Empirical Study on Inter-Firm Diffusion and Firms' Performance for Win-Win Growth Culture in Supply Chain

Kyung-Tae Kim* · Jung Seung Lee** · Namshin Kang***

Abstract

The purpose of this study is to investigate the relationship among factors that expand the win-win growth between domestic finished goods-making manufacturers and subcontractors. One-hundred twenty six firms participated for this study and were used for the data analysis.

As a result of analysis, first, it was found that the win-win growth between first-tier suppliers and second-tier suppliers has positive effects on the win-win growth made by second-tier suppliers helping the third-tier suppliers. Second, it was found that the win-win growth policies supported by the government for the positive relationship between first-tier suppliers and second-tier suppliers for the finished goods-making manufacturers have positive effects on the win-win growth between second-tier suppliers and third-tier suppliers. Third, the results also showed that the win-win growth between second-tier suppliers and third-tier suppliers has a positive influence both on the financial and on the non-financial performances of the second-tier suppliers.

Based on the results of this study, it is recommended to (1) construct infrastructure by sector through partnership between finished goods-making manufacturers and subcontractors, (2) draw in active support through the governmental win-win growth policies, (3) induce increasing productivities through information sharing, manpower support, technical support and educational support, and (4) strengthen and cultivate the culture of the small- and medium-sized companies.

Keywords : Win-Win Growth Activities, Supply Chain Management, Internal Integration, External Integration

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* Department of International Trade and Business, Kangwon National University, e-mail : ktkimm@kangwon.ac.kr

** Corresponding Author, School of Business, Hoseo University, e-mail : jslee@hoseo.edu

*** School of Business, Hoseo University, e-mail : nskangsan1@naver.com

1. Introduction

Win-win growth can create mutual trust and synergy based on the fair trade between small- and medium-sized companies and large-sized companies. In order to build such a healthy win-win growth culture, the partnership between large-sized companies and suppliers needs to be cultivated. Internal and external factors in supply chain are also needed for this win-win growth. Therefore, the relationship between large-sized companies and suppliers has to be a long-term based mutual cooperative win-win growth association. For the purpose of building and spreading the win-win growth culture between finished-goods making manufacturers and sub-contractors, the government keeps continued support. Such governmental continued support can help finished goods-making manufacturers to promote external win-win growth with suppliers and to establish a supply chain support system for internal sharing tasks within departments.

The purpose of this study is to investigate the associated factors to build and expand the win-win growth culture in supply chain on domestic manufacturing and service firms. To do so, we first investigate the process through which win-win growth between the first-tier suppliers and the second-tier suppliers has a positive effect on win-win growth between the second-tier suppliers and the third-tier suppliers. Secondly, we examine the win-win growth policy of the government and the support activity of the win-win growth between the first-tier and the second-tier suppliers has a positive influence on win-win growth between the second-tier and third-tier suppliers. Finally, we examine win-win growth between the second-tier and third-tier suppliers have a positive effect on the financial and non-financial performance of the second-tier suppliers. To do so, the second-tier suppliers among domestic manufacturing firms and service firms participate in this study.

2. Related Research

Win-win growth is a policy that can support the healthy eco-system to self-produce creation and innovation based on the balance between large-sized firms and small- and medium-sized firms [Lee, 2011]. Within the win-win growth policy, there are main claims that which problems are existent in the eco-system, that how to change the economic agents, or that which infrastructures are needed [Lee, 2011]. Imbalance between large-sized firms and small- and medium sized firms has brought socio-economic bipolarization.

From the eco-system's perspective on the imbalance between large-sized firms and small- and medium sized firms, there is a very weak supply chain based on the absence of win-win growth. In order to increase the competitive advantage of supply chain, the win-win growth is a very important factor [Baek et al., 2013].

