Designing the Structural Model of Human Resource Management to Achieve Organizational Loyalty

Mahsa Zeinali

M.Sc. in Industrial Management, Faculty of Management and Accounting, College of Farabi, University of Tehran, Qom, Iran.

ABSTRACT

This study investigates the design of the structural model of human resource management in the yeast industry of country. The population of this study is all the employees of the state (1145 people) which 288 people were selected using the probable sampling method of class and using the Cochran formula for samples. Data were collected with the help of questionnaire and their analysis was carried out by conducting structural equation test and factor analysis in Amos software. The results show that there is positive and meaningful relation between human resource management systems, job satisfaction and organizational loyalty. Job satisfaction also plays an intermediary factor between human resource management and organizational loyalty. Therefore, managers are offered to pay attention to the effective role of human capital in advancing organizational excellence in the design of their strategic goals, and to engage employees in the different decision-making to be consistent with the desire to participate in organizational activities and loyalty.

1. Introduction

With the speed of change in knowledge and technology, firms and organizations become more complex, and with these developments, the management of organizations leads to more complexity. Today, organizations are not amenable to traditional methods because managing of people who are the main assets of organizations is not easy, and the leaders of organizations, especially human resource authorities, need to gain knowledge and expertise to do so and effectively employ them. Research and study on the role of human resource professionals and managers in the creation and maintenance of positive organization performance has been the subject of many organizational studies over the last two decades. Human resource management is closely associated with organizational performance [1-17].

Researchers have found that human resource managers can also take over the managerial roles of traditional organisations and convert it into a strategic asset of the organization [18-21]. In the last decades, the traditional use of capital and technology as competitive forces in various industries was increasingly dependent on knowledge management and intellectual capital, thus recognizing how human resource managers inside the organization were as fundamental to competition in industry [22-29]. Some scholars [30-36] have acknowledged that human resource management systems have a direct impact on the organization's performance [37-43]. In fact, the trend of changes and technological, social and economic changes in the internal and external environment of associations has led to a new attitude of management science to the category of human resource planning. Negligence can have caused irreparable consequences to organizations and has difficulty living in a turbulent current environment [44-49].

Human resource management systems can create economic value in companies and help achieve its high goals.

The appropriate policies of human resource managers lead to the creation and training of dynamic human capital and enhances competitiveness of the organization, while human resource managers' activities are affected by their understanding of the systems and processes of human resources [50-55]. As stated, studies on human resource management axes in different industries of the country are very limited and most of the researches have focused on the fields of human sciences, engineering and medical sciences, and have less attention to their human resources and their optimal management. In the micro-economy, issues such as optimal production and distribution, process and behavior of input factors or aspect evaluation of more production methods have been discussed and issues such as the methods of improving or enhancing the productivity of company operations using the managers and scientific and practical guidance of human resources have not been discussed seriously. Over the last two decades, the change in social environments and major financial scandals, such as the collapse of Enron, the big company in 2002 America, and defalcation of Lee and Li Attorneys-at-law firm in Taiwan in 2003, the great financial corruption of 2011, Iran, and the cases, increased the necessity of discussing human resource management and expanding organizational loyalty in organizations. Researchers maintains that organizational loyalty reflects the spirits and general policies of the organization in relation to ethical values [56-66].

While this research shows the opposite of this claim, the difference is attributed to the changes caused by the privatization of the industry. Prior to the big change, the finance, employment, accounting and auditing of these companies were funded by government regulations under the supervision of the concerned ministries, which included employees of the state, and the intensive care system was made for a small number of employees and did not care much

for others; but in this study the importance of this system will be on display after deregulation. The yeast industry was transferred to the private sector in 2012. In the years before privatization, a number of state-owned companies owned the yeast industry and their budget were defined in the country's annual budget. Therefore, the quality of products and attention to optimal management of resources was not important because of the introduction of the "principle 44 of laws" to identify the management of human resources, job satisfaction and organizational loyalty, and this debate becomes the focus of more attention on organizational policy decision - makers and the understanding of conventional models of service compensation systems is an important factor in job satisfaction and organizational loyalty. This study, which has been done in the yeast industry, discusses the difference between the pre - and post - privatization conditions in the industry. The present study was formed using the structural equation model to create a strong theoretical foundation, in order to defend the applicability of principle 44 of the constitution to achieve excellent organizational goals and optimal resource management. Accordingly, the present study analyzes the effectiveness of human resource managers and examines the relation between human resource management systems, job satisfaction and organizational loyalty. Finally, this study is formed to achieve the following objective: (a) Building a structural model for human resource managers in order to achieve organizational loyalty of employees; (b) Determining the degree of moderating effect of job satisfaction in employee organizational loyalty.

2. Theoretical History and Background of Research

2.1. Organizational Loyalty

Scholars recognize the organizational loyalty of employees to identify aggressive and invasive levels of the organization, participate in organizational activities, identify organizational goals and hope of becoming a stable and long - term member in the organization. Organizational loyalty is inconsistent with the volume of absenteeism, from the perspective of Robbins organizational behavior, the attitude towards work depends on three factors: job satisfaction, interest, job intrest, and organizational loyalty [67-72].

Organizational loyalty, defined as the sentiment of belonging and the desire to maintain membership and communicate with an organization, implies a willingness to join a group, collaboration, sense of trust, voluntary alignment with a group, and tends to follow the organizational guidelines [73-84]. Based on the analysis of organizational loyalty measurement instrument, three factors have been extracted: organizational identification, organizational internalization and organizational compliance. organizational Identification and internalization shapes the company's values, while organizational compliance indicates the willingness and involvement of employees on organizational issues [85-91].

2.2. Employee Perception of Human Resource Management Systems and Job Satisfaction

Perception is the complex process of knowing their sensory information and their understanding [92-99]. It is also the perception of the process by which people are regulated and interpreted by their own environment and give them meaning. Factors that affect a person's perception are: attitudes, motivations, experiences, expectations, personal goals and environmental conditions [100-103]. Therefore, understanding is the process in which individual feelings are

motivated and different information is collected, and eventually the individual gives special value to the sum of the collected information and gives it meaning [104-107]. In this study, the dimensions of employees' perception of the new systems of human resource management of yeast industry are analyzed. Human resource management systems have undergone radical changes after deregulation, which will be analyzed in the process of this study, the effects of this new system on employee work behavior. This way, the study will determine how new human resource management systems can affect job satisfaction and organizational loyalty of employees.

