



The Need for a Strong Public-Private Linkage in Agricultural Extension System (Case Study: Sari Township, Iran)

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Abstract

Relationship between public and private sector is becoming an increasingly important issue in management of agricultural extension services. The need for a strong linkage could be identified as the gap between desirable and current situation. In this research, the differences among current and desirable situation in six diverse dimensions was calculated. The current and desirable situation was evaluated from the overview of two groups of experts in public (n=36) and private (n=59) sector in Sari township. The research instrument was a questionnaire which was filled during interviews. Reliability and validity of questionnaire was verified using Chronbach's alpha test and views of panel of experts respectively. Results showed that there is a need to reinforce the link between public and private extension, especially in case of organizational structure system. This study showed that, the linkage between decision making and planning system of extension system is inappropriate and should be improved.

Keywords:

Agricultural extension System, Private extension, Public sector, Linkage, Public-private partnership

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INTRODUCTION

Privatization of agricultural extension services was introduced because of diverse reasons in different countries. In Iran, the process of privatization was started because of some issues such as less efficiency and low quality of public extension services, lack of correspondence and coordination between training modules and clientele's needs, organizational and managerial limitations, less capability of managers in decision-making, increasing subsidies, and moving the qualified staff from public extension services (Toudeh-Rusta, 2004). However, previous studies on private extension in Iran show that there are still problems which hinder the fulfillment of primary goals of private extension services or make it impossible. Findings of previous studies show that problems in agricultural extension services are not solved if they are not enhanced in some aspects (e.g.: Behtash, 2006; Taromi, 2005; Masoud-nia, 2004; Rezvanfar *et al.*, 2007; Khatoonabadi, 2005; Dinpanah *et al.*, 2009; Sedighi and Baglarian, 2004).

The most important factor which brings forward this situation is the weak linkage between the public and private extension. Despite many studies on private extension in Iran, very few studies specifically and meticulously addressed the linkage between public and private agricultural extension.

Literature review shows that different factors affect the linkage between public and private extension. Results from research conveyed by Mengal *et al.* (2012) in Pakistan showed a considerable difference between public and private experts in terms of competency level and agronomic practices. Such differences have resulted in weak linkages between agricultural extension systems in two sectors. Similarly, Taromi (2005)'s findings showed differences among activities which are performed by each sector. The most important activity which was performed by private extension included holding training courses while it had very few activities in publishing magazines and producing radio and television

programs for farmers. Findings from Masoud-nia (2004)'s study in Azerbaijan province, Iran show that issues and activities in public and private extension are widely different. Problems in private extension included less ability of farmers to pay for services, inappropriate and insufficient training and organization of staff in private advisory firms, lack of scientific support by research, less attention of private sector to the national policies and weak linkages with agricultural education system.

Khatoonabadi (2005) in identifying extension experts' perspectives on privatization of extension in Isfahan showed that private extension services are more favorable for higher income farmers in comparison to lower income farmers. The main activities of private extension were services to manage pests, technical information, and mechanization, planting and marketing agricultural products.

In other countries, similar findings with some few differences were reported. For example, the research by Davidson *et al.* (2001), which was carried out in Pakistan to compare the effectiveness of extension services in public and private sector, showed that some of the programs in two sectors are similar and repetitive. In some programs two sectors compete with each other while in some others two sectors have disagreement.

One of the main reasons for weak linkage between public and private extension is the difference among their financial mechanisms. In fact, in many developing countries, private extension is dependent on public extension for financial reasons and as Swanson and Rajalahti (2010) suggest, they are not integrated at field level. Another issue which results in weak linkages between public and private extension is the top-down structure (Swanson, 2008). In this structure, public extension is in the highest place and private extension locates after that, while farmers are in the lowest position. According to Singh *et al.* (2013) participatory approaches will help to have strong public-private linkage in agricultural extension.

The alternative mechanism to strengthen pub-

lic-private linkage in agricultural extension according to Swanson and Rajalahti (2010) is to increase the financial and managerial skills of extension experts at field level. Extension system should change to a market-center and farmer-center system.

