



**The Parcel Service Industry in the U.S.:  
Its Size and Role in Commerce**

**Prepared for**

**Commonwealth of Pennsylvania  
Department of Transportation  
Office of Research & Special Studies**

**by**

**Edward K. Morlok  
Bradley F. Nitzberg  
and  
Karthik Balasubramaniam  
with the assistance of  
Mark L. Sand**

**University of Pennsylvania  
Systems of Engineering Department  
School of Engineering and Applied Science  
Philadelphia, PA 19104-6315**

**August 1, 2000**

## **DISCLAIMER**

**The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. This document is disseminated under the sponsorship of the Department of Transportation, University Transportation Centers Program, in the interest of information exchange. The U.S. Government assumes no liability for the contents or use of thereof.**

# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                             |                                                            |                                                                       |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------|--|
| <b>1. AGENCY USE ONLY (Leave blank)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                             | <b>2. REPORT DATE</b><br>August 1, 2000                    | <b>3. REPORT TYPE AND DATES COVERED</b><br>Final Report               |  |
| <b>4. TITLE AND SUBTITLE</b><br>The Parcel Service Industry in the U.S.: Its Size and Role in Commerce                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                             |                                                            | <b>5. FUNDING NUMBERS</b>                                             |  |
| <b>6. AUTHOR(S)</b><br>Edward K. Morlok, Bardley F. Nitzberg, Karthik Balasubramaniam with the assistance of Mark L. Sand                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                             |                                                            |                                                                       |  |
| <b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b><br>The University of Pennsylvania<br>Systems Engineering Department<br>School of Engineering and Applied Science<br>Philadelphia, PA 19104                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                             |                                                            | <b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>                       |  |
| <b>9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b><br>Mid-Atlantic Universities Transportation Center<br>The Pennsylvania State University<br>Research Office Building<br>University Park, PA 16802                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                             |                                                            | <b>10. SPONSORING/MONITORING AGENCY REPORT NUMBER</b><br><br>III-0007 |  |
| <b>11. SUPPLEMENTARY NOTES</b><br>Sponsored by a grant from the U.S. Department of Transportation, University Transportation Centers Program                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                             |                                                            |                                                                       |  |
| <b>12a. DISTRIBUTION / AVAILABILITY STATEMENT</b><br>National Technical Information Service (NTIS)<br>5285 Port Royal Road<br>Springfield, VA 22161<br>Telephone: (703) 487-4650                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                             |                                                            | <b>12b. DISTRIBUTION CODE</b><br><br>N/A                              |  |
| <b>13. ABSTRACT (Maximum 200 words)</b><br><p>The carrying of parcels has grown to be a very significant part of the transportation system, as large or larger by many measures than most of the major traditional elements of the freight transportation system -- airlines, pipelines, railroads, etc. Yet very little is known about the parcel industry. This report provides an overview of the industry and its importance to U.S. commerce. One measure of the size of the parcel industry is its revenues. In 1997, the four carriers that account for well over 90% of U.S. parcel activity -- Airborne, FedEx, UPS, and the U.S. Postal Service -- had \$37.9 billion in transportation revenue. This exceeded the domestic transportation revenue of all major freight modes except trucking. Another way of looking at the size of the parcel industry is to examine the goods it delivers. In the BTS'1977 Commodity Flow Survey, only 3.2% of the value of goods shipped went via parcel carriers. But by the latest survey, in 1997, that percentage had grown to 12.3%. We believe there are fundamentally two reasons why parcel service has become so important in recent years. One consists of changes in the way goods and services are produced and distributed in our economy -- globalization, customized mass production, lean inventory management, rapid customer response, and growth in e-commerce, among others. The other is parcel service itself, which is at the vanguard of transportation service modernization with such features as differentiated time-definite service options, intermodal service, in-transit visibility, and data integration with the management systems of customers. Thus parcel service is a major element of the transportation infrastructure of the nation. It is essential for modern commerce. And current trends suggest that parcel service will assume an even more significant role in the future.</p> |                                                             |                                                            |                                                                       |  |
| <b>14. SUBJECT TERMS</b><br>Parcel Service                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                             |                                                            | <b>15. NUMBER OF PAGES</b>                                            |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                             |                                                            | <b>16. PRICE CODE</b>                                                 |  |
| <b>17. SECURITY CLASSIFICATION OF REPORT</b><br><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>18. SECURITY CLASSIFICATION OF THIS PAGE</b><br><br>None | <b>19. SECURITY CLASSIFICATION OF ABSTRACT</b><br><br>None | <b>20. LIMITATION OF ABSTRACT</b><br><br>N/A                          |  |



## ABSTRACT

The carrying of parcels has grown to be a very significant part of the transportation system, as large or larger by many measures than most of the major traditional elements of the freight transportation system—airlines, pipelines, railroads, etc. Yet very little is known about the parcel industry. This report provides an overview of the industry and its importance to U. S. commerce. One measure of the size of the parcel industry is its revenues. In 1997, the four carriers that account for well over 90% of U.S. parcel activity—Airborne, FedEx, UPS, and the U. S. Postal Service-- had \$37.9 billion in transportation revenue. This exceeded the domestic transportation revenue of all major freight modes except trucking. Another way of looking at the size of the parcel industry is to examine the goods it delivers. In the BTS' 1977 *Commodity Flow Survey*, only 3.2% of the value of goods shipped went via parcel carriers. But by the latest survey, in 1997, that percentage had grown to 12.3%. We believe there are fundamentally two reasons why parcel service has become so important in recent years. One consists of changes in the way goods and services are produced and distributed in our economy—globalization, customized mass production, lean inventory management, rapid customer response, and growth in e-commerce, among others. The other is parcel service itself, which is at the vanguard of transportation service modernization with such features as differentiated time-definite service options, intermodal service, in-transit visibility, and data integration with the management systems of customers. Thus parcel service is a major element of the transportation infrastructure of the nation. It is essential for modern commerce. And current trends suggest that parcel service will assume an even more significant role in the future.

**PROTECTED UNDER INTERNATIONAL COPYRIGHT  
ALL RIGHTS RESERVED  
NATIONAL TECHNICAL INFORMATION SERVICE  
U.S. DEPARTMENT OF COMMERCE**

Reproduced from  
best available copy.



## EXECUTIVE SUMMARY

### Introduction

The carriage of parcels has grown to be a very significant part of the transportation industry, as large or larger by many measures than most of the major traditional elements of the freight transportation system—airlines, pipelines, railroads, etc. Yet very little is known about the parcel service industry. This is largely due to the traditional modal view of transportation, a view in which any type of intermodal transportation often falls through the statistical cracks.

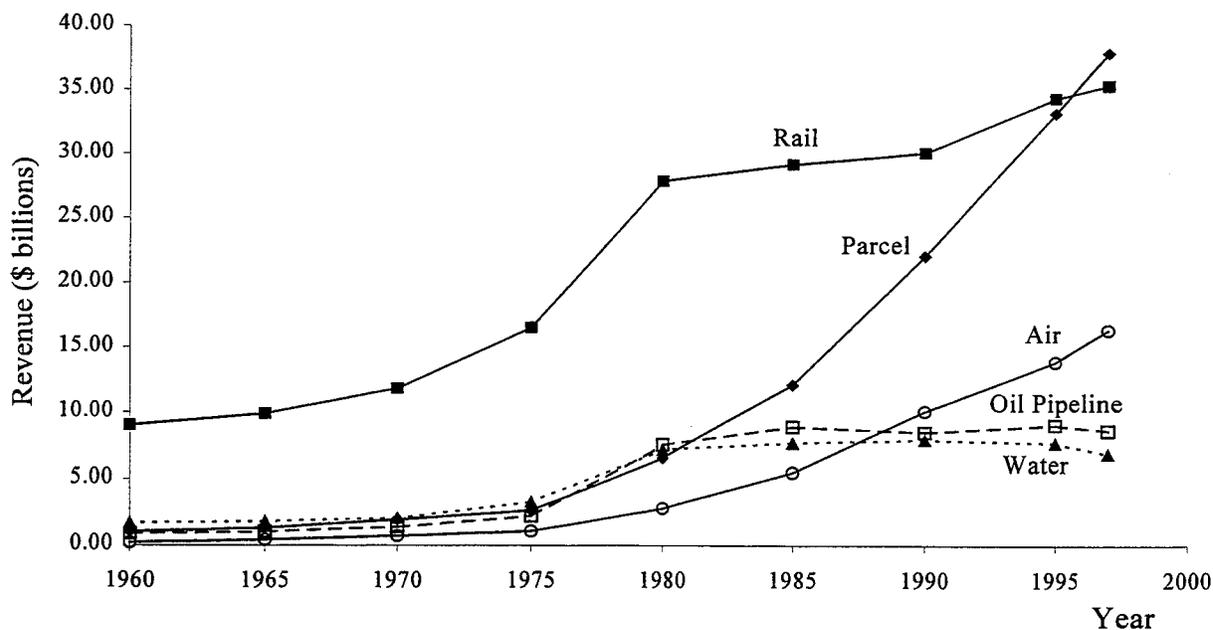
The intent of this report is to provide a brief overview of the parcel service industry and its importance to U. S. commerce. It summarizes many of the findings of a recent study of the parcel industry completed at the School of Engineering and Applied Science of the University of Pennsylvania.

### Parcel Service Industry Revenues

One measure of the size of the parcel service industry is its revenues. The domestic parcel service industry is dominated by four carriers—Airborne Express, Federal Express, United Parcel Service, and the U. S. Postal Service. We estimate that these four carriers account for over 90% of all domestic parcel shipments and revenue. In 1997 these four carriers had revenue of \$37.9 billion from domestic transportation service. This exceeded the domestic transportation revenue of all major freight modes except trucking:

|                     |                |
|---------------------|----------------|
| - Parcel carriers   | \$37.9 billion |
| - Railroads         | 35.4           |
| - Airlines          | 16.3           |
| - Pipelines (oil)   | 8.7            |
| - Water             | 7.7            |
| - For-hire trucking | 159.7          |
| - Private trucking  | 230.6          |

The parcel carriers' revenue in 1997 was equal to 8.0% of all domestic freight charges. Back in 1960 (the first year for which we were able to assemble reasonably reliable data), the parcel business represented only about 2.2% of national freight expenditures. But its percentage has steadily grown, at about one and one-half times the rate of freight overall. As shown in the figure below, parcel carriers' revenue has steadily exceeded the revenue from freight of air transport; it overtook water transport by 1985; and passed rail transport by 1997.



