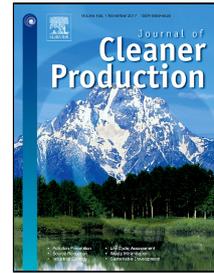


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Envisioning the invisible: understanding the synergy between Green Human Resource Management and Green Supply Chain Management in Manufacturing Firms in Iran in light of the moderating effect of employees' resistance to change



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Envisioning the invisible: understanding the synergy between Green Human Resource Management and Green Supply Chain Management in Manufacturing Firms in Iran in light of the moderating effect of employees' resistance to change

Abstract

This study investigates the linkage between green human resource management and green supply chain management, in light of the moderating effect of employees' resistance to change. Based on a sample of 161 firms in manufacturing industries in Iran, data were analyzed using partial least squares structural equation modeling (PLS-SEM). Research results suggest: (1) the significant and positive impact of GHRM on GSCM, confirming the general call for integration between HRM and green management; (2) "Green Development and Training", "Green Employee Empowerment", and "Green Pay and Reward" have the most positive influence on GSCM, and these practices of GHRM should receive attention from managers; (3) "Resistance to Change" was found to have a moderating effect on the link between GHRM (particularly green recruitment and selection) and GSCM, because it tends to hamper the first step towards building a sustainable corporate culture, which is the recruitment and selection of new employees. This work can be considered as the first empirical effort towards a better understanding of the GHRM-GSCM link in Iran, adding value to the already existing contributions. The managerial and academic implications of these findings are discussed.

Keywords: green supply chain management, green human resource management, sustainable operations, sustainable human resource management, Iran

1. Introduction

There has been an exerting pressure on organizations to adopt responsible practices across all layers of their supply chain (Mathiyazhagan, Govindan, NoorulHaq, & Geng, 2013) in order to build up excellence in sustainable management (Dubey, Gunasekaran, & Papadopoulos, 2017). This new business atmosphere aims to reduce environmental impacts towards a low carbon economy and has substantial influences on how companies manage their supply chain (Chen & Chen, 2017; Luo, Gunasekaran, Dubey, Childe, & Papadopoulos, 2016). In search for low carbon and more sustainable supply chain, organizations around the world have adopted a variety of green practices and concepts in an emerging topic called low carbon operations and supply chain. To this end, green supply chain management (GSCM) has emerged as a cutting-edge approach to balance the organizational economic, social, and environmental requirements (Wu & Chang, 2015). GSCM encompasses green purchasing and procurement, green manufacturing and materials management, green packaging, green distribution and marketing, and reverse logistics (Gandhi, Mangla, Kumar, & Kumar, 2015; Jayant & Azhar, 2014). It can be induced by demand from the market and community groups as well as the need for full compliance with more stringent environmental regulations (Testa & Iraldo, 2010).

Green supply chain management allows an organization to achieve its economic goals, reduce environmental risks, minimize its adverse environmental impacts, and improve the ecological efficiency of the organization and its associates throughout the supply chain (Zhu, Sarkis, & Lai, 2008). It aims to minimize or eliminate wastages comprising hazardous chemical, emissions, energy and solid waste along the supply chain (T. A. Chin, Tat, & Sulaiman, 2015),

and to mitigate climate change (Luo et al., 2016) and pave the way towards sustainable manufacturing. To summarize, there are several works that have proved the positive impacts of GSCM on the performance of firms (Laari, Töyli, Solakivi, & Ojala, 2016; Li, Jayaraman, Paulraj, & Shang, 2016; Mitra & Datta, 2014; Tachizawa, Gimenez, & Sierra, 2015; Vijayvargy & Agarwal, 2014).

Successful implementation of green supply chain and environmental management depends on behavioral aspects (Graves, Sarkis, & Zhu, 2013; Teixeira, Jabbour, & de Sousa Jabbour, 2012; Unnikrishnan & Hegde, 2007; Wagner, 2013), named as “the soft dimension” of GSCM (Dubey et al., 2017). Furthermore, according to the resource-based theory (Hart & Dowell, 2010), the alignment between human resource management and environmental management can help firms to overcome barriers to adopting collaboration with consumers and green purchasing (Teixeira, Jabbour, de Sousa Jabbour, Latan, & de Oliveira, 2016). For example, the effective implementation of environmental management system can only be achieved if the right person with the right skills and competencies is hired for the right job (Ashraf, Ashraf, & Anam, 2015). Because of this, scholars around the world have defended that sustainability is part of the HRM evolution and future (Jackson, Schuler, & Jiang, 2014; Renwick, Jabbour, Muller-Camen, Redman, & Wilkinson, 2016). Green HRM equips organizations with environmentally conscious, committed and competent employees which can help the organization to minimize its carbon footprints through the efficient and effective use of existing resources including telecommunication tools, less printing of papers, job sharing, and video conferencing (Ashraf et al., 2015).

Green HRM is essential for the effective greening of organizations (Aragón-Correa, Martín-Tapia, & Hurtado-Torres, 2013; Cantor, Morrow, & Montabon, 2012). Therefore, GHRM and GSCM complement each other and must be studied in tandem. However, to the date, the

integration between GHRM and GSCM (Dubey et al., 2017; Jabbour & de Sousa Jabbour, 2016) has been more mentioned as a research gap than a well-understood topic.

