REVENUE SHARING RESEARCH:  
A FIFTY-YEAR RETROSPECT AND FUTURE TRENDS

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ABSTRACT

Revenue sharing is a universal phenomenon existing in many sectors (i.e. rental industry, retailing industry, governments, sports, etc.). Prior research fails to examine its cross-disciplinarity from a holistic perspective. This paper aims to close this gap by applying Latent Semantic Analysis to synthesize 183 research papers on revenue sharing in the past 50 years and describe the current research landscape. Revenue sharing research is characterized as 6 research themes which can be categorized into three contexts: (1) revenue sharing among governments, (2) revenue sharing among or within sports teams, (3) revenue sharing in supply chains. This paper compares commonalities and differences in terms of revenue sharing mechanism across the three contexts. We anticipate that revenue sharing research in supply chain will grow explosively.

Keywords: Revenue Sharing, Literature Review, Text Mining, Latent Semantic Analysis, Interdisciplinary Analysis

INTRODUCTION

The term of Revenue Sharing is known for a seminal paper “Supply Chain Coordination with Revenue-Sharing Contracts: Strengths and Limitations” written by Cachon, Gérard P. and Lariviere, Martin A. in year 2005. This paper was published on “Management Science” and has been cited 1214 times by the end of year 2012 searched by Google Scholar. Despite of the multiple meanings of revenue sharing, this paper focuses on revenue sharing in the specific context of revenue sharing contract. Revenue sharing contract is first introduced to the videocassette retailing industry to solve the challenging capacity problem which encountered by videocassette retailers. The peak popularity of a rental title lasts for only a few weeks and the purchasing cost of a tape from the supplier was traditionally been high compared to the rental price to the customers. For example, a retailer purchases a tape from a supplier for about $65 and rents it for $3 per rental, which means the tape reaches the breakeven point only after 22 rentals. Considering the demand for a tape typically starts high and tapers quickly, and the relative expensive purchasing cost of a tape, the retailer cannot afford enough tapes to cover the entire initial demand peak. This issue also limits the diversity of the videocassettes that the retailers can keep in their stores, which results in losing more customers. It also negatively influences the revenue of suppliers due to a less demand of retailers. To solve this problem, a large video retailer called Blockbuster Inc. agrees to pay its suppliers a portion of sales revenue (probably in
the range between 30% and 45%) based on its reduced purchasing cost from the supplier from 65 to 8 dollars in 1998. This type of contract dramatically reduces the retailers’ the purchasing cost and increases customers’ demand, which benefits both suppliers and retailers. Realizing the substantial benefits associated with the revenue sharing contract, many other fields have applied it in their supply chains.

However, revenue sharing may not mean applying the revenue sharing contract only in the context of supply chain; it is a universal phenomenon existing in many other fields. In politics, it may refer to the revenue sharing policy by United States government implemented from the year 1972 to 1986. In sports, it may refer to the revenue sharing between team owners and team players or the revenue sharing among different teams. In business, it is referred as the revenue sharing between franchise store and the owner of brand. Across these contexts, the concept of revenue sharing retains the same underlying logic which is the sharing of interests and risks among stakeholders.

We believe that having a holistic view of revenue sharing as a prevalent phenomenon especially understanding its commonalities and differences across disciplines will advance the development of its theorization. Prior literature mainly discusses revenue sharing in a specific context. For example, Kunter (2012) investigates the revenue sharing between manufacturers and retailers to improve both the manufacturers’ and the retailers’ profits. Scully (2004) discusses the revenue sharing between the owner of franchises and players. To our best knowledge, no publication depicts the landscape of revenue sharing in an interdisciplinary manner, which is the primary contribution achieved by this paper.

In order to have a holistic view, the authors first synthesize the existing literature about revenue sharing. More specifically, we first raise three questions: (1) What theme the literatures relates to revenue sharing? (2) Which context revenue sharing is primarily used? (3) What are the future trends of revenue sharing research?

