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Wei Ping Saw

University of Arkansas, Fayetteville

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**The Evolution of the U.S. Logistics Outsourcing Industry:
An Organizational Ecology Perspective**

by

Wei Ping Saw

Advisor: Dr. Adriana Rossiter Hofer, PhD

**An Honors Thesis in partial fulfillment of the requirements for the degree Bachelor of
Science in Business Administration in Transportation and Logistics.**

**Sam M. Walton College of Business
University of Arkansas
Fayetteville, Arkansas**

May 11, 2012

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1. INTRODUCTION

The logistics outsourcing industry in the U.S. has been growing rapidly and has evolved greatly since the industry emerged in early 1900s (Papadopoulou & Macbeth, 1998). The industry revenue has always been a significant portion of the annual GDP in the U.S. According to John Langley's annual Global Third-Party Logistics (3PL) study, 3PL revenue was 10.5% of the United States GDP which amounted to \$127.3 billion in 2010 (Langley & Capgemini 2012). In another study, 88% of North American 3PL companies that were surveyed met or exceeded their revenue projections despite the recession. This figure is significant when compared to a mere 55% in 2009 (Lieb & Lieb, 2010).

According to the Council of Supply Chain Management Professionals, a Third-Party Logistics (3PL) provider is "a firm [that] provides multiple logistics services for use by customers. Preferably, these services are integrated, or bundled together, by the provider" (CSCMP, 2010). The use of 3PL providers has been increasing substantially over the years as companies across industries become more and more aware of the importance of logistics and supply chain management in contributing to their success (Langley & Capgemini, 2008).

Since the emergence, the U.S. logistics outsourcing industry has experienced significant changes throughout the years. For instance, there has been a substantial increase in awareness of the importance of Information Technology (IT) solutions. In recent years, IT solutions have been a popular service that is widely offered by 3PL providers. In addition, the number of services offered by 3PL providers has increased significantly throughout the years. Another major trend observed is the mergers and acquisition (M&A) movement that has been popular even through economic downturn periods.

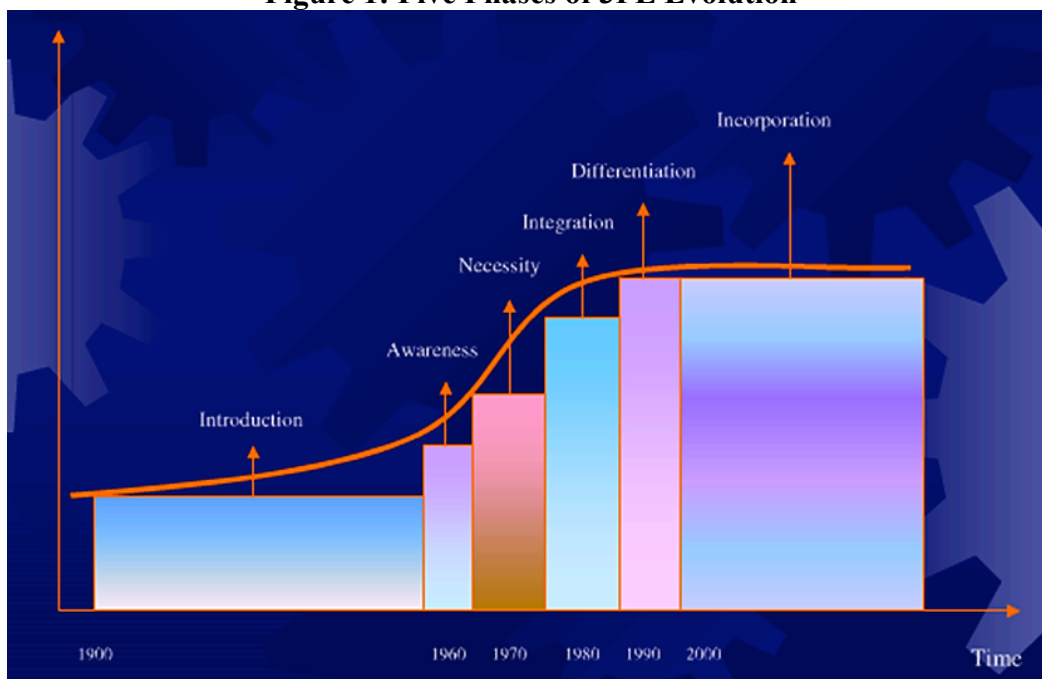
In the academic literature, researchers have attempted to explain the dynamics in the logistics outsourcing industry by applying a range of theoretical methods such as Resource-Based Theory (Penrose, 1959), Transaction Costs Economics Theory (Williamson, 1975) and Agency Theory (Jensen & Meckling, 1976). Previous research that utilized Resource-Based Theory to illustrate the logistics outsourcing industry includes Halldorsson and Skjoett-Larsen's (2004) examination of logistics competency development and 3PLs relationships (Bolumole, Frankel, & Naslund, 2007). Other research that linked Transaction Costs Economics Theory to the logistics outsourcing strategy comprises of Mahnke, Overby, and Vang's (2005) research with regard to outsourcing and information technology services (Bolumole, et al., 2007). However, the organizational ecology theory has not been applied in studies directed to the logistics outsourcing industry. The organizational ecology theory is typically applied in management research with focus on, for example, the automobile industry (Hannan, Carroll, Dundon, & Torres, 1995), the semiconductor industry (Brittain & Freeman, 1980) and voluntary organizations (as cited in Bolumole, et al, 2007). This paper attempts to contribute to the logistics outsourcing literature and to organizational ecology theory by applying it to a new industry not previously investigated.

The remainder of this paper is organized as follows: Section 2 provides an insight into the current state of logistics outsourcing industry in the U.S. Section 3 explains the background information on the organizational ecology theory as a guide to explore the evolution of the logistics industry as explained in Section 2. Section 4 describes the hypotheses developed for the purpose of this study. Section 5 illustrates the data analysis and findings from the study. Finally, section 6 summarizes the paper with discussions and concluding remarks.

2. THE U.S. LOGISTICS OUTSOURCING INDUSTRY

According to Papadopoulou and Macbeth (1998), there are essentially five phases of the 3PL evolution as shown in Figure 1. The introduction period was basically the infancy stage of 3PL. The awareness period was when companies started being aware of the existence of 3PL and started considering the use of 3PLs. Necessity period was when companies started adopting the use of 3PLs. As for the integration period, it was when 3PLs became widely popular due to internationalization and the increased complexity in the distribution channels. Finally, the differential period was when “the concept of 3PL is considered as a differentiator in the company’s competitive position” (Papadopoulou, 1998).

Figure 1: Five Phases of 3PL Evolution



(Source: Papadopoulou, 1998)

Several major trends were observed by John Langley and Robert Lieb through studies and surveys over the past 20 years. Langley’s studies are conducted mid-year with survey responses from users and non-users of 3PL services, and executives/managers representing firms that provide 3PL services (Langley and Capgemini, 2012). On the other hand, Lieb’s studies are a collective of 3PL service providers’ CEOs perspectives of the industry (Lieb, 2009).