Despite recent studies on green HRM (Dumont, Shen, & Deng, In Press; Guerci, Longoni, & Luzzini, 2016; Haddock-Millar, Sanyal, & Müller-Camen, 2016; O'Donohue & Torugsa, 2016; Pinzone, Guerci, Lettieri, & Redman, 2016), not only the volume of scholarly work focusing on GHRM remains small, but also there are still persistent research gaps in the literature (Jackson, Renwick, Jabbour, & Muller-Camen, 2011). One of the most substantial gaps regards to: *Does green human resource management influence the implementation of green supply chain management? Is this relationship moderated by employees' resistance to change?* Consequently, the first objective of this research is to investigate the linkage between green human resource management and green supply chain management. Despite earlier research on integration of human resource management and supply chain management (e.g., Ellinger & Ellinger, 2013; Lengnick-Hall, Lengnick-Hall, & Rigsbee, 2013), the integration of the 'green version' of these concepts is still under-researched. The second objective is to test the moderating effect of employees' resistance to change on the relationship between GHRM and GSCM. Resistance to change and advanced technology adoption has been regarded as a key barrier to green supply chain management (Grant, 1996; Jayant & Azhar, 2014). Therefore, this study proposes that the relationship between GHRM and GSCM is stronger when resistance to change is weaker.

The research propositions developed in the current study were empirically tested using data obtained from 161 manufacturing firms in Iran, and analyzed through partial least squares structural equation modelling (PLS-SEM). So far, the state-of-the-art literature on the integration between GHRM and GSCM is either merely conceptual/theoretical (Jabbour & de Sousa Jabbour, 2016) or based on evidence from mature and well-developed economies, such as Italy (Longoni, Luzzini, & Guerci, In Press). As a transitional economy, Iran has a high

development potential and is regarded as a member of the *Next Eleven* (Lynn, 2014). The country has made considerable developments over the years and lifting of the stringent economic sanctions from the country has made its economic prospects even brighter.

Iran is regarded as one of the major contributors to the global greenhouse gas emissions. This is mainly attributed to excessive waste and outdated manufacturing facilities which leads to inefficient consumption of energy and natural resources. Iran has been part of major environmental agreements over the past decades, which includes Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Hazardous Wastes, Marine Dumping, Ozone Layer Protection, and the Paris Agreement. Iran's more relevant environmental impacts relate to industrial activity and the use of manufactured goods. Air pollution has been a major concern, especially in highly-urbanized areas, as a consequence of vehicle emissions, refinery operations, and industrial effluents. Iran tends to face as much environmental challenges as other emerging economies face. As such, Iran plays a vital role in the regional and global economy, and has environmental challenges which are typically faced by emerging economies. On the other hand, the link between GHRM and GSCM has not been studied by taking into account the Iranian context, so investigating it can offer valuable and innovative insights to both researchers and practitioners.

Consequently, the uniqueness of this work can be described as:

- The link between GHRM and GSCM has been proposed almost exclusively in conceptual terms, and has not been tested empirically. This work presents empirical evidence on this;
- The link between GHRM and GSCM has not been addressed by considering “resistance to change” as a moderator. This work is the first to explore this complex moderation;

- Empirical evidence from Iranian firms is a major gap in the literature, either in terms of knowledge on GHRM, or on GSCM. This research adds original evidence from Iran to the literature both on GHRM and GSCM.

The manuscript is organized as follows. After this Introduction (Section 1), the theoretical framework and the research hypotheses are presented (Section 2), followed by the research methodology (Section 3). Research results (Section 4) are analyzed and discussed (Section 5) before presenting the final remarks of this work (Section 6).

2. Theoretical Framework and Hypotheses Development

Green supply chain management is an emerging widely-diffused perspective among companies that are aiming to enhance their environmental performance (Testa & Iraldo, 2010). It is becoming increasingly important for organizations with heightened global awareness in environmental impacts (Coskun, Ozgur, Polat, & Gungor, 2016) as it minimizes their overall environmental footprint (Yu, Chavez, Feng, & Wiengarten, 2014). GSCM which has roots both in environmental management and supply chain management literature, can be defined as the integration of environmental thinking into supply chain management (Srivastava, 2007). It comprises a set of environmental practices throughout the product value chain (Zhu et al., 2008), promotes environmental innovation (Rao & Holt, 2005), and plays a substantial role for firms' environmental and economic performance (Pishvaei & Razmi, 2012).

Implementation of green supply chain management through specific manufacturing practices aimed at resource use reduction and waste minimization can lead to lower cost of materials purchase and energy consumption. This has positive impact on firms' financial performance accrued from cost reduction, market share growth and profit increase (Mathiyazhagan et al., 2013; Mutingi, Mapfaira, & Monageng, 2014).

While there is an overall perception that GSCM paves the way for a more-advanced sustainable performance of organizations, its implementation is still a challenge due to several obstacles such as implementation cost (Abbasnejad, Khaksar, Gashtasbi, & Darabi, 2015; Jayant & Azhar, 2014), financial constraints and pressure for lower prices (Walker, Di Sisto, & McBain, 2008), lack of government support systems to adopt environmental-friendly policies (Luthra, Kumar, Kumar, & Haleem, 2011), fear of failure (Jayant & Azhar, 2014), and lack/adequate quality of human resources (Luthra et al., 2011; Mathiyazhagan et al., 2013).

