PRODUCT RETURNS PROCESSING: AN EXAMINATION OF PRACTICES OF MANUFACTURERS, WHOLESALERS/DISTRIBUTORS, AND RETAILERS

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Abstract

Processing product returns has become a critical activity for organizations as the volume of goods flowing back through the supply chain rapidly increases (Guide et al. 2006). This article uses the empirical data collected from manufacturers, wholesalers/distributors and retailers on product returns processing to achieve the following major objectives. First, results should facilitate a better understanding of what takes place in these business sectors and provide some benchmarks regarding reverse logistics practices. Second, it will examine several hypotheses that have been suggested in various published articles, but never tested. It is expected that testing of these hypotheses will help provide answers to questions such as the level of importance of product returns, whether recovered value is high enough to justify product recovery efforts, and the resources expended in various stages of the product return process.

Full text

INTRODUCTION

Processing product returns has become a critical activity for organizations in the as the volume of goods flowing back through the supply chain rapidly increases (Guide et al. 2006). It has been reported that the value of products being returned exceeds an estimated $100 billion per year and averages about 6 percent of sales (Guide et al. 2006; Stock 2001). It is estimated that product returns could range from 15% for mass merchandisers to 35% for e-commerce retailers (Gentry 1999). Product returns are part of reverse logistics which includes a combination of other activities such as recycling, refurbishing, and repair, as well as waste disposal (Stock 2001). It is believed that while product returns are known to account for a large proportion of reverse logistics activities, manufactures are able to recover only a portion of the value of the returned products because of processing delays (Guide et al. 2006).

For more than two decades, practitioners and researchers have been concerned with issues relating to "product returns" and "reverse logistics." They have repeatedly advocated the need for more specific data, that is, empirical research on the topics (e.g., product remanufacturing and refurbishing, product returns, environmental aspects of packaging, product disposal, recycling, reusable containers, source reduction, life cycle analysis, product stewardship, green marketing, sustainability). Organizations have also realized that a better understanding of product returns and efficient management of reverse logistics can provide them with a competitive advantage. Sound practices in product returns and reverse logistics can be a "win-win" situation benefiting both customers and the firm (Stock 2004). When effectively handled, product return processes can help firms recover value. Furthermore, they can aid in the development of customer return policies that can increase customer loyalty (Rogers et al. 2002) and improve product sales (Mukhopadhyay and Setoputro 2005). Better understanding of issues related to product returns can also help identify areas in manufacturing or marketing where corrective actions might be necessary. In addition, with growing environmental concerns and legal regulations associated with green marketing and sustainability, activities related to product disposal in reverse logistics can provide insights into strategies for sustainable development (Srivastava and Srivastava 2006).

However, it is possible that some organizations still do not realize the critical nature of product returns as it relates to profitability and customer service, nor the benefits associated with efficient product returns. Organizations are more likely to perceive the product returns function as an additional cost to be incurred in their normal business practices (Stock 2004). In view of this, there is a need to understand the place of product returns and reverse logistics in an organization's marketing mix strategy, and the level of importance they would assign to reverse logistics as compared to traditional forward logistics.

Product return policies and processes differ by type of business. For example, manufacturers may want to define return policies in stricter and narrower terms and may be concerned about the more liberal return policies of retailers (Gentry 1999). Firms also vary in whether or not they perform product returns processing in-house or outsource it to a third-party. Outsourcing or partnering with others can be an attractive option to exploit benefits of economies of scale if the firm's product return volumes are low (Stock 1998). Often, firms specializing in handling product returns are able to achieve economies of scale by combining volumes from multiple companies. Small individual firms see outsourcing to these firms as an attractive option to lower costs associated with processing product returns.

An important component of the reverse logistics process is to accurately evaluate each product returned in order to determine the most optimal disposition option. Typically, stations or physical locations are set up in the facility handling the product returns where personnel evaluate each item being returned. Personnel are trained to make determinations whether items should be discarded, repackaged, repaired, refurbished, remanufactured, or a myriad of other possible options (Rogers and Tibben-Lembke 1999; Stock 2004).

Product disposition is another area where further studies can help the process. Retailers may decide to return the product to the supplier due to defects, obsolescence or overstocks (Rogers and Tibben-Lembke 1999). Options for disposal processes of product returns can vary with firms and can range from refurbishing, reselling, recycling, or destroying the returned products (UK Department of Transport 2004). While some returned products can be repackaged and sold as new, due to legal or other restrictions some products can not be resold as new once the product has been returned by customers. For example, while an electronic part could be refurbished and sold, a circuit breaker may have to be disposed of differently (Rogers and Tibben-Lembke 1999). If a firm is not able to resell the items, they often end up in land fills, or perhaps recycled. Also, the profit margins could be lower for the manufacturer because in addition to the refurbishing cost, the product often must be sold at a lower price. In view of this, manufacturers' desire to maximize profits often dictates the proportion of product that gets refurbished (Vorasayan and Ryan 2006).

Stock, Speh, and Shear (2002) state that in the U.S. consumers return products valued at more than $100 billion each year, which is more than the GDP of 66% of the countries in the world. As firms begin to grasp the cost implications of product returns, "return avoidance" is being considered as a desired alternative. The Reverse Logistics Executive Council (RLEC) states that return avoidance entails examining ways to minimize the number of products entering the return stream. Return avoidance, which can be acomplished by ensuring higher quality products, increasing user friendliness of product, and managing promotional programs aimed at unloading the products to the retailers, could be a critical part of a reverse logistics program.

This article uses the empirical data collected from manufacturers, wholesalers/distributors and retailers on product returns processing to achieve the following major objectives. First, results should facilitate a better understanding of what takes place in these business sectors and provide some benchmarks regarding reverse logistics practices. Second, it will examine several hypotheses that have been suggested in various published articles, but never tested. It is expected that testing of these hypotheses will help provide answers to questions such as the level of importance of product returns, whether recovered value is high enough to justify product recovery efforts, and the resources expended in various stages of the product return process.

SELECTED LITERATURE REVIEW

During the last decade, much has been published in terms of case studies and anecdotal information regarding product returns. However, there are relatively few research studies that have examined empirical data (Srivastava and Srivastava 2006). Stock (1992) was one of the earliest writers to call for more research in the area, although his White Paper on reverse logistics was primarily a literature review of the topic. Much of his research dealt with environmental aspects of reverse logistics, specifically source reduction, recycling, substitution and waste disposal. He developed five major findings: (1) logistics executives needed to anticipate future environmental regulatory changes; (2) logistics executives needed to be aware of the "green marketing revolution," (3) procurement should be aware of the need to acquire secondary raw materials, (4) logistics executives should implement efficient and effective reverse logistics systems, and (5) some management persons should be assigned reverse logistics and environmental responsibilities (Stock 1992, p. vi).

Sarkis (1995) addressed the reverse logistics chain and its role in product development, the product life cycle, and recycling. He provided examples for each item, and discussed and posited several issues that needed to be addressed through further research. Later, Stock (1998) and Rogers and Tibben-Lembke (1999) expanded the view of reverse logistics to include additional activities such as processing product returns, disposition of physical goods to obtain maximum recovery value, and the remanufacturing/refurbishing of items. These researchers included some empirical data about reverse logistics, but each employed different research designs in collecting their data.

Stock (1998) utilized qualitative methods to analyze published and proprietary company reports and other materials relating to reverse logistics and product returns. He then conducted in-depth case studies of several companies located in North America and Europe. His findings were based on a qualitative analysis of published documents and personal interviews with multiple executives in a number of companies. While he developed a large number of findings from his research, some of the most significant included the potential cost savings and customer service improvements that can result from implementing good reverse logistics practices, identifying the importance of process mapping of the reverse logistics process, highlighting the need for specific cost information regarding reverse logistics activities, recognizing that reverse logistics strategies and tactics require the multi-functional approach of many areas within and between firms, and good reverse logistics processes usually have positive environmental impacts (Stock 1998, pp. 7-8).