### Cargo Transported

Another way of looking at the size and role of the parcel service industry is to examine what it delivers—literally! The Bureau of Transportation Statistics' *Commodity Flow Surveys* of 1977, 1993 and 1997 provide the basis for this. In the 1977 survey, only 3.2% of the value of goods shipped went via parcel carriers. But, by the latest survey, in 1997, that percentage had grown to 12.3%. While the survey of 1977 was far less comprehensive than the later two, its limitations probably overstated the relative importance of parcel in that year. Thus, these data confirm the growing importance of parcel service to the economy. And, the growth in just the four years from 1993 to 1997 was extraordinary, the parcel percentage of shipment value growing from 9.6% to 12.3%, for a growth rate of 6.4% per year.

Another measure of the importance of parcel service is to look at the percentage of the value of goods shipped via parcel carriers compared to the Gross Domestic Product. This percentage was only 2.1 % in 1977, but grew to 10.6% in 1997. This means that parcel carriers deliver over 10% of the value of all goods and services produced in the U. S.

The goods shipped by parcel carriers reads like a list of products used in most of the fastest growing segments of our society. These include

- Pharmaceuticals,
- Medical supplies,
- Chemicals,
- Plastics,
- Electronic products,

Computers and related equipment,  
 Precision instruments,  
 Printed matter,  
 Apparel, and  
 Repair parts,

among others. Of course, parcel carriers deliver more than goods that would appear in the *Commodity Flow Surveys*. These other goods include contracts, legal documents, copy for magazines and newspapers, and numerous packages sent from households and organizations that are not included in the survey.

### Growth of Parcel Service

All this naturally raises the question of why parcel service has become so important in recent years. We believe there are fundamentally two reasons. One is based on changes in the way goods and services are produced and distributed in our economy. The other is due to changes in the nature of parcel services.

Turning first to changes in production and distribution, broad trends are toward reducing inventories and rapid customer response. This means faster delivery, often at or by a specified time. Parcel carriers have been at the forefront of providing this type of service. Parcel service is widely used for final products like computers or consumer goods, as well as for critical parts such as those needed to repair broken machinery in order for a factory or office activity to continue. The emphasis on reducing inventories to reduce the overhead cost of manufacturing and distribution of all sorts of goods has resulted in the need for faster delivery. And the trend toward more customized products has also resulted in supply chains that rely on make-to-order or rapid replenishment of goods, in order to avoid having large inventories of stock that might not be sold. The cost savings and increased customer value from such products and business practices require rapid transport, time-definite delivery, and the transportation of small quantities of just the right items to the right destination. By definition, this is parcel service.

Equally important, however, is the fact that parcel carriers have created new transportation products that are designed to meet these needs. They do not simply load shipments (parcels) onto a truck and carry them from one location to another, but also provide an array of transport and related services that are designed to enhance their customers' products--goods as well as services. It is parcel carriers who really developed the concept of offering a variety of delivery speeds and times, between virtually all points in the U.S., and perfected the means to guarantee on-time delivery. It is these parcel carriers who have been at the vanguard of putting together the different modes of transportation so as to provide the various delivery services at least cost. Such intermodal transport is now expanding to other areas of transportation, with truckers sending their trailers—with their customers' cargo--over long distances by rail, and ocean carriers having their own trains for inland delivery. This variety of integrated transport services has enabled much of the change in production and distribution described earlier, resulting in lower cost of delivered goods for consumption.

Another example is the tracking of the shipment from pick up at origin to delivery to the destination, and the integration of movement data with other data at the premises of the shipper and the receiver of the freight. Such data—whether on the Internet or via Electronic Data Interchange—are critical to many customers. Clearly, knowing whether medical supplies will be delivered on time can be absolutely essential to the provision of medical services at a hospital. Thus delivery of information is often as important as the delivery of the shipment itself. And now at least one parcel carrier is connecting the transportation of shipments and information with the transmission of funds, in a further attempt to facilitate commerce. The connection between this and the explosion of e-commerce between businesses, and between business and households, is obvious.

### Conclusions and Implications

The implications of this study can be grouped into two categories. One relates to the parcel industry directly and another relates to transportation in general.

In the first category, the most obvious conclusion is that parcel service has grown from a small part of U.S. freight transportation in the 1960s to become a major component of the system. Its revenues now outstrip those of all the major traditional modes of freight transportation except trucking, exceeding air, rail, and water transport revenues. Parcel service is very important to the economy. Parcel carriers transport over 12% of the value of all goods transported, and this represents over 10% of the U.S. Gross Domestic Product.

Parcel transport is also growing very rapidly. Revenues in the last ten years have grown more rapidly than those of all modes of freight transportation except air, which has approximately the same growth rate as parcel service. National and world economic trends point to a continued expansion of parcel service. Globalization, just-in-time logistics, customized mass production, rapid customer response, and e-commerce, along with other trends, all point to greater use of parcel service in the future.

Two critical features of these trends stand out. One is that parcel carriers are inherently multimodal (using air and truck for overnight vs. three day delivery, respectively, for example), and they are inherently intermodal (coordinating the transportation of each shipment via road and rail, or road and air). The second is that parcel service is a relatively expensive form of transport, compared to shipping full truckloads or boxcars of the same commodities, for example. These trends signal a major change in the way transportation is organized and used in the economy. Transportation is looked at as an element of supply chains, with firms shipping goods via the means of transport that gives the best overall value for the product delivered. No longer is transportation cost minimized. Spending more on transport may reduce other costs such as inventory costs, and improve customer satisfaction. And shippers want the transportation to be as efficient as possible, often leading to the use of more than one mode for the delivery from origin to destination.

There are also broader implications of this study, particularly for government. One is that the traditional modal view of transportation, in which the transportation system is looked

at as a collection of modes and their companies or agencies, is no longer adequate. The term *mode* in this context refers to the technology used to produce transportation—road, railroad, water, etc. Modes in this sense of technology have been the primary basis for most government involvement in transportation, in organization, funding, policy, regulation, and oversight.

What are the implications of these trends? Fundamentally it is that the traditional modal structure of governmental involvement with transportation is in need of overhaul. Clearly this structure has been changing, but the weight of two centuries of primarily modal thinking and approaches is substantial.

One important area of change relates to data gathering on the state of the transportation system. In order to have a complete picture of transportation, data must be gathered not only on the individual modes, but also on intermodal and multimodal transportation services, including parcel service. This would provide a baseline and indicators of the growth and health of these elements of the transportation industry. The methods used in this study provide a basis for such data gathering, for the parcel service industry.

A second category of needed change extends far beyond this study, but the general direction is clear. Modally based institutional structures, policies, funding mechanisms, and regulations are not likely to serve the transportation system or our society well. New transportation services are vitally important in meeting the emerging needs of modern production and distribution systems. Many if not most of these new services, like parcel service, are intermodal or multimodal in nature. This means that traditional modal structures should be evaluated, and revised as appropriate, so that they encourage and support rather than stifle innovation and improvement. While such efforts may take many years to complete, changes can, and should, be introduced incrementally, as suggested in connection with data.

Note: The full report, the Executive Summary, and a single sheet folder summarizing the findings, can be read or printed from the website:  
<http://www.seas.upenn.edu/sys/logistics/parcelstudy.pdf>

## ACKNOWLEDGEMENTS

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. This document is disseminated under the sponsorship of the Department of Transportation, University Transportation Centers Program, in the interest of information exchange. The U. S. Government assumes no liability for the contents of use thereof. Financial support for this study was provided by the Center for Human Resources at the Wharton School and a gift to the Center from the UPS Foundation, as well as additional support from the University Transportation Centers Program of the U. S. Department of Transportation.

## TABLE OF CONTENTS

|                                                      |    |
|------------------------------------------------------|----|
| Abstract .....                                       | i  |
| Executive Summary .....                              | ii |
| List of tables.....                                  | x  |
| List of figures.....                                 | xi |
| 1. INTRODUCTION .....                                | 1  |
| 1.1. Purpose.....                                    | 1  |
| 1.2. Why is this study needed?.....                  | 1  |
| 2. THE PARCEL SERVICE INDUSTRY.....                  | 4  |
| 2.1. Definition and Description.....                 | 4  |
| 2.2 Service Offerings of Parcel Carriers .....       | 7  |
| 3. SIZE OF THE PARCEL SERVICE INDUSTRY .....         | 12 |
| 3.1. The Big Four Parcel Carriers .....              | 12 |
| 3.2. Growth 1960 to Present .....                    | 13 |
| 3.3. International Revenues.....                     | 19 |
| 4. IMPORTANCE OF PARCEL SERVICE TO THE ECONOMY ..... | 20 |
| 4.1. Value and Quantity of Parcel Shipments.....     | 20 |
| 4.2. Characteristics of Parcel Shipments.....        | 23 |
| 4.3. What commodities move via parcel service?.....  | 29 |
| 5. TRENDS AND THE FUTURE OF THE PARCEL INDUSTRY..... | 32 |
| 5.1. Mass Customization.....                         | 33 |
| 5.2. Reduction in Inventories .....                  | 34 |
| 5.3. Use of Advanced Technology.....                 | 35 |
| 5.4. Focus on Core Competencies.....                 | 35 |
| 5.5. Retailing.....                                  | 36 |
| 6. CONCLUSIONS AND IMPLICATIONS.....                 | 39 |
| APPENDICES .....                                     | 41 |

|                                                                                   |    |
|-----------------------------------------------------------------------------------|----|
| A. DATA ON BIG FOUR PARCEL CARRIERS DOMESTIC OPERATIONS .....                     | 42 |
| B. DATA ON BIG FOUR PARCEL CARRIERS INTERNATIONAL OPERATIONS .                    | 47 |
| C. APPROXIMATE TIME SERIES OF PARCEL SERVICE DOMESTIC REVENUES<br>1960-1995 ..... | 48 |
| D. COMMODITY FLOW SURVEYS .....                                                   | 49 |
| E. CHOICE OF BIG FOUR PARCEL CARRIERS.....                                        | 62 |
| F. INFORMATION ON PARCEL AND RELATED COMPANIES .....                              | 63 |