In addition, the mechanism of revenue sharing in different contexts may differ to some extent. Understanding the commonalities and differences of it could help researchers theorize revenue sharing and generalize to a new context. Therefore, the fourth question is raised. (4) How does the revenue sharing mechanism differ (in terms of stakeholders, decision variables, revenue source, and etc.) in different contexts?

To answer these questions, we applied Latent Semantic Analysis (LSA) to do text mining on all literature available in a mainstream scholarly database from 1960s to 2010s. Text mining is also called “knowledge discovery” which refers to the process of extracting useful, meaningful, and nontrivial information from unstructured text (Netzer, 2012). LSA is an algebraic-statistical method which can detect the underlying topical structure in a document corpus (Evangelopoulos, 2011) and extract hiding semantic structures of words and sentences. Since LSA is a mathematical method to deal with the information overloading, it is more objective and thus the analytical results will be less biased.

Overall, this paper has yielded considerable contributions. First, it applies LSA to conduct a review of literatures and identify research themes in an unbiased manner. LSA provides a more
objective way for literature review and summarization compared with descriptive summary by hand. Second, to our best knowledge, this is the first paper summarizing the revenue sharing research across a time span of 50 years from multiple disciplines. The topic of revenue sharing remains important as can be seen many publications in top journals in recent years. By reviewing all revenue sharing related literature, we have generated a holistic view of revenue sharing phenomenon. Third, we identify the commonalities and differences of revenue sharing mechanism in different contexts. This is a further step of theorization of revenue sharing. Our paper can be seen as an exploratory study that might be a valuable reference for future researches. Finally, this paper indicates the future trends of revenue sharing in each research area. The trend showing the more essential role of revenue sharing in specific context would raise more attention both in practical activities and academic studies.

The reminding structure of this paper is organized as follows: in section 2, we will explain the method of LSA; in section 3, the results of LSA and its interpretations will be discussed in detail, especially focusing on the research themes, contexts, and future trends of revenue sharing; revenue sharing mechanism will be discussed in section 4. Limitations and conclusions are stated at the end of this paper.

**METHOD**

**Data Collection**

In order to characterize the revenue sharing research landscape, this study searched for all available papers that contains the phrase of “revenue sharing” in the title or key words from Business Source Complete (EBSCO), which is the world's most comprehensive index of business journals, magazines, and other sources. This database contains indexing and abstracts for more than 3,800 business-related periodicals with coveragestemming from the early 20th century for many leading journals (Chakravarty & Singh, 2005). The data were collected by the end of December in 2011 and there are 183 scholarly papers related to this topic. The number of publications on revenue sharing in the five-year intervals is presented in Figure 1.

In Figure 1, the revenue sharing curve has two peaks at around 1970s and 2000s. In the section of the results and discussion, we will explain why these two peaks appear and illustrate the pattern of revenue sharing research in terms of the number of publications in each specific context.
Data Analysis

Text mining was used to analyze the abstracts obtained from these 183 papers. Text mining deals with the information overloading and refers to the process of extracting useful, meaningful, and nontrivial information from unstructured text (Netzer, 2012). In this paper, we use Latent Semantic Analysis (LSA), which was introduced as an information retrieval technique (Deerwester et al., 1990) but subsequently evolved into a cognitive science theory of meaning (Landauer, 2007) to conduct text mining. This specific method is considered as a well-accepted text mining technique (Han et al., 2011). It is also an algebraic-statistical method which can detect the underlying topical structure of a document corpus (Evangelopoulos, 2011) and extract hiding semantic structures of words and sentences. More detailed mathematical explanation of LSA can be found in previous studies (Sidorova et al., 2008). The mathematical characteristic of LSA makes it become a more objective analytical method to review literature and conduct literature summary in essence.

