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Original Research

Which Social-Psychological Models Explain Rangers' Participation in Rangeland Management Cooperatives? An Application of Path Analysis

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ABSTRACT

The highly centralized management of rangelands in northwest Iran has caused their degradation. Rangeland Management Cooperatives (RMCs) have been taken into account by the Iranian researchers and practitioners as the best mode of managing and tackling these resources. In this regard, stakeholders' participation (i.e., the rangers) in such institutions is a substantial issue because without their close collaboration, any management scheme is likely to fail or succeed partially. Therefore, this study investigates the rangers' participation in RMCs using the theory-triangulation method. We developed the main research question: how the explanatory variables, extracted from the social-psychological models, influence rangers' participation in RMCs. A sample of 200 rangers participated in the survey method, of which we received 179 completed self-reported questionnaires. The reliability of the questionnaire was calculated using the Confirmatory Factor Analysis and Kuder-Richardson 21, the metrics that measure the consistency of items in indicator variables with the interval and binary scales, respectively. The results of path analysis unveil that job satisfaction and progressivism have a direct effect on participation, and the improved economic conditions of industries developed by the RMCs, good intrarelation, fatalism, progressivism, optimism, and cost-benefit indirectly influence participation via job satisfaction. On the basis of these results, it is concluded that to increase rangers' participation in RMCs, which is a key factor in preventing the degradation of rangelands, RMCs' officials need to improve the local industries benefiting from the rangelands and upgrade intracommunication skills via training. It is also suggested that all rangers, even those with fatalistic beliefs, need to be included in RMCs' participatory activities. Finally, it is needed to assess progressivist rangers' needs, promote optimism, and visualize the economic, social, and conservation benefits of the participation in RMCs.

Introduction

A poor understanding of the social aspects of utilization of rangelands limits their proper management (Dong et al. 2009) and decelerates the achievement of their sustainable development. Participation is a remarkable issue in environmental studies, policies, and schemes (Pellizzoni and Ungaro 2000; Franks and Mc Gloin, 2007; Lubell et al. 2013). Concentrating on the use of participatory approaches in natural resource management (NRM) started in the 1930s (Garforth and Maarse, 1988; Lyden et al. 1990). These approaches enable the public to take greater control on development schemes by improving local knowledge to solve regional problems (Pretty 1995; Zurba and Trimble 2014). This implies that problem cycle life is meaningless and vicious without involving the stakeholders in decision making (Brown 1995; Holmes-Watts and Watts 2008).

Given the degradation of rangelands in Iran (Ghasriani and Heidari Sharifabadi 2000; Ansari et al. 2008), researchers have regarded the socioeconomic factors that cause this crisis (Roudgarmi et al. 2001; Gheitori et al. 2006) and introduced the rangeland management cooperatives (RMCs) as the best way of managing the rangelands (Mohammadzadeh Chali et al. 2015). Rangelands in the Kurdistan province have an area of 1 400 000 ha, which produce about 620 000 tons of dry grass per year, and approximately 80% of the local animals depend on such rangelands (Jalali and Karami 2006). This province is one of the leading provinces in establishing the RMCs in the country (OAPCS 1996). With the establishment of these cooperatives, rangelands are assigned to the members. They are responsible for using, preserving, organizing the meetings of the general assembly, distributing the inputs (e.g., seed, bran, fertilizer, etc. among the members), controlling the entry and exit of the livestock (rangeland exclusion), collecting, buying and selling the dry grass, buying and selling surplus livestock, and sharing the acquired revenues among the members.

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There is a robust body of knowledge about the participation in NRM (Bagherian et al. 2009; Hayati et al. 2009; Dowlati and Hemati 2012; Lubell et al. 2013), but none of it presents a comprehensive model about the participation in the RMCs. Furthermore, the literature is full of the factors influencing employees' job satisfaction in the organizations (e.g., the effect of participation on job satisfaction), and therefore, there is little research relevant to the effect of job satisfaction on participation, especially participation in the RMCs. In addition to this, we hypothesized that whether or not new concepts (e.g., fatalism, progressivism, and optimism) explain participation in the RMCs. As a result, this study is intended to fulfill this knowledge gap using theory-triangulation, which focuses on the application of multiple professional perspectives to interpret a single set of data or information (Guion 2002). Therefore, the main objective of the study is to investigate what factors influence rangers' participation in RMCs.

Theoretical Framework

There is a broad knowledge about the participation models, depending on the context under study. For example, Thomas-Slayter (1995) points out three participation models: 1) People's Institutions (PIs), which aim at benefiting the people who have low access to resources, through institutions; 2) Community Development and Rural Mobility (CDRM), which stimulates local people to participate in development measures; and 3) Guided Participation in Large-scale Projects (GPLP), by which development outsiders and insiders contribute in designing, implementing, and evaluating the development schemes.

Mohr (1992) also offers four grand models of participation in the organization contexts: 1) the Socialist Theory Model (STM), which declares that the proletariats should govern the industries with high levels of their participation; 2) the Democratic Theory Model (DTM) (i.e., by training and practicing, a citizen is capable of finding whose competencies to perform the allocated tasks); 3) the Human Growth and Development Model (HGDM), in which more lower-level needs are satisfied—in effect, the higher supreme-level needs (e.g., self-actualization) are given much more attention to be fulfilled; and 4) the Productivity and Efficiency Model (PEM), which rests on the psychological and sociological theories and postulates that participation causes the greater productivity, owing to the appearance of a higher level of moral sense (e.g., job satisfaction, commitment to the organization).

As there are a large number of theoretical models of participation, therefore, we limit the conceptual framework for models, such as RBM, DM, JSM, and RCM.

Resource-Based Model of Participation

This model includes four external factors: 1) economic situation, 2) size of the union, 3) technology, and 4) social relations (Frege 1999; Shea and Green 2007). It assumes that people's participation in collective enterprises is the result of their demographic, psychological properties, but their structural characteristics (e.g., money, time, knowledge, information, skills) (Shea and Green 2007) also influence their participation.

Economic Situation

Union members' economic situation determines their participation behavior. For example, when economic crisis arises, members are motivated to participate in unions' schemes. In the case of RCMs, these unions can help rangers improve their economic situation. In research with the aim of investigating the impact of economic factors on womens' participation in production cooperatives, Aazami and Soroushmeher (2011) show that improved household economic situation is positively associated with their participation. Adhikari et al. (2014) report that access to resources and benefits from the resource governing community is a key influential incentive determining the effective participation of users in such community. Indeed, participation is linked with improved access to information and benefits, which is directly associated with the improved livelihood. Atmiş et al. (2009) assert that members' access to capital and credit affects their participation in forestry cooperatives. In this regard, the economic power of the poor is a key factor to increase their influence and participation in resource governance (Adhikari et al. 2014).

When RMCs improve the economic situation of the local region by developing infrastructures (Shemshad et al. 2011), such as small industries, members indirectly receive benefits from such organizations. At the same time, RMCs may directly benefit members by supplying financial facilities (e.g., loan, credit) (Jalali and Karami 2006; Shahraki et al. 2012). In this regard, members are likely to be job satisfied because monetary incentives link with job satisfaction (Taiwo 2016). In this situation, members play the roles of rational actors who weigh the benefits and costs (Frege 1999) of services delivered by the RMCs. In general, the cooperative's performance, which is the result of collaborative activities between members and components of the organization (Lisbijanto and Budiyanto 2014), may create job satisfaction for employees (Perez 2009; Sadighi and Darvishinia 2002). Therefore, we delivered the following hypotheses:

H1. The improved economic situation will be positively associated with (a) cost-benefit, (b) job satisfaction, and (c) participation in RMCs.