## LIST OF TABLES

|                                                                                                                                                                 |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Table 1. Revenues of Big Four parcel carriers compared to revenues of traditional modes in 1997. ....                                                           | 13 |
| Table 2. Growth of parcel service revenues and the national freight bill, 1988-1997.....                                                                        | 14 |
| Table 3. Parcel service industry revenue, 1960-1998. ....                                                                                                       | 15 |
| Table 4. Approximate time series of parcel business revenue compared with traditional mode revenues, 1960-1998. ....                                            | 17 |
| Table 5. Growth of Big Four parcel international service revenues and traditional modal international movement expenditures, 1988-1997.....                     | 19 |
| Table 6. Parcel service share of freight movements based on Commodity Flow Surveys of 1977, 1993 and 1997.....                                                  | 21 |
| Table 7. Comparison of the value of shipments via parcel carriers and various modes of transportation in the Commodity Flow Surveys, 1977, 1993, and 1997 ..... | 22 |
| Table 8. Parcel shipment value, tons, and ton-miles by shipment size in 1997.....                                                                               | 24 |
| Table 9. Parcel carriers share of freight market by shipment weight in 1993 and 1997. .                                                                         | 26 |
| Table 10. Average shipment value per ton and average haul by shipment size and mode, 1997.....                                                                  | 28 |
| Table 11. Commodities with large percentages of shipments via parcel service, and growth, 1977-1997.....                                                        | 30 |
| Table 12. Industries that are major users of parcel service based upon interpretation of the Commodity Flow Survey of 1993 and 1997.....                        | 31 |

## LIST OF FIGURES

|                                                                                                                             |    |
|-----------------------------------------------------------------------------------------------------------------------------|----|
| Figure 1. Typical steps in parcel movement from origin to destination .....                                                 | 6  |
| Figure 2. Trade-off between speed of delivery and price in parcel transport. ....                                           | 8  |
| Figure 3. Effect of variations of shipment weight on parcel transport price.. ....                                          | 9  |
| Figure 4. Effect of variations of shipment distance on parcel transport price. ....                                         | 10 |
| Figure 5. Parcel service industry revenues as a percentage of U.S. Freight Bill, 1960-1995.....                             | 16 |
| Figure 6. Parcel service industry revenue compared to traditional mode revenues, 1960-1998.....                             | 18 |
| Figure 7. Value of shipments via parcel service compared to traditional modes in Commodity Flow Surveys, 1977 to 1997. .... | 22 |
| Figure 8. Value of parcel service shipments compared to Gross Domestic Product, 1977, 1993, and 1997.....                   | 23 |
| Figure 9. Parcel service industry's share of U.S. freight market by shipment weight in 1997.....                            | 25 |
| Figure 10. Share of Big Four parcel revenues from overnight, deferred and standard service, 1994-1998.....                  | 29 |
| Figure 11. Inventory as a percentage of Gross Domestic Product, 1980-1997. ....                                             | 34 |
| Figure 12. Reconfiguration of the retail selling chain.. ....                                                               | 38 |



## 1. INTRODUCTION

### 1.1. Purpose

This report is intended to provide an overall picture of the size and impact of the parcel transportation industry in the U.S. today. While it has been widely acknowledged that this industry is a very important component of the transportation system, and increasingly important as an element of modern supply chains for the production and distribution of goods and services, there is surprisingly little comprehensive information about the industry. In order to provide this picture, we concentrate on four themes:

The first is a description of the services provided, with particular emphasis on features that distinguish it from other forms of transportation.

The second element is the size and growth of this industry.

The third is its role in society, with an emphasis on its increasing role in the production and distribution of goods and services, and

The fourth is an examination of its prospects for the future in terms of its role in a world that is likely to be heavily reliant on e-commerce and global trade.

The final topic is a discussion of the implications of this study, for governmental data gathering, programs, and policy-making.

It should be noted that this is not a history of the various firms that provide parcel service or a detailed history of the services provided or technologies used. Rather it is intended to give an overall picture of an important segment of the transportation system that has not been treated coherently elsewhere.

### 1.2. Why is this study needed?

A natural question is: Why is there no comprehensive picture of the parcel industry? The answer is rooted in the history of the field of transportation, in which the advent of each new mechanized mode created new markets, new opportunities, and new problems, which were generally dealt with on a modal basis. The answer also reveals much about how the transportation system is being transformed in the modern economy, and about how the conceptual view which underlies the structure of traditional transportation institutions—public and private-- is also being transformed.

Historically the transportation field has usually been conceptualized as a collection of modes, or technologies for producing transportation. In this view we think of the transportation system as being comprised of road transport, railroads, airlines, ship lines, pipelines, etc. This is reflected in the organization of the U.S. Department of Transportation, with its Federal Highway Administration, Federal Railroad Administration, and so on. Similarly, most of the older companies in transportation have concentrated on offering service using only one mode. In fact, this segregation by mode was enforced by much regulation, spanning almost the entire history of mechanized

transport. Data is largely gathered and published in modal terms as well. For example, the *National Transportation Statistics*<sup>1</sup> published by the U. S. Dept. of Transportation has presented most data in terms of modes, for revenue, cargo and passenger traffic, safety, fleet size and other assets, etc.

But this view is now being supplanted by another vision of the system, which starts by looking at the functions of the system in society and the economy. In this view, the critical feature of the freight transportation system is the service that it provides—what can be sent, and where, how long it takes for delivery, the ease of use including such aspects as providing pick-up service and the integration of transport carrier and shipper (and receiver) data networks, etc. In this context, the modes or technologies are not the central point of focus, but rather should be chosen so as to optimize the movement, from a cost and service quality standpoint. Furthermore, the optimization is from the standpoint of the user of the system, ultimately in the overall delivered cost of goods, not transport costs alone. Modes, and the organizations that own and operate them, are still important, but are seen as a means to an end, rather than representing an end in themselves. This new view is exemplified by such recent landmark federal surface transportation funding and policy legislation as the Intermodal Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21<sup>st</sup> Century of 1998 (TEA-21), and the formation of the Office of Intermodalsim in the U.S. Department of Transportation, among others.

Parcel service has always fallen through the cracks when the system is looked at in terms of the traditional modal breakdown. One reason is that parcel service is inherently multimodal, requiring a small truck, auto, or messenger for pick-up and delivery, and another mode such as truck, rail or air for the line haul. And in looking at the history of parcel service, the large and successful parcel carriers have been distinct from the modal transportation companies. The U. S. Postal Service and United Parcel Service, among others, are all obvious examples of parcel service providers that clearly do not have a distinctly modal identity. The first national parcel service, the now-defunct Railway Express Agency (owned by but distinct from the railroads), naturally originally relied on rail service for long distance movement. But by the late 1920s it offered expedited service via air, and before its demise in 1975 its own truck and air service had supplanted most of the rail transport of parcels. Today, as in the past, parcel carriers are major users of the major modal transportation companies, but offer a distinct type of service that those transportation companies simply do not offer.

Until very recently, virtually all of the data that has been gathered on freight transport emphasized the modes, their revenues and market shares, etc. This is evident from U.S. Bureau of the Census *Statistical Abstract of the United States*, as well as most of the data documents historically produced by the U.S. Department of Transportation. Parcel service simply does not fit neatly into this framework, and thus is often nearly invisible. As might be expected, this is now changing, reflecting the broader view of transportation that we alluded to earlier. An excellent example is the 1996 Bureau of Transportation Statistics report on the transportation system and the environment. It included much

---

<sup>1</sup> U.S. Department of Transportation (1987). , *National Transportation Statistics Annual Report*, 1987, Report DOT-TSC-RSPA-87-6, U.S. Government Printing Office, Washington, D.C. and later editions.

information about the system as a whole, its role in society and the economy, and environmental impacts. Especially noteworthy from our perspective is that it included much information on parcel service (precisely, a category Postal, Parcel, and Courier service), based on the 1993 Commodity Flow Survey, and noted that this (parcel) category was second only to trucking in the value of goods transported<sup>2</sup>.

The text of this report pointed out the importance of separating out intermodal services including parcel carriers, in order to present an accurate picture of transportation commodity flows today. These intermodal carriers had previously been lumped together with the traditional modes (e.g., air) in ways that obscured their role and growth.

And finally, parcel service surely was not considered as important as the carriage of the massive amounts of basic goods that are very visibly transported by the traditional modes. A mile long train loaded with coal is obviously an essential element of the production of the electricity that we all depend on. Similarly the ocean vessel laden with hundreds (actually typically thousands) of containers seen from a bridge overlooking a port has an obvious role in the global economy. The criticality of the goods moved by these modes for our society and everyday life is obvious, and thus they are a natural focus of attention. A small parcel delivery van simply does not conjure up the same image of a critical link in the supply of goods and services.

---

<sup>2</sup> U.S. Dept. of Transportation, Bureau of Transportation Statistics, *Transportation Statistics Annual Report 1996*, p. 15.