Imbalance between large-sized firms and small- and medium sized firms has been obstacles to the healthy eco-systems. Also, starting from the large-sized firms the unfair trade has led to one of the major conflicts between large and small- and medium sized firms. The first unfair trade can be the pressure for the reduction of

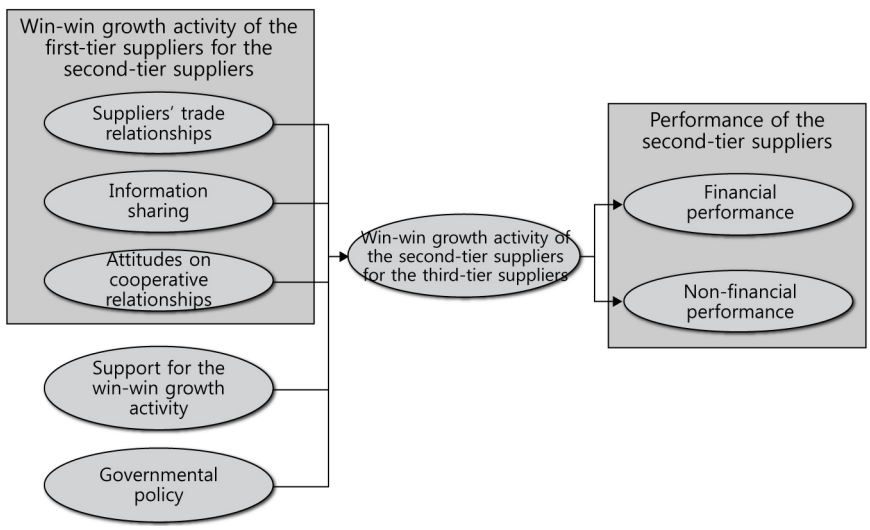
the delivered unit costs, the ora'l order and the extortion of the techniques and skills of the small-medium sized firms, and the violation of the commercial territory [Lee, 2011].

The good news is that, however, there has been an globa interest on the importance of supply chain and that the government has made an effort to decrease the gap between socio-economic bipolarization [Kim, 2011]. It is claimed that there has to be a new win-win growth model helping revitalizing second- and third-tier suppliers and creating a supportive cycle between large-sized firms and small- and medium-sized firms [Kim, J. M., 2012]. Win-win growth between large and small- and medium-sized firms is needed for the three reasons below [Kim, 2011]. First, it can reduce any risks produced by the trade between firms. Second, it can also reduce socio-economic bipolarization. Third, the first, second, and third-tier firm's competitive advantages can become finished goods- making manufacturing firms. The first step of the strategy for win-win growth between large- sized firms and small- and medium-sized firms can develop self-strength based on competency improvement. The second step can be sharing values among large-, medium-, and small-sized firms and the government. The third step can be the win-win growth stage setting up and spreading the networks [Kim, H., 2012].

3. Methodology

3.1 Research Model

On the basis of literature review on win-win growth, we test the effect of the win-win growth activity of the domestic finished goods-making manufacturers on the first- and second-tier suppliers and on the second- and third-tier suppliers and also on the second-tier suppliers' performance. <Figure 1> illustrates shows our research model based on this mechanism on the



〈Figure 1〉 Research Model

influence of the win-win growth activity of the domestic finished goods-making manufacturers on the first- and second-tier suppliers and on the second- and third-tier suppliers and also on the second-tier suppliers' performance.

3.2 Research Hypotheses

3.2.1 Win-win Growth Activity of the Domestic Finished Goods-Making Manufacturers and Suppliers

The government has pushed forward the policy on the positive influence of the activity between the finished goods-making manufacturers and the first-tier suppliers ultimately on the second- and third-tier suppliers. Therefore, in order to spread this win-win growth, the total supply chain has to be extended to the second- and third-tier suppliers [Kim, 2011]. Based on previous research, we hypothesize :

Research hypothesis 1 : The win-win growth activity between the first-tier suppliers and the second-tier suppliers has a positive effect on win-win growth between the second-tier suppliers and the third-tier suppliers.

Research hypothesis 2 : The support for the win-win growth activity of the finished goods-making manufacturers for the first- and second-tier suppliers has a positive effect on the win-win growth activity for the third-tier suppliers.

Research hypothesis 3 : The governmental policy on win-win growth has a positive effect on the win-win growth activity of the second-tier suppliers for the third-tier suppliers.

3.2.2 Suppliers' Trade Relationships

For the win-win growth activity, there should be a fair trade between the first-tier suppliers and the second-tier suppliers. Several criteria for the fair trade among firms are reasonable delivered unit cost, reasonable contracts, and reasonable mutual cooperations [Kim, 2011]. From large-sized companies to the third-tier suppliers, there has to be fair trades and mutual trust for the win-win growth systems and partnerships. Based on previous research, we hypothesize :

Research hypothesis 4 : The trade relationship between the first-tier suppliers and the second-tier suppliers has a positive effect on the win-win growth activity between the second-tier suppliers and the third-tier suppliers.

