2019 International Conference on Business and Economics (ICBE 2019)

Yeosu, South Korea, July 8-10, 2019

第15回 國際統合學術大會

KODISA

EDITED BY:
Jung Wan LEE, Boston University, USA
Myoung-Kil YOUN, Eulji University, KOREA

- **Theme:** ***Social Science, Technology and Humanities for Sustainability of Business, Economics and the Environment***
- **Date: July 8 - 10, 2019**
- **Venue: Yeosu Expo Convention Center, Yeosu, South Korea**
- **Organizer: Korea Distribution Science Association (KODISA)**

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JULY 8 - 10, 2019

YEOSU EXPO CONVENTION CENTER, YEOSU, KOREA

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WELCOMING ADDRESS

LEE Jung Wan, Ph.D.
[Professor, Boston University, USA]
Conference Chair

On behalf of the conference organizing committee and program committee, I take this opportunity to welcome all of the delegates and the accompanying persons and guests for the 2019 International Conference on Business and Economics (ICBE 2019) being held in Yeosu city, South Korea, July 8−10, 2019. The conference is hosted by the Korea Distribution Science Association (KODISA) and is sponsored jointly by the National Research Foundation of the Republic of Korea, Yeosu City Government of the Republic of Korea, and KODISA Scholarship Foundation, Korea. The conference aims to share scholarships regarding issues of *Social Science, Technology and Humanities for Sustainability of Business, Economics, and the Environment*, to offer an excellent opportunity to meet colleagues from around the world so as to enable participants to exchange information and ideas on the topics, and to get presented and published scholarly papers, research notes and case studies in the Conference Program, Proceedings and affiliated journals.

I am extremely pleased that this year we have a total of 101 presentations of full papers, work−in−progress papers, doctoral symposiums, and special panel discussions from 170 scholars, industry leaders, and public policy makers coming from 15 countries. On July 9, 2019, after the conference opening session, an official reception of the conference will be following for the registered delegates and their spouse or accompanying persons. As part of this conference tradition, we will honor Best Paper Award winners with a scholarship. You will not only meet and greet and network with your colleagues from academics and industry but also engage in stimulating discussions based on academic research papers and business practices.

Finally, I would like to thank our ICBE and KODISA international community members and the National Research Foundation of Korea and Yeosu City Government of the Republic of Korea for sponsoring this ICBE 2019 conference in many ways. I would also like to thank all the attendees, track and session chairs, reviewers and local organizing directors for their critical roles in bringing together success of the conference.

Sincerely,

WELCOMING ADDRESS

LV TAO, Ph.D.
[President, Shandong University of Political Science and Law, China]
Conference Co-chair

I would like express our warmest congratulate to the 2019 International Conference on Business and Economics (ICBE 2019) and the Fifteenth International Conference of Korea Distribution Science Association (KODISA) in Yeosu Expo Convention Center, Yeosu, Korea. The KODISA international conference is co-programmed by the Korea Distribution Science Association (KODISA) and Shandong University of Political Science and Law (SDUPSL) since 2011.

I think that this mission of the Conference is not just a forum for academic discussion; it is also a good chance to establish networks with outstanding scholars and academic leaders around the world. The conference aims to share scholarships regarding issues of Social Science, Technology and Humanities for Sustainability of Business, Economics, and the Environment, and to offer an excellent opportunity to meet colleagues from around the world so as to enable participants to exchange information and ideas on the topics.

Finally, I would like to express my sincere wish for the success of the conference. I hope all of us will find new opportunities in this ever-growing realm of Challenges and Opportunities of Management, Business and Economics in Asia.

Sincerely,

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Sustainable Agriculture: Developing a Conceptual Model for Technology Transfer*

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Abstract

Agriculture is the world's largest industry. It is not only crucial for the well-being of the world population but also for most citizens whose prosperity is closely connected with the level of development in the agriculture industry. However, agriculture often places significant pressure on natural resources and the environment. According to the Food and Agriculture Organization, we pay an intolerable price in social and ecological terms to provide food for 7.5 billion people in the world. To be sustainable, while increasing the productivity, agriculture needs to preserve the environment and improve the social conditions of the population. The transfer of existing technology, for example, from developed countries, as well as new technology from research and development centers, can help in achieving the right balance in essential dimensions for sustainable agriculture. Building upon technology transfer models at the international level developed for the construction and the petroleum industries, we propose first a set of factors. Then, for each factor, while scrutinizing other technology transfer models at the inter-firm level, relevant sub factors were selected. The result is a conceptual model for technology transfer to be applied in the agriculture sector under a sustainable perspective.