## 2. THE PARCEL SERVICE INDUSTRY

### 2.1. Definition and Description

There is no uniformly used definition of parcel service. However, the meaning of it is generally clear, in the sense that many companies are thought of as being parcel carriers, and their service offerings are clearly distinct from those of other transportation providers. These providers include such household names as Federal Express and UPS, and of course the U.S. Postal Service with its Parcel Post and other products. We take as a definition of the parcel business the following: The parcel business consists of carriers or organizations that transport shipments that typically are sufficiently small to be handled by one person without aid, but which are normally larger than a single letter. While not essential, normally important features of the service are the options of carrier pick-up at the origin, and of carrier delivery to the destination. Of course, the transportation must normally be between different persons or organizations, or different locations, thus excluding movement carried out by a firm of its own goods and other items within a single plant or business location.

The technology of providing parcel service is somewhat unique in the transportation industry, and also explains how the parcel carriers relate to the traditional modal carriers. In order to provide the movement of a small package at a reasonable cost, parcels must be aggregated into larger units for movement, and this *aggregation*, and subsequent *disaggregation*, largely defines how they operate. Starting with a simple parcel service that uses only road transport, the operation proceeds as follows. Parcels are normally picked up by a driver with a small *local area vehicle* at the shipment's origin, and hundreds are often picked up before the vehicle goes to a *hub* or terminal. This is the *origin hub* for this shipment—the first hub reached on its journey. There the shipments are sorted, by outbound *line haul truck*. After loading, the line haul truck departs for the next *hub* or terminal on the parcel's route. At that location, the line haul truck is unloaded, and the parcels are again sorted. If this is the *destination hub* of all the parcels on that truck, they would be sorted into local area vehicles for delivery, and delivered the next day. In many cases, however, there are insufficient parcels to fill a line haul truck for each possible destination hub, and thus the truck will carry parcels for many destinations beyond that hub. Thus the inbound line haul truck's parcels will be sorted for both other destinations and for the local area, the latter parcels being sorted a second time for the local delivery vehicles. The shipments going beyond will be placed on another line haul vehicle, and continue their journey, with more sorting and line haul transfers at *intermediate hubs* until they reach their destination hub. There each parcel is delivered to its destination recipient by a driver in a local delivery vehicle. This process is portrayed in Figure 1.

While most parcel companies operate their own pick up and delivery services, they often use other transportation companies for the line haul links. Thus the U.S. Postal Service is a major user of commercial truck carriers for line haul movement. Also, railroads are often contracted with and become part of the movement, both to carry truck trailers (piggyback service) and also to carry containers (essentially truck trailers without the wheels). This may be for either economy or speed reasons, or both. It might be noted that UPS is the largest single customer of the U. S. railroad industry, and the U.S. Postal

Service is another major customer<sup>3</sup>. And of course Overnight and Second Day services must use aircraft instead of trucks for the line haul, over long distances, in order to meet the delivery time guarantees. If the package is moving over a short distance, the line haul is usually truck, as it is far cheaper than air. This is true even if the name of the service includes the word "air", because the shipper really does not care about the modes (technologies) used, only that the shipment is delivered on time and intact. Rail is also used for some moderate distance services. There are many variations to this process, of course.

Parcel carriers are often referred to as *integrated carriers*. The reason is that they must integrate the operations of different types of transportation (package delivery vehicles, large over-the-road trailer trucks, etc.) and different modes (rail and air along with road transport) in order to provide their service. Often different companies own and operate these different vehicle types and the different modes, and thus the parcel carrier must coordinate and integrate the operations of these other firms. Moreover, this must be done with a precision that is usually far greater than that found in other areas of transportation. This is due to the stringent time guarantees that usually apply to parcel delivery. To move packages across the U.S. reliably overnight for delivery the next morning, while losing three hours due to time changes in one direction, is no simple task. And of course such a movement involves, at minimum, two different local area vehicle movements, one but typically typically two air links, and sorting at one or more hubs (usually at least three), as well.

---

<sup>3</sup> : Los Angeles Times (2000), "Top Rail Customer UPS Requests 2-Year Halt to Industry Mergers," <http://www.latimes.com/business/20000309/t000022666.html> (read March 20, 2000).

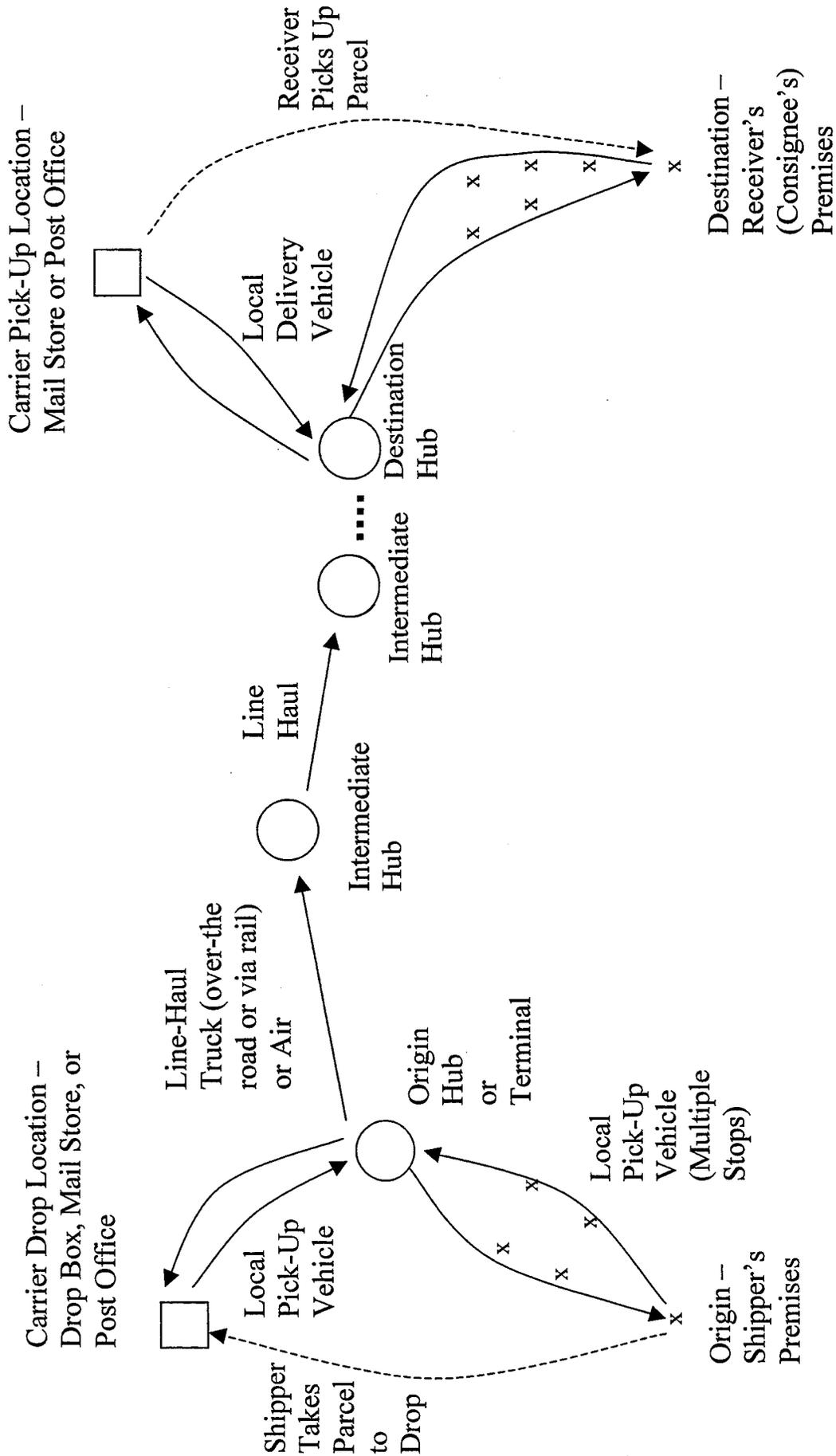


Figure 1. Typical steps in parcel movement from origin to destination.

## 2.2. Service Offerings of Parcel Carriers

As mentioned above, parcel carriers usually offer many different service variations in *in-transit times* (the time from origin to destination), whether or not there is a delivery time guarantee, and whether the item is picked up by the carrier or must be delivered by the shipper to a drop-off location. Variations in the in-transit time are usually expressed in terms of time of delivery, e.g., the next morning before 8:30 AM, before noon, or second day before noon, etc. This necessitates deadlines for giving the parcel to the carrier, of course, on the day of shipment. This can be accomplished either by pick-up by the carrier at the shipper's premises, placement in a drop box of the carrier, or delivery to the carrier facility (e.g., to a post office). There are also services without specific delivery guarantees but which have a usual time for delivery which is made known to the shipper, e.g., the U. S. Postal Service's Priority Mail normally delivers goods within two business days to most addresses in the U.S.

Naturally there is a trade-off between the speed of delivery and the price. Figure 2 presents the offerings of the major carriers in terms of speed and price, for moving a 20 lb. package from Philadelphia to Chicago--a distance of about 668 miles. These rates are for pick up at a business address and delivery to another business, except as noted on the figure. (Sometimes there is a premium for residential delivery.) The general pattern of a substantial cost premium for speed is readily apparent, from about \$85 for the fastest service—overnight with early next morning delivery-- to about \$10 for three day service. Also noteworthy is the wide range of possible transit times, from overnight to many days. (It should be noted that, between many locations same day delivery is also available.) There are often two prices for essentially the same service in terms of time of transit, but these in fact represent services with different features, such as different cut-off times for pick-ups, and availability of tracking, among others.

