

Uncertain Supply Chain Management

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An investigation on logistics outsourcing on exports of minerals goods

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ABSTRACT

This paper presents a study to investigate the effects of outsourcing logistics on improvement of export activities in minerals firms. The proposed study designs a questionnaire with 20 questions in Likert scale and distributes it among 67 firms out of 81 active organizations, which are responsible for exporting minerals in province of Tehran, Iran. Using structural equation modeling, the study has determined that there was a meaningful relationship between strategic orientations of exporters against outsourcing third part logistics (3PL) and basic and additional capabilities of 3PL. In addition, there was a meaningful relationship between basic capabilities of 3PL and competitive advantage of exporters but there was not any meaningful relationship between additional capabilities of 3PL and competitive advantage of exporters. Finally, there was a meaningful relationship between competitive advantage of exporters and performance of exports. In summary, the survey indicates that the outsourcing logistics influences positively on the performance of minerals firms.

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1. Introduction

Export has been considered as one of the essential activities for business development in developing countries (Sousa & Bradley, 2008; Casillas et al., 2010; Saygılı & Saygılı, 2011; Gassmann et al., 2014). There are various studies on learning more about the effects different factors on developing export activities. Chi and Sun (2013) examined a Chinese firm's export market oriented (EMO) behavior model based on some data from Chinese apparel exporters and using structural equation modeling technique. They examined a great set of antecedent factors including organizational structure, export systems, export coordination, etc. and moderating factors such as environmental turbulence, export experience in the context of China. They reported various key antecedents including export reward and training systems, top management support, and export dependence facilitating the development of firm's EMO behavior while determining the specific moderating impacts of environment and experience, and therein explains a large percentage of variance in EMO behavior.

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Stoian et al. (2011) provided a comprehensive picture of the export performance determinants of Spanish small and medium-sized enterprises (SMEs) by jointly investigating the impact of internal and external antecedents. They also investigated the potential relationship existing between objective and subjective (perceptual) measures of export performance. The proposed conceptual model was examined within a sample of Spanish exporting firms using regression analysis and structural equation modelling. The results showed that managerial foreign language skills and international business knowledge, firm's export commitment as well as the technological intensity of the industry were the most influencing antecedents of export performance. In addition, a strong positive relationship was reported between the objective and subjective export performance measures. Villar et al. (2014) recommended the existence of a mediating effect of dynamic capabilities on exports, hence the implementation of knowledge management practices was a necessary but not enough condition to improve exporting, requiring the existence of dynamic capabilities to reconfigure these capabilities. Bloemer et al. (2013) explored the impacts of trust, commitment, relation-oriented competencies and entrepreneurial competencies on export performance by applying a survey data from 134 exporting organizations located in the south of the Netherlands. They implemented a conceptual model where trust and affective commitment act as energizing forces for the development of competencies that had a positive impact on export performance.

2. The proposed study

The proposed study of this paper considers the effect of logistics outsourcing on exports of minerals goods. Fig. 1 shows the structure of the proposed study,

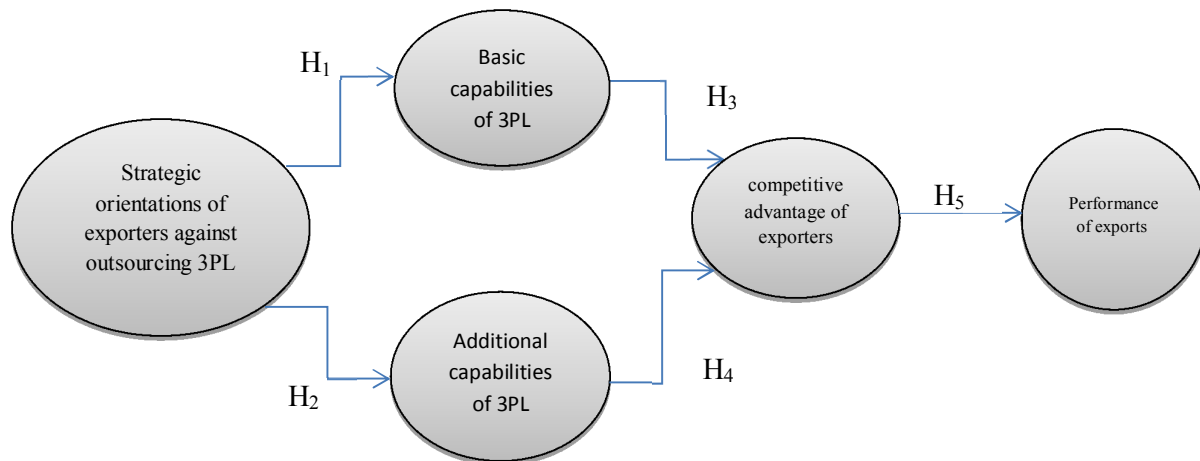


Fig. 1. The proposed study

The proposed study shown in Fig. 1 investigates the role of outsourcing third party logistics on performance of the exports organizations. According to Fig. 1, the following hypotheses are considered,

1. There is a meaningful relationship between strategic orientations of exporters against outsourcing 3PL and basic capabilities of 3PL.
2. There is a meaningful relationship between strategic orientations of exporters against outsourcing 3PL and additional capabilities of 3PL.
3. There is a meaningful relationship between basic capabilities of 3PL and competitive advantage of exporters.