Size of Cooperatives

The size of an organization influences its members' participation in organization activities (Defourny and Dethier 2015). The literature shows a negative (Keith and Hilander 1964) and positive (Boynton and Elitzak 1982; Gray et al.,1990) association of the size of organization with members' participation. Gray et al. (1990), in his study investigating the factors affecting dairy farmers' participation in cooperatives in the United States, reports that positive relationships between farm size and participation are relevant to the type of economic participation-purchasing-marketing, whether the farmer or farmer-member benefits from the membership. The following hypothesis was delivered:

H2. Size of cooperatives will be negatively associated with participation in RMCs.

Intrarelations and Interrelations

Sayles (1958) debates that organizational technology includes personal relations, group cohesion, and power resources. It is assumed that group-based organizations are supportive of collective activities. Moreover, less organized persons are more reluctant to collective interests. Social relationships between managers and labors (e.g., managers' ability to communicate with staff and leadership of members' participation) are debated in models in this category. However, resource-based models may not account for variations in individual patterns of participation. Likewise, these theories do not explain why some people are more active than others (Frege 1999). Mirzaei et al. (2015) conclude that the social capital of cooperative board, as one of the aspects of intraorganizational factors, affects farmers' participation in rural production cooperatives (RPCs) in Boyerahmad Town, Iran. In the study on 147 farmer-cooperatives (FAs) in Zhejiang province, China, Liang et al. (2015) also demonstrate that there is a positive relationship between certain dimensions of social capital and members' participation in training and general meetings of the FAs. RMCs may create the atmosphere in which there exist appropriate relations among the members and board members (intrarelations), as well as suitable interrelations with exterior actors, and therefore this culture typically influences members' job satisfaction. Moreover, literature confirms the positive impact of good interrelations on job satisfaction (Tajvar et al. 2006; Zare Shah Abadi et al. 2012; Raziq and Maulabakhsh 2015). In the

absence of good interpersonal relations, the chance employees get dissatisfied will increase (Raziq and Maulabakhsh 2015). As such, the following hypotheses were proposed:

H3. Intra-interrelations will be positively associated with 1) job satisfaction and 2) participation in RMCs, and

H4. Interrelations will be positively associated with 1) job satisfaction and 2) participation in RMCs.

Demographic Model of Participation

Literature on participation in NRM shows that community members with higher income, often more educated, may be more likely to influence decisions compared with those who belong to marginalized segments of their community (Ortega-Pacheco 2007). Frege (1999) declares that activists with more participation are better educated and have greater occupational status, higher salaries, and full-time jobs. From the perspective of conservation, environmental concerns are strengthened in people with more age, income, educational attainment, and membership in community organizations, (Dalrymple 2006).

Age

Evidence from investigations (Pezeshki Rad and Kiani Mehr 2000; Dolisca et al. 2006; Erdogan et al. 2007; Atmiş et al. 2009) indicates that age is a determining factor in predicting farmers' participation. Hayati et al. (2009) have well documented the impact of rural people's age on participation in Natural Resources Conservation Programs (NRCP); farmers with higher age have lower participation in NRCP. Associated with participation in shoe-sewing cooperatives (Aazami and Soroushmeher 2011) and wheat cooperatives (Pezeshki Rad and Kiani Mehr 2000), evidence indicates that age is positively correlated to participation. We proposed the hypothesis as follows:

H5. Members' age will be positively associated with participation in RMCs.

Education

While some researchers report no linkage between education and participation (Hayati et al. 2009; Aazami and Soroushmeher 2011), others, for example, Jalali and Karami (2006), declare education predict rangers' participation in rangeland cooperative. Azizi Khalkheili and Zamani (2009) assert that educational background influences farmers' participation in irrigation management. Research conducted by Shahroudi and Chizari (2009) indicates that education can be a differentiating factor among farmers who participate in water cooperatives and those who do not. Atmiş et al. (2009) also declare that uneducated people tend to fulfill low-level needs from forests instead of more supreme level needs. As such, rangers with low educational attainment may have little tendency to participate in collective measures. We developed the following hypothesis:

H6. Members' educational attainment will be positively associated with participation in RMCs.

Fatalism

Fatalism is opposed to activism and remarks that individuals live in atomized societies that are constrained by routines and rules. In fact, external strong forces shape life destiny and constrain human choices in life (Billgren and Holmen 2008; Fattore and Tediosi 2013). Nature also does not give people any reliable feedback about whether they are doing things right or wrong (Hoogstra-Klein et al. 2012).

The concept of nature conservation is influenced by specific norms, values, and knowledge systems (Rodela 2012). Sustainability issues are usually narrowed down to individual survival, with a fatalist touch (Van Egmond and De Vries 2011). Fatalists assume that nature is capricious, strange, and always changing (Billgren and Holmen 2008). Fatalism leads to a loss of personal and societal freedom. Empirically, negative association of fatalism with participation is seen in a research conducted by Jalali and Karami (2006). Hidalgo et al. (2013) also conclude that people with a higher sense of fatalism have a lower level of involvement in collective activities to improve their world. In general, it is assumed that fatalism is a crucial obstacle for participation in collective measures of rangeland management.

Although the association of job satisfaction with fatalistic beliefs (less self-determination) is perceived to be spurious (Takahashi et al. 2014), literature indicates that a strong sense of self-determination is associated with less job strain and more job satisfaction (Gemmill and Heisler 1972). People with an external locus of control (fatalism) may exhibit a greater personal job effectiveness and job satisfaction (Barradell 2014). Therefore, we developed the following hypotheses:

H7. Fatalism will be negatively associated with 1) job satisfaction and 2) participation in RMCs.

Progressivism

Progressivism, which is affected by science and technology, is rooted in the philosophy of pragmatism and modernism and links democratic education with preparation of people for life (Hartman 2007; Pauley 2007; Ritzer 2007; Parce 2014). Progressive approaches are based on viewpoints that express people are able to think for themselves and direct their own destinies to acquire a greater good (Hartman 2007). Participation in collective activities is a good example of progressivism (Pauley 2007). It may be an incentive for people to learn more things in the scope of economics and conservation by interacting with other individuals. Therefore, progressivism deals with all areas of conservation and sustainability (White 2008; Washington, No date). If members benefit from economic advancements provided by RMCs, they are more motivated to participate in RMCs' conservation schemes. Aazami and Soroushmeher (2011) report that there is a positive association between economic incentives and participation in cooperatives. Huntsinger and Fortmann (1990) declare that small ranchers give the best response to educational programs because of the improved life situation by such schemes. People with high progressivism are typically against the people who have more fatalistic beliefs. Therefore, progressivism gives people a desire to have power and the ability to perform tasks and achieve goals. Literature on the association of progressivism with job satisfaction is scant. As such, we developed the novel hypotheses as follow:

H8. Progressivism will be positively associated with 1) job satisfaction and 2) participation in RMCs.