According to the resource-based view of green supply chain (Sarkis, Zhu, & Lai, 2011), the alignment between human resource management and environmental management can help firms to overcome barriers to adopting green supply chain management. Cleaner production, as a specific tool of implementing GSCM, requires competent green employees who are environmentally conscious and responsible. Green HRM incorporates management of environmental activities into HRM (Ashraf et al., 2015) and aligns traditional human resource practices and environmental policies. This can be achieved through enabling the organization to attract talents and acquire the necessary knowledge, skills and competence (Nejati & Ahmad, 2015). Nonetheless, there is a lack of reported studies on the influence of GHRM systems on environmental outcomes or organizational performance metrics (Renwick, Redman, & Maguire, 2013). As this is an emerging field of research (Jackson et al., 2014), additional research is necessary to understand challenges, opportunities, and paradoxes (Ehnert, Parsa, Roper, Wagner, & Muller-Camen, 2016). As such, there has been a call for empirical research investigating the impact of GHRM on GSCM (Jabbour & de Sousa Jabbour, 2016).

Jabbour and Santos (2008) enumerated several roles of human resource for environmental management in companies such as support for environmental management system, development of organizational change, and alignment of functional dimensions. Each phase of an environmental management system requires specific support by human resource, with

emphasis on recruitment and selection, training, performance evaluation, and rewards for employees (Jabbour & de Sousa Jabbour, 2016), encompassing some of the dimensions of green HRM. As suggested by earlier studies, GHRM within an organization enhances a shared value among employees, as it improves green empowerment (Daily, Bishop, & Massoud, 2012; Daily & Huang, 2001; Gholami, Rezaei, Saman, Sharif, & Zakuan, 2016) and facilitates implementation of green supply chain management. Therefore, GHRM can contribute to greater employee engagement in sustainability management (Teixeira et al., 2016), resulting in improved management of green supply chain activities by an organization. Building on these arguments, it is hypothesized that:

H1: Green human resource management positively influences green supply chain management in a sample of companies in Iran.

H1a: Green recruitment and selection positively influences green supply chain management in a sample of companies in Iran.

H1b: Green development and training positively influences green supply chain management in a sample of companies in Iran.

H1c: Green employee empowerment positively influences green supply chain management in a sample of companies in Iran.

H1d: Green pay and reward system positively influences green supply chain management in a sample of companies in Iran.

H1e: Green performance management and appraisal positively influences green supply chain management in a sample of companies in Iran.

It is known that there is resistance to change in any organization and that managers must overcome it (Graves et al., 2013). Resistance to change is known to mold the behavior of people in organizations (Dent & Goldberg, 1999). It can halt the green change process (Lozano,

Nummert, & Ceulemans, 2016). To ensure successful and sustainable change, top management must predict and neutralize any resistance that may occur. Several studies have considered reluctance to give up old habits as common characteristic of resistance to change (Tichy, 1983; Watson, 1971). Given that green HRM and green supply chain management are relatively new approaches (Longoni et al., In Press), organizations which have higher level of resistance to change among their workforce will have more difficulty in practicing them. Resistance to change is a common phenomenon when adopting green supply chain management (Govindan, Muduli, Devika, & Barve, 2016). Therefore, higher resistance to change in an organization is expected to moderate and negatively influence the relationship between GHRM and GSCM. As such, it is anticipated that resistance to change would make the link between green HRM dimensions and GSCM weaker. Therefore, it is hypothesized that:

H2: Resistance to change moderates the link between green human resource management and green supply chain management.

Figure 1 depicts the theoretical framework of the current study which was empirically tested in the context of Iran. It includes direct effects from dimensions of green HRM towards green supply chain management, as well as the moderating effect of resistance to change in these links.

Figure 1 should appear here.

3. Methods

3.1. Data Collection

Data for this study were collected using questionnaires. All measures were rated on a five-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The proposed model of the current study comprises 5 exogenous variables representing dimensions of green human resource management. All of the GHRM dimensions were measured using measurement scale adapted from Jabbour, Santos, and Nagano (2010), except items for green employee empowerment which were adapted from Kaur (2011). Cronbach's Alpha for the scales ranged from 0.84 to 0.93, which is considered plausible. Sample items include: "The company is rigorous in recruiting and selection of new employees with environmental knowledge, concern and attitude" (Green Recruitment and Selection), "Extensive environmental training programs are provided for individuals in the company" (Green Development and Training), "Achievement of environmental goals is used as one of the criteria in employee performance appraisal" (Green Performance Management and Appraisal), "Employees are rewarded for making suggestions for improvement on environmental programs" (Green Pay and Reward), and "Employees can express their opinions openly and freely without fear of reprisal" (Green Employee Empowerment).

Items for measuring green supply chain management were adapted from established sources (Dubey, Gunasekaran, Papadopoulos, & Childe, 2015; Teixeira et al., 2016; Tseng, Lin, Lin, Chen, & Tan, 2014; Zhu, Geng, Sarkis, & Lai, 2011; Zhu et al., 2008). Some of the items includes Suppliers' ISO14000 certification, environmental audit for suppliers at regular interval, cooperation with suppliers to achieve green goals, and availability of green guidelines to suppliers. Cronbach's Alpha for the scale was 0.96, considered adequate. Lastly, resistance to change was measured using items adapted from Laumer, Maier, Eckhardt, and Weitzel (2016). Cronbach's Alpha for the scale was 0.75, which is sufficient. Sample items for resistance to change included:

- Overall employees in the company like to do the same old things rather than try new and different ones.
- When someone pressures employees in the company to change something, they tend to resist it even if they think the change may ultimately benefit them.