The operationalization of LSA in this study is divided into three steps. These steps follow the well-established text mining procedures as discussed in prior studies (Delen et al., 2008; Han et al., 2011; Harman, 1992; Hossain et al., 2011; Sidorova et al., 2008; Turban et al., 2008, Li & Joshi, 2012). A total of 183 abstracts from all selected articles on revenue sharing were consolidated in a spreadsheet. This data set was loaded to Rapidminer 5.0, which is a leading data mining tool (Jungermann, 2009) and was processed as following steps.

The first step is Pre-processing and Term Reduction. The spreadsheet was converted into a document object in Rapidminer 5.0 and was assigned a unique document ID sequentially before it was analyzed. Then the documents went through a series of pre-processing procedures. 1) All the letters in these documents were transformed into lowercase. 2) The documents were tokenized with non-letter separators. 3) The “stopwords” (which include the trivial English
words such as “and,” “the,” “is,” “are,” “a,” “an”, and so on) in the identified word list and the words which are solely associated with the writing style of these articles (e.g. “author,” “paper,” “conclusion”) were removed because these words don’t provide meaningful information of these documents and their presence unnecessarily increases the dimensionality. 4) All the tokens that are less than two letters (i.e. “s,” “x,” and so on) were removed because they don’t contain meaningful information. 5) The words or tokens which appear only in one document were removed since they are only applied to a specific study and don’t indicate any research theme. 6) Term stemming techniques were applied to word list. Terms stemming identified the words’ root and regarded all words with the same root as one token. Therefore, variants of the same word are combined and the dimensionality is decreased. For example, “coordinate,” “coordinating,” “coordination,” and “coordinative” have the same token, the “coordina-.” These term reduction procedures eventually resulted in a word list with 2397 tokens in the abstract data set.

The second step is Term Frequency Matric Transformation. After the first step, all documents are converted into the term frequency by document matrix. Each cell of the matrix recorded the frequency of occurrences for a particular token in specific document. We transformed the values in the matrix using term frequency – inverse document frequency (TF-IDF) weighting method (Han et al., 2011; Harman, 1992; Husbands & Ding, 2001; Salton & Buckley, 1988; Salton et al., 1975). This approach puts more weights on the rare terms and discounts the weight of the common terms such as “revenue,” “sharing” so that the uniqueness rather than the commonality of each document is emerge in the result (Sidorova et al., 2008).

The third step is Singular Value Decomposition. Singular Value Decomposition is applied to convert the TF-IDF weighted term matrix into the production of three matrices, the term-by-factor matrix, singular value matrix (square roots of eigenvalues), and the document-by-factor matrix. The term-by-factor matrix shows the term loadings on a particular latent factor. The document-by-factor matrix presents the document loadings to a particular latent factor. The singular values (square roots of eigenvalues) represent the importance of particular factor.

The interpretation of LSA results is similar to the interpretation of factor analysis (Evangelopoulos, 2012). This paper associated each factor with its high-loading terms and documents to assist factor interpretation. For each solution, we created a table containing all high-loading terms and documents sorted by absolute loadings. Then, the factors were labeled by examining the terms and documents (abstracts) related to a particular factor, interpreting the underlying area, and determining an appropriate label. Thus, all of these terms and documents are interpreted and the factors are labeled with practical meaning according to its containing high-loading terms.

To find out the contexts in which revenue sharing are used, each document is classified into a particular research theme by its loadings. We made a frequency account for each field by counting the number of documents that loaded highly on the corresponding factor. If one document has crossed loadings and loads on multiple research themes, it is classified to the theme which has the highest loading. The results of this analysis and the number of publications for each sub-context of revenue sharing over the last 50 years are discussed in the next section.
RESULTS AND DISCUSSION

Research Themes

An analysis of the LSA results is presented in order to answer the first research question, what are the themes of the literatures relating to revenue sharing. The table 1 exhibits the top 6 factors identified by LSA each of which represents a research theme of revenue sharing.