The 3PL industry has changed dramatically since Lieb conducted his first study in 1991 (Lieb, 1992). One major trend that he observed over the years was the increased need of Information Technology (IT) solutions by 3PL users. Third Party Logistics providers recognize the importance of offering IT solutions to accommodate customers’ needs. It also serves to provide a way to remain a “competitive differentiator” (Lieb, 2009). In 2011, 93% of the respondents that participated in Langley’s Third-Party Logistics Study indicated that IT capabilities are a necessary element of 3PL expertise (Langley, 2012).

Another major trend observed is the substantial increase in the number of services offered by 3PL providers. In the past decade, 3PL providers have been noticing customers’ “growing interest in outsourcing a broader array of services” (Lieb, 2007). The trend is likely to continue

according to a recent study of the North American 3PL Market (eyefortransport, 2011). According to the study, 49% of the respondents indicated that diversifying product offerings was a “workable method for combating economics conditions” (eyefortransport, 2011, p. 10). Companies are actively considering this strategy as they aim to provide as many options as possible to their customers to prevent them from seeing the need to consider other 3PLs, and therefore gaining a larger market share (eyefortransport, 2011). The services provided now are no longer limited to just basic transportation services such as truckload (TL), less than truckload (LTL) or intermodal. It has gone far beyond that and now involves services that are more strategic. Some of these include Contingency Planning, Logistics/Transport Consulting, and Global Trade Services.

One other important trend that has been observed is the mergers and acquisitions movement (M&A). In most recent years, companies have been putting an emphasis on their core market and reducing their expansion plans especially during the harsh economic climate. However, there are still M&A activities going on as 38% of the respondents see strategic M&A as an approach to drive them out of economic difficulties (eyefortransport, 2011). Another study also shows that the M&A movement have been on the forefront of CEOs’ minds for the more than 6 years now (Lieb, 2010). Through M&A, some companies essentially consolidate and become specialists in certain segments of the industry while others combine resources and expand the range of services provided (Terry, Inbound Logistics, 2007). As 3PL users becomes more and more involved in global sourcing, manufacturing, sales, and distribution, large 3PLs are challenged to put global service networks in place (Lieb & Bentz, 2004). Some of the 3PL providers responded by acquisition of companies in other countries, some develop alliances with foreign providers, while others ventured into new geographies and set up their own operations (Lieb & Bentz, 2004). Evidently, there are reasons as to why such trends have been observed since the birth of the logistics outsourcing industry in the U.S. The purpose of this paper is to apply the organizational ecology approach to help understand why those trends happen. Organizational ecology is discussed in the next section.

3. ORGANIZATIONAL ECOLOGY

Michael T. Hannan of Stanford University and John Freeman of University of California, Berkeley first introduced organizational ecology in 1977, developed to examine the long-term change in populations of organizations. Organizational ecology essentially “seeks to understand how social conditions affect the rates at which new organizations and new organizational forms arise, the rates at which organizations change forms, and the rates at which organizations and forms die out” (Hannan & Freeman, 1989). In addition, organizational ecology also focuses on the changes that occur within the population (Hannan & Freeman, 1989). Over the years, organization ecology has become a prominent theory used in organizational studies. For instance, some organizational ecologists have studied forms and populations of industries such as the automobile industry (Hannan, 2005). Other organizational forms investigated correspond to niches within the industry, such as studies of microbrewers and brewpubs (Carroll & Swaminathan, 2000). Others, however, do not fit into any conventional notion of industry, such as state bar associations (Halliday, Powell, & Grandfors, 1993), African-American and feminist social movement organizations (Minkoff, 1999), and plantations (Ruef, 2004).

Organizational ecology consists of structural inertia and change concept and four theories. These theories are Niche Width, Resource Partitioning, Density Dependency, and Age

Dependency. For the purpose of this paper, we will be focusing on Structural Inertia and Change, Niche Width and, Resource Partitioning.

Before going in depth about the theories, it is important to understand the concepts of structural inertia and change. Hannan (2012) suggests that “A central premise of organizational ecology is that organizations face strong inertial pressures on their core features which makes selection a prime motor of population change” (Hannan, 2012 para. 3). Structural inertia and change are influenced by both internal and external factors. One example of an internal factor could be sinking costs into plant and equipment while an external factor could be something such as legal factors or barriers to entry and exit (Hannan & Freeman, 1989). Hannan and Freeman believe that the inertial pressures on most features of organizational structures are quite strong. The inertia and change of organizational structure builds on an assumption that “core structures of organizations are subject to strong inertial pressures and efforts at changing such structures substantially increase the chance of failure” (Hannan & Freeman, 1977, 1989). According to James March (1981:563),

“Organizations are continually changing, routinely, easily, and responsively, but change within organizations cannot be arbitrarily controlled... What most reports on implementation indicate... is not that organizations are rigid and inflexible, but that they are impressively imaginative.” (as cited in Hannan & Freeman, 1984, p. 150).

Hannan and Freeman stated that another core assumption of the population ecology of organizations is that “the characteristics locating individual organizations in a population rarely change rapidly relative to the processes of interest” (Hannan & Freeman, 1989, p. 66). This means that Hannan and Freeman agree that organizations do change form; however, it is the organizations core structures that are difficult to change quickly (Hannan & Freeman, 1989). Hannan and Freeman emphasize the distinct differences when it comes to claiming that organizational structures are subject to strong inertia forces and when claiming that organizations never change. According to them, structural inertia refers to “a correspondence between the behavioral capabilities of a class of organizations and their environments (Hannan & Freeman, 1984, p. 151). In short, the inertia and change concept illustrates that “the faster the speed with which new organizations can be built, the greater is the (relative) inertia of a set of existing structures” (Hannan & Freeman, 1984). Besides that, Hannan and Freeman also proposed that organizational death rates decrease with size (Hannan & Freeman, 1984). Large size organizations are presumed to have capacity to withstand the high vulnerability and variability of the environment. On the other hand, although small organizations are able to adjust structures more rapidly and easily than large organizations, the environmental variations to which they are sensitive tend to change with much higher frequency (Hannan & Freeman, 1984).

The Niche Width theory illustrates how environmental variations and competition shapes population dynamics and segmentation (Hannan, 2005). In other words, organizational niche can be thought of as “the range of resource types and levels within which a particular firm can survive” (Sorenson, McEvily, Ren, & Roy, 2006, p. 917). There are two main types of organizations that are widely differentiated under the niche width theory and they are the generalists and the specialists. Generalists are companies that choose broad and heterogeneous market segments, while specialists are those companies that generally choose narrow and homogenous market segments (Hannan, 2005). Generalists typically function with a wide range

of resources to survive (Hannan & Freeman, 1977), and they carry “excess capacity” as the resources they have tend to exceed the resources needed to function (Sorenson et al, 2006). On the other hand, specialists survive within limited resources, and they operate in a narrow range of environmental conditions as they usually utilize their resources close to full capacity (Sorenson et al, 2006). According to Hannan (2005), specialists that focus on narrow range market segments cannot grow very large as they generally have a higher cost per unit if scale advantages exist. Generalists have a tendency to exist in unstable and uncertain environments while specialists exist in stable and certain environments (Hannan & Freeman, 1977). In an unstable and uncertain environment, organizations are more prone to accepting lower levels of exploitation in return for greater security. Given the uncertainties, generalists “maintain some excess capacity to insure the reliability of performance” (Hannan & Freeman, 1977, p. 948). On the contrary, specialists maximize their exploitation of the environment and accept the risk of environmental change (Hannan & Freeman, 1977).