The list of items is presented in the Appendix. While the original version of the questionnaire was in English, it was translated into the local language (Persian) and validated using back-translation technique through a panel of experts prior to data collection. Required data for this study was collected through questionnaire via post using prepaid envelope. As the study population consisted of manufacturing industries in Iran, 400 companies were randomly selected from the database of manufacturing industries. To collect the data, the research team directly contacted each organization's HR manager, or HR senior personnel in some cases, and after coordinating with them, sent them the survey. The cover letter accompanying the survey requested that the questionnaire be completed by a senior officer/executive in charge of supply chain management. The data was collected within 4 weeks from April to May 2016. After one follow-up, 161 usable questionnaires were returned, mainly from food (51.6%) and cosmetic (30.4%) industries, yielding a response rate of 40.3%, which was considered satisfactory for subsequent analysis. The obtained response rate was higher than overall response rates in the field of operations management (Synodinos, 2003). Recommendations from the literature were followed to minimize and control for common method biases arising from using the same source of data for assessing both the predictors and the criteria (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

3.2. Data Analysis

This study employed partial least squares structural equation modelling (PLS-SEM) for data analysis due soft distributional assumptions, exploratory and prediction-oriented nature of the study, model complexity, and ease of model specification and model interpretation. Structural equation modeling offers a direct approach to simultaneously deal with multiple dependency relationships represented with unobservable concepts with statistical efficiency (Hair, Anderson, Tatham, & Black, 2006). The covariance-based (CB) structural equation modelling was not used in this study as CB-SEM is a full information algorithm which requires relatively strong theoretical and substantive background knowledge for adequate deployment (W. W. Chin, 2010). PLS path modeling is preferred over alternative covariance-based techniques when the primary objective of the study relates to causal-predictive analysis rather than theory testing (Hair, Hult, Ringle, & Sarstedt, 2014). Therefore, after conducting searches on scientific data-bases (ISI Web of Science and Scopus), it is possible to conclude that there is a lack of sufficient prior studies linking GHRM to GSCM, and as such PLS-SEM was the suitable data analysis technique for this study.

The analysis started with the assessment of measurement model. Upon confirmation of the measurement theory and ensuring the validity and reliability of the measurement model, the structural model was assessed for hypotheses testing. To assess the measurement model in SmartPLS, item loadings, average variance extracted (AVE), composite reliability (CR), and reliability of measurement constructs were examined (Table 1). After removing two items due to poor loading, one from employee empowerment and one from resistance to change, all the measured constructs demonstrated convergent validity by having item loadings greater than 0.70 and AVE values greater than 0.50. In addition, the internal consistency for reliability of the measurement models was demonstrated through both Cronbach's alpha and CR values greater than 0.70 for all constructs. According to Fornell and Larcker (1981), discriminant validity is proven if a latent variable's AVE is larger than the common variances (squared

correlations) of the latent variable with other variables in the model. This was established in the current study (Table 2), confirming the discriminant validity of the measurement model.

Table 1 should appear here.

Table 2 should appear here.

After confirming the measurement model, a nonparametric bootstrapping procedure was applied to evaluate the structural model and test the significance of path models. Bootstrapping allows researchers to simulate a larger sample size by redrawing records already in the sample and place the drawn record back into the sampling pool to potentially be picked again. In the study, bootstrapping process with 161 observations per sample, 5000 resamples and no sign changes was used to determine the significance levels of path coefficients. Table 3 shows a summary of the structural model analysis.

4. Results

Study findings revealed that among the direct relationships between dimensions of green HRM and green supply chain management (Hypothesis 1), three sub-hypotheses were statistically supported, showing the positive influence of green human resource management to stimulate improved green supply chain management in organizations. As such, hypothesis 1 was partially supported. The greatest influence on green supply chain management was caused by green

employee empowerment (Path Coefficient: 0.428, Sig. at 0.01), followed by green development and training (Path Coefficient: 0.309, Sig. at 0.01) and green pay and reward (Path Coefficient: 0.178, Sig. at 0.05). This finding highlights the importance of empowering employees and providing environmental-related training and development for them in supporting green supply chain management in the company.

The second hypothesis examined the moderating effect of resistance to change in the above-mentioned relationships. Findings of this research revealed the moderating role of resistance to change only in one relationships. Resistance to change was found to negatively moderate the link between green recruitment and selection and green supply chain management. In other words, the positive relationship between GRS and GSCM is stronger when the organization faces a lower level of resistance to change among its employees. For an organization which faces a high level of resistance to change among its employees, despite emphasizing on green recruitment and selection, it would be more difficult for the company to uplift its culture and move towards creating green supply chain management.

Table 3 should appear here.

5. Discussion

The relationship between human resources and supply chain is a contemporary field of research, which deserves additional attention (Ellinger & Ellinger, 2013; Lengnick-Hall et al., 2013). Within this field, a more specific relationship has been neglected by the academia: the relationship between green HRM and green supply chain management. While there is a call for integration between HRM and green management (Daily & Huang, 2001; Jackson et al., 2014;

Renwick et al., 2016; Renwick et al., 2013), to the date there is no empirical evidence about the complexity of Green HRM and green supply chain management relation. When this relationship is considered by scholars, they either have a narrowed perspective on the subject; for example, focusing only on a particular practice of human resource, such as training (Teixeira et al., 2016) or a theoretical perspective, which lacks empirical evidence (Jabbour & de Sousa Jabbour, 2016). A more comprehensive framework, which connects the most relevant practices of Green HRM to green supply chain management is a major gap in literature. The gap is even more acute when a debate on resistance to change is added. Nevertheless, adding resistance to change as a negative moderator of the relationship between green HRM and green supply chain management is necessary, since adopting green supply chain management is a process that faces many barriers (Govindan et al., 2016). In this work, we not only presented an original framework inspired by emergent literature (Jabbour & de Sousa Jabbour, 2016), but also added empirical evidence from an emerging economy.

