

The innovation performance of small rural enterprises and cooperatives in Tehran province, Iran

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Abstract

Rural small enterprises especially those which are involved in processing and packaging food products play an important role in creating opportunities for employment and producing value added products in the agriculture sector. However, a major challenge for these enterprises is a lack of sustainability. In this research, innovation was examined as the key factor for sustainability of small rural enterprises. The findings show regional cooperatives perform better in terms of innovation compared to private enterprises. This advantage could be seen in both product/service and market innovations.

Key words

Rural enterprises, cooperatives, food processing, innovation performance, Iran,

Introduction

Throughout transition economies a series of major trends affect rural businesses and the lives of rural entrepreneurs. There is a growing demand not only for changes in food production techniques, but also in non-agricultural functions and services. In addition technological developments continuously re-define the nature of agricultural production. These shifts in production coupled with strong emerging new markets represent both severe pressures and new opportunities for rural entrepreneurs, requiring adaptation strategies, increased innovation, and entrepreneurship. Increased rural diversification is therefore seen as a necessary development.

Rural Business Support schemes and policies in Iran highlight a political will to increase entrepreneurship and diversification in rural businesses. Developing the entrepreneurial skills of rural enterprises is one of the priorities of Iran's Ministry of Agriculture and Food. (Ministry for Jihad-Agriculture, 2007). However, meeting these priorities, suggests Vik and McElwee,(2011) and McElwee (2006) requires regional government has knowledge of what constitutes rural based entrepreneurship.

The research question in the present study is therefore centred on the extent to which private enterprises and co-operatives in the Iranian Land-based food processing sector differ in their ability to engage in innovation: *To what extent is innovation a driving factor to make rural entrepreneurs successful?* We address this question through analysis of an Iranian dataset.

This study contributes to filling two significant research gaps. We highlight the highly fragmented pattern of entrepreneurial motivation behind different categories of rural business

innovation and we study how amongst rural enterprises in Iran, cooperatives can gain comparative advantage relative to private businesses in terms of innovation performance.

For a variety of reasons Iran is a special case. The conditions for agricultural production are difficult. Agricultural activities account for about 20 per cent of Iran's gross domestic product (GDP) and employ a comparable proportion of the workforce. In addition most farms are small, less than 25 acres (10 hectares), with a diverse arrondation and small-scale farm structure, and consequently many are not economically viable as farms. Many food producers are remote from urban centres that would provide “easy” markets. Farms are passed on from generation to generation meaning that there is still considerable pressure to “carry on the tradition”. Under these conditions entrepreneurial activity and innovative practice are difficult.

Compared to the EU, the Iranian government provides the agricultural sector with a lower level of subsidy coupled with a lower level of regulation of agricultural production and structure. Scarce resources and a small scale structure in the agricultural sector have always been seen as constraints on Iranian rural innovation and enterprise diversification.

It is against this context that the Iranian case is an interesting and relevant field for determining how economic motivations of rural entrepreneurs stand relative to alternative motivations. Although the structural and institutional features of the Iranian agricultural sector are unique, there are no reasons to believe that the rural entrepreneurs and their underlying motives are fundamentally different from elsewhere in the world.

The aims of this study are twofold. First, using empirical material from Iran, we aim to explore the multifaceted nature of, and drivers behind, farm based entrepreneurial activity by analysing the diversity and magnitude of motivations underpinning entrepreneurial activities in rural enterprises. Second, we elaborate on the relationship between types of innovative activity between cooperatives and private enterprises. To do this we empirically map out and categorise types of innovative motivation in the Iranian food sector.

The article is structured as follows. We begin by providing a literature review in which we clarify our definition of innovation and innovation performance for co-operatives and small businesses. Secondly we describe our methodology and discuss how survey data are used to evaluate differences in background variables and attitudes among rural entrepreneurs engaged in different forms of innovation activity. The unit of analysis in this paper is the small rural food processing enterprise. Finally we then offer some discussions, conclusions and recommendations for policy makers.