Optimism

There is little research about the impact of optimism on participation in RMCs. This property may be an incentive for rangers to participate in RMCs. Contrary to a pessimistic ranger, one with an optimistic vision for the future may more continually attempt to accomplish goals, especially when involving collective activities with promising mentality to satisfy the needs. In this regard, RMCs are communities in which members can work and yield personal and institutional goals as well. A high degree of optimism may create a considerable level of personal progressivism and therefore participation in RMCs.

Many investigations have explored the relationship between optimism and job satisfaction (Al-Mashaan 2003; Murphy 2014; Ahmed 2015). Al-Mashaan (2003) show that there is a positive correlation between optimism and job satisfaction. Murphy (2014) also reports that job satisfaction is positively associated with optimism and

negatively with pessimism. Two underlying concepts relevant to optimism are self-efficacy and happiness, which give an individual a belief that it is possible to complete tasks successfully and fulfill objectives (Goleman, 1996). Unlike the optimists, some people are more susceptible to adverse results of job pressures (Murphy 2014). Optimism is positive thinking that prevents people from becoming apathetic or giving up hope; they believe that things can only get better (Murphy 2014) if one thinks in a good manner about a given phenomenon. Seligman (1991) also believes that people with optimistic natures are more likely to feature negative events differently than those ones with a pessimistic style. Therefore, we developed the following hypotheses:

H9. Optimism will be positively associated with 1) job satisfaction and 2) participation in RMCs.

Technical Knowledge

Collaborating in resource governance may improve sustainable knowledge to solve regional problems (Zurba and Trimble 2014). Nevertheless, rangers have more or less technical knowledge about the RMCs' activities before they get involved in RMCs. This knowledge may affect rangers' participation in RMCs. Finsterbusch and Van Wicklin (1989) declare that the more people have technical skills and knowledge, the more they can participate in development schemes. To investigate the role of rural production cooperatives in improving the technical and economic situation in wheat farmers in Sabzavar, Iran, Pezeshki Rad and Kiani Mehr (2000) conclude that technical knowledge is a significant determinant of participation in such communities. In general, technical knowledge and learning give rise to flexible, effective, and efficient management of natural resources and participation shares knowledge and therefore facilitates learning in all stakeholders and quicker response to ecological changes (May 2012). Most studies about this theory do not measure the participation (Frege 1999). As a result, this theory has no explicit framework to focus on contribution of skills and abilities in participation (Shea and Green 2007). We proposed the following hypothesis:

H10. Technical knowledge will be positively associated with participation in RMCs.

Job Satisfaction Model of Participation

Better quality of work life leads to improved job satisfaction and expands cooperative efforts between employees and employers (Collins 2001). The relation between job satisfaction and participation is ambiguous. Although the impact of participation in decision making and collective measures on job satisfaction is clearly delivered in literature (Wright and Kim 2004; Bhatti and Qureshi 2007; Zohouri et al. 2008; Kalleberg et al. 2009; Zhu et al. 2015), there are few investigations about the inverse association. While studies show a positive association between participation and job satisfaction (Blyton et al. 1981; Motlaq et al. 2012) (i.e., people with more interest and activity may be satisfied with their own job compared with nonactive counterparts), others, such as Klandermans (1986) and Frege (1999), indicate that people with less job satisfaction have more participation in union activities. In general, there is ambiguity on job satisfaction as a causation of participation, as well as a consequence (Frege 1999).

To investigate what level of participation improves the quality and acceptance of decision making in NRM, Lawrence and Deagen (2001) apply the Vroom-Yetton Model and conclude there is a considerable connection between job satisfaction and participation in decision making relevant to NRM. The effect of job satisfaction on participation can be relevant to the concept of alienation. When people are not satisfied with their jobs, they may feel alienated from the job itself and its consequences. Gholipour (2005) declares an alienated person cannot see herself or himself stuck to the job and cannot flourish her or his talents. In this case, the job is perceived as an external object so that the person does not belong to it. This theory does not explain how dissatisfied people are motivated and why they prefer one form of participation over another (Frege 1999). The following hypothesis was developed:

H11. Job satisfaction will be positively associated with participation in RMCs.

Rational Choice Model of Participation

The theory of rational choice can explain participative behavior (e.g., voting as the result of economic interests, Soares and Burni 2013), participating in extension programs (Rodrigo 2012), and community involvement (El Ansari and Phillips 2004). Participation in RMCs may be explained by theories (e.g., Olson theory and Klandermans' Value-Expectancy Theory), positing that individuals are rational actors (i.e., they make judgments about potential costs and benefits of various lines of an action and therefore demand the profit maximization) (Salazar and Lee 1990; Frege 1999). They will participate in collective activities only if they perceive more outcomes rather than costs. Community involvement is associated with high benefits and mostly with low costs (El Ansari and Phillips 2004). Barling et al. (1992) also believe that people will participate in collective activities if they want to make the inputs and produce the fruitful goods. An increase in community involvement is initially associated with decreased costs and increased satisfaction and utilization (El Ansari and Phillips 2004). Cooperatives may have different results; as a result, they affect the mode through which people understand such institutions. For instance, while cooperatives have a negative effect on adoption of technologies with fixed cost, they have a positive effect on participation in voluntary activities (e.g., agricultural extension programs) (Rodrigo 2012).

This theory has constraints (e.g., it explains the emergence of a collective episode without specifying the social contexts). In addition, this theory does not really investigate the causes of behavior. In general, the causal linkage between cost-benefit evaluations and incentive to participate in RMCs is not clear. Rational choice theory also remarks that people make decisions with the greatest benefit, utility, or satisfaction and the highest self-interest (Levin and Milgrom 2004). If RMCs' members weigh the benefits and costs of jobs they perform and find the benefits overweight than costs, they are more likely to be job satisfied and, therefore, they increase their participation in RMCs. The following hypotheses were delivered:

H12. Cost-benefit will be positively associated with 1) job satisfaction and 2) participation in RMCs.

Using theory-triangulation, this research is intended to investigate the determinants of rangers' participation in RMCs. Research objectives are also the following:

1. To examine the consistency of the indicator variables on latent factors relevant to RBM, DM, JSM, and RCM.
2. To investigate direct and indirect relationships among the explanatory variables (RBM, DM, JSM, and RCM) and criterion variable (rangers' participation in RMCs).
3. To explore mediation associations among the explanatory variables (RBM, JSM, DM, and RCM) and criterion variable (rangers' participation in RMCs).

Figure 1 shows the conceptual framework of the study. Figure 2 also indicates an analytical framework for the determining factors that affect rangers' participation in RMCs.