Rogers and Tibben-Lembke (1999) utilized a combination approach, i.e., company interviews and a mail survey of reverse logistics executives. Based on the findings, Rogers and Tibben-Lembke (1999) recommended that firms could improve the economics of reverse logistics by focusing on improving gate keeping technology, making disposition decisions earlier, decreasing cycle times by speeding up the pace of returns processing, and better data management. Both publications, while examining different industries and companies, highlighted the need for more empirical research on the topics of reverse logistics and product returns. Prior to these studies, most published material was anecdotal, that is, overviews of what individual companies were doing to handle product returns, reuse packaging, remanufacture or refurbish products, and other reverse logistics practices.

Much of the research on product returns and reverse logistics has been specific to an industry or product category. For example, Autry, Daugherty, and Richey (2001) reported on the predictors of reverse logistics performance and satisfaction for firms selling electronic goods through catalogues. They found that performance measured by indicators such as satisfaction and profitability was influenced by size of the firm, sales volume, and whether the company had an internal or external arrangement for disposition.

Other researchers such as Meade and Sarkis (2002) focused on the critical determinants in firm's selection of a third-party logistics provider. Their model suggested that product position in its life cycle, organizational strategic performance requirements, and the role played by reverse logistics in meeting firms environmental and customer needs, were important.

H^sub 7^: Manufacturers will have more product returns placed directly back-in-stock or inventory than retailers or wholesalers/distributors.

H^sub 8^: Manufacturers will have more products repackaged and returned to stock than retailers or wholesalers/distributors.

Often the manufacturers are concerned about selling the returned products to brokers. This is because, in addition to lower prices, manufacturers are concerned about the loss of "brand equity." Once the product is sold to the broker, manufacturers do not control how these products are sold. Firms fear the impact on brand image if these products end up in bargain outlets or sold in flea markets (Rogers and Tibben-Lembke 2001). Thus the final option for manufacturers, when the product can not be sold as is or can not be refurbished, is selling it as scrap or destroying it to recover primary materials. Thus, the following hypothesis is presented:

H^sub 9^: Manufacturers will have more returned products sold as scrap or destroyed than retailers or wholesalers/distributors.

The largest category of customer product returns is attributed to buyer's remorse, usage problems or defects (UK Department of Transport 2004). Retailers and wholesalers are at the front line and are closer to the customer and generally faced with more returns. Rogers and Tibben-Lembke (2001) showed that, in spite of the overall desire to tighten return policies, retailer return policies were still considered liberal. This liberal policy could have been based on the retailers' wish that manufacturers bear the cost of generous return policies (Tsay 2001). However, this seems to be changing. There are indications that the retailers are beginning to focus on individual customer profitability , minimization of unprofitable customer transactions, and getting rid of 'bad' customers (Triest 2005; Zeithaml, Bitner, and Gremler 2006). This would suggest an increased tightening of product return policies to discourage customers who indulge in too many returns. Several of the respondents in Rogers and Tibben-Lembke's (2001) study felt that the liberal return days are going to be a thing of the past - "it was mentioned in a number of interviews that the days of 'no questions asked' returns are ending" (p. 136). Based on these published articles, the following hypothesis is presented:

H^sub 10^: More product returns are refused by retailers than by manufacturers or wholesalers/distributors.

To test these hypotheses, a research design involving a mail survey of practitioners involved in reverse logistics/product returns was utilized.

METHODOLOGY

Practitioners involved in some aspect of product returns processing were the subjects of the data collection effort. Personal interviews were conducted with executives who had reverse logistics responsibilities at more than 20 manufacturers, retailers, and wholesalers/distributors. The firms interviewed were approximately equally distributed between the three groups. The interviews helped refine the questions being asked of survey respondents and also helped to supplement the data obtained via a mail survey of the Warehousing Education and Research Council (WERC) membership. The majority of survey questions were developed from the literature and/or the personal experiences of the authors from previous reverse logistics research. The interviews provided insights into the wording of the survey questions to maximize understandability and response rate. Respondents are more likely to answer surveys that they perceive to be relevant to them and what they do. The actual site visits required 4-6 hours of time and involved tours of the product returns processing facility.