3.2.3 Information Sharing

Information sharing is divided by open information shared by internal information and external information based on mutual trust and by independent information required for internal secret. Shared information can be used for reduction on cost, for quality management, or/and for financial management [Kim et al., 2013]. Information sharing among firms can mean to share information related to interdependent tasks on suppliers and manufacturers [Shim et al., 2011]. In addition, information sharing can prepare future problems that can be raised between suppliers and manufacturers. Based on previous research, we hypothesize :

Research hypothesis 5 : Information sharing

between the first-tier suppliers and the second-tier suppliers has a positive effect on information sharing between the second-tier suppliers and the third-tier suppliers.

3.2.4 Attitudes on Cooperative Relationships

On the basis of previous research, we measure and define attitudes on cooperative relationships in this study as long-term cooperative relationships, decision-making process based on development and production plans, and continued relationships on changing suppliers [Kim, H., 2012]. Based on previous research, we hypothesize :

Research hypothesis 6 : Attitudes of the first-tier suppliers on the second-tier suppliers has a positive effect on the win-win growth activity of the second-tier supplier for the third-tier suppliers.

3.2.5 Performance

Firms can increase their performance through supply chain. Suppliers' performance includes quality performance, cost reduction as well as financial performance, organizational stability, skills, and manufacturing advantages [Oh and Rhee, 2008]. Based on previous research, we hypothesize :

Research hypothesis 7 : The win-win growth activity of the second-tier suppliers for the third-tier suppliers has a positive effect on the second-tier suppliers' financial performance.

Research hypothesis 8 : The win-win growth activity of the second-tier suppliers for the third-tier suppliers has a positive effect on the second-tier suppliers' non-financial performance.

3.3 Samples

We collected one hundred forty surveys from finished goods-making manufacturing companies and suppliers and managers involved with the win-win growth activity in those companies completed the survey. Before finalizing the survey, we pre-tested the survey through interviews increasing validity. Collecting the data started from September to October in 2013 for about 2 months. Among the one hundred forty collected surveys, we chose well completed one hundred twenty six surveys from 1-tier suppliers for our final data analysis. We used Cronbach's Alpha for reliability, factor analysis, correlation analysis, and regression analysis with SPSS.

4. Results

4.1 Factor Analysis and Reliability Test

Cronbach's Alpha was used for the reliability test and all of the factors were reliable showing between .741~.942. Factor analysis was used for relations among the variables. (see <Table 1>~<Table 3>).

4.2 Correlation Analysis

The correlation analysis of each variable was conducted as a preliminary analysis for our samples <Table 4>.

〈Table 1〉 Factor Analysis and Reliability Test

	1	2	4	6	10	Cronbach's alpha
Governmental policy 5	0.917	0.133	0.093	0.146	0.000	0.942
Governmental policy 4	0.904	0.123	0.182	0.118	0.125	
Governmental policy 6	0.898	0.045	0.274	0.049	0.085	
Governmental policy 3	0.839	0.085	-0.095	0.121	0.021	
Governmental policy 2	0.782	0.172	0.205	0.062	0.093	
Governmental policy 1	0.766	0.096	-0.145	0.110	0.042	
Sharing-Finished 6	0.105	0.770	0.028	0.057	0.027	0.762
Sharing-Finished 1	0.105	0.752	0.028	0.057	0.027	
Sharing-Finished 7	0.196	0.720	-0.027	0.019	0.073	
Sharing-1st-profit 1	0.073	0.780	0.761	0.176	0.104	0.864
Sharing-1st-cost 1	0.174	0.622	0.719	0.092	0.093	
Sharing-1st-cost 2	0.265	0.545	0.705	0.144	0.152	
Sharing-1st-res. 3	0.091	0.218	0.653	0.044	0.215	
Sharing-1st-cost 3	0.108	0.011	0.635	0.094	0.069	
Sharing-1st-know 1	0.153	0.067	0.461	0.172	0.063	
Attitudes-1st 5	0.237	0.093	0.044	0.766	0.110	0.741
Attitudes-1st 3	0.162	0.058	0.063	0.693	0.087	
Attitudes-1st 4	0.317	0.274	0.194	0.675	-0.043	
Attitudes-1st 6	0.071	0.185	0.048	0.665	0.804	
Trade-1st 2	0.245	0.062	0.287	0.205	0.714	0.769
Trade-1st 1	0.081	0.106	0.145	0.150	0.693	
Trade-1st 3	0.201	0.186	-0.059	0.160	0.621	