The next theory, Resource Partitioning, further explores the relationship between generalists and specialists. The resource partitioning theory compares the amount of resource space available for specialists when overall market concentration rises (Carroll & Swaminathan, 2000). This theory addresses two signature organizational trends. The first is “the trend of increasing market concentration found in many industries, especially when rise occurs gradually and over the long term” (Carroll & Swaminathan, 2000, p. 718). As explained earlier, generalists typically have a scale advantage over the specialists since generalists focus on a wide range market segment. Hence, there is intense competition for resources among the generalists. The more abundant and dense resources an environment has, the more intense the competition is among the generalists that aim to achieve economies of scale. Therefore, generalists will attempt to establish themselves in dense resource environments in order to achieve sustainable advantage over competitors (Carroll & Swaminathan, 2000). Eventually, large generalists become even larger and more general by outcompeting smaller generalists and occupying the newly available resources previously possessed by the smaller failed generalists. However, “as the competitive struggle among generalists proceeds to its eventual monopoly equilibrium, the size and target breadth of the survivor increases, but the combined resources held by all generalist organizations declines somewhat” (as cited in Carroll & Swaminathan, 2000, p. 719-720). The second signature organizational trend is “the increasingly common appearance of many small specialist organizations in certain mature industries” (Carroll & Swaminathan, 2000, p. 718). Specialists utilize the resource space outside of the generalists target areas where there is no intense competition. As the resources tend to be thin in these areas, specialists tend to be small and highly specialized (Carroll & Swaminathan, 2000). According to Carroll and Swaminathan, when the thin resources are sufficient to sustain a specialist segment, the market is said to be “partitioned”. This is due to the fact that generalists and specialists do not compete in the same market since they depend on different parts of the resource base (Carroll & Swaminathan, 2000). As generalists consolidate and become larger, the area outside of the generalists’ target areas increase and consequently market concentration increases. This higher market concentration leads to an increase in the viability of specialists.

Based on the above discussion, the premises of these theories are tested in the context of the U.S. logistics outsourcing industry. The detailed discussions of the hypotheses are presented next.

4. HYPOTHESES DEVELOPMENT

According to niche theory, as the logistics outsourcing industry in the U.S. continues to grow, and as 3PL users' continue to increase their demand for outsourcing functions, it is predicted that more generalist organizations will arise. Niche theory holds that generalists tend to exist in unstable and unpredictable environments. These environments cause organizations to venture into a more diverse and wider market segment in order to receive greater security and to benefit from economies of scale. Besides that, given the uncertainties and complexity, organizations tend to lean towards becoming generalists in order to maintain excess capacity. Therefore, the following hypothesis is formulated:

H₁: As the logistics outsourcing market increases in complexity and size, the number of generalist 3PLs will increase.

As the 3PL industry matures and the number of generalist organizations in the market grows, overall market concentration will increase, which leads to an increase in specialist organizations, as explained by Resource Partitioning theory. When the overall market concentration rises, generalists would have to compete intensively in the environment where resources are more abundant and dense to achieve economies of scale. New organizations do not have the market power and resources to compete with the generalists. Therefore, new organizations tend to venture into environments that have thin resources and become specialist organizations that are small but highly specialized. Hypothesis 2 is proposed as follow:

H₂: The expected number of specialist 3PLs will grow in the logistics outsourcing industry in the U.S. as a byproduct of the growth in the number of generalist 3PLs.

According to structural inertia and change, the death rates of organizations decrease with size, which means that large organizations should have lower death rates. Although small organizations can adapt to change more easily and rapidly than can large organizations, the smaller, more sensitive firms should be more adversely affected by the impact and frequency of variations in the environment. Large organizations are less susceptible to environmental changes since they have enhanced capacity as a buffer, but smaller organizations are more vulnerable due to their small margins for errors (Hannan & Freeman, 1984). Thus, hypothesis 3 is predicted:

H₃: Under structural inertia and change, large organizations have higher survival rates as compared to small organizations.

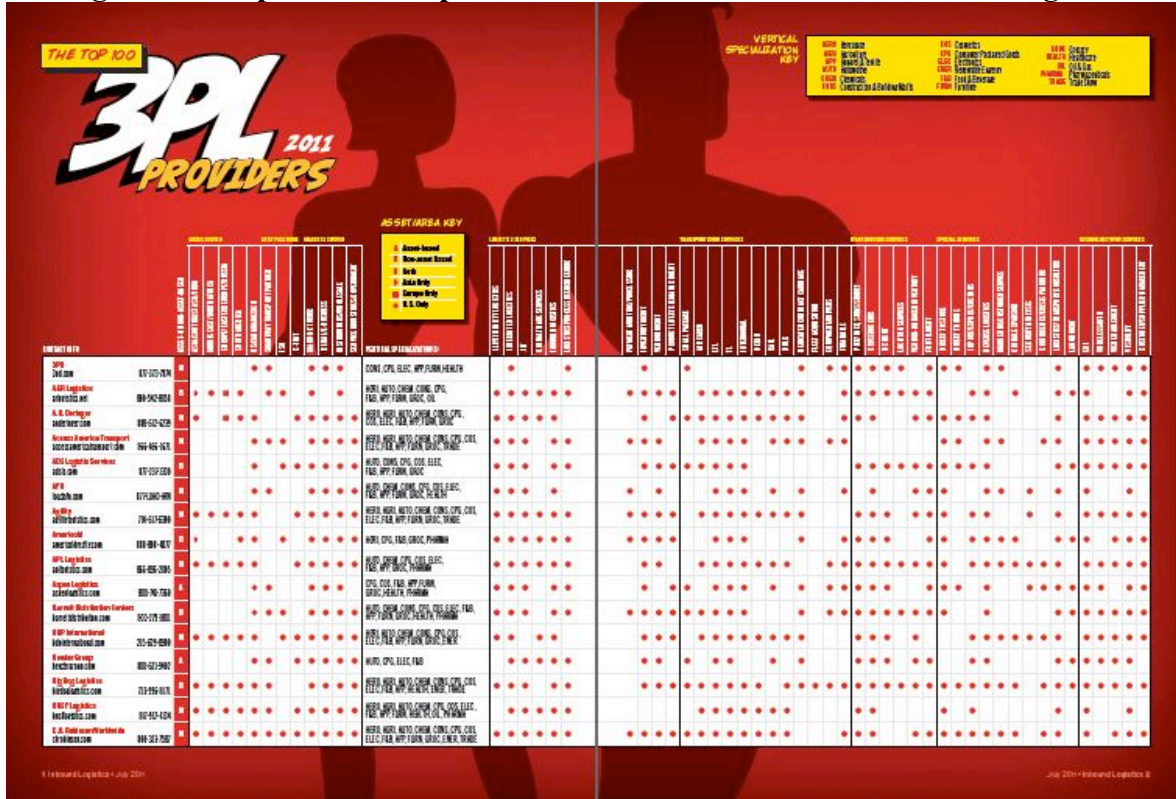
5. DATA ANALYSIS

5.1 Sample

The sample used for this study was collected from the list of Top 100 3PL Providers profiled in Inbound Logistics annual Top 100 issues as shown in Figure 2. These issues are published in July of every year. The Top 100 3PL Providers lists entails information regarding the category of services provided. The categories are: areas served, certifications obtained, markets served, logistics services, transportation services, warehousing services, special services,