Scientists selected six companies for statistical sample in a study, and found that the changes in human resources systems and service compensation systems with organizational performance and job satisfaction have positive and meaningful relation. Researchers also studied all electronic companies and found that wages and rewards were very effective in job satisfaction [100-107].

Managers need three reasons for their employees' job satisfaction. First, disgruntled people are more likely to be absent than others, quit and leave the workplace, leave and leave the workplace; secondly, satisfied employees enjoy more physical and mental health and live longer; third, with increased job satisfaction, commitment to job (organizational commitment) increases [100-107]. Research has shown that organizational loyalty and job satisfaction is positively related to organizational performance and job performance and is negatively associated with the transportation and absence of employees [97-107].

Accordingly, the present study adopts the view of social exchange, accepted psychological contracts, and social change theories examine the effects of privatization in the yeast industry and examine organizational loyalty in which politics and general policies of human resource management systems are undergoing drastic change. After the privatization, more mechanisms and services for service compensation in human resource management systems became more market-oriented, in addition hiring, developing and evaluating human resource performance and working systems in organizations became more flexible, which affected employees' perceptions and eventually generated job satisfaction. As a result, this study shows that perceptions of employees from human resource management systems affect their job satisfaction.

2.3. Relationship of Human Resource Systems, Job Satisfaction and Organizational Loyalty

Researchers studied the relationship between job satisfaction and organizational loyalty in Hong Kong's food industries and concluded that job characteristics, pre- and in-service training, fair reward and job satisfaction are effective on organizational loyalty, so human resource management systems, which include the sum of these items, contribute to both job satisfaction and organizational loyalty [90-100].

In the analysis of 93 employees of government organizations, scholars have indicated that organizational loyalty and job satisfaction are highly related to the job performance of employees. In another study, for examining the factors affecting the organizational loyalty of employees, selected a government hospital and implemented his empirical research on them. In his study, he concluded that job satisfaction as mediator variable had a positive and significant effect on organizational loyalty [103-107]. Also, scientists conducted a study of employees of one organization

in two groups that treated them with specific organizational justice. They found that organizational justice equality affects employees' work range, job satisfaction (moderator variable) and organizational behavior (independent variable) [105-107].

3. Experimental History and Background of Research Research Hypotheses

Primary hypotheses:

(i) There is a relationship between human resource management systems and organizational loyalty;

(ii) There is a relationship between human resource management systems and job satisfaction.

Secondary hypotheses:

(i) There is a relationship between job satisfaction and organizational loyalty;

(ii) There is a relationship between human resource development systems and organizational loyalty;

(iii) There is a relationship between human resource conservation systems and organizational loyalty;

(iv) There is a relation between service compensation systems and organizational loyalty;

(v) There is a relation between human resource development systems and job satisfaction;

(vi) There is a relation between human resource conservation systems and job satisfaction;

(vii) There is a relation between service compensation systems and job satisfaction.

4. Research Methodology

This research is applicable in terms of purpose, and it is a survey research method in terms of implementation method and the research project is correlation. To measure the relationship between variables, the structural equation model (SEM) and factor analysis was used. In this model, the relationships between variables are determined. The endogenous latent variables are job satisfaction and organizational loyalty, the obvious variables of latent variables are observed in the Y1-Y6 section, and the latent variables are shown using the obvious and external variables as shown in the X1-X15.

The statistical population of this study consists of all the employees of the country's yeast industry. According to data received from the yeast producers' union, the total of 1145 people in seven companies of Iran-Maye, Iran-Malas, Pak-Maye, Razi, Chahar_Mahal, Khuzestan and Razavi, in Iran cities of Tehran, East Azarbayjan, Khorasan, Khuzestan, Chahar-Mahal and Bakhtiari, Lorestan and kermanshah, are working where all employees of these companies are the statistical community of this study. The researcher chose a sample of 288 people using the stratified random sampling method and using the Cochran formula with 0.05 errors, for instance and participated in the study. The researcher distributed questionnaires and collected them by visiting all companies based in the seven provinces. The typical feature of society was that over 216 people (75 per cent) of the selected staff had academic education (Associate to master of degree). This feature is widely used in field research because people with college educations understand the depth of the concepts of research design and questions posed in it more than others and can analyze and report their working conditions in a more scientific way.

The research tool of this study has been structured questionnaire. To determine the external validity and content validity of the questionnaire, English language expert reviewed and confirmed the validity of the questionnaire after translation and human resource experts confirmed using factor validity method. Factor validity is a kind of the validity of the structure obtained through factor analysis. One factor is a hypothetical (structural) variable that affects the observed scores in one or more variables. If a factor analysis is performed on the correlation matrix, the tests that are affected by certain factors earn a high factor in that factor.

In order to measure job satisfaction from a sixteen-question questionnaire of? With cronbach's alpha coefficient of 0.8, in four satisfaction dimensions of tasks assigned, service compensation system, promotion system and leadership were used. In order to measure loyalty, a dozen-question questionnaire of organizational loyalty of with Cronbach's alpha coefficient of 0.78 was used. This questionnaire was designed in two dimensions of loyalty to organizational values and interest and willingness to organizational loyalty. Finally, to assess the status of human resource management systems and its relevance to organizational loyalty and job satisfaction, a dozen-question questionnaire has been used with Cronbach's alpha coefficient of 0.86. Also, the external validity and content validity of the questionnaires were approved by the guidance professors and consultants and experts of the management area.

5. Results and Discussion

Employees' perceptions of human resource management, which have specific amounts of larger than one, are shown (in the current study the standard coefficients larger than one are acceptable).

The results show that each component corresponds to four dimensions of employee perception of human resource management systems. The cumulative variance of explained by human resource management is 6.429%, the cumulative variance of development management is 38.06%, cumulative variance service compensation management 8.96%, cumulative variance maintenance management and promotion of employees is 6.58% and the overall level of explained variance is 60.02%.