1. Review of the Literature

Innovation

The literature that addresses the increasing significance of innovation as an important tool in relation to entrepreneurial strategies has not been able to yield a widely held consensus regarding how to define innovation, (Blay-Palmer, 2002; Smith, 2010) . Innovation has a connotation of 'newness, success, and change' (Assink, 2006: p216) and can be defined respectively as 'the generation, development, and adaptation of an idea or behaviour, new to the adopting organization' (Damanpour, 1996:p694) or 'the first successful application of a product or

process' (Cumming, 1998: p22). With regard to change: 'innovation is conceived as a means of changing an organization, either as a response to changes in the external environment, or as a pre-emptive action to influence the environment' Damanpour, (1996: p694). In another view, Kumar et al. (2000), define innovation as something that is invented for the first time and is a commercial success. However, the concepts of innovation and invention have been widely distinguished in the literature (e.g. Trott, 2001 and Tidd and Bessant, 2005).

Schumpeter (1934), one of the first to analyse the concept of innovation, described it in relation to economic development as a new combination of productive resources. His work elaborated five specific cases: the introduction of new products, new production methods, exploration of new markets, conquering of new sources of supply and new ways of organizing business. Since then, the concept of innovation has evolved significantly over the last 75 years. During the 1930s and 1940s, innovation was considered to be a discrete development resulting from studies carried out by isolated researchers. Nowadays, innovation is no longer conceived as a specific result of individual actions, but more as the following:

- A process, more specifically, a problem-solving process (Dosi, 1982). An interactive process involving relationships between enterprises with different actors (Kline and Rosenberg, 1986)
- A diversified learning process. Learning may arise from different issues: learning-by-using, learning-by-doing or learning-by-sharing, internal or external sources of knowledge and the absorption capacity of enterprises (Cohen and Levinthal, 1990; Dodgson, 1991)
- A process involving the exchange of codified and tacit knowledge (Patel and Pavitt, 1994). An interactive process of learning and exchange where interdependence between actors generates an innovative system or an innovation cluster (Edquist, 1997)

According to Leeuwiss (2004) innovation requires (i.) the integration of ideas, knowledge, experiences and creativity from multiple actors; (ii.) innovation design is process of network building, social learning and negotiation; (iii.) multiple actors need to be brought together, mobilized and connected to each other, and (iv) innovation to be coherent, requires a package of new technical and socio-organizational arrangements.

What is clear is that, 'innovation embraces both a technological and a creative dimension that is normally referred to as an invention combined with a commercial dimension' Smith (2010: p6)

What is a cooperative?

The first type of enterprise, known generally as a co-operative or a mutual, is based on a common membership, e.g. workers or consumers or savers. The enterprise is owned by its members, who control it typically on the basis of one-member-one-vote (Somerville, 2007).

Social enterprises in contrast are perhaps better seen, as a hybrid of co-operative and non-profit forms: they are like co-operatives in being member-owned and controlled trading organisations, and like non-profits in having aims and objectives other than that of making money.

A community enterprise meanwhile can be defined as an enterprise whose social base lies in a community of some kind. Community enterprises can also be classified as social enterprises insofar as they are controlled by their members and have social as well as economic aims. As Hayton (1996) has said, they are controlled by people living within their area of benefit (the 'community'), and their surpluses (if any) are principally invested or used to benefit people

within that area (not necessarily the same people). Among community enterprises, one could also distinguish between 'community co-operatives' (Somerville, 2007: p6), where the emphasis is more on membership control, and what could be called 'community non-profits', where the focus is more on producing social benefits, particularly for the community. In the case of community co-operatives, Peredo and Chrisman (2006: 321) provide a good example of the self-managed community enterprise of Llocllapampa in Peru, where: 'pressures by the Peruvian government to convert the undertaking to a cooperative were resisted on the grounds that the natural resources of the community should be controlled and maintained by a body including all parties in the community.'