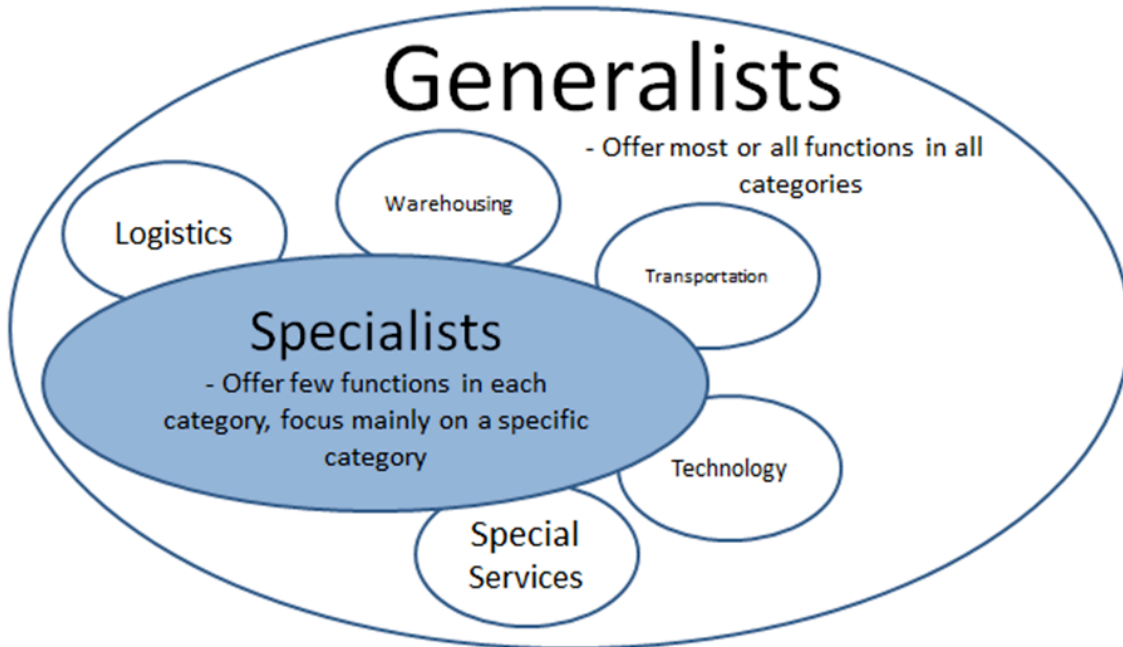
as well as technology/web services provided. The main categories observed for the purpose of this study are logistics services, transportation services, warehousing services, special services, and technology/web services. There are multiple functions under each category. For example, under the warehousing services category, as of 2011, there are six functions, which include Pick/Pack and Subassembly, Crossdocking, Distribution Center Management, Location Services, Vendor-Managed Inventory, and Fulfillment. For this study, 16 years' of data were collected, which ranged from 1996 to 2011 with a total of 1,526 observations. All of the data were entered manually into Microsoft Excel and analyzed extensively.

Figure 2: Sample List of Top 100 3PL Providers Profiled in Inbound Logistics



For the purpose of this study, the term “generalists” refers to 3PLs that provide a wide range of logistics services, while “specialists” refer to 3PLs that focus on a specific category of services provided as shown in Figure 3.

Figure 3: Generalists and Specialists



In order to test the hypotheses of this study, multiple graphs and tables were created to observe the trend and evolution of the U.S. Logistics Outsourcing Industry. The findings are shown in the next section.

5.2 Findings

5.2.1 Hypothesis 1

Hypothesis 1 predicted that as the logistics outsourcing market increases in complexity and size, the number of generalist 3PLs will increase. Niche theory suggests that in the midst of uncertainties in harsh economic climates, organizations tend to become generalists to maintain excess capacity and choose broad, heterogeneous market segments in order to achieve economies of scale advantages (Hannan & Freeman, 1984).

As shown in Figure 4, the average number of functions provided by 3PLs in the Logistics, Transportation, Warehousing, and Special Services categories increased steadily during the past 16 years. The Technology/Internet category, however, encountered several dips throughout the years. In 2006, the functions offered decreased by 3.2 on average and remained at the average of 4.0 to 4.4 functions. It is observed that all four of the electronic functions under the Technology/Internet category were removed from the Top 100 3PL Providers list. This helps explain the sudden decrease in the number of functions offered in that category in 2006.

Figure 4: Average Number of Functions Provided (by Category)