The GFI value suggests that the higher the both the variance and the covariance level, the model is more appropriate; this has been proven in other theoretical studies. In this study, the results of analysis of values of each indexes, including employees' perception of human resource management, job satisfaction and organizational loyalty, were more than 0.9. In general, the GFI of model was 0.926, which indicates that there is a good fit between model indices and the sample is well fit. AGFI is another indicator used in this study. The AGFI values are calculated to 0.027 (close to zero), which means that the model is very good fit and appropriate.

The internal structure of the model (internal quality) mainly deals with the revision and measurement of the reliability and validity coefficients, in which the results of the final analysis of the data enters the model, these results are reported.

Each of the standard estimates (loading of the variable in the latent structure) is between 0.531 and 0.8070, except the organizational loyalty variable showing 0.383. In this study, the minimum reliability factor validity should be higher than 0.5, as well as no component could have a negative variance. The Composit Reliability (CR) of all reported values was larger than 0.7, which is higher than the intended minimum (0.5). Average variance extracted (AVE) also has a value equal to at least 0.5. The loading of non-stationary indices (non-standard estimate≠1) and the latent construct are

reported. All reported values indicate very high CR levels, meaning that the interaction between variables is meaningful (the coefficients are between 4.249 and 17.062 and P < 0.00); the data indicates that the measurement model has convergence validity.

Values of β and Y are estimated using the method of maximizing the probability, the values suggest that the hypotheses of the research will be acceptable or not. Using structural equation analysis in Amos software, we achieved accurate results of the hypothesized path of research that was briefly reported. Furthermore, the absolute values of parameter estimates t should be higher than 1.96, this number confirms estimating the parameters to the administrative level (0.05).

Data obtained shows the relationship between human resource management, service compensation management, and organizational loyalty. The empirical data of this study showed significant levels of relationship between variables of values -0.125 to -0.075; in this sense, the relationships between variables are acceptable statistically at α=0.05 level. Based on the projected results in H1 and H3, the empirical results from the implementation of this study indicate that human resource management and service compensation management significantly affect organizational loyalty.

The information obtained shows the path and relationship between management of human resource development, service compensation systems, promotion management, maintenance management of human resources and organizational loyalty. Empirical data of this study showed the Y values of these indices in order of 0.239, 0.580 and 0.367, respectively; in this sense, the relationship between variables is acceptable statistically at α=0.01 level. Based on the predicted results in the H6, H7 and H8 hypotheses, empirical results from the implementation of this study indicate that the management of human resource development, management of service compensation and promotion management, maintenance management of human resources are key factors in job satisfaction.

The information obtained shows the relationship between job satisfaction and organizational loyalty β=0.692 and α=0.01. The empirical data of this study indicate the relationship between job satisfaction and organizational loyalty and hypothesis H9 of this study is that the relationship between job satisfaction and organizational loyalty is confirmed.

In a situation where there is a positive and significant relationship between the predictive and resulted variables, and in this case the moderator variable is considered to weaken or dilute this relationship, the interface moderator variable is considered to be a supplementary (main) variable. Scientists suggest that researchers should recommend competing (similar) identical models of a completely different construct to the characteristics of the hypothesized model. It can be found of the goodness and a weaker relative effect. In this study, researchers changed the degree of freedom and chi-squared to test the effect of the model. The results show that the total model has intermediary effect and job satisfaction has been a intermediary effect until now.

The values of X2, RMAR, AGFI and GFI are calculated with intermediary effect. According to the data obtained, the following results can be expressed:
(i) By removing the direct supervision of the government and implementing the principle of 44 of the constitution and extending privatization in various industries, the employee's

perception was that human resource management as well as the relation between human resource development systems and upgrading systems, maintaining human resources, did not affect organizational loyalty (its not meaninfull statistically);
(ii) The employee's perception of the impact of human resource management on job satisfaction was negative;
(iii) There is a positive and meaningful relation between job satisfaction and organizational loyalty;
(iv) Human resource management systems have a direct impact on job satisfaction and organizational loyalty and job satisfaction affects organizational loyalty (this results in the mediating role of job satisfaction);
(v) The degree of organizational loyalty of employees in Kermanshah Yeast Company is more than job satisfaction and employee perception about human resource management systems;
(vi) Job satisfaction constitutes the factor and variable of the interfaces between employees' perceptions about human resource management and organizational loyalty.
The values of X2, RMAR, AGFI and GFI are calculated with intermediary effect. According to the obtained data, the following results can be expressed:
(i) In the view of employees of human resource management systems and organizational loyalty development prior to arrival of the intermediary effect of job satisfaction, it had a significant role, while before the intermediary effect arrival job satisfaction had diminished the intensity of this relation.
(ii) In the view of employees, the relationship between service compensation systems and organizational loyalty was not a significant relationship before the arrival of the intermediary effect of job satisfaction, while after the intermediary effect arrival job satisfaction of this relation has been highly significant.
(iii) In the view of employees, the relationship between service compensation systems and satisfaction before arrival of intermediary effect, the job satisfaction was only an acceptable relationship, while after the intermediary effect arrival; job satisfaction of this relation has been highly significant.
(iv) In the view of employees, the relationship between promotion systems, maintenance of human resources and organizational loyalty prior to the arrival of the intermediary effect of job satisfaction was a highly significant relationship, while after the intermediary effect arrival the relationship between the two variables is not significant.

6. Conclusion and Recommendations

Results and achivements indicate that the overall perception of employees from human resource management system for all four dimensions is 3.3662 and standard deviation is 0.5349%, job satisfaction job generally has 3.3832 mean and standard deviation of 0.5177 and employee loyalty generally has 3.5090 mean and standard deviation of 0.5597. According to the coefficients of the correlations between variables it can be concluded that the relationship between variables is positive and significant (P < 0.01). In this regard, researchers stated that human resource management systems available in manufacturing firms are highly correlated with organizational loyalty and job satisfaction with the results of this study also confirm this intensity.