Keywords: Technology Transfer, Agriculture, Sustainability, Channels, Performance.

1. Introduction

The agricultural sector has received far less attention in comparison to the financial and manufacturing sectors despite its critical role in securing food supply and the strong potential contribution of IT in agriculture (Chiasson & Davidson, 2005). In the long term, it is necessary to focus on agriculture to increase productivity and achieve high profits while preserving the environment and improving the social conditions of a population that keeps growing. We need a sustainable agriculture.

1.1. Sustainable Agriculture

The concept of sustainable development emerged in the 1980s. In a 1987 report, known as the Bruntland report, the World Commission on Environment and Development defined sustainable development as a process of change in which the exploitation of resources,the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations. In essence, sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Agriculture should play an important role in sustainable development.

Sustainable agriculture has been defined as a sustainable farming system in which economic, social and ecological aspects are counterbalanced (Rose et al., 2019). Considering those aspects, sustainable agriculture should also promote the resilience and persistence of productive farming landscapes (Garibaldi et al., 2017).

On the economic aspects, change in overall production and stability of production have been the indicators used for economic sustainability. However, research findings in the agricultural community explain the need to balance labor productivity with social and environmental impacts (Patidar, Kumhar, Mhaske, & Jat, 2018).

On the social aspects, a stable social system is largely based on the proper relationship between individuals and collectives. Individuals demand the satisfaction of requirements as health, safety and legality. An agricultural social system is sustainable when institutional settings allow all concerned individuals to either satisfy or improve the satisfaction of all of their physiological, security, social, esteem, and self-actualization needs while actors and institutions continuously recreate a system that allows future generations to do the same (Janker, Mann, & Rist, 2019).

On the environmental or ecological aspects, environment has to be addressed as a set of natural capital assets (air quality, biodiversity, etc.) particularly assuring an efficient use of non-renewal resources while integrating appropriate natural biological cycles and controls. Conservation efforts should reflect the efficient and sustainable allocation of environmental assets(Aldy, Hrubovcak, & Vasavada, 1998).

As stated in by the European Sustainable Development Initiative in Agriculture (EISA), we need an efficient, productive,

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environmentally friendly and socially responsible agriculture.

The capacity of the agricultural sector to meet economic, social and environmental demands partially depends on the availability and adoption of technology. We should support research and development in sustainable technologies as well as facilitate technology transfer while providing incentives to encourage adoption of technology in the agricultural sector (Aldy et al., 1998).

1.2. Technology Transfer

Technology transfer is a complex process consisting of several elements, mechanisms and stages. The concept of the transfer of technology was used for the first time in the 1940s. Formal research in the field of technology transfer began with a study of technology conducted by European sociologists (Rogers, 2003).

Transfer technology can be conceptualized as a communication process where gaps between foreign and local environments will affect the efficiency of inter-firm communication and the overall effectiveness of the transfer technology process (Williams and Gibson, 1990). It is a movement of know-how and technical knowledge from one organizational setting to another allowing for knowledge sharing (Wang, Wang, & Liang, 2014). The effective use and distribution of know-how is the basis for the transfer of technology that occurs in accordance to local conditions (Kaynak, 1985). It can involve moving a technological innovation from an R&D organization to a receptor organization (Rogers, 2003).

Overall, transfer technology is a complex process involving the movement of technologies, knowledge, innovative services and products at several levels: intra-firm level (within organizations, between departments); inter-firm level (within countries, between organizations); and international level (between countries).