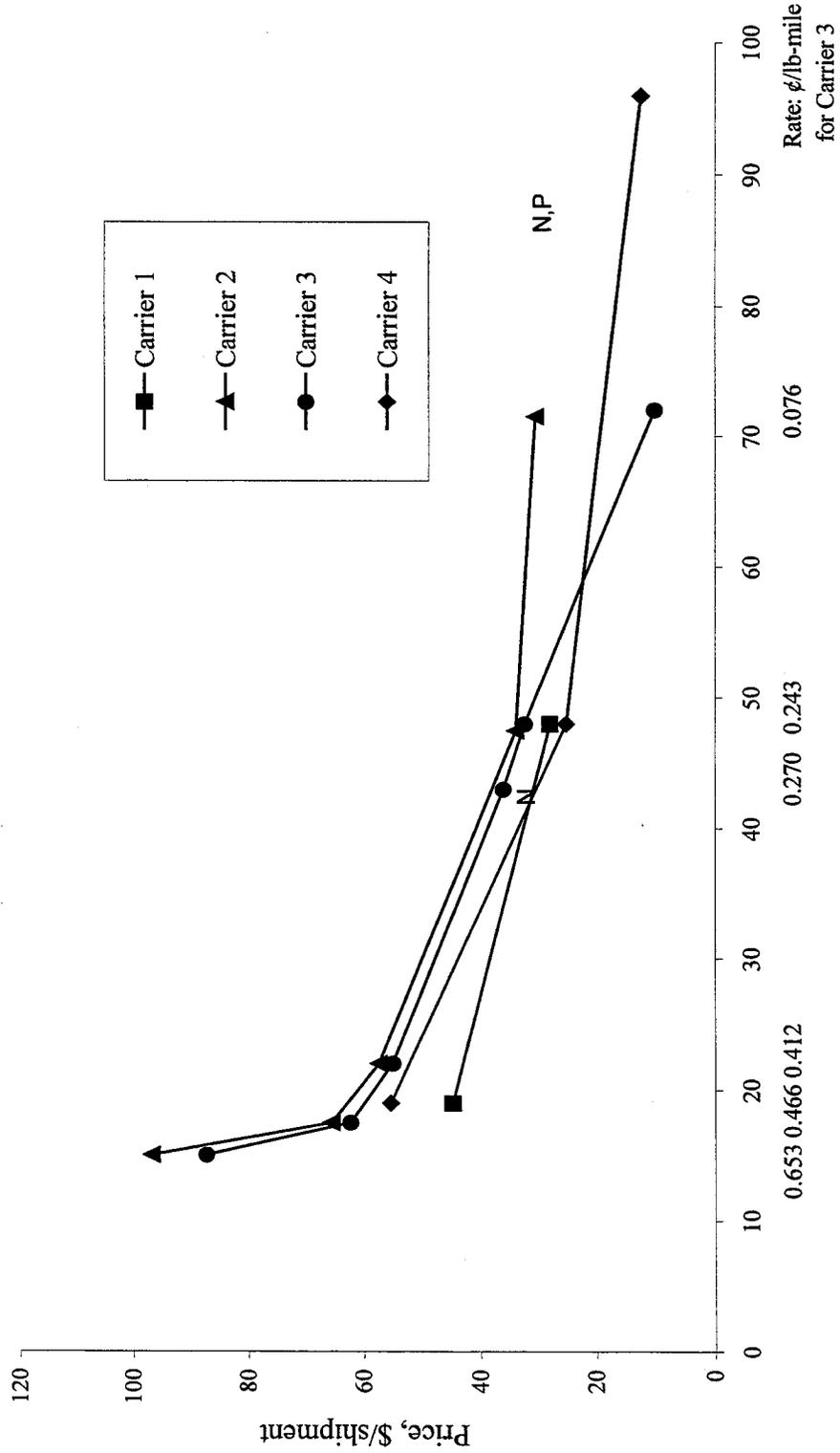
Figure 3 focuses on the effect of variations of weight on the price, for the same Philadelphia to Chicago movement, and the two-day delivery option. There is a modest change in price with variations in weight, and these affect the average price per lb.-mi. as shown in the figure. The 20 lb. Package had a rate of 0.243¢/lb.-mi, but this drops to 0.181 ¢/lb.-mi. for a parcel weighing 60 lb. This is to be expected of course, as the extra expense of the parcel carrier caused by a larger package is small, up to the point where a different method must be used to handle it, e.g., two persons needed to lift it.

Figure 4 depicts the effect of variations of distance on the price for moving a 20 lb. package for the same two-day delivery. The effect of distance is more pronounced than that of weight, but similar in that unit price per lb.-mi. drops with increasing distance.

It should be noted that these effects—of speed, weight, and distance -- continue into the range of larger sizes of shipments that are made by other forms of transportation. There is a substantial premium for speed, and the unit cost per ton-mile decreases with increasing shipment weight and with increasing shipment distance.

As indicated in these figures, most parcel carriers offer guarantees of delivery, at least for the faster and/or higher priced services. This is because the timely arrival of the shipment

Figure 2. Trade off between speed of delivery and price in parcel transport.  
 20 lb. shipment (box) from Philadelphia to Chicago, pick-up from business and delivery to business.  
 N indicates delivery time not guaranteed, P indicates pick-up unavailable.



Time from 5 pm to Delivery Deadline, hours

Figure 3. Effect of variations of shipment weights on parcel transport price.

Shipments from Philadelphia to Chicago, pick-up from business and delivery to business, with delivery on second day by 5pm. N indicates delivery time not guaranteed.

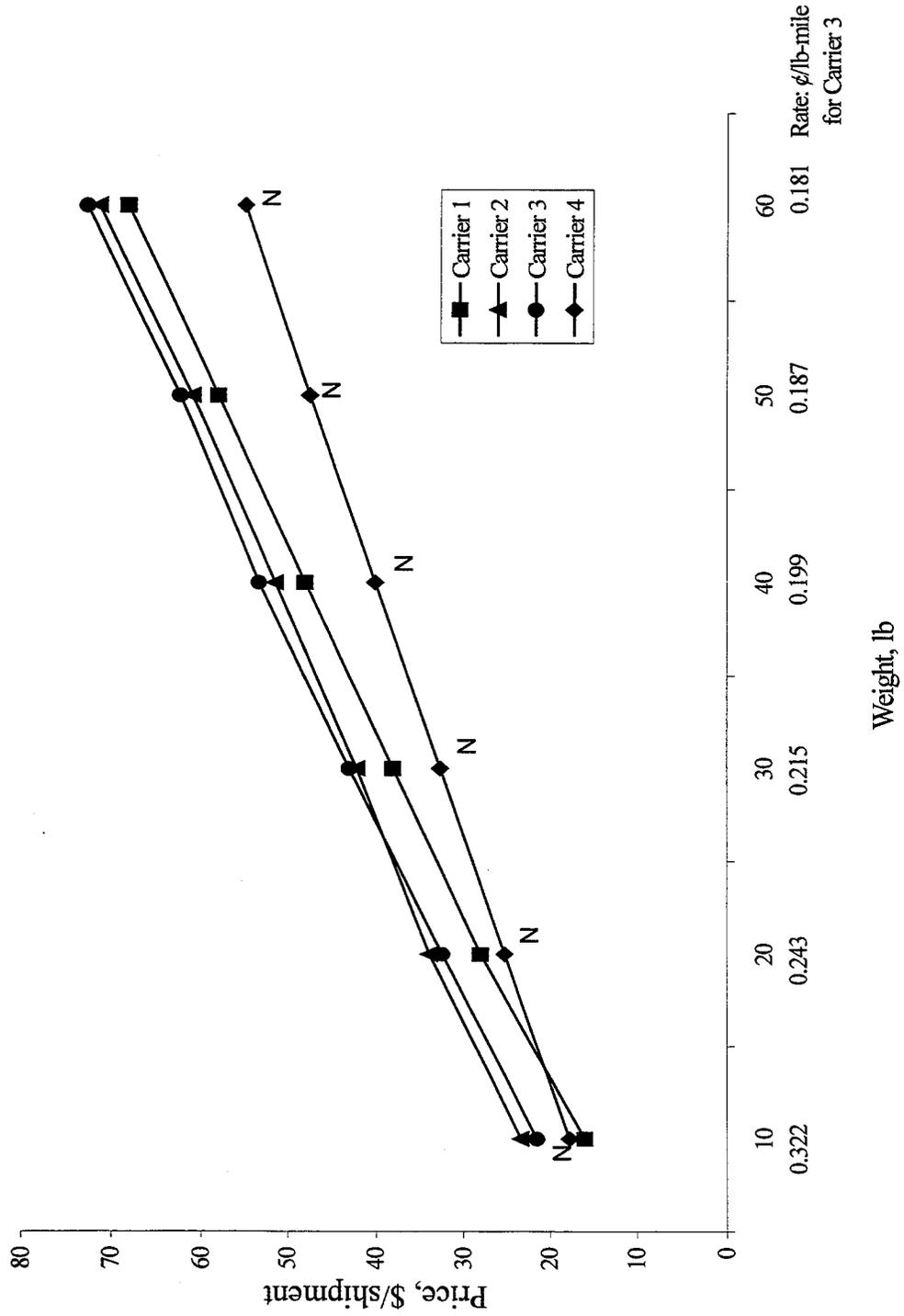
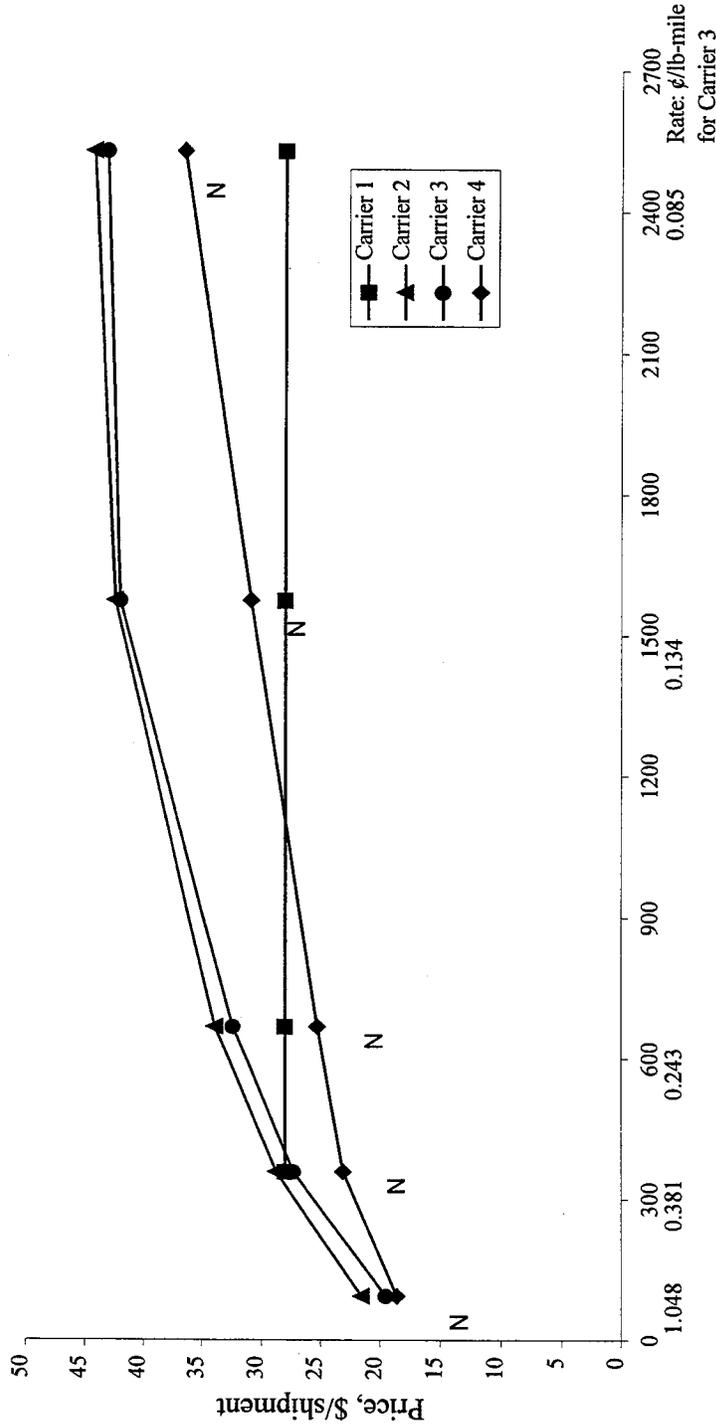


Figure 4. Effect of variations of shipment distance on parcel transport price.

20 lb shipment (box), pick-up from business and delivery to business, with delivery on second day by 5 pm. N indicates delivery time not guaranteed.



Distance, miles  
 Rate: \$/lb-mile for Carrier 3  
 Shipment distances are Great Circle Distances from Philadelphia to Baltimore, Cleveland, Chicago, Denver and San Francisco respectively

is often essential to the customer's business. A good example of this is a repair part for a machine that is on an assembly line. If the machine is not operative, the entire line must be shut down, at a cost of thousands of dollars. The value of the on-time delivery is obviously worth much more than the retail value of the part and the freight charge, in such cases. Absent reliable parcel services, the part probably would have been transported by an employee, flying either on an airline or on a corporate or other private jet.

In addition to the physical movement, many customers regard the *tracking* of shipments—often termed *in-transit visibility*--as essential. A variety of advances in technology have made this possible, including reliable bar-code scanners, the electronic exchange of information, satellite tracking of vehicles, and satellite and cell phone mobile communication technology. The result is that the more advanced parcel carriers offer their customers the option of tracking a shipment from origin to destination. This enables them to gauge the arrival time of the shipment, and to make plans based on that time. And of course if the shipment is likely to be delayed, based on this information, alternate plans to minimize disruption can be made. This was one of the differences between carriers in Figure 2. Carrier 4, which was the cheapest carrier in some cases, does not offer the tracking option, and of course does not offer any data integration of this information with the shipper or addressee of the parcel.

Some parcel carriers also offer many related value-added services that enhance the parcel service and are designed to help their customers improve their business operations that relate to transportation and commerce. These include warehousing and order fulfillment, electronic information exchange (as between shipper and receiver of goods), and the facilitation of financial transactions (a modern version of the old concept of Cash-on-Delivery). These will be discussed in Section 4.

### 3. SIZE OF THE PARCEL SERVICE INDUSTRY

As measured by revenue, the transportation of parcels has been the fastest growing major segment of the freight transportation business in the United States for the past three decades. Since the 1950s, the parcel industry has grown from a small, specialized part of the private-sector transportation business, plus a major U. S. Postal Service (USPS) activity, to a business with revenues in excess of those of most other forms of freight transportation.

#### 3.1. The Big Four Parcel Carriers

The domestic parcel service industry is dominated by four large carriers. These are (with their 1998 domestic revenues in \$ billions): Airborne (\$2.707), Federal Express (\$11.070), UPS (\$20.650), and USPS (\$6.895). The total domestic revenue of these four carriers was \$41.322 billion. We will use these four carriers' revenues for our primary revenue-based measures of the size of the parcel industry, for three reasons. First, these carriers represent at least 90% --most likely closer to 95%--of the industry revenue (these estimates being detailed in Appendix D). Secondly, all of the other carriers appear to be very much smaller than these four, with one exception. That exception is DHL, which may be close to Airborne in domestic revenue, but unfortunately almost no information is available on DHL, as it is privately held. Third, considerable information is available on all four carriers, as the three private firms—Airborne, Federal Express, and UPS—now have publicly traded stock, and the fourth—USPS—is a government agency that publishes much data. Only limited or virtually no time series data is available on the other carriers. And finally, web-based sources for information on the options for shipping parcels provide information on the services of these four carriers and not others, confirming our belief that these are the major domestic carriers. Thus we feel confident in using the revenues and operations of these four carriers as a primary indication of the size of the industry, and we will refer to them as the *Big Four* parcel carriers.

Table 1 places the Big Four's \$41.32 billion revenue into perspective. It is more than the total revenue of all railroads (\$34.64 billion), of all domestic water (inland and coastal) transport (\$ 7.37 billion), of all petroleum pipelines (\$8.78 billion), and of all domestic air cargo operations (\$ 16.91 billion). Only the trucking mode exceeds the parcel industry in this measure—estimates of intercity trucking costs being \$275.86 billion and of local (primarily urban) trucking costs being \$149.2 billion. (Expenditure replaces revenue as the trucking measure because so much of trucking is private—undertaken by the firm owning the goods being transported. In 1997, the last year for which data are available, only about 41% of trucking was for-hire, the remainder was private trucking.) Of course, the nature of parcel carriers, using as they do various modes --primarily air, rail, and truck-- to transport cargo (as discussed in Section 2), means that a considerable fraction of the parcel revenue is included in the modal revenues.

Parcel service thus represents a significant portion of freight transportation in the U. S. Table 2 show how large this is in comparison to the nation's Freight Transport Bill. This Bill includes all domestic transport, plus the cost of imports. This bill was \$527 billion in 1998, of which the Big Four parcel carriers revenue was 7.83%. Ten years ago (1988)

these carriers had revenues less than one-half the current value, and it represented only 5.7% of the Freight Transport Bill. Since 1988 parcel service revenues of the four firms has grown at a compound rate of 8.74 % per year, while our total freight bill has grown by just 5.36% per year. By most measures, parcel service has been growing more rapidly than other parts of the freight transportation industry, reflecting to a large extent changes in the nature of our economy, as will be discussed in more detail in Section 4.<sup>4</sup>

Table 1. Revenues of Big Four parcel carriers compared to revenues of traditional modes in 1997 and 1998.

| <u>Carrier Type</u>                                                                                           | Revenue (\$ billions) |                     |
|---------------------------------------------------------------------------------------------------------------|-----------------------|---------------------|
|                                                                                                               | <u>1997</u>           | <u>1998</u>         |
| Big Four Parcel Carriers<br>(Airborne, Federal Express,<br>United Parcel Service, and<br>U.S. Postal Service) | 37.9 <sup>a</sup>     | 41.3 <sup>a</sup>   |
| Railroads (freight)                                                                                           | 35.35 <sup>b</sup>    | 34.64 <sup>b</sup>  |
| Water (freight)                                                                                               | 7.23 <sup>b</sup>     | 7.37 <sup>b</sup>   |
| Air (freight)                                                                                                 | 16.35 <sup>b</sup>    | 16.91 <sup>b</sup>  |
| Oil Pipelines                                                                                                 | 8.74 <sup>b</sup>     | 8.78 <sup>b</sup>   |
| Trucking                                                                                                      |                       |                     |
| Local                                                                                                         | 143.74 <sup>b</sup>   | 149.20 <sup>b</sup> |
| Intercity                                                                                                     | 257.81 <sup>b</sup>   | 275.86 <sup>b</sup> |
| Total trucking                                                                                                | 401.35                | 425.06              |

Note: 1997 data is included here because 1997 data is the latest available for many aspects of the parcel industry that will be covered later in this report.

<sup>a</sup> Source: Appendix A, Table A1

<sup>b</sup> Source: Eno Transportation Foundation, Inc. (1998). *Transportation in America*, p.40 (The Nation's Freight Bill). Only domestic revenue is included in our table. Supplement to the 16<sup>th</sup> edition, *Transportation Quarterly*, Vol. 53, No.3, Summer 1999, p v.

### 3.2. Growth 1960 to Present

The parcel industry has been becoming more significant in the freight transportation arena for decades. It has emerged in the last thirty plus years from a very small portion of the freight transportation industry to, as we have seen, one of the largest players in that industry. Data tracing this change in position is provided in Table 3, which presents the estimated revenues of parcel carriers from 1960 to the present. Because this table goes

<sup>4</sup> It should be noted that some portion of the parcel industry expenditures (or revenues) is not included in the Nation's Freight Bill. For example, U. S. Postal Service expenditures on parcel sorting facilities and activities are not included. This is undoubtedly at least partly due to the complex relationship between the USPS and the rest of the transportation system. Some parcel service costs or revenues are included by virtue of including truck movement costs and other modal activities. Other USPS expenditures, such as for sorting facilities, include joint activities for regular mail as well as parcels. These combine to make any addition for parcel service difficult.

Table 2. Growth of Big Four parcel carriers revenues and the National Freight Bill, 1988-1998.

\$ Millions

| Year <sup>a</sup> | Big Four<br>Parcel<br>Revenue <sup>b</sup> | National<br>Freight Bill <sup>c</sup> | Ratio of<br>Parcel Revenue<br>to Bill, % |
|-------------------|--------------------------------------------|---------------------------------------|------------------------------------------|
| 1988              | 17,872                                     | 313,040                               | 5.71                                     |
| 1989              | 19,948                                     | 329,103                               | 6.06                                     |
| 1990              | 22,046                                     | 350,831                               | 6.28                                     |
| 1991              | 24,184                                     | 355,215                               | 6.81                                     |
| 1992              | 26,145                                     | 375,093                               | 6.97                                     |
| 1993              | 28,389                                     | 396,306                               | 7.16                                     |
| 1994              | 30,909                                     | 419,904                               | 7.36                                     |
| 1995              | 33,181                                     | 444,452                               | 7.47                                     |
| 1996              | 35,635                                     | 467,510                               | 7.62                                     |
| 1997              | 37,877                                     | 503,491                               | 7.52                                     |
| 1998              | 41,322                                     | 527,659                               | 7.83                                     |
| Growth, %/yr      | 8.74                                       | 5.36                                  | 3.21                                     |

<sup>a</sup> Calendar year.

<sup>b</sup> Includes Airborne, FedEx (including RPS), UPS and USPS only. See Appendix A, Table A1 for data sources and estimation procedures.

<sup>c</sup> Sources: Years 1988-1994: Eno Transportation Foundation, Inc. (1997). Transportation in America: Historical Compendium 1939-1995, p.12-13 (The Nation's Freight Bill); years 1995-1997: Eno Transportation Foundation, Inc. (1999). Transportation in America, p.40-41 (The Nation's Freight Bill). Supplement to the 16<sup>th</sup> edition, *Transportation Quarterly*, Vol. 53, No.3, Summer 1999, p v.

back so far in the past, the data sources and carriers included necessarily change from those used for 1998 and later years (presented in Table 2). In particular, in the early part of this period, the largest parcel carrier other than the U. S. Postal Service (USPS), was a firm that no longer exists, the Railway Express Agency (REA). REA provided door-to-door service much like current parcel companies, as well as drop off locations at many railroad stations. It used truck, rail and air service. In addition, parcel transport was a major adjunct to the intercity bus business, which at that time connected almost all towns in the U. S., and had some type of ticket and parcel agency in many if not most towns. There were two major national bus carriers as well as numerous regional companies, thus providing a national network much like those of present day parcel companies, but the service was primarily station to station. Thus revenues of REA and the bus parcel service are included. Also included are UPS trucking revenue and revenues of airlines that primarily carried small packages (including Federal Express), based on regulatory agency data, as presented in an Eno Transportation Foundation data series. It should be noted that both the UPS and air data series exclude some parcel revenues, based on our analysis of this data series for recent years. Also, some primarily truck-based parcel services are

clearly omitted. But these are the only data available for such a long span of years, and thus they are used. For these reasons, we refer to the pre-1988 data series in Table 3 as *approximate parcel service industry revenue*, thereby emphasizing its limitations.

Table 3. Parcel service industry revenue, 1960-1998.

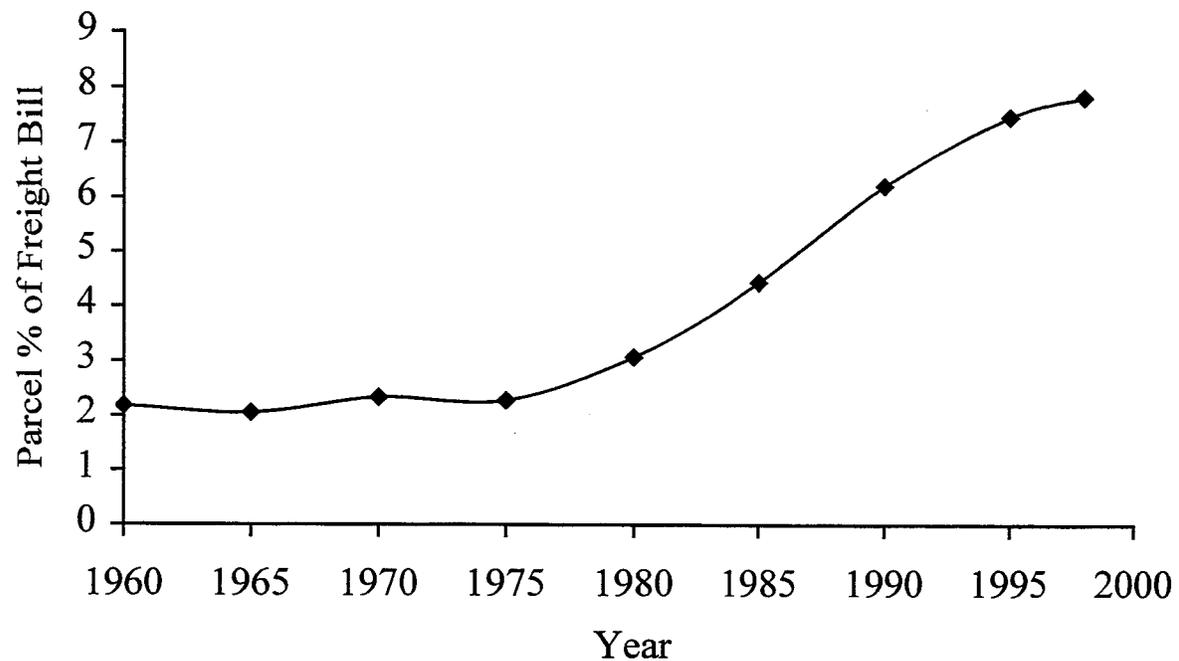
| \$ Millions |                                    |                                           |                                           |
|-------------|------------------------------------|-------------------------------------------|-------------------------------------------|
| <u>Year</u> | <u>Parcel Revenue</u> <sup>a</sup> | <u>National Freight Bill</u> <sup>b</sup> | <u>Ratio of Parcel Revenue to Bill, %</u> |
| 1960        | 1,042                              | 47,767                                    | 2.18                                      |
| 1965        | 1,328                              | 64,931                                    | 2.05                                      |
| 1970        | 1,958                              | 83,978                                    | 2.33                                      |
| 1975        | 2,645                              | 115,839                                   | 2.28                                      |
| 1980        | 6,567                              | 213,736                                   | 3.07                                      |
| 1985        | 12,139                             | 273,612                                   | 4.44                                      |
| 1990        | 21,833                             | 350,949                                   | 6.22                                      |
| 1995        | 33,181                             | 444,452                                   | 7.46                                      |
| 1998        | 41,332                             | 527,659                                   | 7.83                                      |

<sup>a</sup> Source: To 1985, Appendix C, Table C1; 1990 and later, Table 2.

<sup>b</sup> Source: Eno Transportation Foundation, Inc. (1997). Transportation in America: Historical Compendium 1939-1995; 1990 and later, Table 2.

Figure 5 plots parcel service revenue as a percentage of the National Freight Bill, from 1960 to 1998, using the approximate data series for years prior to 1990, and our data on the Big Four for 1990 and later (the percentage in 1990 is almost identical in both series). This figure reveals that parcel service grew from only 2.18 % of the nation's Freight Bill in 1960 to over 7 % by 1995. The rapid growth of the parcel "share" since 1980 is especially striking.

Figure 5. Parcel service industry revenues as a percentage of U.S. National Freight Bill, 1960-1995.



Source: Table 3.

Table 4 compares the parcel industry's revenue over this period with the freight revenue of all the major (traditional) modes of transportation. In 1960 the parcel revenue of \$1,042 billion was less than the revenue of any of the major modes except air. According to these estimates, the parcel industry surpassed the domestic water transport industry in revenues by 1985, and by 1998 exceeded railroad freight revenues. These data clearly show the emergence of parcel service as a major component of the transportation industry in the last three decades.

Table 4 also presents the growth rates of the various components of transportation over the 1960-1995 period. Parcel growth at over 10 % per year exceeded the growth rate of all the traditional modes of transportation in this period, except for air. Of course, parcel service is a major user of air transport, so its growth is necessarily reflected in the air data.

Figure 6 presents these same data. It is included here because it very forcefully portrays the growth of the parcel industry.

Table 4. Approximate parcel service revenue compared to traditional mode revenues, 1960-1998.