The results of this study also showed that organizational justice has a significant and meaningful relation with organizational loyalty; in this regard Pourezzat, et al. concluded that, organizational justice, in particular

observational and informational justice, has the greatest effect on employee organizational loyalty.

Also, the results of this study show the existence of meaningful relation between organizational loyalty with job satisfaction which has already been confirmed. They believed that the organization's loyalty in Hong Kong's food industry companies had put job satisfaction because the satisfied employee could be loyal to their organisation.

The findings of this study showed that there is a significant relationship between human resource management systems and job satisfaction (α=0.05, t-test=0.239). These results were confirmed in researchers' studies. The job satisfaction variable in his study as an intermediary variable played an important role in demonstrating the relationship between human resource management and organizational loyalty. In the second and third structural models of this study, the intermediary variable of job satisfaction with other variables was analyzed and finally determined that the relationship between different parts of the model is deepened when the intermediary variable of job satisfaction is entered into the final model which had proven that. Kevin and his colleagues also recognize the intermediary role of job satisfaction in achieving organizational loyalty is irrefutable. As well as, also cited organizational loyalty as one of the most challenging developments of job satisfaction among industry and mining bank employees. He stressed that job satisfaction, loyalty, persistence and job commitment greatly increase.

Scholars also in a research concluded that the distributed leadership could be effective in the job satisfaction of teachers. The present study proved the findings of Yasini, because one of the distributed leadership statements this study is self-efficacy of human resources management (maintenance) as the establishment of communication paths between employees and leaders is proven (factor validity= 0.661, reliability = 0.879). The results of this study also showed those of other researchs results that affect the role of human resource managers in employee loyalty and job satisfaction. Most of the findings of this study confirmed the results of other internal and external studies.

Based on this, human capital is the most important asset of the organization. In the uptake of these funds, Fefer believes that it is not only possible to rely on a copy of the work and educational background of individuals, but we need to figure out how people have done things in the past and what abilities and capacities they have for the future. Therefore, prior to the testing of any behavior, the first one must learn about the relevant behaviors of individuals and, using work samples or interviews, find out how individuals can arise from post-related situations. After attracting, the best way to keep human capital is training. Maintenance is the key to economic success. Interest gain is associated with customer retention and customer retention is associated with the maintenance of employees. It is possible when employees stay and participate in tasks, then it comes to profit. If you go to an organization that is client-driven, you can shortly tell when the employees will feel bad, or when they retaliate to customers. Relationships are made through individuals, so making relationships with the client is more important than controlling it using a number of software products. The most important point in most industries is the distance between the client and the person who serves him. By hiring the best people and investing in their training, there are relationships that lead to customer relationship management. Without

taking this step, it is not going to work; without people, no strategy is implemented; the client is not happy, and innovation does not happen. All non - human assets can easily be acquired in the trade and competition market and are not considered competitive advantage. If the right people are selected and their attitude is correct, the company can be successful at the same time as small and local. Accordingly, human resource management can implement the following actions to create job satisfaction and organizational loyalty:

Job security should be provided. Certainly, employees who do not perform well, must go, but they should not be driven from the company due to the strategic errors of senior management or economic deficiencies; they have no role in this regard. A variety of criteria must be used to employ personnel, since the skill of the new employees can be provided through training, but the company has to pay more attention to cultural attitudes and compatibilities.

Managers need to create key elements of organizational design using their groups of self-management and decentralized and to eliminate managerial layers. It can also be paid well for successful organizational performance. Sharing of financial and performance information can lead to the positive performance of human resource management vis-a-vis the loyalty and job satisfaction of employees.

The responsibility of human resource managers can be summarized in four roles: employees' hero, administrative expert, change agent, and strategic partner. The hero of the staff makes the staff committed and competent. A manager who is a good administrative expert performs the effective activities of human resources. A manager who is a change agent creates the capacity of change in the behavior of individuals and organizational culture. A manager who is a strategic partner is the founder of business consequences and outcomes.

In the end, it is hoped that human resource managers learn from their strategic role in guiding human resources toward their excellent organizational goals and can benefit from dynamic human resources within the organization.

Based on the findings of this study, the following suggestions are presented to organizations and managers:

(a) Human resource managers tend to focus their efforts to demonstrate their strategic influence on performance drivers, but they often focus on a particular incentive, such as customer satisfaction, without proving its priority over business examples. This problem arises from the inherent difficulties determining the true contribution of human resources to the mission and general strategy of the organization. For this reason, in the companies there is often a gap between the indicators they use and the policies that apply to human resources. Therefore, human resource managers are proposed to eliminate the problem by separating the two important factors;

(b) Human resource managers need to be looking for employees who are persistent. In other words, more than we think of driving out useless employees, we must strive to save employees so as not to quickly attract new jobs in their fall plans;

(c) Gratefulness is one of the most important reasons for leaving the organization. Human resource managers can, for example, invite every employee every three months to appreciate them and ask for their advice on the work and improvement of the organization;

(d) Since job satisfaction is a mediating factor between organizational loyalty and human resource management,

managers need to identify all direct and indirect factors involved in this variable and plan for each clear mechanism and increase employee loyalty by increasing job satisfaction. Following are some suggestions for other researchers:

(a) Since the findings of this study focused on a certain industry, it may not be possible to generalize the results to other industries and communities, thus offering similar research to other researchers in industrial parks as well as non - productive enterprises in order to see the role of human resouece management in organizational loyalty in a more tangible form;

(b) Privatization was the creator of the great evolutions in the field of human resources in organizations, so it is suggested to other researchers to compare the status of human resource management systems before and after privatization;

(c) Since job satisfaction was considered an intermediary variable in this study, it is suggested that other researchers consider job satisfaction as a key variable versus managing human resources and this time to consider organizational loyalty variable to determine whether human resource management can also contribute positively and directly to these two variables.

References

[1] Anne Mai Walder, Pedagogical Innovation in Canadian higher education: Professors' perspectives on its effects on teaching and learning, Studies in Educational Evaluation, Volume 54, September 2017, Pages 71-82.