2. Overview of a Selection of Technology Transfer Models

For the several levels at which the transfer technology can take place, we can find illustrating models in the literature. A model for intra-firm technology transfer has been proposed having as an example a British cable manufacturer (Malik, 2002).Typical problems have been found showing business units not interested in R&D developments. This could be due to cost factors or poor communication between technology senders and receivers, or as a result of the 'not invented here syndrome'and problems simply arising from lack of resources. An investigation into why intra-firm knowledge transfers can be so difficult points to issues such as: lack of motivation; lack of absorptive capacity; lack of retentive capacity of recipients; formalized structures and systems; lack of numerous individual exchanges; and an arduous (i.e., laborious and distant) relationship between the transfer partners (Szulanski, 1996).

For the inter-firm level technology, one of the most cited models is the contingent effectiveness model of technology transfer (Bozeman, 2000), recently updated (Bozeman, Rimes, & Youtie, 2015). In this model, five categories of technology transfer effectiveness determinants are considered: transfer agent, transfer media, transfer object, demand environment and transfer recipient. To deal with these parties with multiple goals, the effectiveness of the process is considered in terms of multiple criteria: out-the-door (was anything transferred?), market impact, economic development, political advantage, development of scientific and technical human capital, opportunity cost considerations and public value.

At the inter-firm level, circumscribed to a particular industry, the information technology industry, another study investigates 62 Korean firms involved in technology transfer for IT equipment to find the factors affecting on-time completion of technology transfer. Unlike the other studies, this one examines the stages of the processof technology transfer to determine which factors act as barriers to the timely completion of technology transfer for suppliers and buyers in accordance with technology transfer agreements(Lee, Kim, Kim, Kim, & Ahn, 2018).

For international technology transfer, literature provides studies on some industries but not the agriculture one. A first study involves 201 petroleum industry professionals in Libya to evaluate the technology transfer performance in a model that includes support, infrastructure, learning capability and environment. Government support of petroleum industry technology has been identified as an important consideration in the success of a technology transfer process as it has an impact on several other influential factors (Mohamed, Sapuan, Megat Ahmad, Hamouda, & Hang Tuah Bin Baharudin, 2012).

A second study involves 162 construction industry professionals in Thailand to evaluate the transfer technology value added in a model that includes transfer and learning environments, and transferor and transferee characteristics. Building relationships (i.e. trust, understanding and communication) between the transferor and transferee was determined to be the key predictor of technology transfer-induced value creation for the construction sector (Waroonkun & Stewart, 2008).

3. Developing a Conceptual Model to Technology Transfer

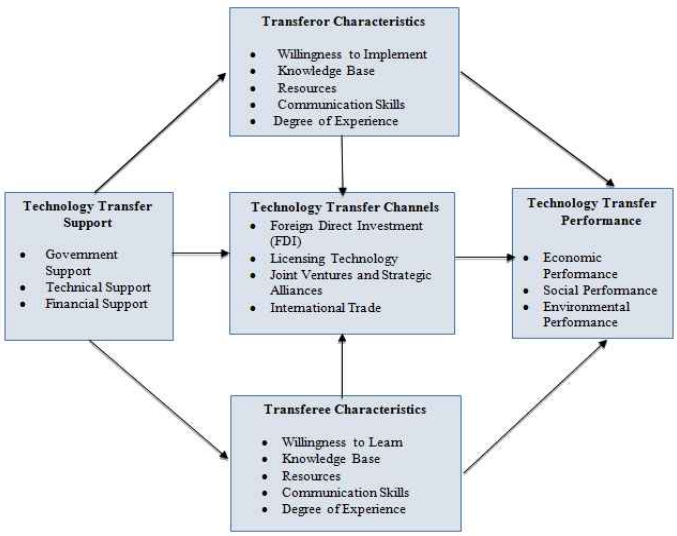

Figure 1: Conceptual model for technology transfer in sustainable agriculture industry

Having studied the aforementioned models, we have a proposal for modeling technology transfer in the agriculture sector under the perspective of sustainable development (Fig.1.).

Not only there is a lack of proper attention to the process of technology transfer in the agriculture sector, but also that process has to be considered under a sustainable perspective. This means that the outcome of the process, designated as performance or value added, has to consider sustainability.