Reviewing the above mentioned literature, this study was conveyed with the purpose of understanding the gap between desirable and current situation of linkage between public and private extension services.

MATERIALS AND METHODS

This study was a quantitative research in which a survey design type was adopted. In terms of goal, it is an applied research since it aims at developing applicable knowledge in a special field and the results will be used in planning and decision making.

Respondents were extension experts in both public and private sectors in Sari township. In public sector, the number of extension experts amounted to 46 both at staff and line levels from whom 36 agreed to take part in this study. In private sector, the number of extension experts in agricultural advisory firms was 70 at the time

when research was conveyed (2013). Similar to the public sector, we tried to interview all experts. Fortunately, 59 experts were willing to participate in the study.

The research instrument was a questionnaire which was filled using interview method. Also during interviews, observation was used to gather complementary information. Validity of research instrument was confirmed using the panel of experts' point of view. In order to improve the reliability of research instrument, a pilot test was conveyed with 30 cases in Tehran and Cronbach's Alpha test was run and questions were modified so that the Alpha increased to 0.87 in average.

The SPSS/Win 18 software was used to recode and analyze the data. Descriptive statistics such as mean, max., min., percentage and frequency were used to describe the findings. Also inferential statistics such as Compare Means, t student, ANOVA, Duncan and Regression were used to identify the relationship and significant differences between variables.

The dependent variable was the need to strengthen the linkage between public and private extension. This variable was constructed

Table1: General characteristics of the studied extension experts

Characteristics		Public sector (N:36)	Private sector (N:59)
		Percent	Percent
Gender	Female	30	35
	Male	70	65
Age (Years)	Less than 30	2.8	22.0
	30-35	8.3	49.2
	35-40	44.4	28.8
	More than 40	44.4	0.0
Average age (Years)		43.85	33.08
Experience (Years)	Less than 10	11.1	88.1
	10-20	47.2	3.4
	More than 20	41.7	8.5
Average years of experience		18.78	5.81
Income (Thousand Tomans)	Less than 400	0.0	49.2
	400-800	11.1	40.7
	More than 800	86.1	6.8
Education level	Technician	5.6	0.0
	Bsc.	58.3	79.7
	MSc. and Ph.D.	30.6	20.3

Source: Current study

Table 2: Professional accomplishments of extension experts in two sectors

Characteristics		Public sector (N:36)				Private sector (N:59)			
		Mean	Mode	Min.	Max.	Mean	Mode	Min.	Max.
Articles	Number	1.97	0	0	15	1.32	0	0	14
Books		0.09	0	0	1	0	0	0	0
Brochures		0.55	0	0	1	0.44	0	0	5
Commitment to organizational goals	Likert	4.00	4	2	5	3.93	4	1	5
Collaboration with other institutions	scale	3.39	3	1	5	3.16	4	1	5
Collaboration with other sector	(1to5)	3.37	3	1	5	3.46	3	1	5

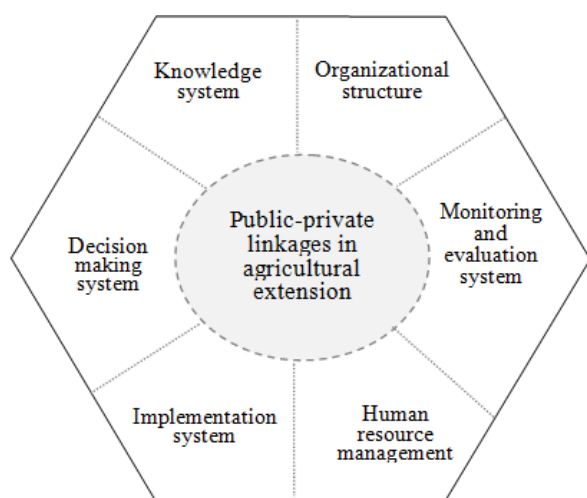


Figure 1: Components of linkage between public and private extension

using the sum up among the gaps between 6 dimensions of the linkage between public and private extension which were organizational structure, knowledge system, human resource management system, decision-making and planning system, program implementation system, and finally monitoring and evaluation system (Figure 1).