Cooperatives are user-driven businesses that have contributed greatly to the development of agriculture (USDA, 2002). The Centre for Cooperatives (2004) defines a cooperative as a private business organization that is owned and controlled by the people who use its products, supplies or services. Koopmans (2006) also defines a cooperative as a member-controlled association for producing goods and services in which the participating members, individual rural entrepreneurs or households, share the risks and profits of a jointly established and owned economic enterprise (Tefera, 2008).

Some aspects of managing a cooperative are similar to other comparable businesses. However some management issues are unique to cooperatives. Managing one requires a clear understanding of cooperatives principles, structure and operations (USDA 2002). For example research and development is capital intensive and financially risky. Cooperatives have limited

access to capital and are often adverse to assuming risk. These factors restrict their participation in some arenas (USDA, 2002).

Innovation in Small Businesses

Innovation has been regarded as a dependable way to generate long-term stability, achieve shareholder returns, maximize employee satisfaction, and stay at the forefront of the industry through attaining a sustainable position, Davis and Moe (1997), Cottam, et al (2001)

Despite the successful implementation of innovations, only a few companies have come to understand what is necessary for successful innovation. Shepherd and Ahmed (2000) maintain that the ways in which companies meet these challenges depends largely on the nature of the business they are in, the dynamic forces of the market in which they operate, and the resources and skills that can be applied to ensure their business objectives are met

Improved technology has been the key to the growth of commercial enterprises (USDA, 2002).

The purpose of this research was to determine the possible advantages of cooperatives relative to private enterprises in terms of the innovation performance of small food enterprises in rural areas of Tehran, Iran.

2. Methodological Approach

The approach used was mainly quantitative. The research was conducted with managers of cooperatives and small food producers in Tehran province, Iran in August 2010.

Findings from various studies show that the identification of variables that influence innovation efforts in SMEs and the way in which they exhibit influence it is still unresolved. Generalizations are difficult due to the complexity of the system; making it difficult to infer general rules that would hold across the board. One way to learn more about the determinants of innovation efforts in SMEs is to conduct a variety of studies under diverse economic conditions and in different geographical areas.

Accordingly, we chose a single province to be studied. The most recent formal national statistics published by the Statistic Centre of Iran, show that 27 per cent of all SMEs are working in Tehran province. Tehran is the capital of Iran and the development of SMEs started from Tehran in the recent decades, so it is in a stage of development to be studied.

Small scale manufactures in the food sector which have less than 50 staff and are located in rural areas must obtain two licenses from the Ministry of Agriculture (MoA); the first license is a permission for establishment (i.e. construction) and the other is for starting production. By the year 2009, 104 enterprises in the food industry had formally registered with the MoA in Tehran province, of which 60 enterprises were active at the time the research was conducted (2009-2010). The other 44 enterprises were not in business any more.

A two stage approach

A pre-test was conducted with 15 managers to determine the reliability of the questionnaire for the study. The Cronbach's Alpha score computed after deleting the high variance variables, was

acceptable for different parts of the questionnaire ($\text{Alpha} > 0.7$), which indicated that the questionnaire was reliable. Data were analysed using SPSS/Win software. Secondly we approached a number of potential respondents in small co-operatives and private enterprises. All of the enterprises operate in the food processing sector. This resulted in a total sample of respondents in this study of 111 managers (e.g. production managers, marketing managers, human resource managers and deputy managers) in 60 small size food enterprises in Tehran province who agreed to participate in the interview. Data were collected through questionnaires which were administered face-to-face.

The questionnaire was divided into several sections. Innovation was measured in six areas: product innovation, process innovation, marketing innovation, technological innovation, strategic innovation and organizational innovation. Respondents were asked to list their innovations in each of the six mentioned areas. In the next section respondents were asked about the source of the new idea. Finally respondents were questioned about how successful the firm had been in transforming the idea into a commercial product or service.

