm growth has been found to apply especially the full-time farms (Weiss 1999).

Starting new business is subsidized both by different policy schemes and by rural development measures. For example, starting aid and farmers' early retirement systems are found to be crucial for farm successions taking place (Väre 2007, Hirvi 2004a). Similarly, new firms are subsidized by different systems, such as starting loans and aids (InnoSuomi 2008). These systems have also a great importance on profitability, continuity and compatibility of the firms.

However, there is lack of information on how are the farms succeeding after the starting phase. There is lot of research based information on farm succession and for example the income structure of the young farmers has been analysed (e.g. Hirvi 2004b) but only little is known about how do the farmers develop their farms after the succession and how do the farmers succeed during the first years after starting the business.

Littunen et al. (2008) have studied the success of new firms and the factors affecting it. In their study, first 3 years are assumed to be critical in terms of firm continuation. Accord-

ing to them, the success or failure of new firm is strongly affected by the planning of start-up phase and thus by the characteristics and know-how of the entrepreneur. Similarly, Goldberg (1996) has found short- and long-term prospects of the industry as well as the educational background and experience of the successor to matter. Furthermore, Goldberg (1996) suggests that effective successors benefited from multiple mentoring networks (counsellors, advisors, family members).

According to the life-cycle models, a firm develops through so called evolution and revolution phases. Farm succession is a typical example of this. When a farm is transferred to a successor, there are typically also started new actions or the old actions are developed or changed (Rantamäki-Lahtinen 2007). For example, about 18% of the Finnish farms transferred to next generations during the years 2004-2008 have changed their main production line. Typically, the farms gave up animal production and concentrated on crop production (63% out of the farms changing production line) (Väre 2010).

Most studies concerning the beginning phase of farming career focus on the realisation or the process of succession (e.g. Kimhi and Lopez 1999) or new entrants to the sector. In this study, the focus is a bit different: we analyse how farmers that have recently started as farmers differ from more experienced farmers in some key farm management areas such as farm and farmer characteristics, strategic objectives and development plans.

In the following chapter 2, data and the methods used are presented. Results are presented in the chapter 3 and the conclusions are made in the last chapter 4.

2. Data and Methods

Data were collected by postal survey from Salo region in South-Western Finland in November 2010[1]. The questionnaire was sent to all region's farmers (N=1 250). The response rate was 19% (N = 237), which is typical, since there were no follow-up survey. The data were analysed by using $\chi2$ - test, Kruskall-Wallis test, explorative factor analysis and k-means cluster analysis. To make sure that the validity of variables was as good as possible, they were based on existing theories and careful testing of the questionnaires.

Due to the regional nature of the data and subjective nature of used multivariate analysis methods, the results of the study cannot be generalised *as such* to the whole population of European or even Finnish farms. However, the results do present the farmers of one of Finland's most important agricultural area when it comes both to the amounts of agricultural products produced and agricultural area utilised. The great importance of farming sector on Salo region lays both on strong agricultural tradition due to the one of the best production conditions in Finland, but also on its economic importance (measured by the income and subsidy flows on the area). Moreover, it can be assumed that results of the study, for instance the problems faced by farmers in consolidation phase, do exist in real-life decision-making regardless of the location of the farm.

---

[1] The same survey was made on the other rural micro enterprises in the area, but in this paper we focus solely on the farm population.

3. Results

We started the analysis by determining those farmers that were on the entry phase on their farming career. The determination is difficult to make simply based on entrepreneurs' age or entrepreneurial experience. So, just being 'young' doesn't imply that farmer does not have experience as a farmer –some farmers start farming before they turn 20 and some others start in their 40's. On the other hand, the entrepreneurial experience isn't alone sufficient enough to determine the phase as farmers are in very different situation in their lifespan. A farmer who has started five years ago at the age of 45 is probably in very different situation in his lifecycle and has more life experience than a farmer that has started farming five years ago at the age of 25. Similarly, e.g. Ondersteijn et al. (2003) have corrected age factor by taking account the stage in the family-farm life cycle when analysing the effects of farmer characteristics on their goals.

In order to find different "phase' among respondents, cluster analysis was done by using k-means procedure for two variables: respondent's age (years) and entrepreneurial experience. Analysis was done by making solutions of 2 – 4 groups. The solution of three groups was chosen (Annex 1).

The interpretation of 3 group solution was clear and followed the early findings of Nalson (1968) about family development on farm organization (ref. by Gasson and Errington 1993). Farmers included in the first group 'early phase' (n = 64) were younger and had the least entrepreneurial experience (table 1). They are also the group we define as farmers being more or less on start-up phase. In the second group, 'middle phase', farmers (n = 86) were on average middle-age and had more entrepreneurial experience than farmers in the early phase. Third group was named as 'late phase' (n = 93) which are farmers that on average were older and had the most entrepreneurial experience. The determination used here differs of the division done by Ondersteijn et al. (2003), who only had two groups of farmers; those on entry/exit phase and those on the growth/consolidation phase.

Majority of the farmers in the group 'early phase' started farming at 2000's whereas most of the farmers at the 'middle phase' group started farming at the beginning of 1990's and farmers at the 'late phase' group started farming in late 1970's or early 1980's. As in Finnish society in general, the younger generation is better educated than the older ones. There were no significant differences between groups in several variables: income structure of the farm families, share of the production lines and farm diversification or farm size (personnel and turnover). However, at early phase farmers had invested significantly more than the others and in addition their liabilities per turnover – rate was higher. The result is like expected. The characteristics of the groups are presented in the table 1.

Table 1. Descriptive statistics of farm and farmer characteristics in different groups

	Early phase	Middle phase	Late phase	p
Farmer characteristics				
n	64	86	93	
Age, years (mean)	37,3	47,7	57,5	**
Experience, years (mean)	5,09	17,36	29,34	**
Year, when started farming (year, mean)	2004	1992	1981	**
Family income structure, share of the families: >75% of family total income from enterprise < 25% of family total income from enterprise	39% 20%	45% 24%	42% 23%	
Education : College degree Higher education Vocational school Short courses No education	39% 25% 31% 5% 0%	10% 30% 52% 2% 6%	12% 28% 38% 11% 10%	** c
Enterprise characteristics				
Production line, share of the farms: Animal husbandry Field crops Horticulture Other	21% 66% 2% 11%	17% 73% 8% 1%	18% 70% 8% 5%	
Farm diversification to non-agricultural activities, share of farms	25%	30%	26%	
Personnel	1,6	1,5	1,5	
Turnover, 1 000 euros (mean)	144,23	107,32	83,66	
Profitability compared to other farms with the same production line (scale 1-5; 1 = not at all, 5 = much more profitable)	2,81	3,06	2,73	*
Loans/turnover (1= No loans, 2= loans are less than 1/3 of the turn over, 3 = loans are 1/3 - less than 2/3 of the turn over, 4 = loans > 2/3 of the turn over, but < turnover, 5 = loans are more than turnover)	3,6	2,93	2,01	**
Sum on the investments to enterprise 2008 and 2010, 1 000 euros (mean)	91,00	52,16	28,27	**

*= p< 0.05, **= p< 0.01, c = chi square-test, otherwise Kruskall-Wallis non-parametric test

Strategic objectives

In this study, we assumed that farmers have multiple strategic objectives. For instance, it has been found in previous studies that in addition to economic values, many farmers highly value things such as the ability to maintain their lifestyle and good family life (Cuykendal et al. 2002). In the survey, there were a total of 11 questions related to different management principles or strategic objectives of the enterprise. In addition, it was asked how well respondents felt that they had succeeded for achieving those objectives. Questions were evaluated by Likert scale (scores 1 – 5, 1 = not at all important/achieved and 5 = very important or achieved very well). An explanatory factor analysis was run for the data concerning the objectives, and these factor scores were used as variables at the

later stages of the analysis. The second question: How farmers had achieved the set goals, was measured by creating sum variables.

