



How different is carrier choice for third party logistics companies?

Zachary Patterson^{a,*}, Gordon O. Ewing^b, Murtaza Haider^c

^a *Urban and Transportation Data Division, Agence métropolitaine de transport (AMT), 500, Place d'Armes, 25th Floor, Montreal, Quebec, Canada H2Y 2W2*

^b *Department of Geography, McGill University, 805 Sherbrooke St., West Montreal, Quebec, Canada H3A 2K6*

^c *Faculty of Business, Ryerson University, 350 Victoria St., Toronto, Ontario, Canada M5B 2K3*

ARTICLE INFO

Article history:

Received 17 December 2007

Received in revised form 25 September 2009

Accepted 3 December 2009

Keywords:

Mode choice modeling

Third party logistics companies

Freight modeling

ABSTRACT

The purpose of this paper is to test whether third party logistics companies (3PLs) are different from other end-shippers with respect to how they choose their carriers. The results of carrier choice models developed in this paper suggest that 3PLs are more biased against intermodal shipping than other end-shippers. The principal conclusions are as follows: mode and carrier choice modeling needs to take into consideration differences between 3PLs and other end-shippers; and with the increasing role of 3PLs in choosing carriers, their stronger bias against intermodal shipping will present further challenges to increasing freight rail mode share.

© 2010 Elsevier Ltd. All rights reserved.

1. Introduction

As companies have increasingly sought to outsource activities, there has been a dramatic rise in the use of external logistics companies (often referred to as third party logistics companies or 3PLs) to organize freight transportation. Little is known about whether 3PLs' choices of carriers differ from that of traditional end-shippers. This sector is expected to exert increasing influence on the way freight is shipped. Understanding any differences that 3PLs manifest in carrier choice is useful in itself, but also in evaluating the potential for rail to increase its share of freight.

Realistic models are required to evaluate government policies that encourage increasing rail freight mode share. Various methodologies have been used to approach the question of freight mode choice. This paper uses data from a 2005 shipper carrier choice stated preference survey to test for and quantify differences in carrier choice preferences between 3PLs and other 'end-shippers'. The survey was designed explicitly to evaluate shipper preferences for the carriage of intercity consignments, and particularly their preferences for carriers that contract the services of rail companies to carry these shipments. An important aspect of the survey design was to include 3PLs as a distinct subgroup of shippers in order to be able to test for any differences that might exist between them and other shippers. The survey data included a small but representative sample of 3PLs from the population.

The paper begins with a literature review of research on third party logistics providers. It then describes the survey on which this research is based, beginning with background on previous freight choice studies and a short description of the dataset used in this study. The paper continues by describing how differences between 3PLs and other end-shippers were tested for, and presents the results of models that were estimated for 3PLs and other end-shippers separately. The paper concludes with a discussion of what these imply for rail's potential to increase its mode share, and for freight mode choice modeling more generally.

* Corresponding author. Tel.: +1 514 287 2464x4480; fax: +1 514 287 2460.

E-mail addresses: zpatterson@amt.qc.ca (Z. Patterson), gordon.ewing@mcgill.ca (G.O. Ewing), murtaza.haider@ryerson.ca (M. Haider).

2. Literature review – 3PLs

Third party logistics companies are businesses that provide a variety of logistics-related services. Services offered by 3PLs can include public warehousing, contract warehousing, transportation management, distribution management, freight consolidation, and increasingly the management of entire supply chains. The use of 3PLs has been increasing quickly since at least the 1980s as companies have attempted to outsource non-core activities, including transportation logistics. As a result of this growth, there has been a great deal of interest both in the academic literature and the business press.

The latter has focused on two broad themes related to 3PLs. The more general theme encompasses the growth of the industry (Hoffman, 2006; Quinn, 2006), the proportion of companies using 3PLs and for what purposes they are used (Ame-kudzi and Meyer, 2005; *eyefortransport*, 2005). It also covers how the industry has performed financially (Hoffman, 2007; Shister, 2006). A third general theme is where the industry seems to be going in terms of both future geographical markets (e.g. China) (Biederman, 2007; Dibenedetto and Diben, 2007) and the future role that 3PLs are expected to play (Aimi, 2007; Dibenedetto, 2007).