Table 1: The Top 6 Factors Identified by LSA

<table>
<thead>
<tr>
<th>Factors</th>
<th>Interpretations (Labels)</th>
<th>Singular Values</th>
<th>High-Loading Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1</td>
<td>Stakeholders of Revenue Sharing among Governments</td>
<td>2.112</td>
<td>local, state, govern, feder, local_govern, state_local, gener_revenu_share, gener_revenu, fund, fiscal,</td>
</tr>
<tr>
<td>Factor 2</td>
<td>Revenue Sharing among and within Sports Teams</td>
<td>1.849</td>
<td>league, team, competi_balanc, balance, competi, sport, club, talent, player, owner</td>
</tr>
<tr>
<td>Factor 3</td>
<td>Issues of Revenue Sharing among Governments</td>
<td>1.417</td>
<td>tax, incom, incom_tax, rate, grant, system, taxat, land, countri, account_rate</td>
</tr>
<tr>
<td>Factor 4</td>
<td>Revenue Sharing in Supply Chain</td>
<td>1.399</td>
<td>suppli, suppli_chain, effort, chain, contract_revenu, contract_revenu_share, respect, restrict_demand, consid_suppli, consid_suppli_chain</td>
</tr>
<tr>
<td>Factor 5</td>
<td>Revenue Sharing between Manufacturers and Retailers</td>
<td>1.380</td>
<td>manufactur, retail, cooper, manufactur_retail, volum, game_model, process_improv, product_process, product_process_improv, coordin</td>
</tr>
<tr>
<td>Factor 6</td>
<td>Conditions of Revenue Sharing among governments</td>
<td>1.378</td>
<td>condit_grant, condit_grant_taxat, financ_feder, financ_feder_revenu, grant_taxat, revenu_share_condit, share_condit, share_condit_grant, feder_revenu_share, feder_revenu,</td>
</tr>
</tbody>
</table>

In table 1, the significance of each factor is indicated by the singular value. Noticing that each factor contains more than 2000 terms and we selected the top 10 terms as the “high-loading terms” for demonstration purpose. LSA results indicate these six factors cover over 95% of all the unique terms and abstracts, which means these factors are able to represent all the major research themes.

The Contexts of Revenue Sharing Research

In order to answer the second research question, which context revenue sharing is primarily discussed, we further analyzed each of the factors identified above. Specifically, factor 1 describes the stakeholders of revenue sharing in different governments. These stakeholders include federal government, state government, and local government. Factor 3 describes the issues of revenue sharing, such as tax, income, rate, grant and etc., in different governments.
United States government revenue sharing policy was taken place from 1972 to 1986 (Sagbas, 2001), during which the Congress gave an annual amount of federal tax revenue to the states governments and local governments such as cities, countries and towns. However, in 1987, revenue sharing was replaced with block grants in small amounts to reduce federal revenues given to states. Although revenue sharing policy is also used in other countries such as Canada, Australia (Maxwell, 1971), etc., most of the papers discuss the policy used in the U.S. or compare the policy in other countries with the one used in the U.S. Therefore, factor 1 presents the stakeholders of revenue sharing in different governments (e.g. local, state, or federal government). Factor 3 indicates the issues of revenue sharing in different governments. Factor 6 presents the conditions of revenue sharing among governments. Literatures discuss about the condition to use revenue sharing among governments, use grant to help state or local governments, and make comparison of the effects between the revenue sharing policy and grant policy (e.g. Fisher, 1979). Related issues such as financial situation of federal government are also stated (e.g. Conant, 1999). All in all, by discussing revenue sharing in different views, factor 1, factor 3 and factor 6 illustrated the revenue sharing in different governments between 1972 and 1986.