3. Findings

Of the 60 enterprises surveyed, 53 were private enterprises and 7 were cooperatives. Despite the small number of cooperatives, the strong point about cooperatives was that they were commercially viable, none of them having gone out of business at the time the research was carried out. The average age of the private enterprises studied was 7.6 years. Twenty-four enterprises (45.3 per cent) were deemed to be profitable in 2009/2010 by the owner managers, while the other thirty-six enterprises did not report any profit in the past 12 months. Of the

cooperatives in contrast, the average age was 8.1 years and four out of seven (57.1 per cent) were profitable during the last 12 months. About 20 per cent of the private enterprises had an R&D unit, 60 per cent employed some personnel who undertook R&D activities (classified as informal R&D), while the rest undertook no R&D activities. Most of the cooperatives (N=6) had informal R&D while none of them had formal R&D unit (Table 1).

Insert table 1

Fifty-eight per cent of managers had at least a bachelor degree from university and 23 per cent had not entered university. Of those managers who were university educated, 46 per cent indicated that their job was related to their education, while in 11 percent of cases, it was not related to their education. In other cases, their education was somehow related to their job. The average working experience of managers was 19.2 years.

There have been very few training courses for managers, and just 23 managers out of 111 interviewed, were found to have attended a training course. Between them they had attended a total of 36 training courses.

Managers of 55 enterprises reported innovation in at least one of the 6 areas. All of the cooperatives reported innovation. Among different types of innovation, the highest number of innovations was 117 cases for product and services and the lowest number was 35 cases of process innovations. Among the cooperatives, the highest number of innovations was in

products/processes. Seventeen cases of innovation were reported in products/processes. The least number of innovation cases was in the area of organization (n = 4). Table 2 shows the number of innovative enterprises and number of innovations in each of the six areas of innovation.

Insert Table 2

Respondents also were asked to determine the source of innovation ideas for each of the innovation cases they mentioned in their enterprise. The more diverse the source of innovation, the more capable the manager in managing innovation. Findings show that on average 70 per cent of ideas came from top management and 9 per cent came from a combination of top management and other staff. In other words, about 80 per cent of innovation was rooted in the innovative ideas of the top managers of the enterprises. In contrast in just over 20 per cent of cases, the ideas were from other potential sources.

The innovative performance was estimated by asking the respondents to rate the degree of success in transforming new ideas into innovation at the commercial level. Respondents were asked to estimate their success in transforming ideas into innovation in each case using a Likert 5-point scale (very successful to very unsuccessful). The sum of the given scores for each innovation was counted for each firm and the mean of scores for each type of innovation is presented in table 3.

Insert Table 3

Comparing the means of scores in cooperatives and private enterprises showed statistically significant advantage of cooperatives in two areas of product/ services and process innovation. Also cooperatives had better scores in marketing innovation and strategy innovation, although the difference was not significant. Private enterprises had a higher mean score in technology innovation and strategy innovation, but the difference were not significant.

Using regression analysis, the factors influencing the innovation performance of enterprises was studied. Enterprises' age had a significant influence on the innovation performance of both private enterprises and cooperatives; in private enterprises this affect was negative ($\beta = -0.537^{**}$) while in cooperatives, it was positive. The findings show that having an R&D unit, whether formal or informal was not a statistically significant influence on the innovation performance of cooperatives; while in private enterprises, having formal R&D had a significant negative influence on innovation performance ($\beta = -0.406^{**}$). Being profitable had a positive and significant influence on the innovation performance of both private enterprises ($\beta = 0.215^*$) and cooperatives ($\beta = 0.109^*$). The number of training courses which managers attended had a significant positive influence on the innovation performance of both cooperatives ($\beta = 0.420^{**}$) and private enterprises ($\beta = 0.204^{**}$).