An interview guide was used for all site visits, although a few questions varied between firms because they were partially dependent on the specific products, customers, and markets of each firm. In about 75 % of the firms who agreed to participate in the site visit phase of the research, confidentiality or non-disclosure agreements were used. As a result of the site visits, a review of secondary source materials and the researchers' experience in the field, a 4-page mail survey was developed and pre-tested with more than two dozen practitioners directly involved in reverse logistics activities (Note: a copy of the survey instrument can be found in the Appendix).

With the development of the finalized instrument, three mailings of the survey were sent to manufacturer, retailer, and wholesaler/distributor members of WERC. Potential respondents to the survey were selected from a review of the WERC membership list. First, the list was reviewed and only manufacturing, wholesale/distributor and retailing firms were included. If only one person was shown for a particular company, they were selected if they held some type of management position. If more than one individual was a WERC member from a specific company, the titles of the persons were examined. If one of the members had specific reverse logistics or product returns in their job title, they were selected. If not, and this was typically the case, the highest ranking person in the company was selected. It was believed that the senior person would have the most knowledge about their firm's product returns processing.

The survey questionnaire indicated that this was a WERC-sponsored research project. Respondents were asked to indicate the type of business organization at which they were employed from the choices provided (manufacturing, retailing, wholesaler/distributor, government, or other). Survey questions also required them to choose the industry category from the seventeen sectors (categories) provided, (e.g., pharmaceutical, appliances, electronics). In addition, they were asked to indicate their job title from the list of job titles (corporate officer, manager, director, supervisor, staff specialist or other). Finally respondents were asked to indicate their primary job responsibility; the one responsibility that required most of their time (general management, logistics, marketing, reverse logistics, warehouse operations or other).

Respondents could request a summary of the survey findings by sending their business card with their returned survey, by indicating their name and address on the survey, or by requesting the survey results in a separate letter. An e-mail pre-contact from WERC was sent to all potential respondents approximately 7-10 days prior to mailing of the survey, encouraging their response to the survey they would be receiving. As a result of mese efforts, the total response rate for the survey prior to the removal of some responses that failed to provide necessary information for analysis was 242 (22.1 % of 1095).

Tests for Non-response Bias

The four-page surveys were color coded for each mailing and as responses were returned, they were date stamped so that early versus late respondents could be compared and thus test for non-response bias (Armstrong and Overton 1977). Responses were received over an eight-week period. Differences between early and late respondents were checked using the 145 responses received during the first two weeks versus 45 responses received during the last three weeks. ANOVA models and t-tests did not show any statistically significant differences in responses between the early responses versus late responses.

As an additional test for non-response bias, a single mailing of a one-page survey to non-respondents was done two weeks after the third mailing of the four-page survey. A total of 103 one-page surveys were returned, which were used as a second measure to test for non-response bias. Such tests for non-response bias are important in that the results of the survey could not be generalized to the population-at-large if bias existed.

After analysis of the early versus late respondents and a comparison of the non-respondents to those completing the full survey, it was determined that there were no statistically significant differences that existed and results obtained could be generalized to the entire WERC member population of manufacturers, retailers, and wholesalers/distributors.

Sample Summary Statistics

The survey responses represented a total of 16 industry sectors plus "other." Of the 230 responses, 23 did not indicate any industry category, and 55 responses stated their industry as "other." Six industry sectors, namely, Automotive (11), Chemicals & Plastics (10), Clothing & Textiles (12), Department Stores (14), Food & Beverage (42) and Paper and related (17) sectors accounted for most of the (106 out of 230) responses. The remaining 58 responses were distributed among me 10 other industry categories named in the survey.

Respondents included Corporate Officers (N = 40), Directors (N = 60), Managers (N = 108), and Supervisors (N = 7). Fifteen indicated "Other" and 12 respondents did not indicate their position. Of the business groups, responses were provided by manufacturing firms (N = 92), retailing (N = 23) and wholesalers/distributors (N = 115). There was only one (1) response from government, seven (7) indicated "other" and four (4) did not indicate any business group. In sum, the majority of the respondent population consisted of approximately equal proportions of manufacturers and wholesalers/distributors, with a small number of retailers included. In view of this, all the analyses were conducted by using the 230 responses from three business groups: manufacturers, retailers, and wholesalers/distributors.