Overall, findings of this study revealed that the majority of the direct relationships between dimensions of green HRM and green supply chain management was statistically supported. It is aligned with arguments that human resource management is vital for successfully managing corporate sustainability (Jackson et al., 2014; Renwick et al., 2016; Renwick et al., 2013). Delving into the results, regarding the Hypothesis 1, three sub-hypotheses were statistically supported, showing the positive influence of green human resource management to stimulate improved green supply chain management in organizations. As such, hypothesis 1 was partially supported. According to Sharma, Chandna, and Bhardwaj (2017), green manufacturing aims at lowering environmental impact of the organization through better consumption and reducing utilization of energy and raw supplies. Study findings revealed that green HRM stimulates such initiatives. Earlier studies conducted on HRM and SCM have shown a positive association between the two, indicating that human resource factors mitigate the adverse effects of

implementation barriers on the success of SCM practices (Jabbour & de Sousa Jabbour, 2016). The results of this study show that among five GHRM dimensions, only three aspects including green development and training, green employee empowerment, and green pay and reward can directly affect green supply chain management. A partial validation of Hypothesis 1, in which three out of five HRM practices showed positive links to GSCM, reveals the complexity of green HRM, as it is an emerging organizational practice, which may have inconsistencies (Ehnert et al., 2016).

Green empowerment and green training, respectively, were the two green HRM dimensions that exerted great influence on green supply chain. Findings show alignment with Daily et al. (2012), who found that both green training and empowerment are relevant for a better environmental performance. However, while Daily et al. (2012) found that training was more influential than empowerment, the current research suggests the opposite. This finding highlights the importance of empowering employees and providing environmental-related training and development for them in supporting green supply chain management in the company.

As suggested by Teixeira et al. (2016), firms adopting GSCM practices should empower their employees through green awareness and skills by means of green training, because the results showed the relevance of green training for the success of GSCM implementation. They indicated that organizational learning and the alignment of human resources practices are crucial to the greening of firms, as they reduce barriers to GSCM adoption. Besides, Sarkis, Gonzalez-Torre, and Adenso-Diaz (2010) accentuated that training plays a crucial role in building organizational capacities and knowledge of the workers, enabling employees to understand how the environment will affect and is affected by their duties and decisions. Therefore, green training and development can be a major catalyst in green supply chain management of an organization.

The third positive relationship between green HRM and green supply chain was green pay and reward, as mentioned before by Daily and Huang (2001), Renwick et al. (2013) and Jabbour and Santos (2008). It suggests that green empowerment and training need to be supported by incentives and rewards for performers who demonstrate a good environmental performance. This finding is aligned to Jabbour et al. (2010), which affirms that firms with a clear strategy for green rewards tend to be more environmentally-proactive than others.

The second hypothesis examined the moderating effect of resistance to change in the above-mentioned relationships. Our findings suggest that resistance to change was found to negatively moderate the link between green recruitment and selection and green supply chain management. In other words, the positive relationship between GRS and GSCM is stronger when an organization faces a lower level of resistance to change among its employees. This finding is relevant as recruitment and selection of environmentally-oriented employees is a necessary step for creating a greener corporate culture (Jabbour, 2011). However, companies can face significant levels of internal resistance to change, which, in the end, can harm the insertion of green aspects during recruitment and selection processes. As suggested by Jabbour et al. (2010), only environmentally-proactive companies are capable of reducing resistance to change towards sustainability and start inserting green recruitment and selection practices. Managers in charge of green supply chain management should pay attention to this green HRM practice (Jabbour & de Sousa Jabbour, 2016).

Finally, it is necessary to point out that this work adds value because it portrays a survey on the relationship among green HRM, green supply chain management and resistance to change. To the date, the literature has not presented similar contribution. The literature is either conceptual (Jabbour & de Sousa Jabbour, 2016) or fragmented by focusing on a limited number of green HRM practices (Teixeira et al., 2016) or doesn't consider the relevance of resistance to change. The current research also adds a new international perspective on the debate on

green HRM by considering a sample of Iranian companies, in a research field that already has evidence from Brazil (Jabbour, 2011; Jabbour et al., 2010), Spain (Sarkis et al., 2010), Italy (Guerci et al., 2016), Germany (Wagner, 2013), among others. Our findings portray both similarities and differences between empirical evidence and the literature (Jabbour & de Sousa Jabbour, 2016), and signal that understanding the relationship between HRM and sustainability is a complex task (Ehnert et al., 2016) that deserves further studies.

Iran as a developing country which passes its own industrialization stages, encounters problems and issues regarding industrial pollutants and harmful emissions. Rapid growth of industry and industrial development has put the natural environment of the country under pressure. In addition, applying unsuitable and old technologies and ineffective management in the manufacturing industry has resulted in unsustainable consumption of natural resources. Nonetheless, there is a growing number of companies which recognize the importance of environmental management as a strategic imperative for the business sustainability. For example, some companies have started recruiting environmentally conscious employees and practice some green HRM practices. As a result of these changes and initiatives, organizations appear to show more concern regarding their environmental and social footprint in the community.