Insert Table 4

5. Conclusions

Despite the small size of most rural enterprises in Iran, the study found a high proportion of both the private enterprises and cooperatives that formed part of this study were active in carrying out some form of innovation. More than 90 per cent of the 60 enterprises surveyed reported at least some innovation taking place within the enterprise. Product/service innovations were found to be the dominant form of innovation accounting for one third of the total while process innovations were the least common.

Perhaps not unsurprisingly, innovation was found to be largely a top-down process. The main source of innovation was top management. Senior managers and board directors were found to be the principal source of new ideas that led to innovations. As initiators of innovation they appear to operate largely in isolation with little involvement of other staff within the organisation.

A striking feature of the findings of the survey was the difference in innovation performance between private enterprises and cooperatives. Though intuitively one might have expected the individualistic nature of private enterprises to result in them being better at turning ideas into successful innovations, particularly given the top down nature of the innovation process, this was not the case. Rather it was the cooperatives that performed substantially better, certainly in terms of the dominant form of innovation, namely product/service innovations. Only when it came to technology and strategy innovations did private enterprises perform better than cooperatives.

Among the factors that were found to influence innovation performance, regression analysis revealed that for both types of enterprise, profitability and training were significant factors. Age too was significant but its impact might be described as perverse, for age had a significant positive impact on the innovation performance of cooperatives but for private enterprises it was not a positive but a negative influence. Hence one might conclude that the younger a private enterprise, the more innovative it is likely to be, while with cooperatives as age increases, innovation performance increases.

The influence and impact of research and development (R & D) was also surprising, as neither formal nor informal R & D had any significant positive influence on the innovation performance of either cooperatives or private enterprises, suggesting that as yet, R&D is not sufficiently developed in small rural enterprises to contribute to innovation.

6. Policy implications

These results have important policy implications for agricultural policy-makers in Iran. Firstly they suggest that cooperatives, as an economic institution, may have a particularly important part to play in the development and transformation of the agricultural sector. Given their relative success in conducting innovation, they would appear to be under-represented within the Iranian economy at present. Similarly it would seem that conventional approaches for stimulating innovation, such as increasing expenditure on R & D are unlikely to succeed and be a waste of valuable resources. More appropriate policy responses may be the provision of training facilities and programmes, and the creation of a conducive commercial environment that will ensure a high level of profitability for small food enterprises.

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Table 1. General characteristics of the studied SFIs

characteristics	Cooperatives (n=7)	Private (n=53)	Co. Total (n=60)
Average age (Years)	8.1	7.5	7.6
Profitable enterprises (in last 12 months)	4	20	24
Enterprises with formal R&D	6	6	12
Enterprises with informal R&D	0	36	36

Table 2. Innovation rate in the studied SFIs

Types of innovation	No. of innovations		
	Private Company (n = 53)	Cooperatives (n = 7)	Total (n =60)
Product/services	100	17	117
Process	30	5	35
Technology	43	7	50
Marketing	64	10	74
Strategy	37	5	42
Organization	38	4	42
Total	312	48	360

Table 3. Innovation performance of SFIs

Areas of innovation	Private companies (n=53)	Cooperatives (n=7)	Total (n=60)
Product/services	9.11	11.32	9.37
Process	6.07	8.9	6.4
Technology	5.73	5.32	5.68
Marketing	7.40	8.67	7.55
Strategy	6.26	6.08	6.24
Organization	5.47	5.52	5.48

Table 4. Factors influencing innovation performance

Factors	Innovative performance of private enterprises (Beta coefficients)	Innovative performance of cooperatives (Beta coefficients)
Firm characteristics		
Firm size	NS	NS
Firm age	-0.537**	0.218*
formal R&D	-0.406**	NS
Informal R&D	NS	NS
Profitability	0.215*	0.109*
Manager characteristics		
Education	NS	NS
Age	NS	NS
Experience	NS	NS
Training	0.420**	0.204**

P<0.05

: P<0.01