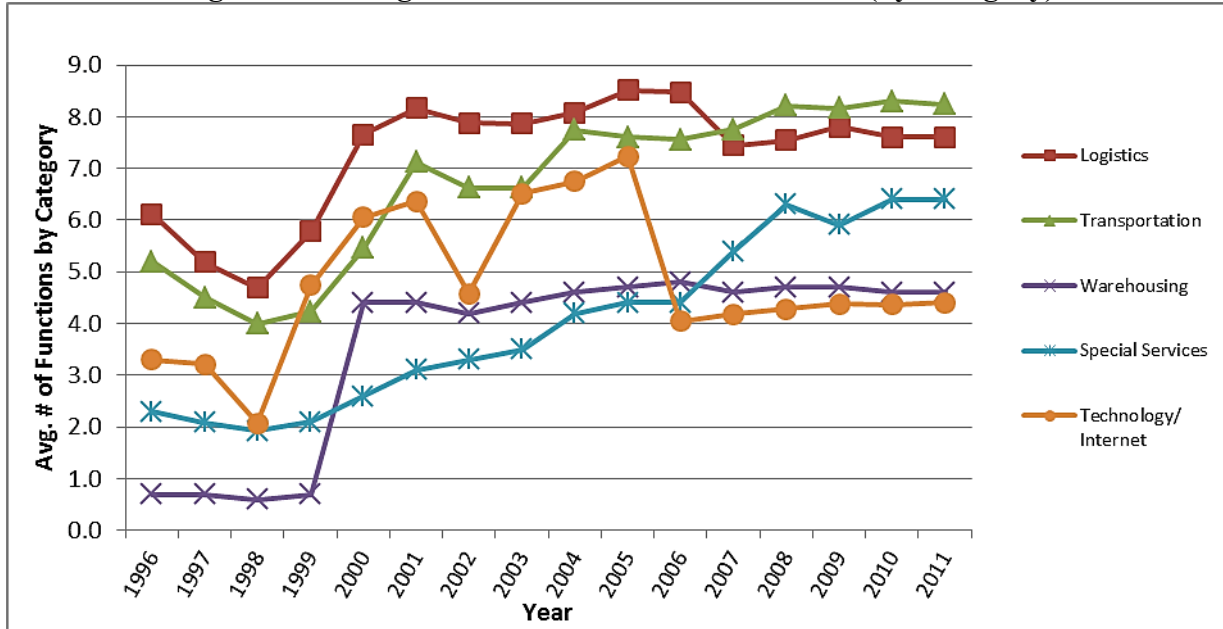
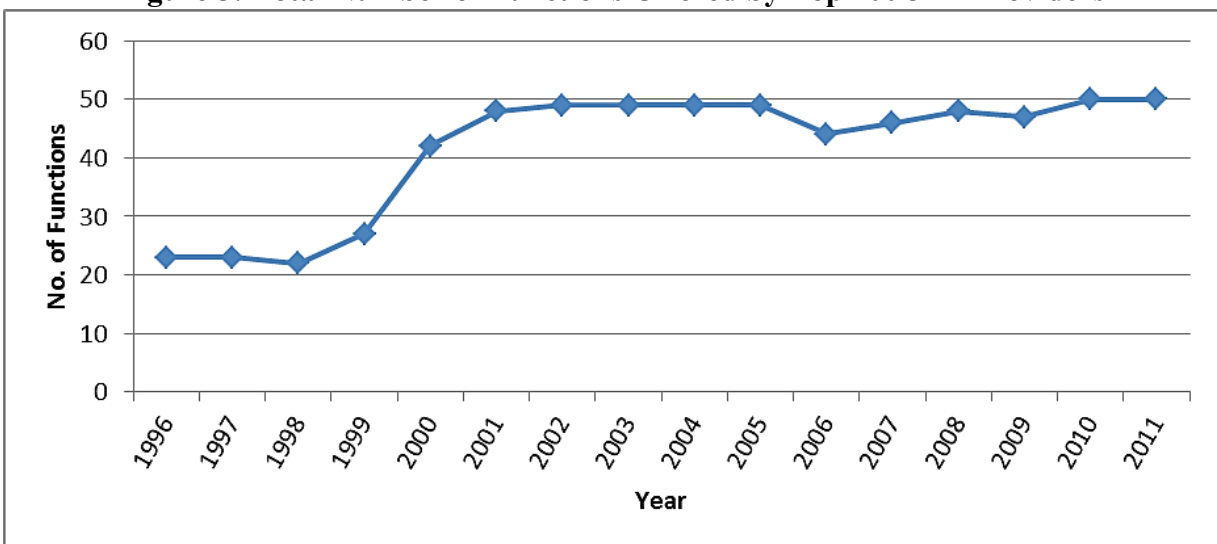


Figure 5 shows a generally upward trend in the overall total number of functions offered by the Top 100 3PL Providers, which provides further support for Hypothesis 1. Although the overall number of functions offered appears relatively stable between 2002 and 2011, there was a dramatic increase between 1998 and 2001, and considering the removal of the electronic functions from the Technology/Internet category in 2006, the overall increase between 2006 and 2011 appears to be more significant.

Figure 5: Total Number of Functions Offered by Top 100 3PL Providers



The behavior of specific firms also tends to support the first hypothesis. For instance, the number of functions offered by some 3PL providers increased significantly when they “reappeared” after several years of “disappearance” from the Top 100 3PL Provider list as shown

in Figures 6, 7, and 8. In Figure 6, England Logistics dropped out of the Top 100 3PL Provider list from 2004 to 2009 but returned to the list in 2010. In that year, the number of functions offered in each category almost doubled over the level offered in 2003. The observations are similar for Crowley Logistics and J.B. Hunt Transport Services as shown in Figures 7 and 8, respectively. The number of functions offered by both carriers increased substantially once they returned to the Top 100 3PL Providers list. The increase in the number of services offered by these firms very likely led to their ability to be more competitive, and to survive and grow in the U.S. logistics outsourcing industry.