6. Final Remarks

In the lack of prior empirical studies linking GHRM and GSCM, and in response to the call by Jabbour and de Sousa Jabbour (2016), the current study aims to fill this research gap by investigating the role of GHRM in stimulating GSCM practices in manufacturing industries of Iran. Study findings from a developing country perspective complement the existing insights from developed countries (e.g. Spain, Italy, and Germany). Results suggest the following original contributions to the field of research on green HRM-GSCM:

- the significant and positive impact of GHRM on GSCM, confirming the general call for integration between HRM and green management (Jackson et al., 2014; Renwick et al., 2016), and, more precisely, between green HRM and GSCM (Jabbour & de Sousa Jabbour, 2016).
- “Green Development and Training”, “Green Employee Empowerment”, and “Green Pay and Reward” have the most positive influence on GSCM practices in manufacturing organizations, confirming previous studies on the paramount role of training (Teixeira et al., 2016), empowerment (Daily et al., 2012) and pay and reward (Jabbour et al., 2010) towards environmentally-proactive firms.
- “Resistance to Change” was found to have a moderating effect in the link between GRS and GSCM, indicating that organizations which face a higher resistance to change among their employees will have a barrier in the implementation of green supply chain management. It is because resistance to change tends to hamper the first step towards building a sustainable corporate culture, which is the recruitment and selection of new employees.
- This work can be considered the first empirical effort towards a better understanding of the GHRM-GSCM link in Iran, adding value to the already existing contributions.

These findings have a number of potential implications for managers and scholars, which are outlined in the following sections.

6.1. Managerial Implications

In the face of mounting environmental regulations, organizations have incorporated environmental issues in their strategic planning (Raut, Narkhede, & Gardas, 2017). Investigating and demonstrating the link between specific practices of green HRM and

environmental strategic goals of an organization (including green supply chain management) can have several managerial and practical implications as the following:

- Supply chain managers in charge of implementing green supply chain practices should pay attention to human aspects. In this context, human resource managers can support supply chain managers to pursue this common objective.
- Managers should start implementing green supply chain by providing empowerment, training, and a clear pay and reward system, as this work found that “Green Development and Training”, “Green Employee Empowerment”, and “Green Pay and Reward” are the most relevant influences of GHRM on GSCM
- Regarding green development and training, managers will need to precisely know the topics on sustainability that should be covered during training sessions. Additionally, training can be offered not only for employees, but also for suppliers in the supply chain.
- Regarding “green employee empowerment”, managers can motivate employees by promoting the formation of green teams. Through green teams, employees will be able to share ideas, and select the best ones to be implemented towards a greener supply chain..
- On the other hand, managers should develop a wide range of green rewarding initiatives that are both financial and non-financials. Thus, a reward system recognizing green initiatives and practices could be designed and implemented in the organization to encourage more participation of employees in the green initiatives. For example, green awards can be promoted across the entire supply chain to recognize the best environmental initiatives of employees and suppliers.

- Managers should be aware that resistance to change can hamper efforts of green supply chain management, especially by avoiding the recruitment and selection of specialists in this area who are environmentally conscious.

6.2. Implications for Researchers

This work has implications not only for managers but also for academicians working either on GHRM or GSCM. For academics in GHRM, this research aims at promoting the relevance of interdisciplinary research. It is important to consider that supply chains are generators of a number of environmental impacts, and therefore supply chain management can be an important context for exploring GHRM initiatives. Regarding implications for the GSCM community, the main implications are that scholars can consider not only the technical aspects of designing GSCM, but also the “soft side” of inserting green issues into supply chain. To summarize, this work suggests moving forward interdisciplinary research on the nexus between human aspects and green supply chain.

This work therefore suggests that the topics “Green Development and Training”, “Green Employee Empowerment”, and “Green Pay and Reward” could be explored in future research, by considering the context of supply chain. Once the state-of-the-art literature has more examples on the integration between GHRM-GSCM, it will be possible to design and update teaching modules on the topics, in order to build up the capacity of the future generation of managers.

6.3. Study Limitations

This study is not without limitations. Results are based only on the Iranian context. Control variables, such as debt ratio, level of internationalization and age of the company, can also be adopted in future research models. Another limitation could be caused by the potential bias

effect resulting from data collection approach dealing with managers' perceptions and only coming from a single source. Social desirability bias has also become a concern in sustainability studies, leading to less accurate responses (Roxas & Lindsay, 2012). The current study, however, tried to minimize this bias by assuring respondents on the confidentiality of their responses and informing them about the academic nature and objectives of this research. This study conceptualized and measured green supply chain management as an integrated construct. However, according to Zhu et al. (2008), GSCM practices encompass a range of activities from green purchasing to integrated life cycle management supply chain. These activities flow from supplier, through to manufacturer, customer and closing the loop with reverse logistics. Therefore, future studies can look at different dimensions of GSCM.

Finally, the undetected moderating effect of resistance to change in the impact of three GHRM dimensions on GSCM could be attributed to the low reliability estimates of the product components (i.e. moderator times independent variable), which can underestimate the moderating effect and even cause it to go undetected (Aguinis, Edwards, & Bradley, 2016). In the current study, the reliability estimate for the product components of the undetected moderating effects range from 0.65 to 0.69, which could cause the moderating effect to go undetected. To avoid this limitation, future studies should strive to minimize the measurement error in independent and moderator variable as much as possible, include the full range of possible values in the variables, and increase the sample size to achieve a higher statistical power in detecting the moderating effect in the model.