RESULTS

General characteristics

From the studied extension experts, 36 worked

in public sector and 59 were from private sector (Total: 95). About 30 percent of the public experts and 35 of private experts were female and others were male. Private experts were about 10 years younger than public experts. The average age of experts in public sector was 44 years while in private sector was it about 33 (Table1). Public expert's average years of experience was 19 years and private expert's average experience was about 6 years. There was a considerable difference among the work experience of public and private experts. This gap was more than the difference in their age. Generally, experts in private sector were younger and less experienced.

In terms of income, there was a considerable difference among public and private experts. According to the findings, about 90 percent of extension experts in private sector had a monthly income of less than 800 thousand tomans, while 86 percent of extension experts in the public sector had an income of more than 800 thousand (Table1). In terms of education level, there were differences between the two groups of experts. Although the percentage of the expert who had a BSc degree was higher in the private sector (about 80 percent), those who

Table 3: Current and desirable situation of different types of linkage

Types of linkages	Current situation	Desirable situation	t	df	P-value
Organizational structures	16.6632	26.4632	-14.718	94	0.00
Knowledge systems	12.1474	19.9684	-15.124	94	0.00
Decision making and planning systems	8.7447	15.9032	-15.112	94	0.00
Program implementation systems	13.3404	20.1702	-13.806	94	0.00
Monitoring and evaluation systems	9.8511	15.6915	-12.396	94	0.00
Human resource management system	8.8511	15.6277	-13.581	94	0.00

had Msc. degree were more in the public sector in comparison to private sector (more than 30 percent in comparison with 20 percent).

About 95 percent of the studied experts had one job and only 5 percent had another job. Two groups were more or less the same in this regards. In terms of family size, there was a significant difference between the two groups. About 50 percent of experts in private sector were single. The maximum size of family among them was 4. In public sector, about 22 percent of extension experts in public sector were single and maximum size of family was 5. The average number of family members of experts in public sector was 2.17 while in private sector it was 0.87.

Professional accomplishments

Regarding the determinants which was chosen to understand the professional or career performance in this study, experts in public sector had a better situation than experts in private sector, although both groups have a generally weak performance (Table 2). The weakness in professional performance of extension workers in terms of preparing brochures, articles and books, commitment to organizational goals, collaboration with other organizations, and collaboration with other sector (public or private) can be the result of their lack of motivation and lack of facilitations and equipments in the organization.

Linkage between public and private extension was evaluated by experts both in the current and

desirable situation. Different dimensions of structural linkages are mentioned in table 3. In each of the current and desirable situation, respondents were asked to choose one of the options in the 5-point Likert scale (From 1: very weak to 5: very strong). The need to strengthen the linkage was calculated as the gap between the current and desirable situation.

As the table 3 shows, there is a considerable and statistically significant difference between the current and desirable situation in all types of linkages. In order to visualize the amount of the gap between current and desirable situation, figure 2 is illustrated. As this figure shows, the less appropriate current situation is related to the linkage between human resource management systems. However, the biggest gap exists between the desirable and current situation of the organizational structures linkages.

The gap between current and desirable situation in each aspect of the linkages are explained in tables from 4 to 9.

The need to reinforcing linkages among public and private extension

The need to link the organizational structures of public and private extension

As table 4 shows, there are differences among the two groups of public and private experts in terms of the need to strengthen organizational linkage between the two sectors. In general, the need to reinforce organizational linkages in public sector was felt more than private sector (1.36

Table 4: The need for a stronger linkage between organizational structures

Types of organizational linkages	Private sector		Public sector	
	Gap	Rank	Gap	Rank
Integration in organizational procedures and policies	1.19	7	1.86	1
Correspondence between equipment and facilities in 2 sectors	1.66	1	1.74	2
Unity in command and labour division in 2 sectors	1.21	5	1.57	3
Coordination between organizational units and groups in sectors	1.27	3	1.5	4
Coordination between the expertise of staff in organization units	1.29	2	1.41	5
Coordination between organizational adjustments in 2 sectors	1.24	4	1.37	6
Coordination between organizational goals in 2 sectors	1.19	6	0.05	7
Total mean	1.29		1.36	