〈Table 2〉 Factor Analysis and Reliability Test

	1	Cronbach's alpha
Sharing-2nd 3	0.928	0.878
Sharing-2nd 2	0.899	
Sharing-2nd 1	0.898	

〈Table 3〉 Factor Analysis and Reliability Test

	1	2	Cronbach's alpha
Non-financial-2nd 4	0.841	0.2070	0.826
Non-financial-2nd 5	0.803	0.1852	
Non-financial-2nd 3	0.768	0.0350	
Non-financial-2nd 2	0.734	0.0669	
Non-financial-2nd 1	0.639	-0.0338	
Financial-2nd 1	0.0724	0.895	0.885
Financial-2nd 2	0.1667	0.894	
Financial-2nd 3	0.0868	0.867	

4.3 Data Analysis

Data analysis shows that all of the constructs on information sharing, attitudes, and trade relationships of the first-tier suppliers are significantly correlated with information sharing of the second-tier suppliers. The constructs of the win-win growth activity of the finished goods- making manufacturers and the government and the constructs oon information sharing of the second-tier suppliers are significantly correlated (see <Table 4>). Furthermore, hierarchical regressions analysis shows that the win-win growth activity of the finished goods-making manufacturers and the government has a positive effect on the win-win growth activity of the second- and third-tier suppliers (see <Table 5>).

〈Table 4〉 Correlations among Constructs

	Sharing-1st	Attitudes-1st	Trade-1st	Sharing-Finished	Governmental policy	Sharing-2nd	Non-financial-2nd	Financial-2nd
Sharing-1st	1							
Attitudes-1st	.000	1						
Trade-1st	.000	.000	1					
Sharing-Finished	-.035	.031	-.086	1				
Governmental policy	.282(**)	.195(*)	.107	.000	1			
Sharing-2nd	.244(**)	.256(**)	.361(**)	.218(**)	.174	1		
Non-financial-2nd	.191(*)	.062	.080	.049	.238(**)	.297(**)	1	
Financial-2nd	.159	-.067	.175	.008	.120	.250(**)	.000	1

**p < 0.01(two-tailed test), *p < 0.05(two-tailed test).

〈Table 5〉 Hierarchical Regression Analysis

		Model 1			Model 2			Model 3		
		S. coeff.	t-value	VIF	S. coeff.	t-value	VIF	S. coeff.	t-value	VIF
Indep. Var.	Sharing-1st (3)	0.242	2.912	1.001	0.251	3.104	1.002	0.246	2.905	1.091
	Attitudes-1st (5)	0.244	2.932	1.001	0.237	2.927	1.002	0.233	2.820	1.041
	Trade-1st (4)	0.361	4.338	1.000	0.381	4.698	1.008	0.379	4.624	1.021
Control Var.	Sharing-Finished (6, 1, 7)				0.226	2.788	1.010	0.226	2.777	1.010
	Governmental policy(1~6)							0.017	0.197	1.145
	R^2	0.252			0.303			0.303		
	$\triangle R^2$				0.051			0.051		
	Sig F Change				12.135			12.135		
	Adjusted R^2	0.231			0.277			0.270		
	F-value	12.135			11.615			9.216		

〈Table 6〉 Regression Analysis

		Model 1 (DV : Financial)		Model 2 (DV : Non-financial)	
		Standardized coefficient	t-value	Standardized coefficient	t-value
Independent variables	The win-win growth of the 2nd tier	0.313	3.414	0.283	3.057
	R^2	0.062		0.088	
	Adjusted R^2	0.055		0.081	
	Sig.	0.003(**)		0.001(**)	

The win-win growth activity of the second-tier suppliers is highly correlated with the win-win growth activity of the first-tier suppliers, the government, and the finished goods-making manufacturers. The second-tier suppliers' performance is also correlated with the win-win growth activity of the second-tier suppliers (see <Table 6>). To check multicollinearity among each variable, we see variance inflation factor (VIF) and all of the values were under .501. There are no problems on multicollinearity.