While this study offers valuable implications for managers and researchers as outlined above, the generalization of study findings to other emerging economies should be made with caution. This study focused on a specific sample of firms in Iran. More research, as suggested in Section 6.2 can be developed to expand the level of generalization of the body of knowledge on GHRM-GSCM. For example, cross-country studies and comparative perspectives could be

developed in order to understand the possibilities and limitations of GSCM in different national contexts.

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Figures

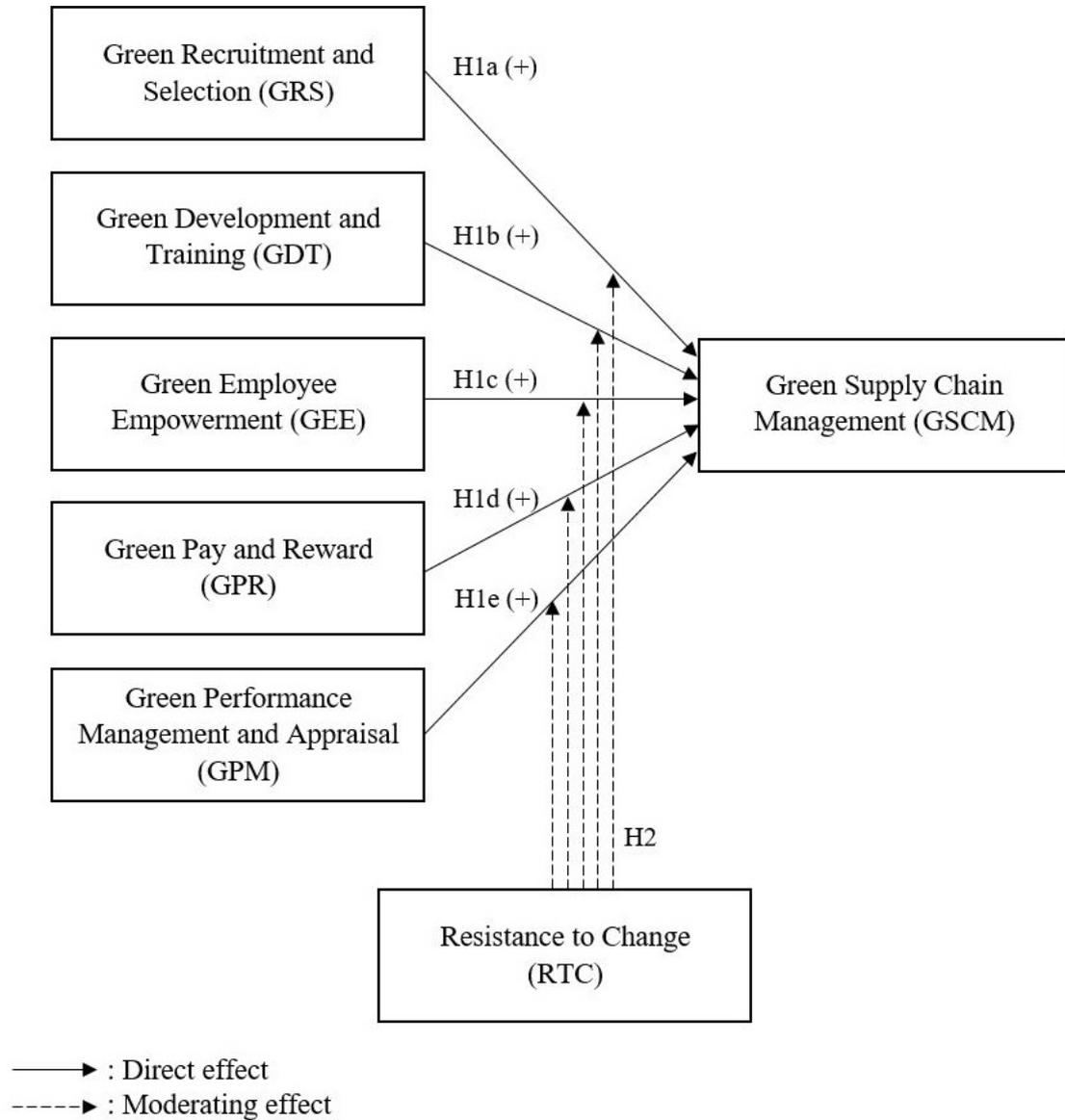


Figure 1: Conceptual Framework

Tables

Table 1: Item loadings, AVE, composite reliability and Cronbach's alpha assessment

Construct scale	Item	Loadings	AVE	Composite reliability	Cronbach's alpha
Green Recruitment and Selection (GRS)	Item 1	0.931	0.823	0.949	0.928
	Item 2	0.918			
	Item 3	0.866			
	Item 4	0.912			
Green Development and Training (GDT)	Item 1	0.838	0.709	0.924	0.897
	Item 2	0.865			
	Item 3	0.845			
	Item 4	0.825			
	Item 5	0.836			
Green Employee Empowerment (GEE)	Item 1	0.835	0.696	0.920	0.891
	Item 2	0.839			
	Item 3	0.813			
	Item 4	0.855			
	Item 5	0.828			
Green Pay and Reward (GPR)	Item 1	0.877	0.750	0.923	0.889
	Item 2	0.854			
	Item 3	0.886			
	Item 4	0.847			
Green Performance Management and Appraisal (GPM)	Item 1	0.761	0.675	0.892	0.839
	Item 2	0.861			
	Item 3	0.871			
	Item 4	0.788			
Resistance to Change (RTC)	Item 1	0.905	0.646	0.844	0.746
	Item 2	0.704			
	Item 3	0.789			
Green Supply Chain Management (GSCM)	Item 1	0.765	0.638	0.968	0.964
	Item 2	0.801			
	Item 3	0.733			
	Item 4	0.763			
	Item 5	0.797			
	Item 6	0.825			
	Item 7	0.790			
	Item 8	0.822			
	Item 9	0.812			
	Item 10	0.781			
	Item 11	0.827			
	Item 12	0.814			