The second theme has focused more on 3PLs from a customer perspective. This has included articles aimed at helping companies establish their need for 3PLs (Oliver Silver, 2005), what type of 3PLs to choose (Tompkins, 2006), and how to evaluate particular 3PLs (*Logistics Today*, 2006) and being careful which they choose (Hannon, 2007; Hoffman, 2005).

The academic literature has had some overlap with the above issues. For example, there has been survey research on the proportion of companies using 3PLs, for what types of services and for what reasons. This research has also looked at trends in the types of services used and those expected to be used in the future. These surveys have generally focused on North America and Europe (Lieb and Bentz, 2004; Peters et al., 1998) and more recently on fast growing, developing markets (Mitra, 2006; Sohail et al., 2006). Another area of overlap with the business press has been on methods of establishing the need for, and selecting 3PLs, with the academic literature being more analytical. Some have proposed more qualitative approaches (e.g. Foggin et al., 2004) and others more quantitative (e.g. Bottani and Rizzi, 2006). There has also been some meta-analysis of previous 3PL research and on areas for future research (Maloni and Carter, 2005; Murphy and Poist, 2000).

Apart from these areas of overlap, there are several other themes in the academic literature. The first concerns the use of technology in 3PL operations (Evangelista and Sweeney, 2006; Lai et al., 2007). There has been related work in operations research applied to 3PLs (e.g. Ko and Evans, 2007; Kumar et al., 2006).

Another academic stream of research involves analyzing the factors contributing to the success of particular 3PLs. This includes analysis of well-managed 3PLs (Gunasekaran and Ngai, 2003), how 3PLs manage their relationships with clients (Knemeyer and Murphy, 2005; Sinkovics and Roath, 2004), customer perceptions of their 3PLs (Wilding and Juriado, 2004), and evaluations of the efficiency and financial performance of 3PLs (Min and Joo, 2006; Yeung et al., 2006). Related research has also looked at the degree to which the use of 3PLs can improve a client's performance (Stank et al., 2003), and how 3PLs can market themselves (Wang et al., 2006).

Whatever the focus of the particular articles, the broad conclusions are clear: the 3PL industry continues to grow and has a large potential. Since 1996 the US 3PL industry has grown annually by an average of 14.4% (Quinn, 2006), with a growth of 17.7% in 2006 resulting in total revenues of US\$110.6 billion (Hoffman, 2007). Globally, the market is estimated at US\$390 billion. This growth is expected to continue as more firms outsource logistics functions. One recent survey found that 69% of companies already outsource some of their logistics functions, with the largest proportion (46%) outsourcing transportation logistics functions (*eyefortransport*, 2005). Although larger companies have been at the forefront of logistics outsourcing, it is becoming more common for smaller companies. 3PL use by the top 100 Fortune 500 companies grew from 73% to 89% between 2001 and 2005. During the same period the 100 smallest increased their 3PL use rate from 24% to 51% (Quinn, 2006).

While research on 3PLs has grown quickly, it has not included carrier and mode choice. In particular, little research has looked explicitly at choice differences between 3PLs and end-shippers.

Although, there have been numerous freight mode stated preference (SP) studies reported in the literature (Fowkes and Tweddle, 1988; Fridstrom and Madslie, 2001; Norojono and Young, 2003; Shinghal and Fowkes, 2002; Vellay and de Jong, 2003; Wigan et al., 2000), a survey of this literature reveals a silence on the issue of 3PLs' choices of mode or carrier. One recent exception is a paper by Patterson et al. (2007). Within the revealed preference (RP) literature (e.g. Calzada and Jiang, 1997; Jiang et al., 1999; Vellay and de Jong, 2003; Young et al., 1983), there is also no explicit consideration of 3PLs relative to end-shippers.

To conclude, it is clear that since 3PLs are being used much more, they are becoming more important as freight transportation mode choosers and hence as a source of demand. If 3PLs do behave differently from other shippers with respect to carrier and mode choice, this would have important implications for understanding future freight demand. This paper seeks to investigate the degree to which 3PLs differ with respect to their carrier and mode choice preferences.

3. The data set

The data set used in this analysis comes from a stated preference survey of 'end-shippers' in the busiest trade and transportation corridor in Canada – the Quebec City – Windsor Corridor. This data set has been described elsewhere (Patterson et al., 2007) and so its description is kept short here.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات