



How to cite this article:

Hami, N., Yamin, F. M., Shafie, S. M., Muhamad, M. R., Teknikal, U., & Tunggal, D. (2017). The Mediating Effect Of Innovation Performance On External Sustainable Manufacturing Practice And Social Sustainability Linkage. *Journal of Technology and Operations Management*, 12(1), 75–85. <https://doi.org/10.32890/jtom2017.12.1.9>.

THE MEDIATING EFFECT OF INNOVATION PERFORMANCE ON EXTERNAL SUSTAINABLE MANUFACTURING PRACTICE AND SOCIAL SUSTAINABILITY LINKAGE

¹Norsiah Hami, ²Fadhilah Mat Yamin, ³Shafini Mohd Shafie, & ⁴Mohd Razali Muhamad

^{1,2,3}*School of Technology Management and Logistics, College of Business, Universiti Utara Malaysia, Sintok, 06010 Kedah, Malaysia*

⁴*Faculty of Manufacturing Engineering, Universiti Teknikal Malaysia Melaka, Durian Tunggal, 76100 Malacca, Malaysia*

Corresponding author: norsiahami@uum.edu.my

Received: 23/12/ 2016 **Revised:** 23/02/2017 **Accepted:** 22/04/2017 **Published:** 27/06/2017

ABSTRACT

This paper analyzes the mediating effect of four dimensions of innovation performance (IP) namely product innovation, process innovation, organizational innovation, and marketing innovation on the relationship between external sustainable manufacturing practice (external SMP) and social sustainability. Employing partial least squares-structural equation modeling (PLS-SEM) approach, the survey data collected via mailed questionnaire were analyzed. In total, 150 responses were obtained from manufacturing firms in Malaysia with a diverse range of industries. Out of four dimensions of IP, the empirical results indicate that organizational innovation performance is the single significant mediator on the causal linkage between external SMP and social sustainability. While providing a clearer picture of the interrelationship among external SMP, IP, and social sustainability, the results of this study could help owners and managers in assessing their firm performance particularly related to social sustainability and innovation performance as well as identify the strength and weaknesses of their current practices. In addition, the findings of this study could provide an important source of information for government and other policy makers in promoting social sustainability awareness and external SMP implementation particularly among firms in manufacturing industries.

Keywords: Social sustainability, sustainable manufacturing, sustainable manufacturing practice, innovation performance, manufacturing firms, PLS-SEM

INTRODUCTION

Recognizing the importance of economic development to the society, the creation of material wealth and prosperity has been a primary goal for many countries. However, is the rapid industrial development really managed to improve the social well-being?

As reported by the International Labor Organization (ILO), on average, 6,300 people die globally due to occupational accidents or work-related diseases each day. In addition, workers suffer from 317 million accidents happen while working annually, including occupational diseases, resulting in more than 2.3 million deaths per year (“Safety and Health at Work,” 2016). In Malaysia, while impressive performance exhibited by the annual gross domestic product (GDP), the number of industrial accidents reported annually was also quite high. A total of 38,753 cases were reported in 2015 with a fatal accident rate of 4.84 per 100,000 workers and accident rate of 2.81 per 1,000 workers (DOSH, 2016). In transitioning Malaysian economy to a high-income nation by 2020, the rate of accidents and mortality rates should be reduced to manage the wide gap occurred with the develop countries.

Improving economic, environmental and social sustainability becomes a part of national agenda which is stated in 11th Malaysian Plan. As one of the major contributors to Malaysian economy, there is a critical need that manufacturing operations must be sustainable. Manufacturing firms are encountering pressure to address wide and inclusive issues of sustainability, expected to go beyond the traditional performance measures of cost, quality, time and flexibility to include environmental and social measures. They are expected to become a driving force for the creation of a sustainable society by incorporating sustainability values and implementing sustainable practices that allow them to eliminate or drastically reduce their environmental and social impacts. Likewise, manufacturing firms can develop sustainable products which would lead to a better environmental performance in other sectors (OECD, 2010).

The objective of this paper is to empirically analyze the direct and indirect effect of external SMP on social sustainability by using primary data gathered from manufacturing firms in Malaysia. Since the significant relationship of innovation performance (IP) with external SMP and social sustainability has been found in some previous studies, there is a possibility that IP mediates the relationship between external SMP and social sustainability.

LITERATURE REVIEW

Social sustainability

Sustainability is not a fixed concept but it evolves as a consequence of adaptation to changing circumstances. In response to the issues of global inequality, resource distribution, and global population impacts, World Commission on Environment and Development of the United Nations (WCED) proposed the concept called sustainable development (SD) in 1987. WCED (1987) defined SD as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Although it is vague and broad in nature, this definition is the most extensively adopted to define sustainability and SD.

Against the inclination on economic aspects (traditional bottom line approach) on measuring firm performance, the emergence of sustainability concept in 1970's (Hall & Howe, 2010) enhances the context of measure to include environmental and social criteria. Three pillars of sustainability that commonly referred as Triple Bottom Line (TBL) are economic sustainability, environmental sustainability, and social sustainability. Advocating the premise of stakeholder theory, firms should be managed in a way that serves the interests of shareholders and other stakeholders in or around the firms such as employees, suppliers, customers, society and the government (Freeman, 1984). Firms need to serve all the stakeholders in spite of a number of their legal interests in a firm and deal the relationships with them both in terms of the process and the outcome (Gilbert & Rasche, 2008).

With the growing concern on sustainability issues from the whole society, sustainability and sustainable manufacturing (i.e. SD in manufacturing) strategies have drawn attention. Although many researchers have devoted to this matter, the majority of the discussions in the literature tend to focus heavily toward economic and environmental aspects of sustainability while relatively limited treatment given to the social pillar (Murphy, 2012). A growing body of literature argued that caring for people and the communities, as well as the environment, are all relevant for a long-term business survival (D'Amato, Henderson & Florence, 2009). Realizing the crucial influence of social sustainability for business survival nowadays, this study will focus on the way to improve social sustainability at the firm level particularly in the manufacturing sector. Better social sustainability associated with employees, suppliers, customers, local communities, and society at large generally reflected by increased employee satisfaction, better recruitment and staff retention, wiser operational health and safety, improved employee education and skill, strengthen supplier commitment on sustainability issues, increased certified suppliers as well as customer satisfaction, better public health and safety, reduced local community complaint and improved local community conditions and infrastructure.

External SMP, IP, and social sustainability

The ability of firms in improving their social sustainability related to various stakeholders including employees, customers, suppliers, and communities is crucial for long-term existence and thriving of firms. Responding to the current issues of sustainability and increasing pressures exerted by various stakeholders for being more responsible, the implementation of sustainable manufacturing practice (SMP) would enhance the ability of firms in successfully improving social well-being. SMP is defined as a firm's intra- and inter-organizational practices that integrate environmental, economic and social aspects into operational and business activities. Differentiated based on the orientation of sustainable thinking, there are two types of SMP namely internal SMP and external SMP. Internal SMP focuses on the sustainable practices within a firm's level. External SMP, which will be investigated further in this study, refers to the inter-organizational practices within the value system and beyond the chain of production to improve economic, environmental and social sustainability simultaneously.

Integrating environmental and social concerns beyond the manufacturing facility to the entire value chain are crucial for achieving sustainability goals. Rather than simply individual firm, both the upstream and downstream side of the supply chain must operate in a sustainable manner (Dao, Langella & Carbo, 2011). In analogy, beneficial effects of a firm, derived from being green and socially responsible, would be tarnished by having a business partner who ignores its social obligations. In order to reduce legal, financial or operational risks associated

with social and environmental problems, firms are forced to consider sustainability issues beyond the organizational boundaries to include various business partners along the supply chain. In addition, sustainable thinking also needs to be extended to include actors beyond the chain of production. The need for firms to consider the environmental and social impacts of their activities beyond the manufacturing facility to the entire product life cycle or beyond the value system has laid the basis for a range of proactive environmental initiatives and business models such as green supply chain management, closed-loop production and industrial ecology (OECD, 2010). Meanwhile, the pressure for firms to be accountable for their environmental and social responsibilities has led to the concept and practice of corporate social responsibility (OECD, 2010). Based on these three concepts, five external SMP practices were extracted which would lead to improving social sustainability namely supplier relation, customer relation, community relation, closed-loop production, and industrial relation. The operational definitions of all practices are provided in Table 1.

Table 1.

Definition of the practices

Sustainable practice	Operational definition
Supplier relation	The extent to which a firm monitors and collaborates with its suppliers to improve supplier's performance.
Customer relation	The extent to which a firm manages its customers to improve customers' well-being.
Community relation	The extent to which a firm implements a set of plans/programs to improve communal performance.
Closed-loop production	The extent to which a firm's efforts in closing the material cycle in order to achieve greater sustainable in managing the supply chain.
Industrial relation	The extent to which a firm collaborates with its nearby organizations to improve environmental and social performance.

Analyzing the link between external SMP and social performance, a number of studies confirmed that the implementation of sustainable manufacturing strategies may help firms in building greater social sustainability (e.g. Valiente, Ayerbe & Figueras, 2012; Yang, 2013). Valiente et al. (2012), performed an analysis of the corporate responsibility practices and corporate social performance of 416 Spanish firms, concluded that the degree of CSR awareness and stakeholder pressure have positive relationships with corporate social performance. Using PLS-SEM approach, Yang (2013) provides statistical evidence pertaining positive and significant association of social sustainability with sustainable customer management practices and corporate social involvement practices. Supporting similar trend, Kim (2010) found the positive influence of inter-organizational collaboration towards environmental protection on employee satisfaction.

Apart from directly improve social sustainability, external SMP implementation also would indirectly lead to the creation of sustainable society through better innovation performance (IP). In this study, IP is defined as the ability of a firm in successfully commercializing or applying the new ideas (related to the product, process, organizational and marketing) within or outside the organization. Through external SMP that promote integration and collaboration with various actors within and beyond the chain of production, organizationally

relevant information, knowledge, and expertise are spread and exchanged among individual members within and outside organization with accuracy and efficiency. As found by Lin and Chen (2008) from their study of the relationships between internal and external integrations, shared knowledge, innovation capabilities and product competitive advantage among 245 high technology firms in Taiwan, high level of shared knowledge of internal capabilities, customers and suppliers would create better innovation capability. The transfer of knowledge from external parties promotes the development of new capabilities which may not be possible for a single firm to achieve with their own resources (Idris & Tey, 2011). Successfully exploit creative ideas to renew products, processes and organization would lead to improving social sustainability. Jimenez-Jimenez, Valle and Hernandez-Espallardo (2008) confirmed that product, process and administrative innovations have positive impacts on customer satisfaction. Sezen and Cankaya (2013) proved the significant impact of eco-process innovation on corporate sustainability. Recognizing the linkage between external SMP and IP, as well as the connection between IP and social sustainability in the literature, there is a possibility that IP mediates the relationship between external SMP and social sustainability.

Based on the stakeholder theory as well as conceptual and empirical evidence of the previous studies pertaining to the significant dependence relationship of external SMP, innovation performance and social sustainability, the following hypotheses are proposed:

H₁: External SMP has a positive and significant direct effect on social sustainability.

H₂: IP mediates the relationship between external SMP and social sustainability.

METHODOLOGY

Population and sample

The population of this study is manufacturing firms in Malaysia. A total of 600 from 2,415 manufacturing firms which registered in Federation of Malaysian Manufacturers were randomly chosen as a sample of this study. The unit of analysis in this study is individual manufacturing firm. In order to get valid and reliable responses, the targeted respondent in this study is personnel who hold a managerial position in a firm at least at the operational or supervisory level and involves in the operational activities. Adopting survey approach, a set of questionnaire was mailed to 600 targeted respondents. In total, 150 usable responses were gathered from various manufacturing industries giving a response rate of 25%. The majority of the respondents engage in four industries such as electrical and electronics (34.7%), transport equipment (19.3%), chemical (16.0%) and metals (12.0%). The remaining responses come from food products and beverages (7.3%), machinery and equipment (4.7%), wood-based (3.3%) and textiles and apparel (2.7%).

Measurement

A set of questionnaire was developed to collect data in this study. The questionnaire consists of four sections with the first section is on demographic information and the remaining three sections have 64 indicator variables measuring the level of external SMP implementation, social sustainability performance and IP achieved by responding firms. The operationalization of external SMP, social sustainability and IP was based on the combination of scales developed by previous researchers. However, because of the lack of established scales, some self-administered indicators were made for several observed variables of

industrial relation and organizational innovation. A five-point scale, anchored by one for ‘strongly disagree’ and five for ‘strongly agree’, was used to measure the degree of implementation of SMP within a manufacturing firm. In total, five observed variables (i.e. supplier relation, customer relation, community relation, closed-loop production and industrial relation) were assigned to measure external SMP with 30 indicators. Similarly, a five-point scale, anchored by one for ‘strongly disagree’ and five for ‘strongly agree’ was used to measure the degree of social sustainability and IP of a firm. This study formulates IP into 24 indicators in four observed variables that capture the extent to which a firm successfully performs in the product, process, organizational and marketing innovations in the last three years. While 10 indicators were used to measure social sustainability.