Figure 6: Total Functions Offered by England Logistics

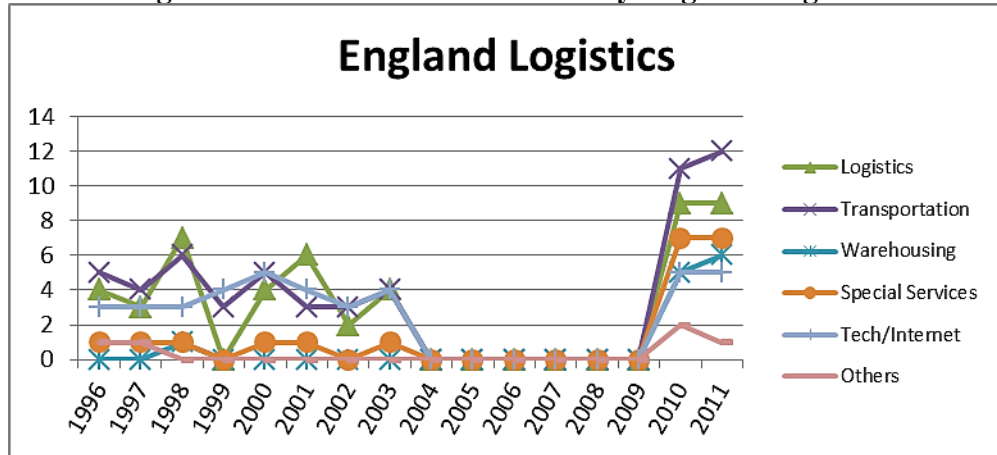


Figure 7: Total Functions Offered by Crowley Logistics

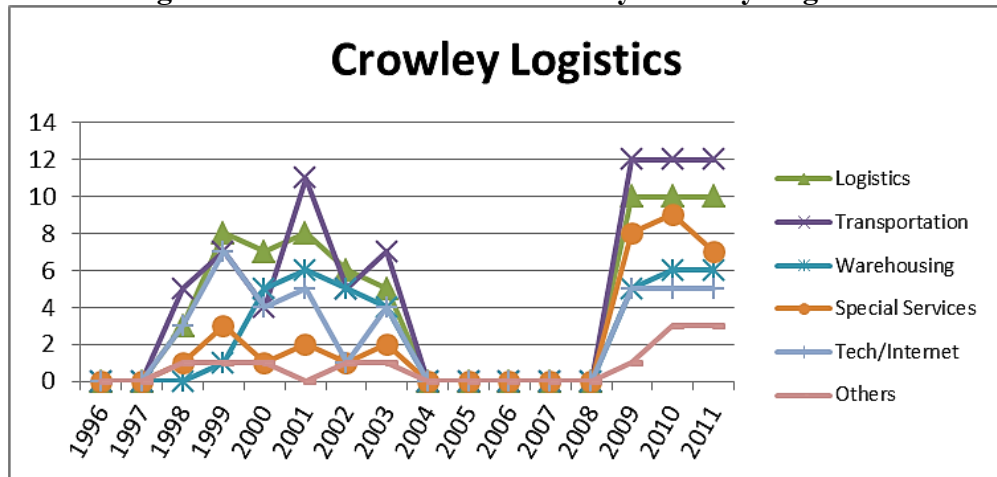
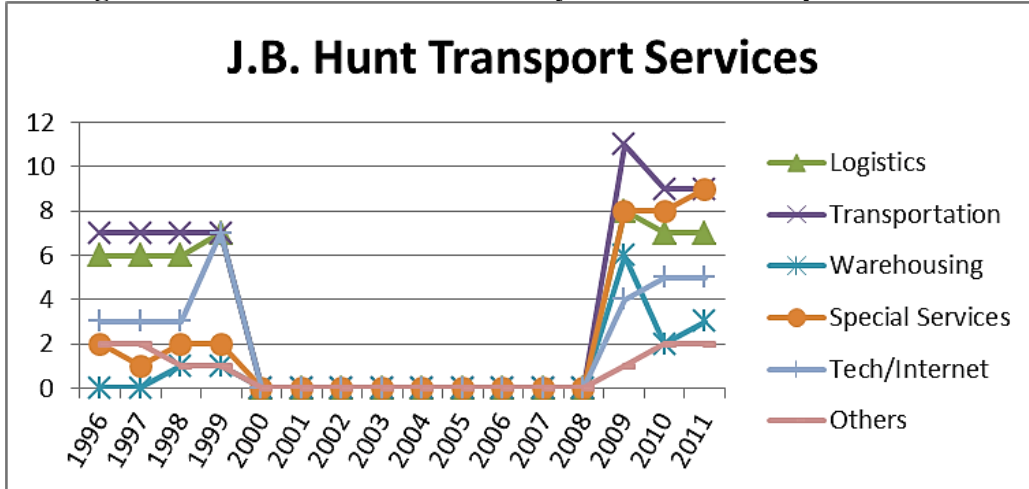


Figure 8: Total Functions Offered by J.B. Hunt Transport Services



As explained in Section 2, M&A is another significant growing trend observed over the recent 6 years according to Lieb’s CEO Perspective surveys. As 3PLs merge, the number of functions increases as companies combine resources and specialties. C.H. Robinson Worldwide can be considered as one of the most active companies involved in M&A in last 2 decades as shown in Table 1. C.H. Robinson Worldwide is one of the few companies that survived through the 16 years and has been growing continuously with an increase in revenue year by year. In the past 10 years, C.H. Robinson Worldwide’s revenue has increased three fold with \$457 million in 2002 and \$1,468 million in 2011 (Transport Topics). With active M&A, C.H. Robinson Worldwide has been able to sustain their competitive advantage and expand their total market share.

These findings are consistent with the opinions of executives as well as with academic research. For instance, according to John Miller, Senior Vice President for Global Business Development, Flash Global Logistics, Inc., 3PL users are demanding higher levels of service and a greater variety of services from the 3PL providers (Reese, 2009). The pressure from customers forces 3PLs to develop new solutions and new ways to satisfy their customers’ needs (Reese, 2009). In addition, according to Lieb’s (2010) study, 14 of the 16 CEOs who participated in the annual 3PL Provider CEO Perspective survey indicated that their companies had introduced new services during the past year despite the recession (Lieb, 2010).

Thus, it can be inferred that H₁ is supported as the findings show that logistics outsourcing providers lean towards becoming generalist organizations.

Table 1: C.H. Robinson Worldwide Acquisition History

Year	Company Acquired	Functions of Company
1998	Preferred Translocation Systems	Third party LTL
	Comertex Group	Transportation and freight forwarding
1999	American Backhaulers	3PL
	Norminter S.A.	3PL, over-the-road transportation services
2003	Frank M. Viet GmbH Internationale Spedition	International freight forwarding and 3PL
2004	China-based Dalian Decheng Shipping Agency Co.	N/A
2005	FoodSource, Inc., FoodSource Procurement LLC, Epic Roots, Inc.	Produce sourcing and distribution services
	Hirdes Group Worldwide, and Bussini Transportation S.r.l.	International air and ocean freight forwarding
2006	Payne, Lynch & Associates, Inc. (“Payne Lynch”)	3PL specializes in flat bed and over dimensional freight brokerage
	Triune Freight Private Ltd. and Triune Logistics Private Ltd.	3PL
2007	LXSI Services, Inc.	3PL of domestic air and expedited services
2008	Transera International	Project forwarding
2009	Walker Logistics Overseas, LTD	International freight forwarder
	International Trade & Commerce, Inc.	Customs brokerage company specializing in cross-border transportation, warehousing and distribution
	Rosemont Farms Corporation, Inc	Marketing
	Quality Logistics, LLC	Logistics

(Source: C. H. Robinson Worldwide)

5.2.2 Hypothesis 2

Hypothesis 2 suggested that the expected number of specialist 3PLs will grow in the U.S. logistics outsourcing industry as a byproduct of the growth in the number of generalist 3PLs. Resource partitioning theory suggests that as the number of generalist organizations increases, the number of specialist organizations is expected to increase as a result of the rise in overall market concentration. Since H_1 (an increase in generalists 3PLs) is supported, H_2 should follow as well, according to the theory. Figure 9, Figure 10, and Figure 11 are examples of companies that evolved from generalist to specialist 3PLs. As shown in Figure 9 and Figure 10, all the categories offered either decreased or remained the same throughout the years except for the transportation category that incurred an increase in functions offered. Figure 11 shows the same trend as well. Functions offered by 3PLs in the transportation and warehousing category decreased moderately in most recent years while functions offered in the logistics category

increased. Although these companies show evidence that support H_2 , it cannot be inferred that H_2 is supported. This is due to the fact that of the 306 companies observed, there are only three companies that fit the theory. Therefore, H_2 is rejected. However, it is important to note that the dataset has the limitation that it only covers the Top 100 3PLs, and there could be many specialists that are not included in the sample. This seems reasonable, since it is quite likely that many specialist companies are too small to be included in the Top 100 list.

Figure 9: CT Logistics' Services Offered (by Category)

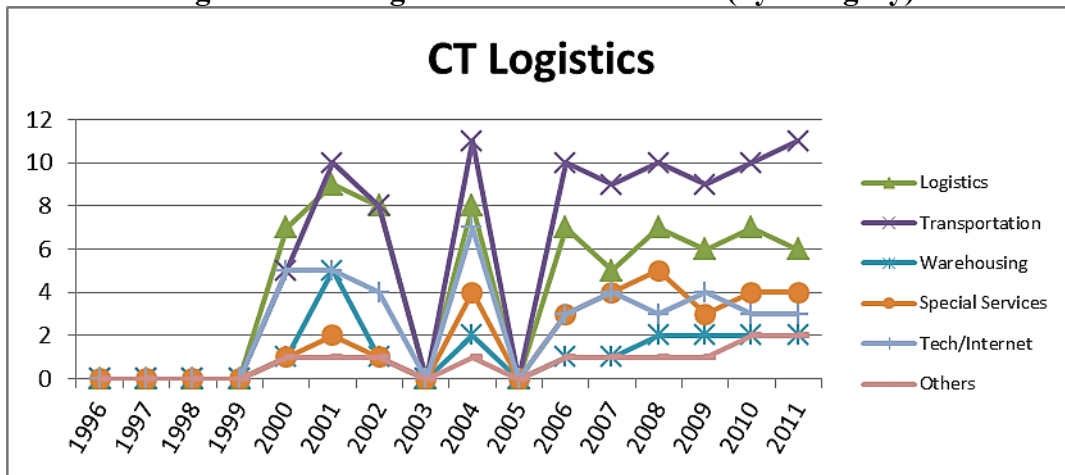


Figure 10: TMSi Logistics' Services Offered (by Category)

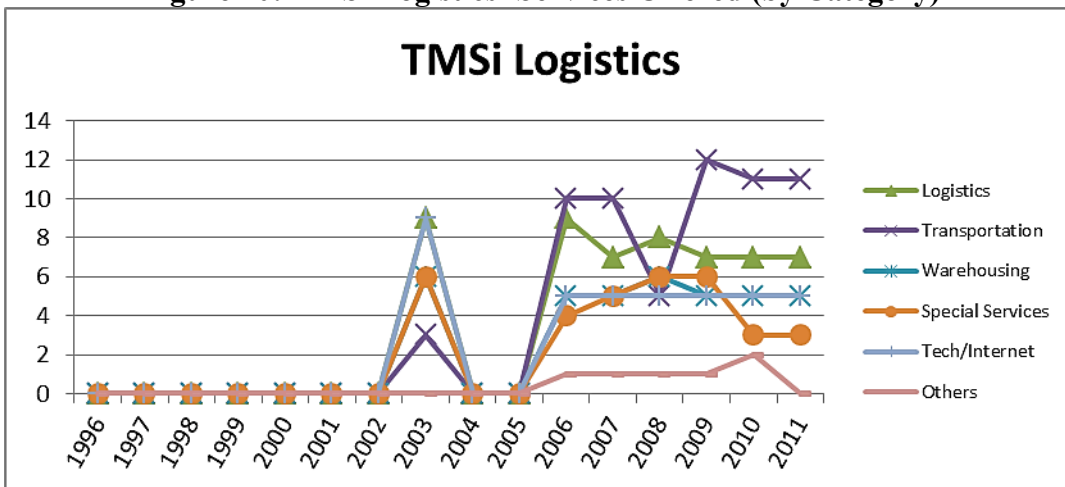
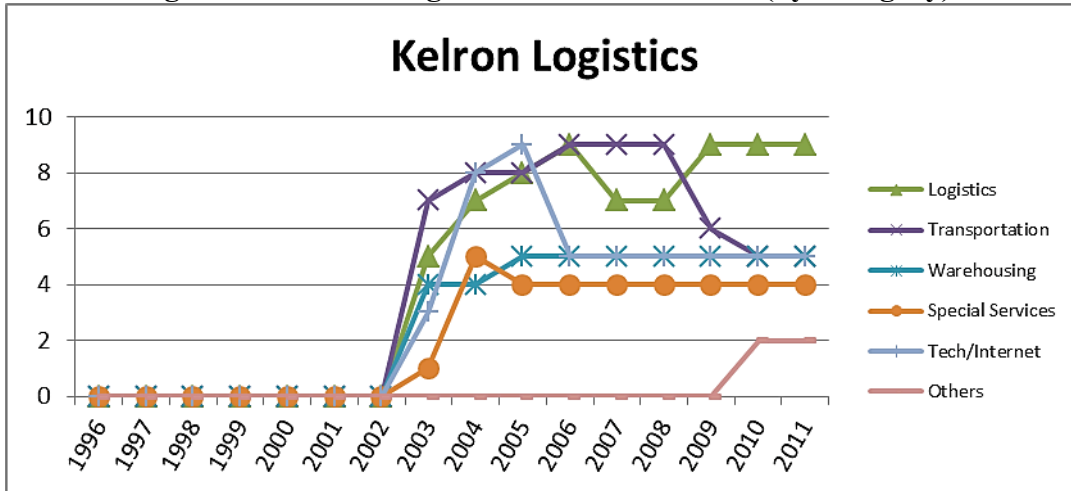


Figure 11: Kelron Logistics' Services Offered (by Category)



5.2.3 Hypothesis 3

Hypothesis 3 predicted that under structural inertia and change, large organizations should have higher survival rates as compared to small organizations. In the context of this paper, large organizations are referred to generalists and small organizations are referred to specialists. It is also important to note that, for the purpose of this study, the term “survival” is modified to illustrate 3PL’s presence in the Top 100 3PL Providers list compiled by Inbound Logistics. Figure 12 exemplifies the comparison between the overall average number of functions provided by the top 100 3PL providers throughout the 16 years covered by the study as compared to the average number of functions provided by the eight 3PL Providers that were featured in the Inbound Logistics annual Top 100 issues for 16 years consecutively. It can be observed that the functions offered by almost all of the 3PL providers that were featured in all 16 years is more than the overall average.

Figure 13 shows the total functions offered by the same top eight 3PL Providers as illustrated in Figure 12. Figure 13 clearly shows the increase in total functions offered, which, in the context of this paper, means that all the eight companies that “survived” (i.e. maintained their presence in the Top 100 3PLs) throughout the 16 years are all generalists.

According to structural inertia and change, as proposed by Hannan and Freeman (1984), large organizations (generalists) tend to have higher survival rates as they are less vulnerable to environmental changes as compared to small organizations (specialists). The findings show that companies that had a 100% survival rate in the past 16 years are all generalists that offer a wide range of services instead of focusing on functions in a certain category. Hence, H₃ is supported.