[2] Valeria Costantini, Francesco Crespi, Giovanni Marin, Elena Paglialunga, Eco-innovation, sustainable supply chains and environmental performance in European industries1, Journal of Cleaner Production, Volume 155, Part 2, 1 July 2017, Pages 141-154.

[3] Kaja Rangus, Alenka Slavec, The interplay of decentralization, employee involvement and absorptive capacity on firms' innovation and business performance, Technological Forecasting and Social Change, Volume 120, July 2017, Pages 195-203.

[4] Les Levidow, Paul Upham, Linking the multi-level perspective with social representations theory: Gasifiers as a niche innovation reinforcing the energy-from-waste (EfW) regime, Technological Forecasting and Social Change, Volume 120, July 2017, Pages 1-13.

[5] Seongsoo Jang, Jinwon Kim, Max von Zedtwitz, The importance of spatial agglomeration in product innovation: A microgeography perspective, Journal of Business Research, Volume 78, September 2017, Pages 143-154.

[6] Lars Strupeit, An innovation system perspective on the drivers of soft cost reduction for photovoltaic deployment: The case of Germany, Renewable and Sustainable Energy Reviews, Volume 77, September 2017, Pages 273-286.

[7] Friedemann Polzin, Mobilizing private finance for low-carbon innovation – A systematic review of barriers and solutions, Renewable and Sustainable Energy Reviews, Volume 77, September 2017, Pages 525-535.

[8] Kira R. Fabrizio, Sharon Poczter, Bennet A. Zelner, Does innovation policy attract international competition? Evidence from energy storage, Research Policy, Volume 46, Issue 6, July 2017, Pages 1106-1117.

[9] Young Joon Kim, Kyungsoo Kim, SuKyoung Lee, The rise of technological unemployment and its implications on the future macroeconomic landscape, Futures, Volume 87, March 2017, Pages 1-9.

[10] Ivana Živojinović, Jelena Nedeljković, Vladimir Stojanovski, Anže Japelj, Dragan Nonić, Gerhard Weiss, Alice Ludvig, Non-timber forest products in transition economies: Innovation cases in selected SEE countries, Forest Policy and Economics, Volume 81, August 2017, Pages 18-29.

[11] Anis Khedhaouria, Roy Thurik, Configurational conditions of national innovation capability: A fuzzy set analysis approach, Technological Forecasting and Social Change, Volume 120, July 2017, Pages 48-58.

[12] Cristiano Antonelli, Agnieszka Gehringer, Technological change, rent and income inequalities: A Schumpeterian approach, Technological Forecasting and Social Change, Volume 115, February 2017, Pages 85-98.

[13] Mingli Xu, Gaowen Kong, Dongmin Kong, Does wage justice hamper creativity? Pay gap and firm innovation in China, China Economic Review, Volume 44, July 2017, Pages 186-202.

[14] Toshiaki Iizuka, Gyo Uchida, Promoting innovation in small markets: Evidence from the market for rare and intractable diseases, Journal of Health Economics, Volume 54, July 2017, Pages 56-65.

[15] Sergio Luiz Monteiro Salles-Filho, Paula Felício Drummond de Castro, Adriana Bin, Charles Edquist, Ana Flávia Portilho Ferro, Solange Corder, Perspectives for the Brazilian bioethanol sector: The innovation driver, Energy Policy, Volume 108, September 2017, Pages 70-77.

[16] Ioana Stefan, Lars Bengtsson, Unravelling appropriability mechanisms and openness depth effects on firm performance across stages in the innovation process, Technological Forecasting and Social Change, Volume 120, July 2017, Pages 252-260.

[17] Xiaodong Lai, Jixian Liu, Qian Shi, Georgi Georgiev, Guangdong Wu, Driving forces for low carbon technology innovation in the building industry: A critical review, Renewable and Sustainable Energy Reviews, Volume 74, July 2017, Pages 299-315.

[18] Stamatis Karnouskos, Massive open online courses (MOOCs) as an enabler for competent employees and innovation in industry, Computers in Industry, Volume 91, October 2017, Pages 1-10.

[19] Francesco Paolo Appio, Antonella Martini, Antonio Messeni Petruzzelli, Paolo Neirotti, Bart Van Looy, Search mechanisms and innovation: An analysis across multiple perspectives, Technological Forecasting and Social Change, Volume 120, July 2017, Pages 103-116.

[20] Veronica Scuotto, Manlio Del Giudice, Maria Rosaria della Peruta, Shlomo Tarba, The performance implications of leveraging internal innovation through social media networks: An empirical verification of the smart fashion industry, Technological Forecasting and Social Change, Volume 120, July 2017, Pages 184-194.

[21] Panagiotis Kokkinakos, Ourania Markaki, Sotirios Koussouris, John Psarras, Digital technology and innovation trajectories in the Mediterranean region: A casualty of or an antidote to the economic crisis?, Telematics and Informatics, Volume 34, Issue 5, August 2017, Pages 697-706.

[22] Jianxiang Bi, David Sarpong, David Botchie, Rekha Rao-Nicholson, From imitation to innovation: The discursive processes of knowledge creation in the Chinese space industry, Technological Forecasting and Social Change, Volume 120, July 2017, Pages 261-270.

[23] Jian Song, Feng Li, Desheng Dash Wu, Liang Liang, Alexandre Dolgui, Supply chain coordination through integration of innovation effort and advertising support,

Applied Mathematical Modelling, Volume 49, September 2017, Pages 108-123.

[24] Li Cai, Biao Chen, Juanyi Chen, Garry D. Bruton, Dysfunctional competition & innovation strategy of new ventures as they mature, Journal of Business Research, Volume 78, September 2017, Pages 111-118.

[25] Olga Kokshagina, Pascal Le Masson, Florent Bories, Fast-connecting search practices: On the role of open innovation intermediary to accelerate the absorptive capacity, Technological Forecasting and Social Change, Volume 120, July 2017, Pages 232-239.

[26] Anthony Howell, Picking 'winners' in China: Do subsidies matter for indigenous innovation and firm productivity?, China Economic Review, Volume 44, July 2017, Pages 154-165.