Material and Methods

Research Area and Population

This study is based on survey technique with nonexperimental data in nature. We surveyed RMCs with 3yr of experience protecting the

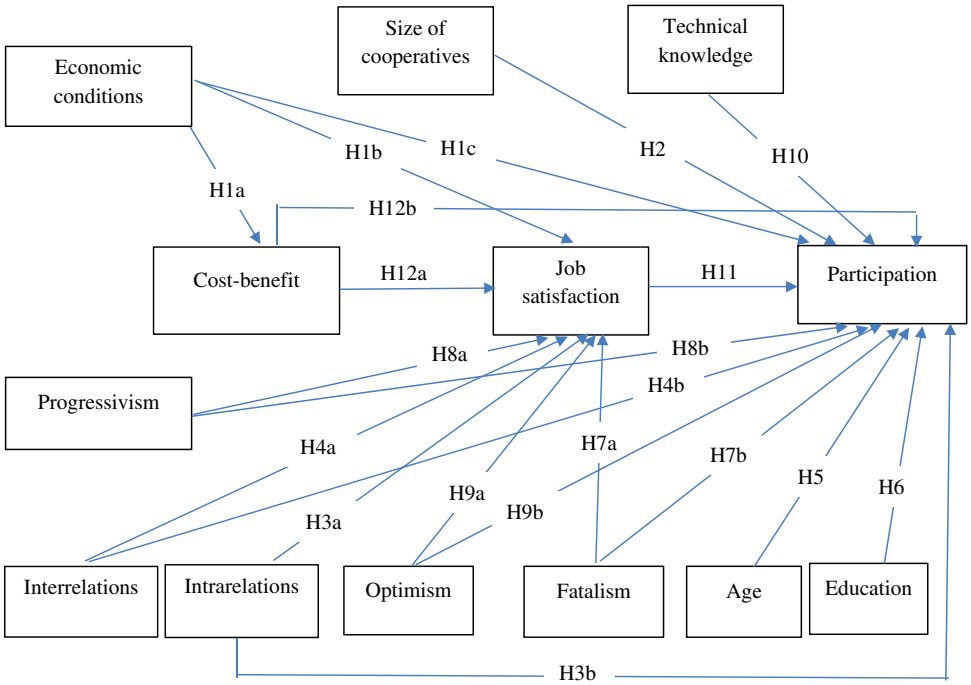

Figure 1. Hypothesized model.

rangelands in eight areas of Kurdistan province, Iran. The number of RMCs was 26 with 1 120 members who formed the research population. As such, we determined 200 members of the population as the sample size using the Cochran formula. By using the simple random method, 15 — 20% of members at each RMC were asked to complete the questionnaires. Before conducting the main research, a panel of specialists confirmed face validity of the questionnaire. In addition, the reliability of questionnaires' indices was estimated by initially performing a pilot study and subsequently by conducting a Confirmatory Factor Analysis (CFA). The results were reported in the form of Cronbach's Alpha (α = 0.55– 0.95). Pearson correlation and path analysis were specific statistical analyses used in the study.

Explanatory and Criterion Variables

After adapting the theories in the context of RMCs, we extracted concepts from RBM (e.g., perceived economic situation, size of RMCs, intrarelations, interrelations). Perceived economic situation (α = .64) was measured by the four items in a 5-point Likert scale from 1 "very low" to 5 "very high." The number of members affiliated in RMCs represents the size of RMCs. Rangers' intrarelation (α = .78) and interrelation (α = .78) with NRM specialists were gauged by the three and five items, respectively, and measured on a 5-point Likert scale from 1 "strongly disagree" to 5 "strongly agree." We also selected age, education, progressivism, technical knowledge, fatalism, and optimism from DM. We operationally measured age by rangers' chronological age and education from the educational years that rangers have attained. In addition, progressivism (α = .57) and technical knowledge (α = .79) were measured by the four and five items, respectively, measured on a 5-point Likert scale from 1 "strongly disagree" to 5 "strongly agree." Fatalism (R_{KR21} = .97) was also measured by eight items in the form of a binary scale (yes/no). Optimism (α = .55) was measured by the four items on a 5-point Likert scale from 1 "very low" to 5 "very high." Furthermore, job satisfaction (α = .64) and cost-benefit (α = .86) were measured by the three items, on a 5-point Likert scale from 1 "strongly disagree" to 5 "strongly agree." Likewise, 13 items measured the participation indicator (α = .95) on a 4-point Likert scale from 1 "strongly disagree" to 4 "strongly agree."

Data Analysis

The SPSS (version 15) was used to evaluate and analyze data, and the AMOS 22.0 was applied to perform the statistical evaluation of results in path analysis (PA).

Results

Confirmatory Factor Analysis (CFA)

We analyzed data from 179 questionnaires. At the beginning of the analysis, we evaluated the internal consistency of indices to yield a convincing value for Cronbach's alpha. To improve the reliability, we conducted CFA and "removed the items with low consistency" to yield the highest value of the Cronbach's alpha. Table 1 shows the factor loadings (regression coefficients (Morrison 2009) in CFA models for RBM, DM, JSM, and RCM. As fatalism was measured on the basis of the binary scale, we calculated the Kuder-Richard 21 for this concept.[1] Although the sample size is quite low (n = 179), the measuring models have an acceptable fit. As such, fit indices for RBM are chi-square = 325.46, df = 213, P < 0.001, CMIN/df = 1.58, RMSEA = .05, CFI = 0.94, NFI = 0.84, TLI = 0.92, IFI = .94, and *P*close = .26 and for DM are chi-square = 299.30, df = 185, P < 0.001, CMIN/df = 1.62, RMSEA = .06, CFI = 0.93, NFI = .84, TLI = .90, IFI = .93, and *P*close = .12. Fit indices of JSM are also chi-square = 125.15, df = 69, P < 0.001, CMIN/df = 1.81, RMSEA = .07, CFI = .95, NFI = .91, TLI = .93, IFI = .95, and *P*close = .06. Finally, fit indices for RCM include chi-square = 142.44, df = 67, P < 0.001, CMIN/df = 2.13, RMSEA = .08, CFI = .95, NFI = .92, TLI = .93, IFI = .95, and *P*close = .05. Comparative fit index (CFI) > 0.90, Tucker-Lewis index (TLI) > 0.90, Root Mean Square Error of Approximation (RMSEA) < .10 (Browne and Cudeck, 1993; Hair et al. 2006), IFI > .90 (Schreiber et al. 2006), and NFI > .80 (Li 2016) are acceptable values. We also calculated the convergent validity (i.e., AVE) and internal consistency (i.e., construct reliability

[1] We calculated Kuder-Richardson 21 with the following formula: $r_{KR21} = \frac{K}{K-1}\left(1-\frac{Mean(K-Mean)}{K(\delta^2)}\right)$, where k is the number of items, mean of 0.48, variance of 3 and 8 items.