Factor 2 presents the revenue sharing among league teams (e.g. the terms such as league, team, competi_balanc, and talent shown in table 1) or within one team (e.g. the terms such as player, and owner in table 1). There are mainly two types of revenue sharing in the sports. They are revenue sharing among different teams to improve competitive balance (Kesenne, 2006) and revenue sharing within a team. Because revenue sharing reduces talent investment and keeps competitive balance (Szymanski & Késenne, 2004), evidence shows that teams with larger revenue streams are able to afford more talents over the long run. Within a team, revenues are shared between franchise owners and players who play for them (Scully, 2004). Franchise owners claim they are assuming all of the financial risks and expenses with profit margins are not proportional to the risks involved. The players claim they are risking their safety and future quality of life to serve the owners. In reality, there is no team for the players to play for in the absence of owners, while there is no product without the involvement of the players. Therefore, owners and players have to decide the revenue sharing ratio between them (Easton & Rockerbie, 2005). For example, MLB owners proposed a 50-50 ratio split with players after the 1993 season (Vrooman, 2009).

Both factor 4 and factor 5 describe the revenue sharing in supply chain. Factor 4 concentrates on the supply chain coordination using revenue sharing contract. By integrating the supply chain, the stakeholders such as suppliers (manufacturers), distributors, retailers, etc. can cooperate with each other and make the maximum profit from the entire supply chain (Cachon & Lariviere, 2005). Using the revenue sharing contract, suppliers provide a low supply cost (may be lower than the production cost) and obtains a proportion of retailer's revenue (Pan et al., 2010). In this way, the supply chain is coordinated between suppliers and retailers. The revenue sharing contract is often considered in supply chain coordination because it increases the market demands as well as enhances the profits of related stakeholders (Li et al., 2009). Factor 5 mainly focuses on the revenue sharing between manufacturers and retailers in supply chain. It discusses the cooperation between manufacturers and retailers as well as the benefits associated with revenue sharing in order to improve the production process (e.g. Kunter, 2012). Usually, scholars
use game theory model (e.g. Stackelberg game) to depict the coordination between the manufacturers and retailers (e.g. Pan et al., 2010).

In light of the discussions above, revenue sharing literature can be categorized into three categories: revenue sharing among different governments, revenue sharing among or within sports teams, and revenue sharing in supply chain (See Figure 2). Each of the categories can be also considered as a specific context of the revenue sharing, which answers the second research question aforementioned.

Figure 2: The Three Contexts of the Revenue Sharing Literature

The Future Trends of Revenue Sharing Research

In order to answer the third research question, the future trends of revenue sharing research, we delved into each identified context. The number of papers in the three categories over the latest 50 years is illustrated in Figure 3.
Figure 3: The Number of Publications on Revenue Sharing in the Three Contexts in the Last 50 Years

In figure 3, the number of publications on revenue sharing in the three categories is different within each period. The U.S. government implemented revenue sharing policy from 1972 to 1986 and many scholars are attracted to the research on revenue sharing among governments around 1970s. The number of publications on revenue sharing declined to less than 10 papers in each five-year interval from 1986 to 2011. Revenue sharing among or within sports teams started to draw researchers’ attention and the number publications gradually increased after 1986. Research on revenue sharing in supply chain emerged later but has been paid much attention since 2000s and grew rapidly.

Figure 3 also reveals the future trends of revenue sharing research in terms of number of publications for each specific context. The research of Revenue Sharing among Government (RSAG) declined since 1970s and maintained a small number of publications since 1986. Since the federal revenue sharing policy was terminated in 1986 in the U.S., we anticipate the number of publications in this area will continue to be small in the future.

There are two main types of research about Revenue Sharing in Sports Teams: Revenue Sharing among Sports Teams (RSAT) and Revenue Sharing within a team (RSIT). The research of Revenue Sharing among Sports Teams (RSAT) is constantly conducted by sport management scholars. Considering the league structures have high similarities, research in this field in the future will not increase to a great extent. The research of Revenue Sharing within a team (RSIT) is fairly simple since it is a zero-sum game and both owners and players want to have more proportions of revenues. Hence, negotiation techniques may be more important than the theoretical research, which accounts for the limited extensions of RSIT research.

However, the number of research regarding revenue sharing in supply chain (RSIC) may explode in the future. Referring to figure 3, the number of published papers was soaring since 2000. Revenue sharing starts in the video rental industry. It has been applied to more and more industries to integrate supply chains to enhance profits. The method used in this field is typically
mathematical modeling. The models become various and complicated because of the uncertainties of factors (Zhao & Wu, 2011) and complicated structures of supply chain (Huang et al., 2003). In addition, more issues related to revenue sharing contracts in the supply chain are emerging such as information asymmetry, administration cost (Cachon & Lariviere, 2005) and so on. These features make the research of RSIC remarkably attractive and the high extension level dramatically increases the number of RSIC related publication in the future. Overall, the discussion above answers the third research question, the future trends of revenue sharing.

The Mechanism of Revenue Sharing

In order to answer the last research question, how revenue sharing mechanism (in terms of stakeholders, decision variables, revenue source, objectives, etc.) differs in various contexts, we analyzed the content of the collected papers. This section will discuss the revenue sharing mechanisms in each context: governments, sports teams, and supply chain, and make comparison from different aspects. In sports teams, two kinds of revenue sharing, among different teams and within one team, are considered as two categories, which generates four categories:

(1) Revenue Sharing among Governments (RSAG)
(2) Revenue Sharing among Sports Teams (RSAT)
(3) Revenue within a Sports Team (RSIT)
(4) Revenue Sharing in supply chain (RSIC)

Stakeholder theory of corporation (Thomas & Lee, 1995) was adopted and little modified, and some key issues were selected to conduct the analysis. Table 2 presents the revenue sharing mechanism in different contexts. For the rest of this section, we conduct a detail discussion to interpret the analysis result presented in table 2.
Table 2: Mechanisms of Revenue Sharing in Different Contexts

<table>
<thead>
<tr>
<th>Categories</th>
<th>Stakeholders</th>
<th>Coordinating Mechanism</th>
<th>Decision Variables</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Sharing among Governments (RSAG)</td>
<td>Federal, State, Local Governments</td>
<td>Vertical</td>
<td>Rate, Tax, Income Redistribution and etc.</td>
<td>Provide Financial Help to Relatively Poor State and Local Governments</td>
</tr>
<tr>
<td>Revenue Sharing among Sports Teams (RSAT)</td>
<td>Different Teams</td>
<td>Horizontal</td>
<td>Rate, Investment, Hiring Strategies and etc.</td>
<td>Improve Competitive Balance</td>
</tr>
<tr>
<td>Revenue Sharing within a Sports Team (RSIT)</td>
<td>Owners, Players</td>
<td>Horizontal</td>
<td>Rate</td>
<td>Guarantee the Team Revenue Sustainability</td>
</tr>
<tr>
<td>Revenue Sharing in Supply Chain (RSIC)</td>
<td>Manufacturers, Distributors, Retailers</td>
<td>Vertical</td>
<td>Rate, Price, Order Amount and etc.</td>
<td>Integrated Optimization</td>
</tr>
</tbody>
</table>

Table 2 (Continued): Mechanisms of Revenue Sharing in Different Contexts (Continued)

<table>
<thead>
<tr>
<th>Categories</th>
<th>Game Category</th>
<th>Revenue Source</th>
<th>Relative Administrative Costs</th>
<th>Guarantee Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Sharing among Governments (RSAG)</td>
<td>Zero-Sum Game</td>
<td>Federal Government</td>
<td>Low</td>
<td>Policy</td>
</tr>
<tr>
<td>Revenue Sharing among Sports Teams (RSAT)</td>
<td>Zero-Sum Game</td>
<td>Each Team</td>
<td>Low</td>
<td>Contract</td>
</tr>
<tr>
<td>Revenue Sharing within a Sports Team (RSIT)</td>
<td>Zero-Sum Game</td>
<td>Owner</td>
<td>Low</td>
<td>Contract</td>
</tr>
<tr>
<td>Revenue Sharing in Supply Chain (RSIC)</td>
<td>Win-Win Game</td>
<td>Retailer</td>
<td>High</td>
<td>Contract</td>
</tr>
</tbody>
</table>

Stakeholders and Coordination Mechanism

Stakeholders include any individual or group who can affect an organization’s performance or who is affected by the achievement of this organization’ (Freeman, 1984). Stakeholders can be vertically or horizontally coordinated by revenue sharing. Vertical coordination happens when stakeholders in different hierarchies cooperating with each other, while horizontal coordination
happens when stakeholders are in the same hierarchy cooperating with each other. In RSAG, stakeholders are different levels of governments and the revenue sharing can vertically coordinate them. In RSAT, the stakeholders are different teams and they usually in the same league and thus the revenue sharing can horizontally coordinate them. In RSIT, both owners and players want to obtain a large proportion of the team’s revenue in such a zero-sum game and they can be horizontally coordinated by revenue sharing. In RSIC, there may be more than one manufacturer, distributor, and retailer, who can be vertically integrated by the revenue sharing contract in different industries.

**Decision Variables**

Revenue sharing rate, which is between 0 and 1, is the main decision variable in most of the revenue sharing research in all three contexts. In addition, some other decision variables are mentioned in some fields’ study of revenue sharing. In RSAG, tax (Friedman & Kurth, 1981), income redistribution (Fisher, 1979) and etc. are also important decision variables. In RSAT, investment (Grossmann et al., 2010) and hiring strategies (Kesenne, 2006) are other two typical decision variables. In RSIT, both of the owners and the players want more proportion of revenue and thus the revenue sharing rate is the only factor they negotiate. To make a win-win situation for all stakeholders in supply chain, the retail price (Cachon & Lariviere, 2005), order amount (Gerchak & Wang, 2004) and etc. also need to be decided based on the demand uncertainty. The revenue sharing contract can guarantee the overall efficiency in the three former contexts, while only by implementing the optimal retail price, order amount, and other decision variables, the entire supply chain can improve the overall efficiency using revenue sharing contract (Cachon & Lariviere, 2005).

**Economic Effect**

Economic reason is an important incentive to implement revenue sharing. In RSAG, the revenue sharing can provide financial assistance to relative impoverished state and local governments by redistributing revenue (Aronson, 1977). In RSAT, the direct goal of revenue sharing is to improve competitive balance among the teams (Szymanski & Késenne, 2004) and therefore lower the marginal value of talents and keep talents from going to other high revenue teams. In RSIT, revenue sharing can decrease the possibility of players’ strike (Vrooman, 2009) and thus guarantee the sustainability of team revenue. In RSIC, revenue sharing can integrate the supply chain and thus optimize the profits of entire supply chain (Giri & Bardhan, 2012). Therefore, the entire supply chain can make efficient decisions.

**Game Category**

Revenue sharing can play a win-win game in supply chain under certain circumstance since retailers can get a low supply cost of the products and thus lower the retail price through the revenue sharing contract (Cachon & Lariviere, 2005). Usually, the market demand has negative relation with the retail price so that the lowered retail price can increase demand and improve the total revenue and profits for the entire supply chain. By adjusting a revenue sharing rate, both suppliers and retailers can have more profits than those without the revenue sharing contract.
Revenue sharing plays a zero-sum game in other fields in that the increased proportion of revenue sharing means the revenue decreases for one party and increases for the other. However, it still can increase the efficiency of the entire system indirectly. In RSAG, since the state governments and local governments know well about the local needs, the tax income shared by the federal governments can help the government to use this money more efficiently and thus develop the local economy to a large extent, and bring more tax income in the following year. In RSAT, the revenue sharing can improve the competitive balance among the teams in a league, reduce the payroll of the talents in each team (Szymanski & Késenne, 2004), and help a team increase profits. In RSIT, the owners and the players can have a fair proportion of revenue to reduce strikes using revenue sharing (Vrooman, 2009).