For our proposal, we built upon the models for international technology transfer mentioned in the previous section, one in the construction industry and the other in the petroleum industry. We kept technology transfer performance for the outcome of the process, and technology transfer support as an antecedent, both from the model for technology transfer in the Libyan petroleum industry (Mohamed et al., 2012). Transferor and transferee characteristics were borrowed from the model for international technology transfer in construction industry (Waroonkun et al., 2008).We added a new factor, technology transfer channels, somehow related to transfer media as presented in the contingent effectiveness model of technology transfer (Bozeman et al., 2015). For each one ofthe factors, we evaluated the existing set of sub factors, keeping, removing and adding them according to their importance for sustainable development, namely, in the agricultural sector.

3.1. Technology Transfer Performance

Instead of just focusing on economic performance as shown in the model for petroleum industry, we add the social and environmental dimensions. The assessment of a country performance cannot be limited to a single dimension, either economic or non-economic (Cracolici, Cuffaro, & Nijkamp, 2010). For sustainable development in agriculture, the three dimensions have to be considered simultaneously. Therefore, economic, social and environmental performances have to be assessed as a result of technology transfer for sustainable agriculture.

3.2. Transferor and Transferee Characteristics

Transferor and Transferee Characteristics are two factors borrowed from the Conceptual Model for International Technology Transfer in Construction Projects (Waroonkun et al., 2008). They are similar to what had alreadybeen proposed, respectively, as Transfer Agent and Transfer Recipient in the Contingent Effectiveness Model of Technology Transfer (Bozeman, 2000; Bozeman et al., 2015). As a shared responsibility between the transferor and the transferee (Waroonkun, Rodney, Stewart, Waroonkun, & Stewart, 2008), technology transfer requires from them a "knowledge base" and "resources", both to support the implementation by the transferor and adoption and acceptance of technology by the transferee. On the side of the transferor, we need to assure the "willingness to implement" while on the side of the transferee, we need to assure the "willingness to learn"on how to take advantage of the technology (Waroonkun et al., 2008). One factor that is very important is communication skills since the transfer technology process should be conceptualized as a communication process. Therefore, to avoid gaps of understanding that may affect the overall effectiveness of the process, both transferor and transferee should possess good communication skills. In addition, the degree of experience for both transferor and transferee in participating and fostering partnerships, namely, at the international level, would very important (Lin & Berg, 2001).

3.4. Technology Transfer Support

Technology Transfer Support is a borrowed construct from the Conceptual Model for Technology Transfer in the Libyan oil industry (Mohamed et al., 2012). It is a factor that addresses, in particularly, the government support quite important to encourage the international transfer of technology with adequate policies (Hoekman, Maskus, & Saggi, 2005). This type of support has also been covered through factors designated as "transfer environment" in the conceptual Model for International Transfer Technology in construction Projects (Waroonkun etal., 2008). Among other factors affecting on-time completion of technology transfer, technical support and financial support have been pointed out, required to facilitate the adoption of what is usually presents a high level of complexity for the transferees (Lee et al., 2018).

3.5. Technology Transfer Channels

Technology Transfer Channels should cover the most important channels through which a technology developed in one location, namely, a developed country, can be transferred to another location, a developing country. Unlike other models for international technology transfer (Mohamed et al., 2012; Waroonkun et al., 2008), our model proposes the channels as a key ingredient for the success of international technology transfer, somehow close to transfer media between the transfer agent and the transfer recipient in the contingent effectiveness model of technology transfer (Bozeman et al., 2015). Foreign Direct Investment (FDI) and international trade can be among the most important of those channels (Kneller, Pantea, & Upward, 2009; Wie, 2005). Licensing technology can be also a major channel, especially when the licensor intends to prevent the licensee of becoming a competitor in the future and want to be in control of the technology transfer. It can be also a way of developing the technology in a foreign market before moving to FDI (Raj, n.d.). A more balanced channel for both the transferor and transferee than licensing technology can be joint ventures and strategic alliances, legal partnerships at the international level, that allow the transferor to better deal with regulatory, cultural, or other complexities when entering foreign markets (Jiang, Keller, Qiu, & Ridley, 2018).

4. Conclusion

The new, 17 Sustainable Development Goals (SDGs), unanimously approved by more than 190 world leaders in the United Nations Assembly, in 2015, for the year 2030, are supposed to drive policymaking on both the national and local scale towards sustainability in the coming years. To achieve the SDGs, agriculture needs to be transformed under an integrated approach to

sustainability. To achieve it at an international, global level, technology transfer from developed to emerging and developing economies can play a significant role as enabler and accelerator of a desired convergence.