[27] Duygu Yilmaz Eroglu, Kemal Kilic, A novel Hybrid Genetic Local Search Algorithm for feature selection and weighting with an application in strategic decision making in innovation management, Information Sciences, Volume 405, September 2017, Pages 18-32.

[28] Sarah M. Jordaan, Elizabeth Romo-Rabago, Romaine McLeary, Luke Reidy, Jamal Nazari, Irene M. Herremans, The role of energy technology innovation in reducing greenhouse gas emissions: A case study of Canada, Renewable and Sustainable Energy Reviews, Volume 78, October 2017, Pages 1397-1409.

[29] Clare L. Whalley, Nicola Cutting, Sarah R. Beck, The effect of prior experience on children's tool innovation, Journal of Experimental Child Psychology, Volume 161, September 2017, Pages 81-94.

[30] Long T. Lam, Lee Branstetter, Inês M.L. Azevedo, China's wind industry: Leading in deployment, lagging in innovation, Energy Policy, Volume 106, July 2017, Pages 588-599.

[31] Daniel A. Guttentag, Stephen L.J. Smith, Assessing Airbnb as a disruptive innovation relative to hotels: Substitution and comparative performance expectations, International Journal of Hospitality Management, Volume 64, July 2017, Pages 1-10.

[32] Aoife M. Ní Fhlatharta, Maura Farrell, Unravelling the strands of 'patriarchy' in rural innovation: A study of female innovators and their contribution to rural Connemara, Journal of Rural Studies, Volume 54, August 2017, Pages 15-27.

[33] Yanbo Wang, Jizhen Li, Jeffrey L. Furman, Firm performance and state innovation funding: Evidence from China's innofund program, Research Policy, Volume 46, Issue 6, July 2017, Pages 1142-1161.

[34] Mario Coccia, The source and nature of general purpose technologies for supporting next K-waves: Global leadership and the case study of the U.S. Navy's Mobile User Objective System, Technological Forecasting and Social Change, Volume 116, March 2017, Pages 331-339.

[35] Katarina Blomkvist, Philip Kappen, Ivo Zander, Gone are the creatures of yesteryear? On the diffusion of technological capabilities in the 'modern' MNC, Journal of World Business, Volume 52, Issue 1, January 2017, Pages 1-16.

[36] Liang Wu, Heng Liu, Jianqi Zhang, Bricolage effects on new-product development speed and creativity: The moderating role of technological turbulence, Journal of Business Research, Volume 70, January 2017, Pages 127-135.

[37] John Qi Dong, Jork Netten, Information technology and external search in the open innovation age: New findings from Germany, Technological Forecasting and Social Change, Volume 120, July 2017, Pages 223-231.

[38] George D. Haddow, Jane A. Bullock and Damon P. Coppola, 2 - Natural and Technological Hazards and Risk Assessment, In Introduction to Emergency Management (Sixth Edition), Butterworth-Heinemann, 2017, Pages 33-77.

[39] Susan K. Cohen, Natasha V. Munshi, Innovation search dynamics in new domains: An exploratory study of academic founders' search for funding in the biotechnology industry, Technological Forecasting and Social Change, Volume 120, July 2017, Pages 130-143.

[40] Anna Tomaszuk, Importance of Technological Factors in the Creation of Cooperation, Procedia Engineering, Volume 182, 2017, Pages 701-708.

[41] Jan Kratzer, Dirk Meissner, Vitaly Roud, Open innovation and company culture: Internal openness makes the difference, Technological Forecasting and Social Change, Volume 119, June 2017, Pages 128-138.

[42] Haishen Jiang, Yuemin Zhao, Chenlong Duan, Chengyong Zhang, Hairui Diao, Zhenqian Wang, Xuchen Fan, Properties of technological factors on screening performance of coal in an equal-thickness screen with variable amplitude, Fuel, Volume 188, 15 January 2017, Pages 511-521.

[43] Dragan Ivanović, Dušan Surla, Miroslav Trajanović, Dragan Misić, Zora Konjović, Towards the Information System for Research Programmes of the Ministry of Education, Science and Technological Development of the Republic of Serbia, Procedia Computer Science, Volume 106, 2017, Pages 122-129.

[44] Anna Bartkowiak, Piotr Bartkowiak, Technical and Technological Progress in the Context of Sustainable Development of Agriculture in Poland, Procedia Engineering, Volume 182, 2017, Pages 66-75.

[45] Jun Chen, Jinhua Cheng, Sheng Dai, Regional eco-innovation in China: An analysis of eco-innovation levels and influencing factors, Journal of Cleaner Production, Volume 153, 1 June 2017, Pages 1-14.

[46] Jun-Hu Cheng, Bart Nicolai, Da-Wen Sun, Hyperspectral imaging with multivariate analysis for technological parameters prediction and classification of muscle foods: A review, Meat Science, Volume 123, January 2017, Pages 182-191.

[47] Hossein Hassani, Emmanuel Sirimal Silva, Ahmed Mohamed Al Kaabi, The role of innovation and technology in sustaining the petroleum and petrochemical industry, Technological Forecasting and Social Change, Volume 119, June 2017, Pages 1-17.

[48] Daniele Archibugi, Blade Runner economics: Will innovation lead the economic recovery?, Research Policy, Volume 46, Issue 3, April 2017, Pages 535-543.

[49] Hao-Chung Li, Wen-Chieh Lee, Bo-Ting Ko, What determines misalloaction in innovation? A study of regional innovation in China, Journal of Macroeconomics, Volume 52, June 2017, Pages 221-237.

[50] Christian Helmers, Manasa Patnam, P. Raghavendra Rau, Do board interlocks increase innovation? Evidence from a corporate governance reform in India, Journal of Banking & Finance, Volume 80, July 2017, Pages 51-70.

[51] Jason Potts, Tim Kastelle, Economics of innovation in Australian agricultural economics and policy, Economic Analysis and Policy, Volume 54, June 2017, Pages 96-104.

[52] Rong-Kuan Wang, Die Hu, Time-cost substitutability, earlycutting threat, and innovation timing, Economics Letters, Volume 156, July 2017, Pages 88-91.