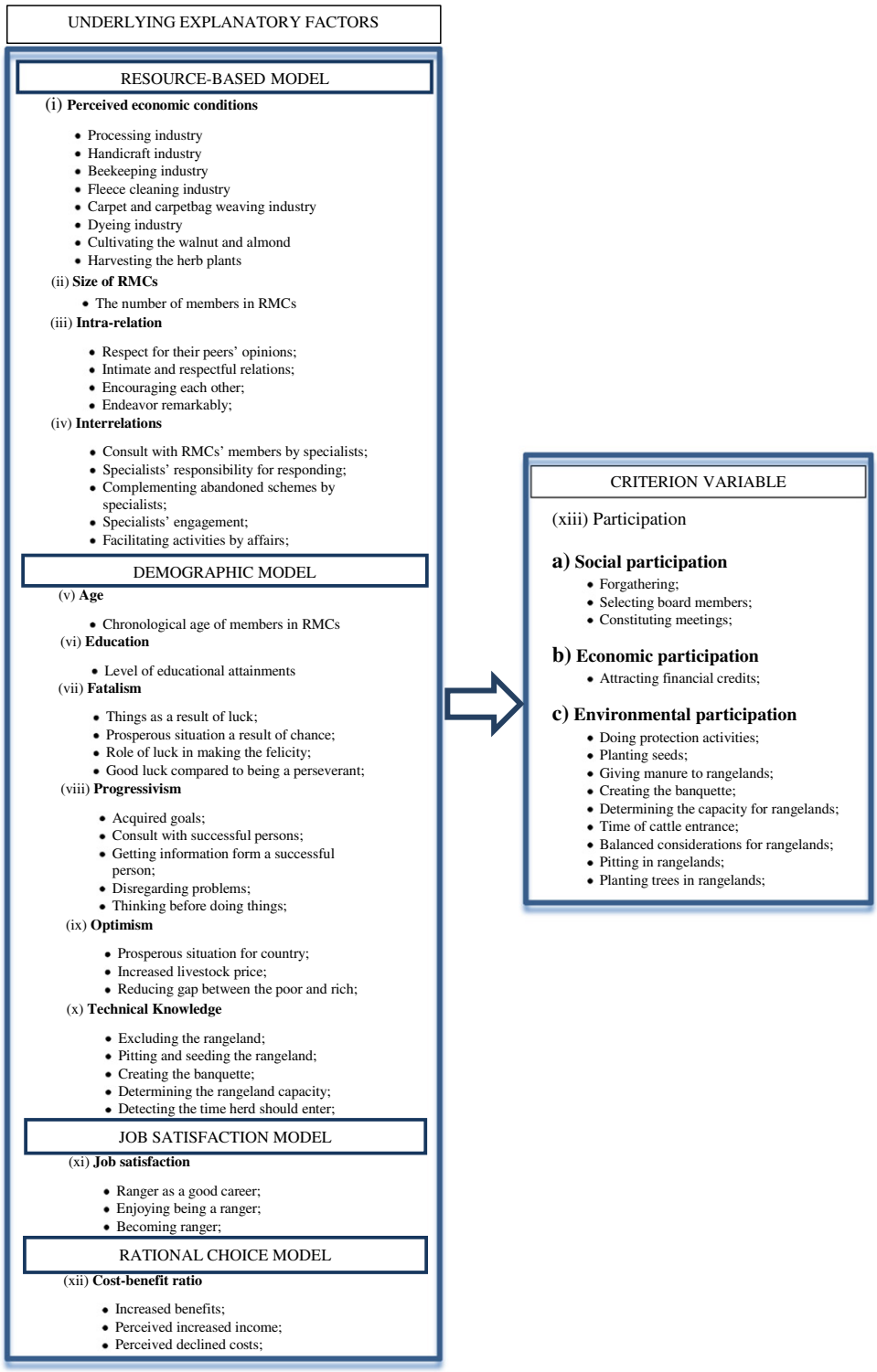

Figure 2. Analytical framework for the determining factors affect rangers' participation in RMCs.

[CR])[2]. The results related to Average Variance Extracted (AVE) and CR for variables are the following: participation (AVE = .37; CR = .85), economic condition (AVE = .37; CR = .64), intrarelation (AVE = .80; CR = .58), interrelations (AVE = .43; CR =.79), progressivism (AVE = .25; CR = .58), optimism (AVE = .18; CR = .52), technical knowledge (AVE = .28; CR = .66), job satisfaction (AVE = .26; CR = .51), and cost-benefit (AVE = .55; CR =.78). All values of CR and AVE are acceptable.

[2] As the AVE and CR are not delivered by the AMOS 22.0, as a result, we calculated them using the following formulas: $AVE = \frac{\sum_{i=1}^{n}(\lambda i)^2}{\sum_{i=1}^{n}(\lambda i)^2+\sum_{i=1}^{n}(\sigma_i)}$, where λ is the standardized factor loading and *n* is the number of items, $CE = \frac{\sum_{i=1}^{n}\lambda^2}{(\sum_{i=1}^{n}\lambda i^2)+(\sum_{i=1}^{n}\sigma^2)}$ where (σ) represents error variance of items. The threshold for these indices are CR > .07, AVE > .05, and CR should be more than AVE (i.e., CR > AVE) (Brinckmann 2008).

Links Between Explanatory and Criterion Variables Using Path Analysis

Before performing the PA, we checked the hazard of high associations among the explanatory factors—multicollinearity—because of its

Table 1
Reliability of research indices using Confirmatory Factor Analysis.

Paths	Factor loadings	Removal
Participation ($\alpha = 0.95$)		
How often RMCs' members convene a) 15 days; b) 30 days; c) 30-90 days; d) 90-150 days; e) Above 150 days	0.74	N
How you select RMCs' board members a) Administrative institution selects; b) I voted literally; c) I am reluctant to vote; d) Consulting with persons; e) I was a candidate for being a member in RMCs	0.77	N
Trying to receive governmental monetary resources for developing RMCs	0.61	N
Engaging in establishing the meetings, conventions and distribution of inputs	0.69	N
Getting involved in rangeland protection activities, e.g., rangeland exclusion	0.64	N
Involving in planting the seeds in rangelands	0.73	N
Cooperating in spreading the manure and fertilizers to the rangelands	0.60	N
Taking part in building the banquette	0.60	N
Engaging in detecting the rangeland capacity for grazing	0.72	N
Determination of the time herd goes into or out the rangelands	0.76	N
Designing policies to take the balanced considerations about rangelands	0.81	N
Getting involved in pitting the rangelands	0.64	N
Engaging in planting trees and bushes in rangelands	0.75	N
RESOURCE-BASED MODEL		
Perceived economic conditions ($\alpha = 0.64$)		
How much RMCs provided or improved the following issues		
Processing industry	0.41	N
Handicraft industry	0.68	N
Beekeeping industry	0.47	Y
Fleece-cleaning industry	0.19	Y
Carpet and carpetbag weaving industry	0.02	Y
Dyeing industry	0.42	N
Cultivating the saplings of walnuts and almonds	0.52	N
Harvesting herb plants	0.66[a]	Y
Intrarelations ($\alpha = 0.78$)		
RMCs' members respect other peers' opinions	0.82	N
RMCs' members behave intimately and respectfully together	0.91	N
RMCs' members have a friendly relation together	0.26	Y
RMC's members encourage each other in RMCs' environment	0.50	N
RMC's members endeavor to do things in RMCs	0.34	Y
Interrelations ($\alpha = 0.78$)		
Natural resources personnel consult with RMCs' members before starting any measure	0.07	Y
Natural resources personnel' consultation-based actions are explicitly seen in practice	0.72	N
Natural resources personnel have accountability to respond and meet the RMCs members' needs	0.62	N
Natural resources personnel are the complementary of the abandoned schemes	0.20	Y
Natural resources personnel are individually active in doing activities	0.61	N
The natural resources personnel are an incentive for the RMCs' members to engage in activities	0.34	Y
Natural resources personnel are as the pragmatist guys	0.29	Y
Natural resources personnel are the encouraging of the members	0.68	N
Natural resources personnel facilitate the affairs between the natural resources office and RMCs	0.64	N
$x^2 = 325.46$, df = 213, $P < 0.001$, CMIN/df = 1.58, RMSEA = 0.05, CFI = 0.94, NFI = 0.84, TLI = 0.92, IFI = 0.94, *P*close = .26		
DEMOGRAPHIC MODEL (DM)		
Fatalism ($R_{KR21} = 0.97$)		
Most of things which humans attain is the result of their own luck	---	N
The improvement of rangers' life situation is a consequence of their chance	---	N
Luck does not make impact on happiness*	---	N
If someone makes an attempt, he or she will dominate any obstacle in doing things*	---	N
The lucky person has a better life situation rather a perseverant person	---	N
Fate is a determinant of future of life rather than endeavor	---	N
Being lucky is better than having perseverance	---	N
Being lucky is better than being clever	---	N
Progressivism ($\alpha = 0.57$)		
I have achieved my goals very much in my life	0.57	N
The considerable persons consult with me about their works	0.16	Y
People refer to me to receive their information	0.54	N
A considerable number of people in society make attempts to improve their living conditions	0.45	N
Neglecting the problems is the best way to solve them*	0.25	Y
Before starting doing work, I carefully think about that	0.31	Y
I rashly do the works without deliberation and thinking*	0.50	N
Optimism ($\alpha = 0.55$)		
To what extent do you perceive that prospective situation of country will be better than now	0.29	Y
To what extent do you think that country will have better conditions in the future	0.35	Y
To what extent do you imagine that price of livestock (your product) will increase in future	0.55	N
To what extent do you perceive that government will control the gap between the rich and poor	0.80	N
Technical Knowledge ($\alpha = 0.79$)		
I have enough information about banning the rangeland for entering the herd of livestock	0.50	N
I am informed about pitting and seeding the rangeland to gather the surface runoff	0.67	N
I am aware of constructing the banquette in the rangeland	0.76	N
I have enough information about determining the rangeland capacity to be consistent with the number of grazing animals	0.60	N
I know what time the cattle or the grazing herd should go into or out the rangeland	0.53	N
$x^2 = 299.30$, df = 185, $P < 0.001$, CMIN/df = 1.62, RMSEA = 0.06, CFI = 0.93,		