Data analysis technique

Partial least squares-structural equation modeling (PLS-SEM) approach was applied in this study to test the research hypotheses. Following the two-step procedure in PLS-SEM, the validity of measurement model is first ascertained before proceeding to the assessment of the structural model.

RESULTS

Measurement model validation

Following the validation guidelines for reflective measurement model suggested by Hair, Hult, Ringle and Sarstedt (2014), the measurement model of this study was tested for unidimensionality, indicator reliability, internal consistency reliability, convergent validity and discriminant validity. The validation results are presented in Table 2.

Table 2.

Measurement model results

Construct	Loading (1 st order)	Loading (2 nd order)	CR	AVE
External SMP			0.90	0.64
Supplier relation	0.78 - 0.89	0.80	0.94	0.73
Customer relation	0.77 - 0.85	0.76	0.92	0.65
Community relation	0.72 - 0.90	0.85	0.92	0.67
Closed-loop production	0.77 - 0.89	0.84	0.93	0.67
Industrial relation	0.69 - 0.83	0.75	0.89	0.58
Product innovation	0.78 - 0.90		0.93	0.71
Process innovation	0.82 - 0.89		0.95	0.74
Organizational innovation	0.83 - 0.90		0.95	0.75
Marketing innovation	0.79 - 0.88		0.94	0.73
Social sustainability	0.78 - 0.85		0.95	0.66
Notes: CR = Composite reliability; AVE = Average variance extracted				

Confirmatory factor analysis (CFA) was performed to test the uni-dimensionality of the five constructs of external SMP, four constructs of IP, and one construct of social sustainability. The result of CFA was confirmed the uni-dimensionality of all constructs since each set of indicator variables was loaded on a single factor. All of the loadings in both first- and second-order model are greater than 0.5 indicating the indicator reliability of each measurement model is verified. All of the constructs have high internal consistency reliability as the values of composite reliability are ranging from 0.89 to 0.95. All AVE estimates are greater than the minimum required level of 0.50, thus confirming the convergent validity of each construct. Following the Fornell-larcker criterion procedure for ascertaining discriminant validity, the AVE of each construct is compared with the inter-construct squared correlations associated with that construct. The discriminant validity for all constructs is proven since their AVEs are greater than the corresponding inter-construct squared correlations. The overall validation results verify that all sets of indicator variables for each construct of external SMP, IP, and social sustainability are statistically strong. Hence, these data are worthy of further structural model analysis with regard to meet the specified objective in this study.

Structural model assessment

The results of the proposed structural models in this study are presented in Table 3.

Table 3.

Structural model of external SMP, IP, and social sustainability results

Structural path	β^a	R^2^b	Q^2^c
External SMP \rightarrow Social Sustainability (path c)	0.41***	0.62	0.41
External SMP \rightarrow Innovation Performance (path a)			
Outcome variable: Product innovation	0.44***	0.27	0.19
Process innovation	0.38***	0.31	0.23
Organizational innovation	0.47***	0.40	0.29
Marketing innovation	0.44***	0.33	0.24
Innovation Performance \rightarrow Social Sustainability (path b)		0.62	0.41
Causal variable: Product innovation	0.13*		
Process innovation	0.08		
Organizational innovation	0.27***		
Marketing innovation	-0.07		
External SMP \rightarrow Social Sustainability (path \hat{c})	0.23***	0.62	0.41

^a * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
^b R^2 values represent the explained variance for the endogenous variables
^c $Q^2 > 0$ indicates that the model has predictive relevance, $Q^2 < 0$ implies that the model is lacking predictive relevance

The total effect of external SMP on social sustainability is positive and strongly significant ($c = 0.41$, $p < 0.01$). Hypothesis 1 (H_1) suggests that external SMP has a direct positive and significant effect on social sustainability. Partitioning the total effect into direct and indirect effect, the direct effect of external SMP on social sustainability is positive and strongly significant ($\hat{c} = 0.23$, $p < 0.01$), indicating that the greater level of the implementation of external SMP would directly improve social sustainability performance. Consequently, H_1 in this study is supported.

Hypothesis 2 (H₂) proposes that IP mediates the relationship between external SMP and social sustainability. H₂ attempts to determine whether the four constructs of IP have a significant mediating effect on the causal relationship between external SMP and social sustainability. Table 3 indicates that external SMP strongly predicted all dimensions of IP. Nevertheless, when controlling the external SMP, product innovation and organizational innovation are the only significant predictors of social sustainability with estimated values of $b = 0.13$, $p < 0.1$ and $b = 0.27$, $p < 0.01$, respectively. The direct effect of external SMP on social sustainability is strongly significant with $\hat{c} = 0.23$, $p < 0.01$. The indirect effect (ab) of external SMP on social sustainability through organizational innovation is 0.13. For 95% bootstrapped CI, only the indirect effect of external SMP on social sustainability through organizational innovation does not include zero and thus is statistically significant. Since the direct path from external SMP to social sustainability (\hat{c}) is statistically significant, the effects of internal SMP on social sustainability are only partially mediated by organizational innovation. Based on the results found, the H₂, suggesting the significant mediation effect of IP on external SMP-social sustainability linkage is partially supported.

DISCUSSION AND CONCLUSION

Growing attention to environmental and social issues as well as increasing customer awareness and interest in the social behavior of firms has created pressures for firms to be responsible to their employees, communities and other external stakeholders such as suppliers and customers beyond the economic and legal obligations (Azmat & Ha, 2013). Caring for people and the communities as well as the environment are crucial for a long-term business survival (D'Amato et al., 2009). Advocates of stakeholder theory, this paper suggests that manufacturing firms need to proactively improve their social sustainability performance on a continuous basis.

The empirical results found in this study prove the positive and significant direct effect of external SMP on improving social sustainability particularly related to customers, employees, suppliers and communities. Being socially responsible by implementing sustainable practices when dealing with various external stakeholders around the firms would help in the creation of sustainable society. Applying proactive environmental initiatives and business models such closed loop production and industrial ecology would increase the comfort, health, and safety of the employees and the society at large by efficiently reducing or eliminating pollutants and hazardous substances (Kim, 2010; Yang, 2013). While protecting the natural environment, removal of unsafe levels of toxic substances from the manufacturing processes may increase job satisfaction and employees feel more secure with their works (Kim, 2010). Together with improving employees' well-being, the adoption of external SMP would directly lead to enhance social performance with regard to customers, suppliers, and society at large. For example, inter-organizational collaboration among business partners along the supply chain with an aim to achieve sustainability performance would improve supplier's commitment towards environmental protection, and increase certified suppliers and customer satisfaction. Incorporating the elements of mentoring, partnering, monitoring and evaluating, sustainable buyer-supplier relationship corresponds to the sharing of knowledge, know-how, and experience as well as controlling and evaluating suppliers based on environmental and social criteria that eventually would improve the performance of both customers and suppliers. Expanding sustainable thinking beyond the production of chain to include nearby organizations and local communities, applying environmentally friendly and socially responsible practices would create a sustainable society by increase public health and safety,

reduce local community complaint, and improve local community conditions and infrastructure.

Meanwhile, this study provides sufficient statistical evidence pertaining to the indirect effect of external SMP on social sustainability through organizational innovation. IP in the lens of organizational innovation refers to the extent to which a firm successfully implementing the new organizational method in business practices, workplace organization or external relations. The result proves that higher level of external SMP implementation would contribute to the higher level of organizational innovation performance which in turn would increase the ability of firms in creating social welfare with regard to various stakeholders including suppliers, employees, customers and local communities. Good structural links in organizations, resulting from the implementation of sustainable economic strategies that focused on the interests of diverse stakeholders, may enhance the ability of a firm in establishing new organizational structures, administrative systems, or networking, and thus eventually would benefit to the related stakeholders (Johannessian & Olsen, 2009). With open communications environment and free flow of information, either internally in the firm or between the firm and the surroundings such as customers, suppliers and local communities, the firm is able to anticipate the customer's current need, transfer of knowledge among organizational members, continuously update on supplier's status, and share knowledge, skills, and experience with business partners effectively. Having these abilities is important for firms in improving the welfare of their salient stakeholders.

The results of this study offer a number of contributions and implications that are beneficial for both academicians and industrial practitioners. Theoretically, this study contributes to the body of knowledge in sustainability and sustainable manufacturing field. With the ability to simultaneously examine a series of dependence relationships related to the three different variables encompassing external SMP, IP, and social sustainability, this study provides a clearer picture of the interrelationship among these three variables. In the managerial perspective, this study could help industrial practitioners in assessing their firm performance particularly related to social sustainability and innovation performance as well as identify the strength and weaknesses of their current practices. In addition, the findings of this study could serve as an alternative source of information for government and other policy makers that help in promoting social sustainability awareness and external SMP implementation particularly among firms in manufacturing industries.