[53] Abraham Carmeli, Ari Dothan, Generative work relationships as a source of direct and indirect learning from experiences of failure: Implications for innovation agility and product innovation, Technological Forecasting and Social Change, Volume 119, June 2017, Pages 27-38.

[54] Sven-Volker Rehm, Lakshmi Goel, Using information systems to achieve complementarity in SME innovation networks, Information & Management, Volume 54, Issue 4, June 2017, Pages 438-451.

[55] Sander Faber, Marina van Geenhuizen, Mark de Reuver, eHealth adoption factors in medical hospitals: A focus on the Netherlands, International Journal of Medical Informatics, Volume 100, April 2017, Pages 77-89.

[56] Mauricio Cespedes Quiroga, Dominique Philippe Martin, Technology foresight in traditional Bolivian sectors: Innovation traps and temporal unfit between ecosystems and institutions, Technological Forecasting and Social Change, Volume 119, June 2017, Pages 280-293.

[57] Benjamin K. Sovacool, Jakob Jeppesen, Jesper Bandsholm, Joakim Asmussen, Rakulan Balachandran, Simon Vestergaard, Thomas Hauerslev Andersen, Thomas Klode Sørensen, Frans Bjørn-Thygesen, Navigating the "paradox of openness" in energy and transport innovation: Insights from eight corporate clean technology research and development case studies, Energy Policy, Volume 105, June 2017, Pages 236-245.

[58] Roy Shanker, Ramudu Bhanugopan, Beatrice I.J.M. van der Heijden, Mark Farrell, Organizational climate for innovation and organizational performance: The mediating effect of innovative work behavior, Journal of Vocational Behavior, Volume 100, June 2017, Pages 67-77.

[59] Foreman Bandama, Abigail Joy Moffett, Shadreck Chirikure, Typological and technological attributes of metallurgical crucibles from Great Zimbabwe (1000–1700 CE)'s legacy collections, Journal of Archaeological Science: Reports, Volume 12, April 2017, Pages 646-657.

[60] Pavel Chakraborty, Chirantan Chatterjee, Does environmental regulation indirectly induce upstream innovation? New evidence from India, Research Policy, Volume 46, Issue 5, June 2017, Pages 939-955.

[61] Dejing Kong, Yuan Zhou, Yufei Liu, Lan Xue, Using the data mining method to assess the innovation gap: A case of industrial robotics in a catching-up country, Technological Forecasting and Social Change, Volume 119, June 2017, Pages 80-97.

[62] Silvia L. Martin, Rajshekhar G. Javalgi, Erin Cavusgil, Marketing capabilities, positional advantage, and performance of born global firms: Contingent effect of ambidextrous innovation, International Business Review, Volume 26, Issue 3, June 2017, Pages 527-543.

[63] Susan V. Scott, John Van Reenen, Markos Zachariadis, The long-term effect of digital innovation on bank performance: An empirical study of SWIFT adoption in financial services, Research Policy, Volume 46, Issue 5, June 2017, Pages 984-1004.

[64] Joaquín Poblete, Daniel Spulber, Managing innovation: Optimal incentive contracts for delegated R&D with double moral hazard, European Economic Review, Volume 95, June 2017, Pages 38-61.

[65] Yannis Pierrakis, George Saridakis, Do publicly backed venture capital investments promote innovation? Differences between privately and publicly backed funds in the UK venture capital market, Journal of Business Venturing Insights, Volume 7, June 2017, Pages 55-64.

[66] Wenling Liu, Zhaohua Wang, The effects of climate policy on corporate technological upgrading in energy intensive industries: Evidence from China, Journal of Cleaner Production, Volume 142, Part 4, 20 January 2017, Pages 3748-3758.

[67] Duygu Turker, Ceren Altuntas Vural, Embedding social innovation process into the institutional context: Voids or supports, Technological Forecasting and Social Change, Volume 119, June 2017, Pages 98-113.

[68] Frank R. Lichtenberg, Mehtap Tatar, Zafer Çalışkan, The impact of pharmaceutical innovation on health outcomes and utilization in Turkey: A re-examination, Health Policy and Technology, Volume 6, Issue 2, June 2017, Pages 226-233.

[69] Johannes Buhl, Justus von Geibler, Laura Echternacht, Moritz Linder, Rebound effects in Living Labs: Opportunities for monitoring and mitigating re-spending and time use effects in user integrated innovation design, Journal of Cleaner Production, Volume 151, 10 May 2017, Pages 592-602.

[70] Nishant Dass, Vikram Nanda, Steven Chong Xiao, Truncation bias corrections in patent data: Implications for recent research on innovation, Journal of Corporate Finance, Volume 44, June 2017, Pages 353-374.

[71] Ibrahim Dincer, Canan Acar, Innovation in hydrogen production, International Journal of Hydrogen Energy, Volume 42, Issue 22, 1 June 2017, Pages 14843-14864.

[72] Bastien Girod, Tobias Stucki, Martin Woerter, How do policies for efficient energy use in the household sector induce energy-efficiency innovation? An evaluation of European countries, Energy Policy, Volume 103, April 2017, Pages 223-237.

[73] Chie Hoon Song, David Elvers, Jens Leker, Anticipation of converging technology areas — A refined approach for the identification of attractive fields of innovation, Technological Forecasting and Social Change, Volume 116, March 2017, Pages 98-115.

[74] Mika Skippari, Mikko Laukkanen, Jari Salo, Cognitive barriers to collaborative innovation generation in supply chain relationships, Industrial Marketing Management, Volume 62, April 2017, Pages 108-117.

[75] Hanah Zoo, Henk J. de Vries, Heejin Lee, Interplay of innovation and standardization: Exploring the relevance in developing countries, Technological Forecasting and Social Change, Volume 118, May 2017, Pages 334-348.

[76] Himanshu Gupta, Mukesh K. Barua, Supplier selection among SMEs on the basis of their green innovation ability using BWM and fuzzy TOPSIS, Journal of Cleaner Production, Volume 152, 20 May 2017, Pages 242-258.