FINDINGS

SPSS 14 for windows was used for conducting the analysis. Descriptive statistical analysis and ANOVA comparisons were used to test the various hypotheses. Contingency table analysis utilizing the Chi-square statistic was used for the nominal-scaled data. When the overall Chi-square was significant, the various pairs of attributes were examined to determine which relationships were statistically significant. The findings of the study are presented in two parts. In the first part we describe the details of the product return process based on the study data. In the second part we provide results from testing the stated hypotheses.

Section I: The Product Returns Process

Steps in Product Returns Processing

In general, product return process activities can be grouped into four steps or stages: (1) Receiving - includes unloading, distribution of product returns to processing centers; (2) Processing - consists of activities such as data entry and issuing customer credits; (3) Sortation - inspection and routing of returns to disposition point; and (4) Disposition - putting the product back into inventory or temporary storage, repackaging, repair, refurbishing or remanufacturing. It could be argued that there is a step that precedes these four which might be labeled "prereceipt." This would include activities such as shipping the product returns to the processing facility, getting authorization and completing the return authorization forms, and preparing the returned item for processing. In this research, we specifically examined the process once the items reached the product returns processing facility.

Survey results indicate that the last three (2, 3, and 4) steps consume a large percentage of the time spent in product return process. Results indicate that on average, respondents in the three business groups spent about 31% of the time on processing, about 26% on sortation, 26% on disposition and about 17% on receiving.

Use of Warehouse Space

Almost all respondents in the three business types (>90%) indicated that they used their regular warehouses/distribution centers to process product returns as opposed to having a dedicated returns processing facility. Most manufacturers and wholesalers use less than 25 % of their existing warehouse space for processing returns. Interestingly, about 19 % (4/23) of the retailers indicated that they used more than 75 % of their warehouse space for returns processing, suggesting that they combined forward and reverse logistics in the same area. Of course, this would apply to retailers that have dedicated product returns processing facilities. Facilities performing both forward and reverse logistics activities would only utilize a small portion of their buildings for processing product returns. Compared to this, 1.3 % (1/78) of manufacturers and 2.9 % (3/103) of wholesalers indicated use of more than 75 % of warehouse space for product return processing. This finding is consistent with the researcher's experience that retailers utilize dedicated product returns facilities to a larger degree than do manufacturers and wholesalers/distributors. Typically, retailers will see more returns than other supply chain members who are further away from the final customer.

When return rates and/or volumes are low, a combined facility is usually optimal. A combined facility is defined as a warehouse or DC where both forward and reverse logistics activities occur in the same location. When return volumes are low, they can typically be handled in a portion of the warehouse or DC where forward logistics takes place. When return volumes are high, or when significant processing of the returns is necessary, such as refurbishing or remanufacturing of the items, a dedicated facility makes more sense.

Warehouse Operations

Respondents indicated that a total of 1725 full time employees (FTE) were involved in warehouse operations. Of these, 1217 (71 %) were classified as operations (those people that actually handle the returns), 238 (14 %) administrative/clerical, 157 (9 %) supervisory, and 113 (7 %) managerial employees. On average, there were 6.6 FTE operations workers, 1.6 FTE administrative positions, 1.1 FTE supervisory positions, and 1.2 FTE managerial positions in the warehouse processing product returns.