Source: Current study

Table 5: The need for a stronger linkage between knowledge systems

Types of linkage between knowledge systems	Private sector		Public sector	
	Gap	Rank	Gap	Rank
Scientific interchanges of both sectors with research	1.65	3	1.61	1
Collaboration in holding joint expert meetings	1.8	1	1.6	2
Constant exchange of knowledge and experiences	1.61	4	1.58	3
Collaboration in preparing scientific documents and reports	1.68	2	1.43	4
Collaboration in holding training courses	1.32	5	1.28	5
Total Mean	1.61		1.5	

Source: Current study

and 1.29 respectively).

From the public experts' viewpoint, the most important need to strengthen organizational structures was in "integration in procedures and organizational policies", while in private sector the most important need was in "Correspondence and balance between the two sectors in terms of equipments and facilities".

The need to link the knowledge systems of public and private extension

Table 5 shows the need to strengthen the linkage between the knowledge systems in two sectors. In general, the need to strengthen the knowledge system linkage in two sectors is rather the same (The total mean in private sector: 1.61; the total mean in public sector: 1.5).

From the public expert's point of view, the most important need for linkage improvement was in "linkage with research system". For private Sector, the largest gap among the desirable and current situation was in "holding scientific meetings at expert level". For the two groups, collaboration in holding training courses was the least important item for reinforcement. It is the

result of the fact that in current situation, the only collaboration between two sectors takes place in holding training courses.

The need to link the decision making and planning systems of public and private extension

Comparing means of the need to reinforce the six dimensions of linkages, we found that the need to reinforce linkages among decision-making and planning system is the most important need. The total mean of needs in public sector is more than private sector (1.87 in comparison with 1.73). However, the priority of each item was more or less the same in both sectors. From the viewpoint of public extension workers, the most important need was in decision making about "major changes". In private sector, this item was in the second rank. The next two important linkages which ranked 3 and 4 in private sectors were the fourth and third in public sector respectively. According to the means of needs, the least important need in both sectors was the need to improve collaboration among two sectors in communicating ideas for improving the processes (Table 6).

Table 6: The need for a stronger linkage between decision making and planning systems

Types of the linkage in decision making and planning systems	Private sector		Public sector	
	Gap	Rank	Gap	Rank
Collaboration in "decision making" about major changes	1.75	2	1.97	1
Collaboration in selecting best suggestions to improve processes	1.92	1	1.94	2
Collaboration in "planning" for change and improvement	1.57	4	1.85	3
Collaboration in providing ideas for change and improvement	1.68	3	1.72	4
Total Mean	1.73		1.87	

Source: Current study

Table 7: The need for a stronger linkage between implementation systems

Types of linkage between implementation systems	Private sector		Public sector	
	Gap	Rank	Gap	Rank
Collaboration in identifying methods for program implementation	1.28	4	1.46	1
Collaboration in providing the place for implementing programs	1.36	3	1.37	2
Collaboration in providing the needed hardwares and softwares	1.27	5	1.37	3
Collaboration in implementing programs	1.69	1	1.26	4
Collaboration in procuring equipment for programs	1.37	2	1.09	5
Total Mean	1.39		1.31	

Source: Current study

The need to link implementation systems of public and private extension

Reinforcing the linkage between the average need to strengthen the linkage among implementation systems in both groups of public and private extension experts are more or less the same (1.31 in public sector and 1.39 in private sector). In the public sector, collaboration in “identifying methods” for implementing programs is the most important item to be reinforced (Mean: 1.46). However, in private sector collaboration in the “implementation programs” is the first priority to improve. Usually, it’s public sector which identifies the methods for implementing programs. Private firms only implement those programs. This finding shows that each sector already felt the need to have the collaboration of the other sector in their current activities.