Before doing the factor analysis, a reliability analysis was conducted. The Cronbachs Alfa (α) for reliability was 0.82, so reliability of all 11 variables was sufficient for further analysis. A principal axis factor analysis resulted in a three-factor solution, which accounted for about 49 per cent of the total variance of the original variables (annex 2). The number of factors was defined by using the cut-off point of 1 in Eigen values. An orthogonal Varimax rotation was performed. The rotated factor structure (table 2) is clear, though some variables had moderate loadings of at least two factors. Factor 1 represented objectives that were related to social and environment responsibility. Factor 2 represents objectives that related to work satisfaction. Factor 3 covers economic objectives, such as profit maximizing, better standard of living and economic profitability.

Table 2. Rotated factor matrix.

	Factor		
	1	**2**	**3**
Domestic production	**0.658**	0.134	0.059
Respecting nature	**0.636**	0.216	0.083
Living in the countryside	**0.626**	0.466	0.04
Controlling own life, own wellbeing	**0.561**	0.25	0.25
Continuing family farm	**0.406**	0.088	0.231
Independent work	0.213	**0.848**	0.068
Good quality work	0.31	**0.578**	0.161
Being able to get independent income	0.173	**0.542**	0.228
Better standard of living	0.174	0.088	**0.779**
Profit maximising	0.065	0.104	**0.715**
Economic profitability	0.156	0.183	**0.623**

Early phase farmers of Salo region did have somewhat similar objectives than the other two groups. They did appreciate less social and environmental aspects and work satisfaction than the others. On the other hand, the economic objectives were more important to them (table 3a). It was asked from farmers that how well they had achieved their strategic objectives. In general, farmers did not achieve their economic objectives (table 3b). In other aspects the farmers' views were more positive. Early phase farmers did indicate that their success in all different areas was weaker than other groups'. Early phase farmers did not achieve their economic objectives, but especially worrying is that many late phase farmers did indicate that their economic success was poor: this will affect both to the future successions and the current situation.

Table 3a. Strategic objectives (mean factor scores)

	Early phase	Middle phase	Late phase	p
Social and environment responsibility-objectives	-0,06	-0,02	0,04	
Work satisfaction-objectives	-0,24	0,12	0,06	*
Economic-objectives	0,15	0,06	-0,17	

*= p< 0.05, Kruskall-Wallis non-parametric test

Table 3b. Performance in different strategic objectives (sum variables)

	Early phase	Middle phase	Late phase	p
Performance: achieving social and environment responsibility-objectives	3.60	3.76	3.80	
Performance: achieving work satisfaction-objectives	3.56	3.74	3.87	*
Performance: achieving economic-objectives	2.79	2.89	2.94	

*= p< 0.05, Kruskall-Wallis non-parametric test

Development plans

In the last part of the study we analyzed how the development plans differ between phases did (table 4). In the survey it was asked from the farmers how they were going to develop their enterprise in the next five years. In nearly all aspects farmers in early phase were more eager to develop their farm that farmers in the other phases. The result is in line with the earlier findings on farm growth in entry stage (e.g. Weiss 1999). However, as shown in the figure 1, even farmers in the early phase didn't see development potential in most of the asked development paths. The most common development plans were somewhat traditional: introducing new production methods and increasing capacity or farm co-operation.

Table 4. Development plans (1 = very low probability to do this in my farm, 5 = very high probability)

	Early phase	Middle phase	Late phase	p
Finding more clients	2,85	2,36	1,9	**
Introducing new production methods	3,33	2,81	2,32	**
Introducing new logistic or channels	2,98	2,65	2,08	**
Increasing capacity	3,3	2,63	2,02	**
Increasing labour	2,36	1,87	1,51	**
Increasing co-operation with other farms or firms	3,05	2,58	2,01	**
Outsourcing/ buying more contracting work	2,73	2,13	1,83	**
New products/services	3,19	2,63	2,23	**
New production lines/lines of business	2,55	2,2	1,78	**
Succession	1,13	1,39	2,3	*
Re-focusing	2,01	2,12	2,56	**