Product Disposition

Product disposition refers to the ways business organizations deployed to recover the costs of the products that were returned. Products that went through the return process were generally dispositioned as follows:

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TABLE 5PRODUCT HANDLING RESPONSIBILITY(Number of Responses)

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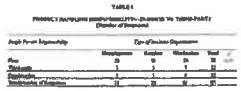

TABLE 6PRODUCT HANDLING RESPONSIBILITY-IN-HOUSE VS. THDIRD-PARTY(Number of Responses)

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TABLE 7PRIMARY JOB RESPONSIBILITY(Number of Responses)

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TABLE 8RECOVERY RATE AS A PERCENTAGE OF ORIGINAL COST(Number of Responses)

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TABLE 9NUMBER OF PRODUCT RETURN PROCESSING STATIONS (Percent Responses)

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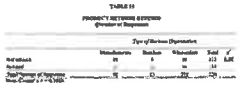

TABLE 10PRODUCT RETURNS REFUSED(Number of Responses)

for recoveries over 75 %, "large" for 51-75 %, "medium" for 26-50 %, and "small" for less than 25 % recovery. Again however, as in other product return activities, there was variability between the three business groups.

H5 stated that recovery rates (as % of cost) for returned products are higher for retailers compared to manufacturers or wholesale/distributors. Study results supported this as 69 % (11 of 16) retailers reported recovery rates in the top quartile, followed by 61 % (58 of 95) of wholesalers and 38 % (28 of 73) of manufacturers. As we had hypothesized, closer proximity to the customers allows the retailers, and to some extent wholesalers, to put the returned product back to the stock to be sold thus avoiding potential for devaluing the product due obsolescence. Table 8 shows the quartile breakdown of responses for recovery rates by business group. Chi-square (?2) was 12.74, degrees of freedom (df) = 6, and p = 0.05. An analysis of the three combinations of business organizations (mfg.retail; mfg.-wholesale; retail-wholesale) revealed that only the manufacturers and wholesalers were significantly different statistically (p = .02). Wholesalers tended to recover greater amounts of the original cost of returned products than manufacturers. As stated before, wholesalers are much closer to customers in the logistics chain and thus are able to turn around the returned product quicker and realize higher returns.

Being close to the point-of-sale, retailers have more disposition options as well as shorter processing time. These factors seem to result in retailers reporting high recovery rates while manufacturers who have fewer disposition options report lower percentage recovery rates. Clothing, textiles and general merchandise were in the high recovery category for retailers while it was automotive parts, paper and related products, food and beverages for wholesalers. For example, a large Internet and mail order catalogue retailer experienced 80-90 % recovery rates for its returned products. If the return requires minimal cleaning or replacement of missing or damaged buttons or clasps, and the garments only need pressing to remove wrinkles, in most instances, the item can be resold. Many of the items returned to the company were still in their original, unopened packaging and thus could be placed directly back into inventory. On occasion, customers are known to order more than one size, color or style of an item to compare them with the intention of returning the ones they do not want.

Another clothing retailer, with both direct marketing and "brick and mortar" stores located in shopping malls, experienced similar recovery rates for returned products due to their thorough and detailed processing procedures. Employees tasked with processing returns are provided detailed instructions about steaming, cleaning, repairing and refurbishing items. The detailed instructions are provided so that employees fully understand the process and can accomplish their tasks in the shortest possible time period, with the results being lower costs and higher productivity levels (Stock 2004).

Additional analyses indicated that about 26 % of the retailing, 7 % of manufacturing and 9 % of wholesalers had more than 5 processing stations. Stations are physical locations where each product return is evaluated by a person and usually includes scanners and computers that allow personnel to input information about the product being returned. In essence, a higher percentage of multiple product return stations suggest that retailers handle significantly more returns than manufacturers or wholesales/distributors. Second, it would mean that retailers want returns handled more expeditiously compared to manufacturers and wholesalers. Third, retailers have the most complex returns processing since there could be multiple reasons for product returns. Table 9 provides details of product handling by the tiree business groups.