Figure 12: Average Functions Provided (by Category)

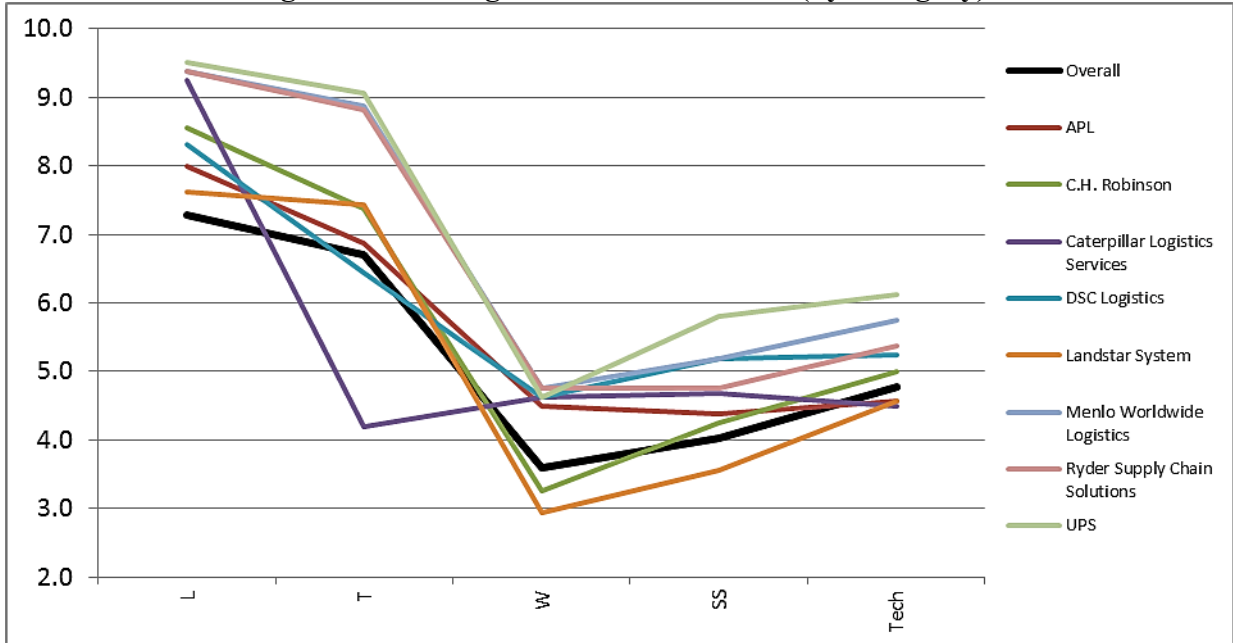
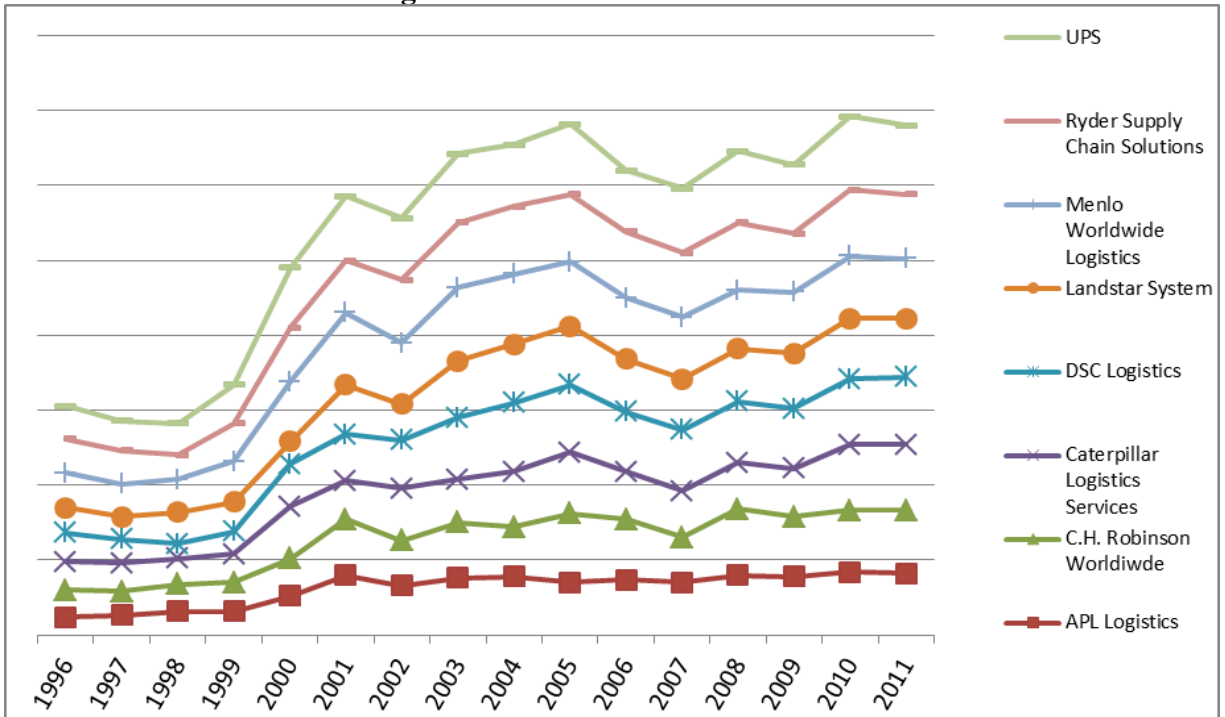


Figure 13: Total Functions Offered



7. Conclusion and Limitations

The primary focus of this study was to investigate the evolution of the logistics outsourcing industry in the U.S. Generally, the results of the study support the organizational

ecology theories proposed by Hannan and Freeman (1984). Predominantly, the findings indicate that generalist 3PLs increased substantially throughout the years, and the first hypothesis, which stated that as the logistics outsourcing market increases in complexity and size, the number of generalist 3PLs will increase, was fully supported. Hypothesis 2, which suggested that the expected number of specialist 3PLs will grow as a byproduct of the growth in the number of generalist 3PLs, could not be supported. This lack of support may indicate that resource partitioning theory does not apply in the logistics outsourcing industry in the U.S., or it may be applicable in the future since the logistics outsourcing industry is still evolving and maturing. The lack of support also could be due to the sample being limited to Top 100 3PLs in the industry since specialist firms are likely to be relatively small. The third hypothesis, which predicted that under structural inertia and change, large organizations should have higher survival rates compared to small organizations, was supported by the analysis. The data indicates that generalists do tend to have a higher survival rate in the logistics outsourcing industry.

There are a couple of limitations to the sample used in this study. First of all, it would be desirable if more data were available in order to construct a more comprehensive analysis. Besides that, the functions of services provided are inconsistent over time, as they do not follow the same breakdowns throughout the years. For instance, from year 1996 to year 2000, there were 2 different categories for equipment and drivers under transportation services provided. On the other hand, from year 2001 to year 2011, the two categories were combined into one category. These inconsistencies hinder the accuracy of the findings. However, for the purpose of this study, the data is left as it is without any modification. A last limitation, as noted earlier, is the restriction on the size of firms included in the sample due to data being available only for the largest 100 3PLs.

In conclusion, this study intends to shed some light into the evolution of the logistics outsourcing industry in the U.S. with the help of the predictive power of organizational ecology, and to further emphasize the usefulness of organizational ecology as a tool to predict the evolution of other industries as well. This paper will hopefully be beneficial to managers in the logistics outsourcing industry as well as to scholars in the academic community. Managers in the logistics outsourcing industry could potentially utilize the findings from this study to better understand the evolution of the industry and hopefully better strategize future actions and decisions. As for the academic community, this paper hopes to contribute by taking the first initiative to apply the premises of Organizational Ecology in a dynamic and relatively new industry, the U.S. logistics outsourcing industry.

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