5. Conclusions and Limitations

We summarize the results of this study below and implications of each result are also described. First, it was found that the win-win growth between first-tier suppliers and second-tier suppliers has positive effects on the win-win growth made by second-tier suppliers helping the third-tier suppliers. The win-win growth activity is positively influenced on the win-win growth activity of the suppliers and vice versa. We see the synergy effect with these results.

Second, it was found that the win-win growth policies supported by the government for the positive relationship between first-tier suppliers and second-tier suppliers for the finished goods-making manufacturers have positive effects on the win-win growth between second-tier suppliers and third-tier suppliers. There is a moderating effect of the governmental policy for the win-win growth activity between the finished goods-making manufacturers and their suppliers. It implies that there will be active support for the win-win growth activity of the second- and third-tier suppliers.

Third, the trade relationships of the first-tier suppliers on the second-tier suppliers are positively related to the win-win growth activity of the second-tier suppliers for the third-tier suppliers. Fourth, information sharing of the first-tier suppliers on the second-tier suppliers is positively related to the win-win growth activity of the second-tier suppliers for the third-tier suppliers. It implies the importance of information sharing among suppliers to increase productivity and the suppliers themselves. Fifth, the attitudes of the first-tier suppliers on the second-tier suppliers are also positively affected the win-win growth activity of the second-tier suppliers for the third-tier supplies.

Sixth, the win-win growth activity of the second-tier suppliers for the third-tier suppli-

ers is positively related to financial performance of the second-tier suppliers. The importance of the win-win-growth activity is clearly shown from the results of this study. The results also show that the win-win growth between second-tier suppliers and third-tier suppliers has a positive influence on the non-financial performances of the second-tier suppliers.

This study was to show the increasing and spreading effect of the win-win growth activity and can contribute to firms through better supply chain management. The win-win growth activity of the finished goods-making manufacturers is beneficial for the first-tier suppliers' win-win growth activity. Suppliers' spontaneous and active win-win growth activity with information sharing can produce more innovative and creative ideas on firms. Previous research mainly has focused on only one-side firms, either large- or small- and medium-sized companies' perspectives. However, this study sees the both sides' perspectives and inter-firms' relationships. In addition, this study also shows the important role of the governmental policy on information and knowledge sharing between the finished good-making manufacturers and their suppliers. This fact also can contribute the future policy on the win-win growth activity.

Despite contributions of this study, it has limitations. First, the results of the survey can be subjective. That is, there were each individual's own thoughts and ideas. Second, there is limitation on the areas. We gather samples only from Seoul and Kyounggi province. Future research needs to include more provinces.

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Author Profile

Kyung-Tae Kim

The professor of International Trade and Business at the School of Business of Kangwon National University. He received his Bachelor's degree in Material Science from KAIST and Doctoral degree in Management from Tsinghua University in China. He has published research papers in International Journal of Operations Production Management, Korean Academy of International Business Management, Journal of the Korea Production and Operations Management Society International Business Journal, Korean Academy of International Business Management, China Industrial Economics. His research interest includes global supply chain management, international business strategy, corporate social responsibility, automotive industry in China.

Jung Seung Lee

Jung Seung Lee is a currently associate professor in School of Business of Hoseo University in South Korea. He has been served as a vice-president of Korea Intelligent Information System Society and a director of Korea Database Society. He received a B.A. and M.S. in Management Science and Ph.D. in Management Engineering from KAIST. He established two venture companies such as Good Friends (oldboy.co.kr, an internet community) and Best Money (bestmoney.co.kr, a financial consulting site for individuals). His primary research areas are Supply Chain Management, Production Information Systems, and Business Data Analytics.

Namshin Kang

Namshin Kang is a currently lecturer of Hanyang University and Hankyong National University, and an outside director of UPlus Inc., a water heater manufacturer in South Korea. He received M.S. and Ph.D. in School of Business from Hoseo University. His primary research areas are Supply Chain Management and Production System Analysis.