Results support the hypothesis H6 that majority of firms use "return authorizations" (85.4 %) for product returns and require a pre-approval (71.8 %) of the return authorizations for accepting product returns. We had hypothesized (H7) that manufacturers will place a greater portion of products directly in stock compared to retailers or wholesalers. However, results of the analyses showed that the wholesale segment had the highest percentage of recovered product returned directly to stock (μ = 55.5, Std. Dev. = 32.3) followed by manufacturers (μ = 37.8, Std. Dev. = 30.8) and retailers (μ = 32.7, Std. Dev. = 34.4). The differences between wholesalers and the two segments were statistically significant (a = 0.05). There were no statistically significant differences in the mean percent of products returned directly to stock between manufacturers and retailers. Hypothesis H8 stated that manufacturers will have more product packaged and returned to stock compared to wholesalers/distributors. Results support this hypothesis as manufacturers had the highest percent (μ = 22.2, Std. Dev. = 25.2) while wholesalers had the lowest percent of returns being repackaged (μ= 12.3, Std. Dev. = 18.7) before returning to stock. We believe that food industry product returns to stock were primarily at the wholesale level and reflect the lower percentages of products being repackaged and returned to stock. Finally, in the product disposition area, H9 was supported as wholesalers reported lower percent (μ= 14.4, Std. Dev. = 18.7) of product returns destroyed or sold as scrap compared to manufacturers who reported the highest percent (μ = 23.7, Std. Dev. = 26.7). The key factor of any product returns processing strategy is to identify the various options for the disposition of items and to select the option(s) that maximize recovery rate(s). Hypothesis HI0 stated that more product returns are refused by retailers than wholesalers/distributors or manufacturers. Results show that overall 51.3 % (118/230) of all the respondents refused to accept some of the product returns. Refusal to accept product return was highest for retailers at 65 % (15/23), followed by wholesalers 57 % (66/1 15) and lowest for manufacturers 40 % (37/92) thus supporting HI0. Chi-square (?2) was 8.01, degrees of freedom (df) = 2, and ? = 0.02. An analysis of the three combinations of business organizations (mfg.-retail; mfg.wholesale; retail-wholesale) revealed that only manufacturers and wholesalers were significantly different statistically (p = .02). Wholesalers were significantly more likely to refuse product returns from customers (who would be retailers) than manufacturers (whose customers would be some combination of wholesalers and/or retailers).

SUMMARY AND CONCLUDING REMARKS1

In this empirical examination of product returns processing in the manufacturing, wholesale/distributor and retailing sectors, it was found that in spite of the growing importance of reverse logistics and product returns processing in the business and academic literature, these activities have still not assumed a widespread high level of importance within organizations. While senior executives are often given the responsibility of overseeing the process, it is not their main function. It appears these executives generally handle this function along with other responsibilities, so in essence, product returns processing is still a "part-time" activity in most organizations.

As previously discussed in the Introduction and Selected Literature Review, others have commented on the potential benefits associated with having dedicated product returns personnel. There is no substitute for full-time effort being devoted to a process such as product returns. Part-time effort does not allow sufficient time to fully evaluate and investigate potential improvements in the process nor provide the day-to-day oversight needed to ensure the process runs smoothly. Also, by having a full-time manager in charge of product returns, better coordination of forward and reverse logistics can occur.

Regarding all of the hypotheses being examined, Table 11 provides a summary of the hypotheses that were tested.

We found that business types typically use a single labor shift operation for the product returns process. This was not unexpected inasmuch as the vast majority of organizations have a relatively small to moderate amount of products being returned, thus requiring less time and fewer employees to handle returns. On average, organizations employ 6.6 FTE (full time equivalent) production workers, 1.6 FTE administrative persons, 1.1 FTE supervisory persons, and 1.2 FTE managers in the facility that processes product returns. Additionally, the majority of the facilities operate with only a single product returns processing station.

As seen from the on-site visits, firms utilize a fairly consistent process for handling product returns; that is, the steps or stages employed for processing product returns does not significantly vary from firm to firm. Once products are received and the processing of the returns begins, the three most common methods of product disposal were returning the product directly to stock, selling the items as scrap, and returning items to stock after repackaging (although repackaging was less common in the food and beverage industry). In some instances, die percentage of returns that go back into inventory for resale was much higher than has been previously reported in the literature. Obviously, the recovery rates for items that go back into stock for resale are much higher than most other disposition options, which accounts for the higher than expected recovery rates measured in this research study.