Item 13	0.801
Item 14	0.832
Item 15	0.834
Item 16	0.816
Item 17	0.759

Table 2: Discriminant validity of constructs

	GEE	GSC M	GDT	GPR	GPM	GRS	RTC
GEE	0.834						
GSCM	0.795	0.799					
GDT	0.658	0.745	0.842				
GPR	0.803	0.766	0.742	0.866			
GPM	0.702	0.690	0.819	0.776	0.821		
GRS	0.635	0.666	0.810	0.655	0.716	0.907	
RTC	0.206	0.261	0.218	0.272	0.251	0.122	0.804

Table 3: Hypotheses and results (*P<0.05; **P<0.01)

Hypothesis	Path	Path coefficient	t- statistics	p-value	Decision
H1: Direct Effect					
H1a	GRS→GSCM	0.101	1.281	0.100	Not Supported
H1b	GDT→GSCM	0.309	2.931	0.002**	Supported
H1c	GEE→GSCM	0.428	4.299	0.000**	Supported
H1d	GPR→GSCM	0.178	1.670	0.048*	Supported
H1e	GPM→GSCM	-0.089	1.175	0.120	Not Supported
H2: Moderating effect of RTC on:					
H2a	MOD: GRS→GSCM	-0.127	1.661	0.048*	Supported
H2b	MOD: GDT→GSCM	-0.043	0.388	0.349	Not Supported
H2c	MOD: GEE→GSCM	0.028	0.297	0.383	Not Supported
H2d	MOD: GPR→GSCM	0.004	0.040	0.484	Not Supported
H2e	MOD: GPM→GSCM	0.100	1.391	0.082	Not Supported

Appendix: List of measurement items

Green Recruitment and Selection (GRS)

1. In the company hiring process, the company focuses on applicants with environmental knowledge, concern and attitude.
2. The company is rigorous in recruiting and selection of new employees with environmental knowledge, concern and attitude.
3. Before hiring from outside, the company gives its employees with environmental knowledge, concern and attitude the chance to fill vacant positions.
4. Applicants for positions in the company undergo structured interviews include the environmental knowledge, concern and attitude (i.e., same questions are asked of all applicants).

Green Development and Training (GDT)

1. Extensive environmental training programs are provided for individuals in the company.
2. Generally, employees are satisfied with the GT offered.
3. The topics approached during GT are appropriate and current for company activities.
4. Formal environmental training programs are offered to employees in order to increase their promo ability in the company.
5. Employees who receive GT have the opportunity to apply green knowledge in everyday activities.

Green Employee Empowerment (GEE)

1. Top management encourages employee suggestions for environmental performance improvement by setting up employee environmental suggestion schemes.
2. Most employee suggestions are implemented.
3. I am not punished for environmental improvement ideas that are unsuccessful.
4. Every employee is aware about the firm's environmental policy.
5. We frequently use teamwork to solve EMS problems.

Green Pay and Reward (GPR)

1. Employees are rewarded for making suggestions for improvement on environmental programs.
 2. Employees who have achieved or surpassed their environmental goals are rewarded bonus pay or other monetary awards.
 3. Superiors in all department give credit to people when they work on environmental program improvements.
-

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4. Employees are recognized for taking initiative for environmental management through company environmental awards to individuals or teams.

Green Performance Management and Appraisal (GPM)

1. Every employee has specific environmental goals.
2. Achievement of environmental goals is used as one of the criteria in employee performance appraisal.
3. There are adequate assessments of employees' performance after attending GT sessions.
4. If employee does not contribute to improving environmental performance, his/her chance of career advancement will be negatively affected.

Resistance to Change (RTC)

1. Overall employees in the company like to do the same old things rather than try new and different ones.
2. When someone pressures employees in the company to change something, they tend to resist it even if they think the change may ultimately benefit them.
3. Overall employees in the company feel uncomfortable about change.

Green Supply Chain Management (GSCM)

1. Our firm ensures Suppliers' ISO14000 certification.
 2. Environmental criteria are considered while selecting suppliers.
 3. Our firm conducts environmental audit for suppliers at regular interval.
 4. Our firm conducts environmental audit for suppliers' internal management.
 5. Our firm cooperates with suppliers to achieve green goals.
 6. Our firm offers green guidelines to suppliers.
 7. Our firm is focusing on green design of products.
 8. Our firm cooperates with customers for green packaging.
 9. Our firm cooperates with customers for eco design.
 10. Our firm cooperates with customers for cleaner production.
 11. Our firm cooperates with customers for using less energy during product transportation.
 12. Our firm ensures customer satisfaction on green design and products.
 13. Our firm designs products in a way to reduce consumption of material/energy.
 14. Our firm involves in reducing dispersion of toxic and hazardous material and greenhouse gas emissions.
 15. Our firm looks for ways of increasing the durability of products.
 16. Our firm has increased the percentage of products with take-back policies.
-

17. Our firm engages in green practices to promote product quality and improve customer satisfaction.