While offering several contributions, this study is also subject to several limitations that need to be addressed when interpreting the results. This study relied only on perceptual measures in measuring external SMP, IP, and social sustainability. A future works are suggested to use both quantitative and qualitative measures to verified the validity of the data. In addition, since this study focusing on determining the interrelationship among external SMP, IP and social sustainability, future in-depth qualitative based studies, concentrating on how and why these three variables are related to each other, will provide further insights into these relations.

ACKNOWLEDGEMENT

We would like to express our gratitude to the Ministry of Higher Education Malaysia and Universiti Utara Malaysia for the research funding and to everyone who has contributed to the completion of this study. This research was supported by the Fundamental Research Grant Scheme (FRGS).

REFERENCES

- Azmat, H., & Ha, H. (2013). Corporate Social Responsibility, Customer Trust and Loyalty: Perspectives from a Developing Country. *Thunderbird International Business Review*, 55(3), 253-270.
- D'Amato, A., Henderson, S., & Florence, S. (2009). *Corporate Social Responsibility and Sustainable Development: A Guide to Leadership Tasks and Functions*. Greensboro, NC: Center for Creative Leadership.
- Dao, V., Langella, I., & Carbo, J. (2011). From Green to Sustainability: Information Technology and an Integrated Sustainability Framework. *Journal of Strategic Information System*, 20, 63-79.
- Freeman, R. (1984). *Strategic Management: A Stakeholder Approach*. Boston, MA: Pitman.
- Gilbert, D. U., & Rasche, A. (2008). Opportunities and Problems of Standardized Ethics Initiatives: A Stakeholder Theory Perspective. *Journal of Business Ethics*, 82, 755-773.
- Hall, G. M., & Howe, J. (2010). Sustainability of the Chemical Manufacturing Industry: Towards a New Paradigm? *Education for Chemical Engineer* 5, 5(4), 100-107.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Los Angeles: Sage Publication Inc.
- Idris, A., & Tey, L. S. (2011). Exploring the Motives and Determinants of Innovation Performance of Malaysian Offshore International Joint Ventures. *Management Decision*, 49(10), 1623-1641.
- Jimenez-Jimenez, D., Valle, R. S., & Hernandez-Espallardo, M. (2008). Fostering Innovation Organizational Learning. *European Journal of Innovation Management*, 11(3), 389-412.
- Johannessen, J. A., & Olsen, B. (2009). Systemic Knowledge Processes, Innovation and Sustainable Competitive Advantages. *Kybernetes*, 38 (3), 559-580.
- Kim, S. T. (2010). *Implementation of Green Supply Chain Management: Impact on Performance Outcomes in Small and Medium-sized Electrical and Electronic Firms*. Nebraska: University of Nebraska.
- Lin, M. J. J., & Chen, C. J. (2008). Integration and Knowledge Sharing: Transforming to Long-term Competitive Advantage. *International Journal of Organizational Analysis*, 16(1/2), 83-108.
- Murphy, K. (2012). The Social Pillar of Sustainable Development: A Literature Review and Framework for Policy Analysis. *Sustainability: Science, Practice & Policy*, 8(1), 15-29.

- OECD. (2010). *Eco-innovation in Industry: Enabling Green Growth*. OECD Publishing.
- Safety and Health at Work*. (n.d.). Retrieved September 22, 2016, from International Labour Organization (ILO) website, <http://ilo.org/global/topics/safety-and-health-at-work/lang--en/index.htm>.
- Sezen, B. & Cankaya, S. Y. (2013). Effects of Green Manufacturing and Eco-Innovation on Sustainability Performance. *Procedia - Social and Behavioral Sciences*, 99, 154-163.
- Valiente, J. M. A., Ayerbe, C. G., & Figueras, M. S. (2012). Social Responsibility Practices and Evaluation of Corporate Social Performance. *Journal of Cleaner Production*, 35, 25-38.
- WCED (1987). *Our Common Future*. Oxford, England.
- Yang, M. G. (2013). *Developing a Focal Firm's Sustainable Supply Chain Framework: Drivers, Orientation, Practices and Performance Outcomes*. University of Toledo.