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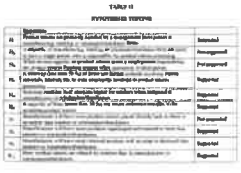

TABLE 11HYPOTHESES TESTING

A surprising finding that has not been discussed widely in the literature previously was the recovery rates for various return disposition options. In this study, product returns processing enabled many organizations to recover a high percent of the original cost of the products. In some instances the recovery rates exceeded 80 %. Such levels of recovery have not been widely reported previously. In fact, the typical level of 60-65 % recovery rate is higher than expected given previously published data. This validates the importance of efficient and effective product returns processing for improving profitability within organizations.

Studies have indicated the need to decrease the processing time and speed up the turn-around to maintain value of the returned and reprocessed goods (Blackburn et al. 2004; Stock 2001). Results show that retailers are able to recover a higher percentage of product value compared to wholesalers and manufacturers. This emphasizes the need for the retailers and wholesalers, who are located closer to customers in the supply chain, to process the customer returns instead of sending all or most product returns to suppliers. This will help not only to recover higher value for the returned product but also helps to maintain the price levels for products in the distribution chain.

The use of outsourcing, or third-parties, for product returns processing has been widely discussed in the business press. Many case studies have been presented about companies who successfully outsourced product returns processing to various reverse logistics third-parties. While some organizations do outsource these activities, results of this study suggest that the vast majority do not. Outsourcing of reverse logistics functions are partly driven by the firm's desire to redistribute the products quickly and thus recover value (Meade and Sarkis 2002).

As determined in the site visits to companies, many of the large mass merchandisers such as Kmart, Sears, and Target outsource at least a portion of their product returns to a third-party. In the manufacturing sector, electronics and computer companies such as HP/Compaq outsource product returns, while firms such as CDW and Tech Data handle returns internally. In the book publishing industry, most firms such as Harcourt and others perform product returns processing internally. And so it goes; there is a great deal of variability in whether firms utilize third-parties for processing returns, but in most cases, firms typically perform those activities themselves. As stated before, firms base their outsourcing decisions on whether reverse logistics functions fit with the core competence of the firm and based on the potential savings by eliminating expenses associated with activities such as evaluating returns and repackaging them (Coltrill 2003; Gorick 2005). Lack of critical mass and economies of scale can also be a reason to look for outside firms to handle product return functions (Discount Store News 1999; Gorick 2005). Thus, the market potential for product returns outsourcing is likely greater than is presently thought, if, organizations can be convinced that outsourcing is a viable alternative to doing it themselves. Most firms use existing facilities to handle both forward and reverse logistics, so the market potential for outsourcing is significant.

This study found that retailers refuse a greater percent of returns compared to wholesalers and manufacturers. Wholesalers reported refusing a higher amount from their customers (retailers) compared to manufacturer's refusal from wholesalers and retailers. As stated before, being close to the point of sale, retailers are often faced with more customer returns and sales associates are reluctant to restrict returns because it might hurt sales. However, this appears to be changing. Results show increased refusal from retailers pointing to a tightening of restrictions such as time periods for return, receipt requirements, etc.

At the manufacturer level, product return transactions are primarily between them and wholesalers or retailers. The transactions between manufacturers and retailers/wholesalers are generally more formalized with manufacturers setting somewhat liberal policies of accepting all unsold products returned within prescribed periods of time. Retailers have to consider manufacturer's sentiments about costs and the margin impact of product returns (Rogers and Tibben-Lembke 2001). There is an understanding on both sides about the need to reduce product return volumes to maintain profitability. Manufacturers also realize that effectively designed vendor friendly return policies help increase loyalty from some wholesalers or retailers (Rogers et al. 2002).

Very surprising was the fact that with so much academic and practitioner attention being given to benchmarks, measurement and metrics relating to all aspects of supply chain management, so few organizations use published standards for processing returns and evaluating elements or components of the process. The apparent lack of interest in published standards needs to be explored to see whether productivity improvements could be possible with the use of standards as might be expected intuitively. One would believe that with the higher level of manual operations in product returns processing, significant improvements might be possible if organizations were measuring the cost and service elements of the product returns process.

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