[77] Valeria Costantini, Francesco Crespi, Alessandro Palma, Characterizing the policy mix and its impact on eco-innovation: A patent analysis of energy-efficient technologies, Research Policy, Volume 46, Issue 4, May 2017, Pages 799-819.

[78] MOTA, Jorge H.F.; MOREIRA, Antonio C. Determinants of the capital structure of Portuguese firms with investments in Angola. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 11 pages, feb. 2017.

[79] BUITENDAG, Natasha; FORTUIN, Gail S.; DE LAAN, Amber. Firm characteristics and excellence in integrated reporting. South African Journal of Economic and

Management Sciences, [S.l.], v. 20, n. 1, p. 8 pages, feb. 2017.

[80] MARTIN-PEREZ, Victor; MARTIN-CRUZ, Natalia. Efficiency of international cooperation schemata in African countries: A comparative analysis using a data envelopment analysis approach. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 13 pages, feb. 2017.

[81] BADENHORST, Wessel M.. Tax preferences, dividends and lobbying for maximum value. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 10 pages, mar. 2017.

[82] DU PLESSIS, Engelina; SAAYMAN, Melville; VAN DER MERWE, Annari. Explore changes in the aspects fundamental to the competitiveness of South Africa as a preferred tourist destination. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 11 pages, mar. 2017.

[83] MATTHEE, Marianne; SANTANA-GALLEGO, Maria. Identifying the determinants of South Africa's extensive and intensive trade margins: A gravity model approach. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 13 pages, mar. 2017.

[84] KLINGELHÖFER, Heinz E. Unintended possible consequences of fuel input taxes for individual investments in greenhouse gas mitigation technologies and the resulting emissions. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 11 pages, mar. 2017.

[85] DIPPENAAR, Marlene; SCHAAP, Pieter. The impact of coaching on the emotional and social intelligence competencies of leaders. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 16 pages, mar. 2017.

[86] FLINT, Emlyn; MARÉ, Eben. Fractional Black–Scholes option pricing, volatility calibration and implied Hurst exponents in South African context. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 11 pages, mar. 2017.

[87] ZULU, Mbalenhle; DE KLERK, Marna; OBERHOLSTER, Johan G.I. A comparison of the value relevance of interim and annual financial statements. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 11 pages, mar. 2017.

[88] HARGARTER, Antje; VAN VUUREN, Gary. Assembly of a conduct risk regulatory model for developing market banks. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 11 pages, mar. 2017.

[89] MPWANYA, Musenga F.; VAN HEERDEN, Cornelius H. A supply chain cost reduction framework for the South African mobile phone industry. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 13 pages, mar. 2017.

[90] ASIWE, Doris et al. Engagement of employees in a research organisation: A relational perspective. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 9 pages, apr. 2017.

[91] VAN WYK, Danielle; DIPPENAAR, Mareli. A critical analysis of the meaning of the term 'income' in Sections 7(2) to 7(8) of the Income Tax Act No. 58 of 1962. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 9 pages, apr. 2017.

[92] SNELGAR, Robin; SHELTON, Stacy A.; GIESSER, Anne. A comparison of South African and German extrinsic and intrinsic motivation. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 12 pages, apr. 2017.

[93] JOUBERT, Christiaan G.; FELDMAN, Joseph A. The effect of leadership behaviours on followers' experiences and expectations in a safety-critical industry. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 11 pages, apr. 2017.

[94] COETZEE, Clive E.; KLEYNHANS, Ewert P.J. The contribution of public capital towards economic growth: A KwaZulu-Natal case study. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 10 pages, apr. 2017.

[95] BOSHOFF, Christo; TOERIEN, Lucea. Subconscious responses to fear-appeal health warnings: An exploratory study of cigarette packaging. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 13 pages, apr. 2017.

[96] RATEIWA, Ronald; AZIAKPONO, Meshach J. Non-bank financial institutions and economic growth: Evidence from Africa's three largest economies. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 11 pages, may 2017.

[97] EHLERS, Lukas I. Conceptualising primary labour relationship quality. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 11 pages, may 2017.

[98] CHARMAN, Andrew. Micro-enterprise predicament in township economic development: Evidence from Ivory Park and Tembisa. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 14 pages, may 2017.

[99] SINYOLO, Sikhulumile; MUDHARA, Maxwell; WALE, Edilegnaw. The impact of social grant dependency on smallholder maize producers' market participation in South Africa: Application of the double-hurdle model. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 10 pages, may 2017.

[100] CRUYWAGEN, Hoffie; LLALE, Josephine. The role of quantity surveyors in public–private partnerships in South Africa. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 7 pages, may 2017.

[101] BOSHOFF, Christo. An assessment of consumers' subconscious responses to frontline employees' attractiveness in a service failure and recovery situation. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 13 pages, june 2017.

[102] LIEBENBERG, Francois; VAN VUUREN, Gary; HEYMANS, Andre. Contingent convertible bonds as countercyclical capital measures. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 17 pages, june 2017.

[103] DE JONGH, Pieter J. (Riaan) et al. A proposed best practice model validation framework for banks. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 15 pages, june 2017.

[104] SEJKORA, Jiri; SANKOT, Ondrej. Comparative advantage, economic structure and growth: The case of Senegal. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 9 pages, june 2017.

[105] STURDY, Joline; CRONJE, Christo J. The levels of disclosure relating to mine closure obligations by platinum mining companies. South African Journal of Economic and

Management Sciences, [S.l.], v. 20, n. 1, p. 8 pages, june 2017.

[106] GEBREHIWOT, Kidanemariam. The impact of agricultural extension on farmers' technical efficiencies in Ethiopia: A stochastic production frontier approach. South African Journal of Economic and Management Sciences, [S.l.], v. 20, n. 1, p. 8 pages, june 2017.

[107] Abdol Majid Saadat Nezhad, Tahmoures Sohrabi, Nasrollah Shadnoosh, Abbas Toloie Eshlaghy, Abdol Hamid Saadat Nezhad, Review on Effective Implementation of Technological Venture Capital Strategies by Ayandeh Bank, Management 2017, 7(4): 147-156, DOI: 10.5923/j.mm.20170704.02.