Table 1 *(continued)*

Paths	Factor loadings	Removal
NFI = 0.84, TLI = 0.90, IFI = 0.93, *P*close = .12		
JOB SATISFACTION MODEL		
Job Satisfaction (α = 0.64)		
Rangeland management is an example of a good job	0.23	Y
When I am in rangeland, I feel reluctant to do rangeland activities*	0.21	Y
The attendance rangeland environment is enjoyable for me	0.26	Y
If I find opportunities, I will change my job*	0.42	N
Involving rangeland management is the last resort*	0.46	N
I like my children will become a ranger in the future	0.25	Y
I like my children go to the city to have a favorable life*	0.34	Y
If I find opportunities, I will permanently migrate to the city*	0.90	N
x^2 = 125.15, df = 69, P < 0.001, CMIN/df = 1.81, RMSEA = 0.07, CFI = 0.95, NFI = 0.91, TLI = 0.93, IFI = .95, *P*close = 0.06		
RATIONAL CHOICE MODEL		
Cost-benefit ratio (α = 0.86)		
The collaborative activities have resulted in benefits for me	0.73	N
Establishment and constitution of RMCs have increased my income	0.77	N
Establishment of RMCs has decreased my costs	0.78	N
x^2 = 142.44, df = 67, P < 0.001, CMIN/df = 2.13, RMSEA = 0.08, CFI = 0.95, NFI = 0.92, TLI = 0.93, IFI = 0.95, *P*close = .05		

The items that have asterisks have been recoded. All the items were measured in a 5-point Likert's scale except participation. [a]Regression weight is relatively high, but we applied "scale if item deleted." This improved the Cronbach's alpha for an index of perceived economic conditions. "Y" in 'Removal" means we deleted a given item with no better value for "factor loading" and "N" represents inversely, that is, it means that only indicators with "N" are used in further analyses.

ability to corrupt the prediction of the criterion variable (Field 2013). To do this, we evaluated the Inflation Factor of Variance (IFV). Consequently, values < 10, which are an indication of risk, were deleted. Furthermore, the risk of singularity did not threaten the analysis due to the lack of a singular independent variable in the regression model (Pallant 2001). By checking the correlations among the predictor factors using the Pearson coefficient, which has the lowest standard error compared with other kinds of correlation coefficients (Gall et al.,1996), it was unveiled that there is no risk of high association.

Table 2 also indicates the associations among the independent variables and dependent variable (participation in RMCs). There is a positive and significant correlation between participation and intrarelations (r = .13, P < 0.05). There is also a negative association between participation and progressivism (r = .31, P < 0.05), job satisfaction (r = .36, P < 0.05), cost-benefit (r = .22, P < 0.05), and optimism (r = .16, P < 0.05). We furthermore evaluated the effect size of each predictor variable on participation. The effect size is defined as an objective value of an impact (Field 2013). As such, the correlation coefficient of .10 explains 1% of the variance in the dependent variable (small effect size). The correlation of .30 explains 9% of variation of a dependent variable (moderate effect size), whereas 25% of the variance (large effect size) is explained by the correlation equaling .50. Therefore, predictor variables have a small to moderate effect size on participation in practice.

Hypotheses Testing

To investigate the interdependency of variables in the study, we performed PA, which explores the direct and indirect causal associations between endogenous and exogenous variables. PA is a multivariate approach that examines the nature and magnitude of causal (direct and indirect or mediation) effects of multiple interacting variables (Morrison 2009), especially appropriate for analysis of causal relations in nonexperimental data (Keith 1993). Therefore, we found this procedure consistent with the objectives of the study. Before conducting the path analysis, we assessed data to avoid violating the assumptions of the general linear model (e.g., normality and linearity).

Path Analysis

In this section, we report the results of a path model that includes all four theoretical models. In general, the results of hypotheses testing indicate that a set of models clearly explains participation. Goodness-of-fit indices for the sample are acceptable (chi-square = 17.74; df = 18; P value = 0.47; CMIN/df = 0.99; CFI = 1; NFI = 0.70; TLI = 1.02; IFI = 1.01; RMSEA = 0.001; and *P*close = 0.58). Therefore, results of goodness-of-fit indices are indicative of an acceptable range. The ratio of the minimum discrepancy to the degree of freedom (CMIN/DF) yields

Table 2
Correlation matrix of the variables (n = 179)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Participation	1	.13[1]	.44[1]	.31[1]	.33[1]	.30	.36[1]	.22[1]	.27	.23	−.21	.17	.20
2. Intrarelations		1	.50[2]	.34	.07	.16	.29[1]	.16	.04	−.04	−.12	.27	−.22
3. Interrelations			1	.48[1]	−.19	.51[2]	.15	.25	−.23	.30	−.16	.03	.05
4. Progressivism				1s	−.10	.56[2]	−.34[1]	.23	.07	.21	.02	.14	.37
5. Optimism					1	−.27	.33[1]	−.09	.08	−.20	.07	−.12	−.09
6. Technical knowledge						1	−.04	.21	−.28	.39[1]	−.17	.28	.12
7. Job satisfaction							1	.45[1]	.28[1]	.48[3]	−.20	.06	.06
8. Cost-benefit								1	−.02	.32	−.28	.21	.18
9. Fatalism									1	−.15	.32	−.25	.25
10. Economic conditions										1	.002	.17	.22
11. Age											1	−.69[2]	.16
12. Education												1	.02
13. Cooperative size													1

[1] Correlation is significant at the 0.05 level (2-tailed).
[2] Correlation is significant at the 0.01 level (2-tailed).
[3] Correlation is significant at the 0.001 level (2-tailed).

an acceptable result. Squared multiple correlation (R^2) for cost-benefit, job satisfaction, and participation are 0.10, 0.71, and 0.35, respectively. As the effect of cooperative size, interrelations, age, educational attainment, and technical knowledge were not significant, we removed these five variables from the model and, therefore, the respective hypotheses were rejected (H2, H4a, H4b, H5, H6, and H10). Table 3 shows the results of causal effects and the regression weights (ß) of the paths. When the critical ratio is >1.96 (or P value < 0.05) for a regression weight, a path is significant at the .05 level, and therefore its estimated parameter is significant (Bian 2011).