**Revenue Source**

Revenue can either come from only one stakeholder (As in RSAG, RSIT and RSIC) or from all stakeholders (As in RSAT). Noticing in RSAT, each team will put a proportion of their revenue to the revenue sharing pool and obtain a constant bonus from the pool (Szymanski & Késenne, 2004). Therefore, although each team is a revenue source, only the “rich” teams which invest more revenues than the average in the pool act as the “real” revenue source.

**Relatively Administrative Costs**

The administrative cost of revenue sharing is extremely low during the 14 years’ program operation of RSAG, while a total of $85 billion reaches America’s communities. The administrative costs of RSAT and RSIT are also low because the sports team in the league (like NFL) need to send the financial data (including local revenues, operating revenues, player payroll, team expenses, G&A expenses, and operating profit), as public information, to the commissioner’s office every year. All of the stakeholders are in a league or even in a team and thus the information is symmetric. However, the administrative cost of RSIC is relatively high because, more often than not, the information is asymmetric. The retailers are individual companies and thus are motivated to hide their revenues. Some retailers are even smaller venders and it is even harder to track their revenues. Consequently, the revenue sharing contract has a clearly higher administrative cost than whole sale contract in supply chain (Cachon & Lariviere, 2005).

**Guarantee Mechanism**

In RSAG, the Guarantee Mechanism is mandatory by law, while the revenue sharing contracts can be negotiated in other contexts. In supply chains, the contracts even can be considered as voluntary choice. Accordingly, the stakeholders needn’t to sign the revenue sharing contracts if they don’t think it is better than the whole sale contract (Pan et al., 2010). Overall, the aforementioned discussion answers the last research question, how the revenue sharing mechanism differs in different contexts.
CONCLUSIONS

Although our study uses the Latent Semantic Analysis, which is an advanced method to conduct a systematic and extensive literature review of publications, this paper is not free from limitations. First, although EBSCO is the world's most comprehensive index of business journals, magazines, and other sources (Chakravarty & Singh, 2005), there still might be some papers related to “revenue sharing” not covered in the database. The future study need to include these papers. Second, we use the “revenue sharing” to search from the title and the key words provided by authors in EBSCO database. However, some publications which focus on “revenue sharing” but not present the word either in the title or in the keywords are not collected.

In spite of these two limitations, the validity and contributions of the study are not undermined. This paper has four major contributions. First, we used the Latent Semantic Analysis, which is a mathematical natural language process technique, to synthesize the research themes of revenue sharing. LSA is an objective method which ensures the unbiasedness of the literature review. Second, we retrospect all the publications on revenue sharing over the last 50 years in multiple fields. Considering such a time and cross-sectional span, the results provide a comprehensive overview for the progress of revenue sharing research. Third, by identifying the commonalities and differences between different research contexts, this study comprehensively advances the theorization of revenue sharing phenomenon. At last, the primary trends of future revenue sharing research are forecasted in this study.

The major findings of the study are as follows: (1) Revenue sharing research over the past 50 years can be characterized as 6 research themes, namely (i) Revenue Sharing among Governments, (ii) Revenue Sharing among and within Sports Teams, (iii) Issues of Revenue Sharing among Governments, (iv) Revenue Sharing in Supply Chain, (v) Revenue Sharing between Manufacturers and Retailers, and (vi) Conditions of Revenue Sharing among governments; (2) These research themes can be further categorized into three different contexts: revenue sharing among governments, revenue sharing among or within sports teams, revenue sharing in supply chains. (3) The study examined the number of publications over the past 50 years for each of the contexts respectively. Future research of revenue sharing in supply chains is expected to grow explosively, while the research on revenue sharing among sports teams and governments may stand still and research on revenue sharing among governments may drop or even cease. (4) Based on the summary of current revenue sharing literatures, this paper made a thorough analysis to identify and compare the mechanism of revenue sharing in different contexts. Given the revenue sharing in supply chain has been identified as the dominant future trend, a further synthesis of the revenue sharing research in the context of supply chain may serve as the future direction proposed by this study.

REFERENCES