4. There is a meaningful relationship between additional capabilities of 3PL and competitive advantage of exporters.
5. There is a meaningful relationship between competitive advantage of exporters and performance of exports.

The study has been accomplished on a sample of active firms on mineral exportation. The sample size is calculated as follows,

$$n = \frac{N \times z_{\alpha/2}^2 \times p \times q}{\varepsilon^2 \times (N - 1) + z_{\alpha/2}^2 \times p \times q}, \tag{1}$$

where N is the population size, $p = 1 - q$ represents the yes/no categories, $z_{\alpha/2}$ is CDF of normal distribution and finally ε is the error term. Since we have $p = 0.5, z_{\alpha/2} = 1.96$ and $N = 81$, the number of sample size is calculated as $n = 67$. The proposed study consists of two parts: The first part investigates personal characteristics of the participants and the second part is devoted to export activities. The study uses structural equation modeling (SEM) and Table 1 demonstrates the results of some basic statistics.

Table 1

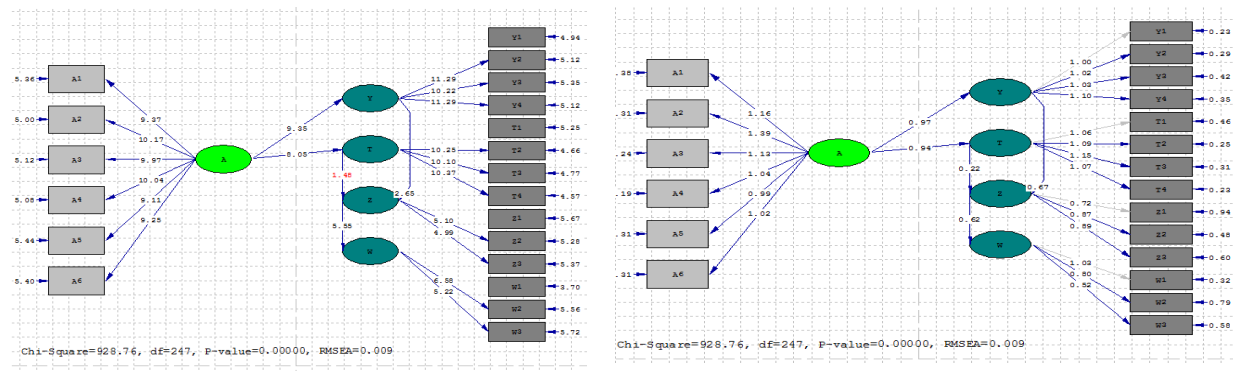
The summary of some basic statistics associated with SEM implementation

| RMR | NNFI | NFI | AGFI | GFI | RMSEA | Chi-Square | df | Chi-Square/df |
|-------|------|------|------|------|-------|------------|-----|---------------|
| 0.034 | 0.90 | 0.95 | 0.91 | 0.92 | 0.009 | 928.76 | 247 | 3.76 |

As we can observe from the results of Table 1, all statistics are within acceptable limits and we can study the hypotheses of the survey based on SEM implementation.

3. The results

In this section, we present details of SEM implementation. Fig. 2 shows details of the results, which are accomplished using LISREL software package.



The results of standard values

The results of t-student values

Fig. 2. The results of SEM implementation

As we can observe from the results of Fig. 2, all statistics are within acceptable limits. For instance, RMSEA = 0.009, Chi-Square = 928.76, degree of freedom = 247 with P-Value = 0.0000. Therefore, we may reply on the results. Table 1 summarizes the results of our survey on testing the hypotheses. The results of Table 1 confirm the first, the second, the third and the fifth hypotheses of the survey. In other words, there is a meaningful relationship between strategic orientations of exporters against

outsourcing 3PL and basic and additional capabilities of 3PL. In our survey, there is a meaningful relationship between basic capabilities of 3PL and competitive advantage of exporters but there is not a meaningful relationship between additional capabilities of 3PL and competitive advantage of exporters. Finally, there is a meaningful relationship between competitive advantage of exporters and performance of exports.

Table 2

The summary of testing different hypotheses

| Hypothesis | Coefficient | t-student | Result |
|------------|-------------|-----------|-----------|
| First | 0.97 | 9.35 | Confirmed |
| Second | 0.94 | 8.05 | Confirmed |
| Third | 0.67 | 2.65 | Confirmed |
| Fourth | 0.22 | 1.48 | Rejected |
| Fifth | 0.62 | 5.55 | Confirmed |

3. Conclusion

In this paper, we have presented an empirical investigation to study the effects of logistic outsourcing on performance measurement of some firms, which are responsible for exporting minerals in Iran. The study has confirmed that there was a meaningful relationship between strategic orientations of exporters against outsourcing 3PL and basic and additional capabilities of 3PL. In our survey, there was a meaningful relationship between basic capabilities of 3PL and competitive advantage of exporters but there was not a meaningful relationship between additional capabilities of 3PL and competitive advantage of exporters. Finally, there is a meaningful relationship between competitive advantage of 3PL and performance of exports.

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