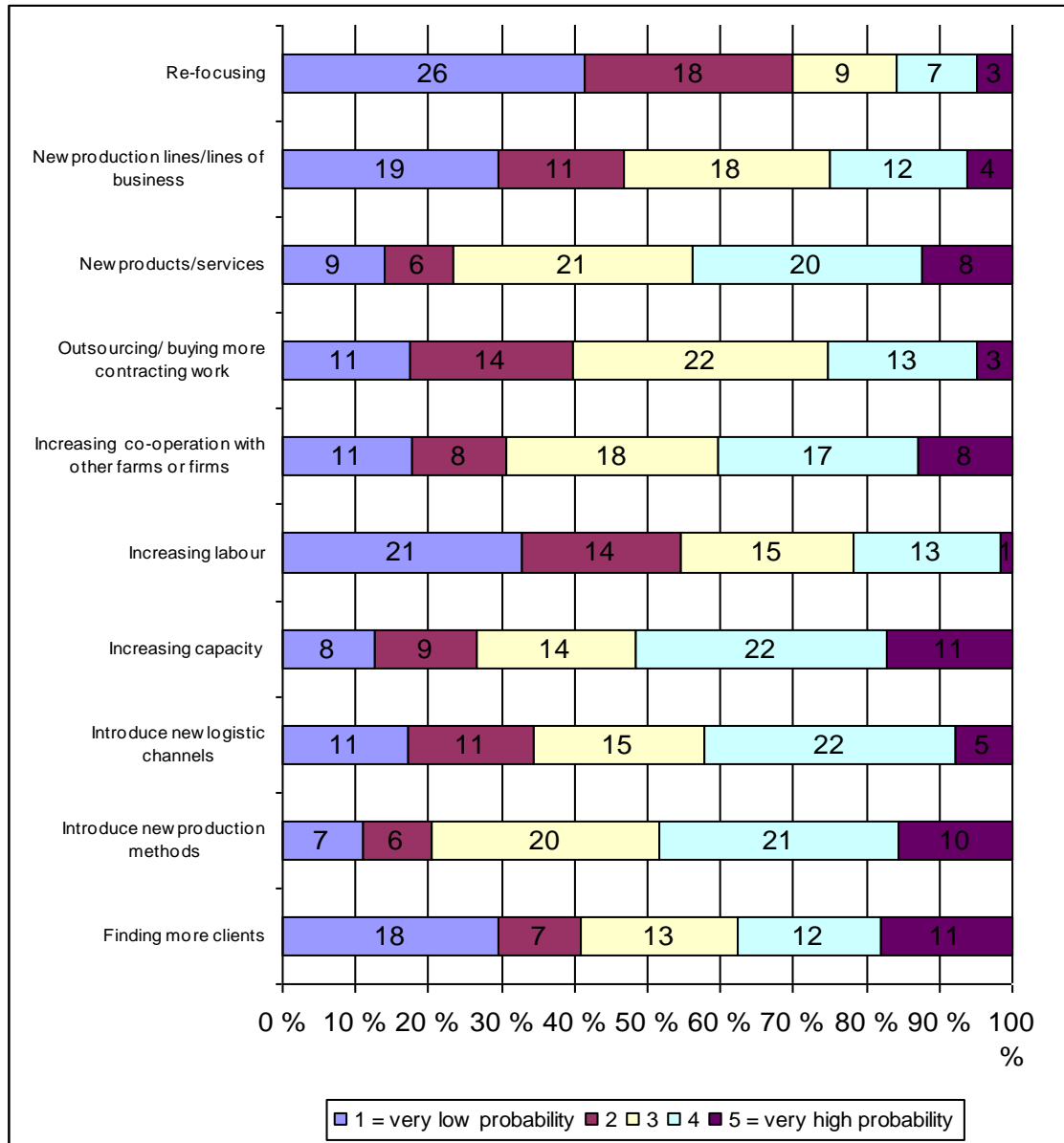*= p< 0.05, **= p< 0.01, otherwise Kruskall-Wallis non-parametric test