The proposed model for international technology transfer moves away from the focus on profitability, financial performance, usually used to assess the result oftechnology transfer, to include other dimensions, the environmental and social ones. Considering only financial performance can lead to the deterioration of the environment as well of the living conditions of the world population. Therefore, a successful technology transfer should balance economic, environmental and social performances. Building upon technology transfer models at the international level developed for the construction and the petroleum industries, antecedents such as technology transfer support, transferor and transferee characteristics were borrowed, but we included transfer technology channels as another key factor. As a research in progress, we will now work on the operationalization of the model so it can be applied for sustainable development, namely, in the agriculture industry.

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Performance Evaluation of the Regional Knowledge Innovation System in China*

Sheng-Hsiung CHIU**, Tzu-Yu LIN***, Hong CHEN****, Weihua HUANG*****

Abstract

This paper investigates the effect of gender leadership with political connection on CSR performance using annual data of Chinese firms who listed in China A-share stock market and had CSR rating assessed by Rankins from 2009 to 2015. In addition, we also examine whether the foregoing question is under the influence of particular ownership structure in China. Our empirical results suggest that female chairman or CEO would not perform well in CSR activities, while leader's political capital acts an exacerbating force. Specifically, the negative and statistically significant of interaction term female leadership with political capital is obviously identified for the Non-SOEs. The mandatory CSR reporting would not encourage firms to make more effort on CSR activities to the purpose on generating positive social externalities, while the advantages of CSR rating in firms are not obviously experience to coordinate the conflict of interest between stakeholders.

Keywords: Knowledge Innovation, R&D Capital Stock, Performance Evaluation, Provincial Administration Region, China.

1. Introduction

For the political intention of governments, one of the long-term administrative management objectives is to maximize the growth momentum of economic system. It is associated with the important duty of government that is responsible for people's welfare. Knowledge innovation and application, by researching and creating newly practical idea on technological development, facilitates the production and service activities changing inherent human experience of that and is of great worth. As China's economic plan from 2016 to 2020 is carefully outlined in the 13th Five-year Plan, awareness of knowledge innovation application is also embedded in it. Following the guidelines of the 13th Five-year Plan and Made in China 2025 of the central government, each provincial administration regions has schemes to encourage industry, institute, and university to do knowledge innovation activities, in order to form intellect properties and accumulate intelligence capital.

Today, Knowledge innovation play a key role in the business environment with highly competitive, and, as in worldwide, is allowed to estimate the extent of the national power. At the same time, the China government needs to be aware of the potential threat of aboard, such as the China-United States trade war, as its business activities are more closely tied to worldwide. Intellect property is used to become the best and powerful weapon they have. Hence, based on its critical role in the economic system, researchers have been trying to measure the innovative performance of national or regional hierarchy (e.g., Lu, Kewh, & Huang, 2014; Li, Liu, Liu, & Chiu, 2017).

Performance evaluation is a powerful managerial instrument to identify who is the relatively best or worse performer within all selected observations and where is the inefficient source arisen from the specific evaluation framework. Data envelopment analysis (DEA) is one of the famous methodologies applied in performance evaluation (Lin, Chiu, 2018). It has already developed several variations of that based on mathematic programming to model a simple or complex framework and obtain practical instructions in response to what the need to be decision-making of modern management environment. A slacks-based measure approach of DEA was firstly proposed by Tone (2001) to introduce a crucial parameter as slacks that measures the difference of specific variables between an efficient and an inefficient in their mathematic programming. After that they continued to extend their concept in processing a problem of performance evaluation with great complexity. Tone and Tsutsui (2010), for example, incorporated the setting of time frame into their SBM approach not only to generalize its evaluation ability from specific time period (i.e. static analysis) to the whole evaluation period (i.e. dynamic series analysis), but also assign some particular characteristic on variables such as discretionary, discretionary, desirable and undesirable. To explore the effect of innovation activity aggressively driven by China government is the main purpose of this paper and we, therefore, used dynamic DEA with SBM approach to estimate the efficiency of regional's innovation system in China from 2010 to 2016.

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