The need to link monitoring and evaluation systems of public and private extension

Generally, monitoring and evaluation is being done by public sector. According to the findings, experts in private sector are more willing to reinforce linkages between monitoring and evaluation systems (Total mean: 1.55).

Also, there is a difference between priorities of items in two sectors. The most important need in private sector was to reinforce collaboration in “giving feedback about programs”. While in public sector, as collaboration in “final evaluation of programs”. Final evaluations are merely the area of public sector at present. Findings show that private sector is willing to participate in preparing final evaluation reports.

The need to link human resource management systems of public and private extension

The considerable difference between current and desirable situation form the overview of private extension experts show the need to improve the coordination between two sectors in terms of human resource management system. Especially, private sector has enormous insufficiencies in motivating experts, improving their job position, training them and finally empowering them to participate in determining the organization’s goals and strategies (Table 8).

In private sector, correspondence between methods to motivate staff in two sectors was the top priority (Mean:1.94; Rank: 1). However, this item is the least important one in public sector

Table 8: The need for a stronger linkage between monitoring and evaluation systems

Types of the linkage between monitoring and evaluation systems	Private sector		Public sector	
	Gap	Rank	Gap	Rank
Collaboration in giving feedback about programs	1.83	2	1.46	1
Collaboration in monitoring programs while implementation	1.12	4	1.37	2
Collaboration in final evaluation of programs	1.89	1	1.37	3
Collaboration in determining indicators for monitoring and evaluation	1.34	3	1.26	4
Total Mean	1.55		1.39	

Source: Current study

Table 9: The need for a stronger linkage between human resource management

Types of the linkage between human resource management	Private sector		Public sector	
	Gap	Rank	Gap	Rank
Coordination in procedures of career improvement	1.73	2	2.00	1
Collaboration in training the staff	1.39	4	1.64	2
Empowering staff in 2 sectors to collaborate in identifying organizational strategies and goals	1.6	3	1.37	3
Correspondence between methods to motivate staffs in 2 sectors	1.94	1	1.26	4
Total Mean	1.67		1.39	

Source: Current study

Table 10: Factors which affect the experts' viewpoint on the need for a stronger linkage

Variable	B	Beta	Sig.	Model Summary
Constant	1.912			R=0.551
Gender	-14.09	-0.336	0.007	R Square=0.303
Age	0.660	0.275	0.029	Adjusted R
Commitment to organizational goals	7.969	0.251	0.046	Square=0.271

Source: Current study

(Mean:1.26; Rank:4). In fact, public sector has more options to motivate staff including monetary and non-monetary awards such as career improvement, appreciation letters from top-managers and so on. Every year, an evaluation program is conveyed in which staffs get promoted according to their activities.

For private sector, no career improvement is predicted for staff as years passes or as staff work better. In fact, private extension suffers from lack of motivation and career improvement opportunities.

Generally, the least important need to strengthen the linkages was observed in the "implementation phase". Because the linkages in this phase are already strong. The most important need was to reinforce the linkage between decision-making and planning systems of two sectors.

All these findings were resulted from experts'

Table 11: The difference between female and male extension experts' viewpoint on the need to have a stronger linkage

Variable	Mean	t	p-value
Female	44.00	2.008	0.048
Male	34.344		

Source: Current study

point of view. Obviously, different variables can affect staffs' perspective on the current and desirable situation. Therefore, in the next part of the article, factors which affect staffs' point of view and how they affect it are explained.

Factors influencing extension experts' perspective on the need to have strong linkage

The dependent variable in this analysis was the need for reinforcing linkages between public and private extension. This variable was constructed through summing up the need to reinforce the linkages between two sectors in each of the 6 aforementioned areas (Tables 3 to 8). Multiple regression model which was run using a step-by-step method showed that the variable gender was entered the model in the first step. The second variable was age and finally, commitment to organizational goals entered the equation.