Figure 1. How farmers in the early phase were going to develop their farm in 2010 - 2015

The one worrying finding from this data was that many farmers in late phase did not have any development plans for their farm. We analyzed the late phase group a little bit further, and according to the data there were *no* differences between farms that were planning succession in next five years to those that were not planning it. The result is contradicting to the earlier findings of e.g. Gasson and Errington (1993) according to whom farm families with a successor have a constant intensive to develop their farms. Thus, an absence or presence of a successor may have more influence upon business objectives and farm performance than the farmer's age. Unfortunately, the existence of a successor was not asked in the questionnaire made here.

Finally, as there has been discussion about need for new practices and modes for action, we analyzed the farmers' opinions about networking and their networking skills (table 5). Results indicate that early phase farmers are better equipped in this field than older generations. Early phase farmers did value networking more highly than other groups, creating networks was easier for them and they also felt that they had better networks than the others. The result corresponds to the earlier findings of e.g. Goldberg (1996).

Table 5. Networking (scale 1 -5, 1 = strongly disagree, 5 = strongly agree)

	Early phase	Middle phase	Late phase	p
Networks are important to my enterprise	3,83	3,59	3,33	**
It is easy to create networks	3,06	2,74	2,67	**
At the moment my enterprises has good networks	3,45	3,12	2,93	**

**= p< 0.01, Kruskall-Wallis non-parametric test

4. Concluding remarks

The aim of this paper was to analyse how farmers that have recently started their farm enterprise differ from more experienced farmers in some key farm management areas such as farm and farmer characteristics, strategic objectives and development plans. Data were collected by postal survey (n = 237) from Salo region in South-Western Finland in November 2010. The data were analysed by using $\chi 2$ - test, Kruskall-Wallis test, explorative factor analysis and k-means cluster analysis. In the study, farmers were divided in to three different groups according to the farmer's age and experience; early phase, middle phase and late phase.

According to the results, early phase farmers are in certain areas better equipped than older generations. For instance in general they have better education and better networks than others. Like assumed, the farmers at the early phase have invested more and have more liabilities. Their farms are also less profitable than the others.

In Salo region, strategic management objectives were to some extent similar between entrepreneurial phases. However, farmers on the early phase did value economic objectives a little bit more and social and environment responsibility-objectives and work satisfaction-objectives little less than others. In general, early phase farmers considered their performance a bit weaker than others' when evaluating how the achieved the goals set.

Early phase farmers were the most active for developing their farms. The late phase farmers were the least active. Even the farms that were going to have succession within the next five years did not have other development plans. The finding contradicts the earlier literature. This is quite problematic from the point view of the successor, too, because if even the necessary investments have not been made, the each generation needs to make big investments straight after taking over the farm. Thus, it would improve the viability of whole farming sector, if the life cycle of the *farm* could be separated from the lifecycle of the entrepreneur (*farm family*) and farms were developed as continuum.

The results of this study support the earlier findings of the importance of networks on the entry phase of the firm or farm. Moreover, the younger entrepreneurs consider their networks in average more important than their senior colleagues.

References

Cuykendal, C., LaDue, E. & Smith, D.R. 2002. What successfull small farmers say. The results of a survey of successful small farm operators. R.B. 2002-01. Ithaca, New York: Agricultural Finance and Management at Cornell.

Diwisch, S., Voithofer, P. and Weiss, C. 2009. Succession and firm growth: results from non-parametric matching approach. Small Business Economics (1); 32: 45-56.

Gasson, R. & Errington, A. 1993. The Farm Family Business. CAB International. 290 p.

Goldberg, S.D. 1996. Research Note: Effective Successors in Family-Owned Businesses: Significant Elements. Family Business Review, vol. 9, no. 2: 185-197.