Results indicate that participation is positively and directly predicted by job satisfaction (ß = 0.48, SE = 0.12, CR = 2.70, P < .01) and progressivism (ß = 0.47, SE = 0.15, CR = 2.74, P < .01), and therefore H11 and H8b were approved. These two predictors are themselves correlated ($\phi = -0.34$, SE = 0.13, P < .01). In the subsequent step, we tested the direct and indirect (or mediation) effects on participation. Results indicate that improved economic conditions have no significant effect on cost-benefit (ß = 0.33, SE = 0.11859.60, CR = 1.74, P > 0.05). This variable directly influences job satisfaction (ß = 0.37, SE = 0.27, CR = 3.29, P = 0.001) and therefore indirectly influences participation. Therefore, H1a was rejected and H1b and H1c were approved.

The effect of intrarelation on participation is not statistically significant; in turn, this variable indirectly affects participation via job satisfaction (ß = 0.29, SE = 0.09, CR = 2.68, P < 0.01) (approved H3a). As such, rangers' participation and job satisfaction would increase by intrarelation. Fatalism has no direct effect on participation (ß = 0.14, SE = 0.25, CR = .81, P > 0.05) but indirectly influences participation via job satisfaction (ß = 0.28, SE = 0.23, CR = 2.64, P < 0.01) (approved H7a, although positively). Progressivism directly affects participation (ß = 0.47, SE = 0.15, CR = 2.74, P < 0.01). In addition, such a variable influences participation by mediation of the job satisfaction (ß = −0.34, SE = 0.13, CR = −3.17, P < 0.01) (approved H8a, although negatively, and H8b). Optimism has no direct effect on participation, whereas this variable affects participation via job satisfaction (ß = 0.33, SE = 0.19, CR = 3.10, P < 0.01) (approved H9a). Furthermore, cost-benefit indirectly impresses participation via job satisfaction (ß = 0.33, SE = 0.001, CR = 2.95, P < 0.01) (approved H12) (see Fig. 3).

Discussion

In this section, we discuss why these results were obtained and compare them with previous research findings. The improved economic conditions directly affect job satisfaction and then influence participation. When the economic situation of local industries, especially those consistent with the rangers' job, improve by the interventions of the RMCs, rangers become more satisfied with their jobs. They feel there is an economic supportive resource from which they demand their economic needs and resort to when they face a crisis. Therefore, the services, which are delivered by RMCs in the form of, e.g., improving the local infrastructures, financial facilities, e.g., loan, credit (Jalali and Karami 2006; Shahraki et al. 2012), and monetary incentives (Taiwo, 2016) can lead to increase in members' job satisfaction. Therefore, it may be an incentive to increase the rangers' participation. This finding is in line with previous research findings and remarks (Atmiş et al. 2009; Aazami and Soroushmeher 2011; and Adhikari et al. 2014).

Intrarelation indirectly influences participation by the mediation of job satisfaction. Indeed, the appropriate intrarelation among the rangers and board members in RMCs creates an environment and culture in which they enjoy being volunteers and staying in such organizations to perform the personal goals and assigned tasks. This finding is in accordance with Raziq and Maulabakhsh (2015), Zare Shah Abadi et al. (2012), and Tajvar et al. (2006). Consequently, it increases participation in RMCs. These findings are consistent with research (Liang et al. 2015; Mirzaei et al. 2015).

The effect of fatalism on job satisfaction indicates that rangers with more fatalistic property are more satisfied with their jobs and more willing to participate in RMCs. This finding violates previous fatalistic remarks that declare fatalistic people hardly adopt the involvement in social environments because they believe nothing can be done to change the fate. The reason behind the finding is that RMCs in Iran are not new institutions. In fact, there are traditional institutions in the Iranian culture (e.g., dedication, orphanage, charities, and especially cooperatives in which people cooperate to meet economic needs) (Shahbahrami et al. 2010) as opposed to modern development policies that concentrate on innovative actors and insist on their participation in such enterprises. The finding indicates that fatalistic people also have potential to participate in collective measures. This finding is not consistent with Hidalgo et al. (2013) and Jalali and Karami (2006).

Progressivism has a direct and negative effect on job satisfaction and then indirectly influences participation. This means that the more rangers are willing to be progressive, the less they feel satisfied with their jobs. This finding also confirms the positive effect of fatalism on job satisfaction. This concept indirectly influences participation. Therefore, rangers with more progressivism may find RMCs as a situation in which they can learn more things about conservation by interacting with their cohorts and, therefore, give rise to the rangeland. This finding is in line with Pauley's (2007) remark that believing in participation in collective activities is an example of progressivism.

Optimism also directly affects job satisfaction and then influences participation. The logic behind the finding is that pessimistic people are more susceptible to the adverse results of job pressures than optimistic people are and think about phenomena positively and believe that things can only get better (Murphy 2014). Moreover, they believe people with optimistic views are more likely to feature negative events

Table 3
Causal effects and beta (ß or regression weight of paths).

Paths			Unstandardized estimate	Standardized estimate	S.E.	C.R.	P value[1]
Cost-benefit	<---	Economic	20635.22	.33	11859.60	1.74	.08
Job satisfaction	<---	Cost-benefit	.001	.33[2]	.001	2.96	.003
Job satisfaction	<---	Progressivism	−.43	−.34[2]	.13	−3.17	.002
Job satisfaction	<---	Optimism	.59	.33[2]	.19	3.10	.002
Job satisfaction	<---	Intrarelation	.24	.29[2]	.09	2.68	.007
Job satisfaction	<---	Fatalism	.61	.28[2]	.23	2.64	.008
Job satisfaction	<---	Economic	.89	.37[3]	.27	3.30	.001
Participation	<---	Job satisfaction	.34	.48[2]	.13	2.7	.007
Participation	<---	Achievement	.42	.47[2]	.15	2.74	.006
Participation	<---	Fatalism	.21	.14	.26	.81	.42

Note: ß is a regression weight estimate.
SE indicates a standard error related to regression weight estimate; C.R is the ratio of ß and S.E. that indicates how much the regression weight estimate is above, with (+) symbol, or below, with (−) symbol, zero.

[1] Significance of the test is P < 0.05.

[2] .

[3] P = 0.001.