The adjusted R² shows that about 27 percent of the changes in dependent variable is identified by the three mentioned variables (Table 9).

Since gender was the first variable to enter the equation and it had a negative direction, using the t student test we analyzed the difference between female and male extension experts perspective about the issue. As it was expected, t

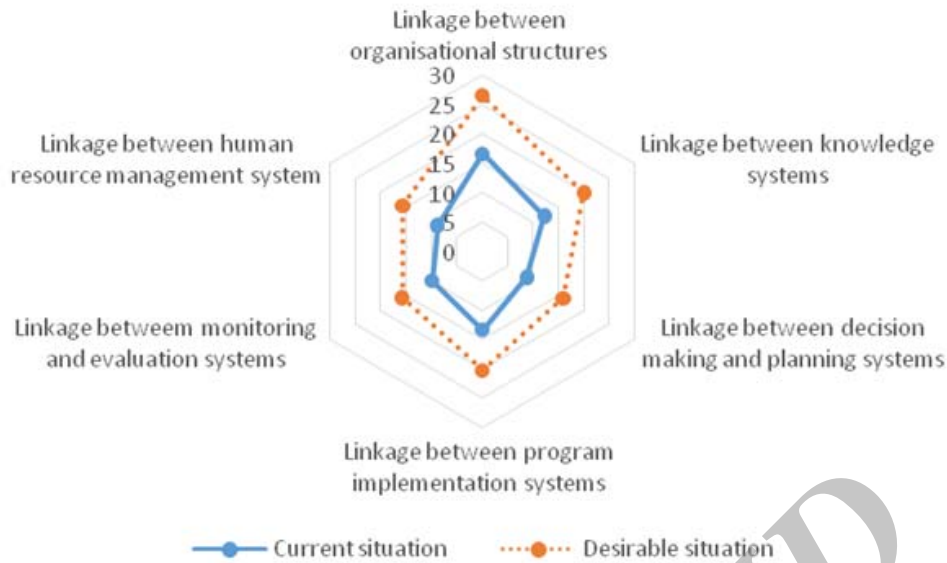


Figure 2: Desirable and current situation of linkage between public and private extension in Sari township
Source: Current study

test showed a significant difference between female and male expert's point of view (Table 10). The mean of the need to have a strong linkage was much higher among female experts (44.00 in comparison to 34.344).

In fact, female experts are more concerned about the need to have a stronger linkage more than the male experts. However, female experts are only about one-third of extension experts and mostly are not in the position of decision making.

Moreover as age entered the equation, we used ANOVA test to identify the difference between different age groups in terms of their viewpoint on the need to have a stronger linkage. According to the results, there was a significant difference among age groups ($F=2.59$; $Sig.:0.04$). Duncan test showed that experts who are more than 35 years old, identified a stronger need to reinforce the linkage between public and private extension.

CONCLUSION

The linkage between two types of private and extension experts was investigated in this research. Although this study benefited from the result of previous studies to state the research problem and establish a conceptual framework for study, this research was different from pre-

vious studies in some aspects. In this research the linkage between public and private extension systems was assessed in six dimensions of organizational structure, knowledge system, human resource management system, decision-making and planning system, program implementation system, and finally monitoring and evaluation system.

Findings show that the most important need to strengthen the linkages from the viewpoint of two sectors was in the field of organizational structures. Also the least appropriate current situation was observed in decision making and planning systems linkage. The study of Swanson and Rajalahti (2010) shows similar findings. In private sector, the most important need to strengthen linkage was in human resource management. Similarly, Masoud-nia (2004) found that one of the important problems in private extension was inappropriate system for training and employing experts.

The least important need to reinforce linkage was in program implementation system. In Pakistan, the result of the study conveyed by Davidson *et al.* (2001) showed that private extension in this country has very few coordination with public sector. The overlap between the implemented programs was considered as a problem in Pakistan. Fortunately, such problem does not

exist in Iran, because both public and private extension programs are managed by public sector. Although this top-down system has its special challenges for private sector and programs are planned without consultation and collaboration of private sector.

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