Hirvi, T.2004a. Aktiivitilojen viljelijöiden mielipiteitä investointituesta ja nuorten viljelijöiden aloitustuesta, MTT:n selvityksiä 79 (2004). 60 s. (In Finnish)

Hirvi, T. 2004b. Nuorten viljelijöiden tulonmuodostus ja työnkäyttö. MTT:n selvityksiä 65. 66 s. (In Finnish)

Kimhi, A. & Lopez, R. A Note on Farmers' Retierement and Succession Considerations: Evidence from a Household Survey. Journal of Agricultural Economics 50: 154-162.

Littunen, M., Storhammar, E. and Nenonen, T. 1998. The survival of firms over the critical first years and the local environment. Entrepreneurship & Regional Development, 10; 189-202.

Ondersteijn, C.J.M, Giesen, G.W.J. and Huirne, R.B.M. 2003. Identification of farmer characteristics and farm strategies explaining changes in environmental management and environmental and economic performance of dairy farms. Agricultural Systems 78: 31-55.

Rantamäki-Lahtinen, L. 2007. Hajauttamisen pitkän aikavälin vaikutukset monialaisilla tiloilla -vertailututkimus Suomesta ja Englannista. Julkaisussa: Juntti, L. ja Rantamäki-Lahtinen, L. 2007. Monialaisuus maaseutuyrityksen mahdollisuutena. MTT:n selvityksiä 145. 62 s. Available in internet. (In Finnish)

Väre, M. 2007. Determinants of farmer retirement and farm succession in Finland. Agrifood Research Reports 93. Agrifood Research Finland. 109 p.

Väre, M. 2010. Sukupolvenvaihdokset ja Lutu-järjestelmä. Julkaisussa: Maataloustieteen Päivät 2010. Suomen Maataloustieteellisen Seuran julkaisuja no 26. Toim. Anneli Hopponen. Available in internet: http://www.smts.fi (In Finnish)

Weiss, C.R. 1999. Farm Growth and Survival: Econometric Evidence for Individual Farms in Upper Austria. Amer. J. Agr. Econ. 81 (February): 103.116.

Quick Cluster

Initial Cluster Centers

	Cluster		
	1	2	3
age	16,00	54,00	59,00
entrepreneurial experience	10,00	42,00	11,00

Iteration History[a]

	Change in Cluster Centers		
Iteration	1	2	3
1	17,139	9,841	11,133
2	3,540	2,323	,699
3	,671	,748	,749
4	,511	,245	,439
5	,157	,000	,119
6	,000	,000	,000

a. Convergence achieved due to no or small change in cluster centers. The maximum absolute coordinate change for any center is ,000. The current iteration is 6. The minimum distance between initial centers is 31,401.

Final Cluster Centers

	Cluster		
	1	2	3
age	37,28	57,48	47,67
entrepreneurial experience	5,09	29,34	17,36

Number of Cases in each Cluster

Cluster	1	64,000
	2	93,000
	3	86,000
Valid		243,000
Missing		8,000

Communalities

	Initial	Extraction
Living countryside	,341	,377
Independent work	,525	,761
Independent work	,509	,607
Good quality work	,456	,463
Respecting nature	,259	,242
Being able to get independent income	,429	,524
Domestic production	,397	,456
Economic profitability	,484	,662
Continuing family farm	,376	,431
Better standard of living	,424	,443
Profit maximising	,356	,461

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor		
	1	2	3
Living countryside	,703	-,327	,078
Independent work	,670	-,302	-,470
Independent work	,632	-,050	,204
Good quality work	,627	-,161	-,209
Respecting nature	,584	-,207	,269
Being able to get independent income	,541	-,027	-,289
Domestic production	,534	-,206	,366
Economic profitability	,497	,427	-,030
Continuing family farm	,450	,036	,197
Better standard of living	,536	,612	,026
Profit maximising	,443	,571	-,047

Extraction Method: Principal Axis Factoring.

a. 3 factors extracted. 21 iterations required.

Factor Transformation Matrix

Factor	1	2	3
1	,653	,592	,472
2	-,330	-,339	,881
3	,682	-,731	-,025