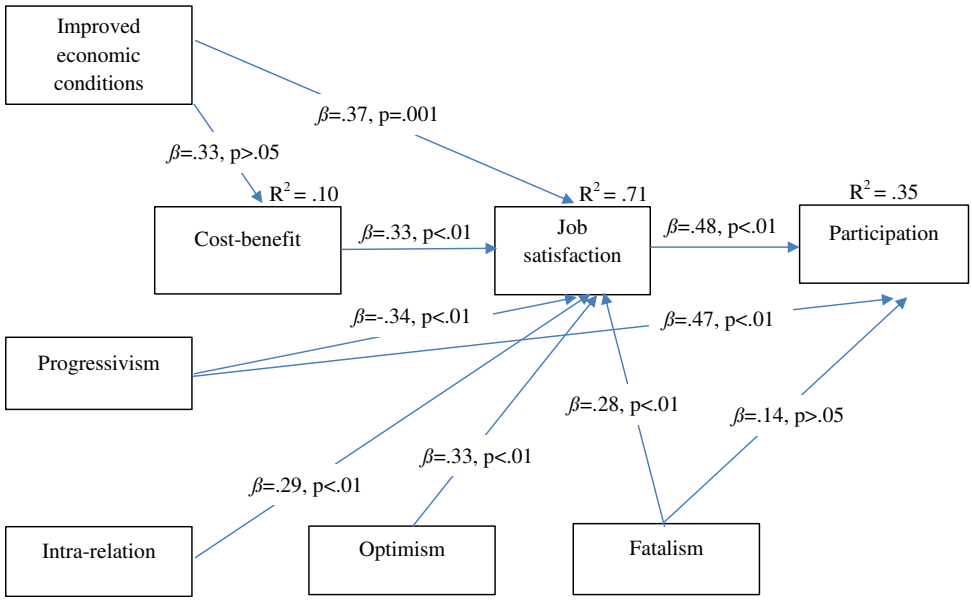

Figure 3. Path diagram of the variables influencing participation.

differently than those ones with pessimistic beliefs (Seligman 1991). The positive impact of optimism on job satisfaction is in line with research (Al-Mashaan 2003; Murphy 2014; Ahmed 2015). In general, optimistic rangers have a positive vision about the collaborative job environment and participation in RMCs. RMCs are likely to cause the economic and environmental favorable outcomes. Therefore, they can cope better with unwanted and stressful situations in RMCs and rangelands.

Cost-benefit indirectly affects the participation via job satisfaction. In this regard, the more rangers are aware of economic, social, and environmental benefits of the RMCs, the more they will be satisfied and increase their participation in RMCs. They want the increased profits and decreased costs that may be a result of working and participating in RMCs. This finding is in line with the investigations of El Ansari and Phillips (2004), Rodrigo (2012), and Soares and Burni (2013). They declare that cost-benefit (theory of rational choice) explains participation, although participation takes place in different contexts.

The direct effect of job satisfaction on participation shows that as job satisfaction increases, rangers increase their willingness to participate in RMCs. Indeed, they undertake an active responsibility for conserving the rangelands in RMCs. The rationale for the finding is that when rangers are satisfied with their jobs, they feel to belong to the job and never make a wall between themselves and that. Therefore, the job is not perceived as a compulsory thing that fulfills low-level needs. Satisfied rangers feel they belong to a job environment in which other rangers also belong and share. According to rational choice theory, people make decisions with the greatest utility and satisfaction (Levin and Milgrom 2004). If RMCs' members evaluate the benefits and costs of their jobs and receive the benefits overweight than costs, they are more likely to be satisfied with their jobs. As such, they are likely to increase their participation in RMCs because such institutions have aggregate benefits for rangers. The rationale for the finding is that when rangers are satisfied with their jobs, they feel an attachment to it and do not wall themselves off from their job.

Rangers' age has no effect on job satisfaction. This finding is not consistent with research conducted by Pezeshki Rad and Kiani Mehr (2000), Dolisca et al. (2006), Erdogan et al. (2007), and Atmiş et al. (2009). Moreover, there is no causal relation between educational attainment and job satisfaction, as well as participation. It is because the voluntary nature of engaging and working in RMCs is not dependent on the educational level. In fact, rangers with any educational attainment can voluntarily take part in RMCs. This finding is in accordance with research by Hayati et al. (2009) and Aazami and Soroushmeher (2011) and inconsistent with that of Jalali and Karami (2006), Azizi Khalkheili and Zamani (2009), Shahroudi and Chizari (2009), and Atmiş et al. (2009). RMCs' size also has no significant impact on participation and job satisfaction. This finding is not consistent with the research of Defourny and Dethier (2015), which declares that organizational size affects participation in a company.

Interrelations and technical knowledge also have no impact on job satisfaction and participation because rangers may not need and demand new knowledge about conservation and economic activities from RMCs and NRM specialists. This finding is not in accordance with Finsterbusch and Van Wicklin (1989) and Pezeshki Rad and Kiani Mehr (2000).

Management Implications

We deliver suggestions in accordance with research findings to increase rangers' participation in RMCs. Results indicate that the improved economic situation of rural industries and enterprises affects rangers' job satisfaction and participation. By directing attention to the situation of such industries and improving them, it is possible to increase rangers' participation in RMCs. Therefore, we suggest that cooperatives' state officials and nonofficials improve the situation of rural industries, especially those relevant to rangers' jobs and RMCs, such as the processing industries of livestock products, handicrafts, and dyeing together with industries that produce the saplings of walnuts and almonds.

Intrarelation also affects job satisfaction and participation. We recommend that communication departments at universities and rural communication and innovation studies deliver training on communication skills for rangers along with competencies to make good relations with their peers. It facilitates the process of exchanging the information relevant to rangeland conservation and economic enterprises among the rangers, members, and board members.

Associated with the effect of fatalism on job satisfaction, we suggest to natural resource extension's officials changing the traditional viewpoint about the innovation process in natural resource management. Therefore, they should not exclude and differentiate majority-late rangers and even laggards from innovator rangers in the innovation process, even in an institution that is voluntary in nature (e.g., RMCs, state officials, and nonofficials may incline to innovator rangers). Therefore, they should train and disseminate the conservation and economic innovations to cover an excluded group of rangers. As such, we suggest

that RMCs embrace a variety of rangers to give rise to participation in such institutions and facilitate not only rangeland conservation but also rangers' partnerships in economic activities in RMCs.

As progressivism influences the participation, RMCs' state officials and nonofficials are encouraged to apply the need assessment to determine which needs are important for rangers with more progressivism. On the basis of determined needs, it is possible to establish and develop new enterprises in RMCs by which rangers with more progressivism fulfill their needs and goals. According to the positive effect of optimism and cost-benefit on job satisfaction and participation, we suggest that psychologists at the universities deliver training on optimism promotion for rangers. These courses contain a fundamental baseline about how to make rangers hopeful about the future and how conservation of the rangelands may be related to the future survival of their life. It is also recommended that RMCs' state officials and nonofficials visualize the economic, social, and conservation benefits of the participation by which the rangers trade off and perceive that benefits of participating in such institutions are more than the costs. It stimulates rangers to take part in RMCs. We also have insights for future research on participation in RMCs regarding how empathy, cooperation, and competition among rangers can contribute in participation in RMCs.

Strength and Limitation

The key strength of our study is that conclusions could easily be drawn in terms of the causal relations in PA. Since the number of cooperatives is relatively small, it therefore makes a limiting situation that affects the results of analysis and their generalizability, although findings of the study deliver considerable hints.

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