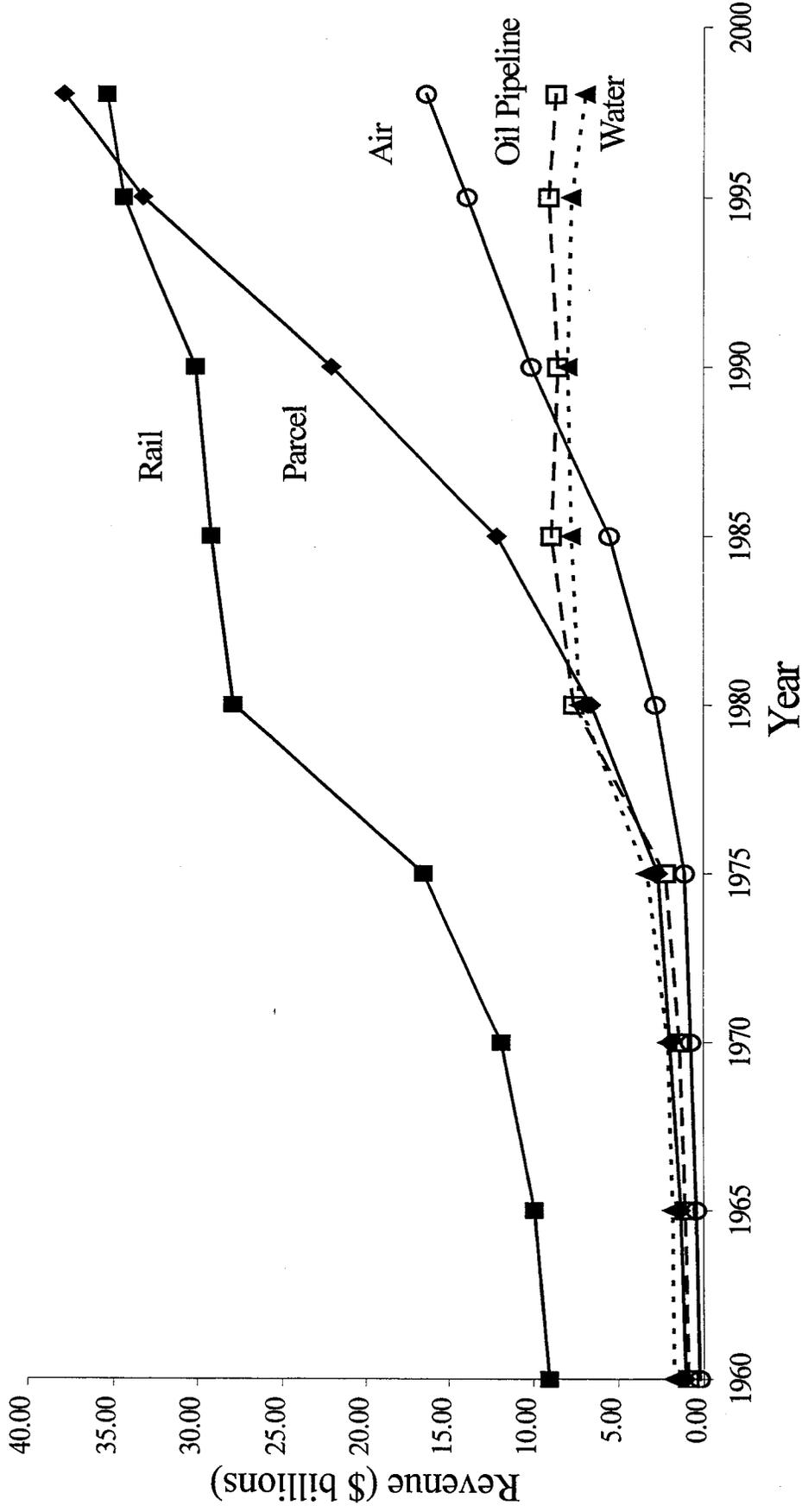
| Year              | \$ Millions         |                    |                    |                  |                                 |                     |
|-------------------|---------------------|--------------------|--------------------|------------------|---------------------------------|---------------------|
|                   | Parcel <sup>a</sup> | Rail <sup>b</sup>  | Water <sup>b</sup> | Air <sup>b</sup> | Truck Expenditures <sup>b</sup> |                     |
|                   |                     |                    |                    |                  | Local                           | Intercity           |
| 1960              | 1,042               | 9,028              | 1,722              | 220              | 14,289                          | 17,958              |
| 1965              | 1,328               | 9,923 <sup>c</sup> | 1,822 <sup>c</sup> | 428 <sup>c</sup> | 23,779 <sup>c</sup>             | 23,628 <sup>c</sup> |
| 1970              | 1,958               | 11,869             | 2,070              | 720              | 28,819                          | 33,553              |
| 1975              | 2,645               | 16,509             | 3,293              | 1,073            | 37,287                          | 47,400              |
| 1980              | 6,567               | 27,858             | 7,219              | 2,802            | 60,545                          | 94,551              |
| 1985              | 12,139              | 29,150             | 7,703              | 5,498            | 82,200                          | 123,200             |
| 1990              | 22,046              | 30,067             | 7,940              | 10,100           | 108,350                         | 162,300             |
| 1995              | 33,181              | 34,343             | 7,712              | 13,897           | 128,352                         | 219,627             |
| 1998              | 41,332              | 35,350             | 7,700              | 16,340           | 143,740                         | 257,810             |
| Growth Rate, %/yr | 10.17               | 3.66               | 4.02               | 12.00            | 6.26                            | 7.26                |

<sup>a</sup> Source: To 1985, Appendix C, Table C1; 1990 and later, Table 2.

<sup>b</sup> Source: Years 1960-1997 except 1965: Eno Transportation Foundation, Inc. (1998). *Transportation in America*, p.40 (The Nation's Freight Bill) (Only revenues from domestic transportation are included.). 1998: Eno Transportation Foundation, Inc. (1999). *Transportation in America*. Supplement to the 16<sup>th</sup> edition, *Transportation Quarterly*, Vol. 53, No. 3, Summer 1999.

<sup>c</sup> Source: Year 1965: Eno Transportation Foundation, Inc. (1997). *Transportation in America: Historical Compendium 1939-1995*, p.10 (The Nation's Freight Bill).

Figure 6. Parcel service industry revenue compared to traditional mode revenues, 1960-1998.



Source: Table 4.

### 3.3. International Revenues

So far we have focused on domestic transportation, and this is the focus of this report. However, it is interesting to look briefly at the international scene as well. To accomplish this, we will examine the international revenues of the Big Four parcel carriers. While these firms are all major players in international parcel transportation, there are many other major players as well, such as DHL and TNT. Thus their international revenue is not an indicator of the overall size of the U. S. international parcel business. Table 5 compares their revenues with the total revenues from international air and water freight service, i. e., the transportation of imports and exports. Table 5 presents the growth from 1988 to 1997. The Big Four revenue alone grew at the very rapid pace of 13.21% per year, slightly more rapidly than air freight expenditures and much more rapidly than water transport expenditures. Thus parcel service is not only growing in importance, but is also growing in relative importance, by this measure, compared to the traditional modes in international transportation as well.

Table 5. Growth of Big Four parcel international service revenues and traditional modal international movement expenditures, 1988-1997

|                                                  | Revenue or Expenditures |                    | Growth Rate,<br>% |
|--------------------------------------------------|-------------------------|--------------------|-------------------|
|                                                  | <u>1988</u>             | <u>1997</u>        |                   |
| Parcel (Big Four domestic carriers) <sup>a</sup> | 2462                    | 7523               | +13.21            |
| Air                                              | 2373 <sup>b</sup>       | 6327 <sup>c</sup>  | +11.51            |
| Water – Imports                                  | 12220 <sup>b</sup>      | 17664 <sup>c</sup> | +4.18             |
| Exports                                          | 10823 <sup>d</sup>      | 11773 <sup>c</sup> | +0.93             |
| Total                                            | 23043                   | 29437              | +3.54             |

<sup>a</sup> Source: Appendix B, Table B1

<sup>b</sup> Source: Eno Transportation Foundation, Inc. (1997). Transportation in America: Historical Compendium 1939-1995, p.12.

<sup>c</sup> Source: Eno Transportation Foundation, Inc. (1998). Transportation in America, p.40 (The Nation's Freight Bill).

<sup>d</sup> Source: Interpolated from 1985 and 1990 data in source c.

#### 4. IMPORTANCE OF PARCEL SERVICE TO THE ECONOMY

Another way to look at the role of parcel service in the economy is to examine its role in the movement of goods. The revenue numbers already presented provide one measure of this, for presumably the value to the society derived from the movement of parcels must be larger than the amount spent on it, or else the movement would not have occurred. But the value can be much larger, so it is important to seek other measures.

##### 4.1. Value and Quantity of Parcel Shipments

One of these is the amount of goods transported by parcel carriers. Data on this is available from the three relatively comprehensive surveys of the flows of goods over the transportation system of the U. S. One such survey was conducted in 1977, a second more comprehensive one in 1993, and a more limited one in 1997. While there are important differences between them in scope and adequacy of the sample, overall these provide a unique snapshot of transportation activity with respect to the goods shipped and the forms of transport used. These differences are described in Appendix D. In particular, it should be noted that the 1977 survey focused on manufacturers, while the later surveys also included warehousing firms selling through catalogs, and some other sectors. Thus the 1977 survey was not as complete as the latter two. None included some sectors of the economy, such as agriculture, but these are probably not significant for parcel service.

Table 6 presents information on the overall amount of goods shipped and the fraction that was shipped by parcel carriers. Three measures are used in the survey and presented here: value of goods shipped, tons of goods shipped and ton-miles of goods shipped. Not surprisingly, parcel service figures more prominently in terms of value of the shipments, rather than weight or distance. This follows from the definition of small shipments, and the fact that parcel service is typically used for high value items. In terms of value of goods shipped, the parcel service share of all shipments grew from 3.12% in 1977 to 12.3% in 1997, a growth rate in market share of 7.11% per year. These parcel shipments, however, represented less than 1% of both tons shipped and of ton-miles in 1977, and still represented less than 1% by both measures in 1997. Parcel service grew considerably over this period. Over this twenty year period parcel traffic growth rates were approximately double those for all shipments for all three measures-- value, tons and ton-miles--as shown in the table.

Table 7 provides some interpretation of these numbers, comparing the value of shipments via parcel service with the value of shipments via the traditional modes of transport. In 1977 the parcel share of shipment value was less than that for rail, truck, and pipeline, but it exceeded slightly that of water transport and that of air transport. But by 1993 the value of parcel shipments exceeded the value of shipments via all other modes--rail, water, pipeline, and air-- except truck. This position was of course reinforced by the year 1997. By 1997 the value of parcel shipments not only exceeded the value of goods shipped via all single modes identified, except truck, but also exceeded the value of goods shipped by all the listed multiple modes combined (rail and truck, water and truck, air and truck, water and rail, and others not identified). Of course, parcel service is inherently intermodal, with much occurring via air or rail for the line haul, and truck as feeder. Figure 7 presents these results graphically, for all modes except truck.

Table 6. Parcel service share of freight movements based on Commodity Flow Surveys of 1977, 1993, and 1997.

|                               | Year      |           |            | Growth, % per year |         |
|-------------------------------|-----------|-----------|------------|--------------------|---------|
|                               | 1977      | 1993      | 1997       | 1977-97            | 1993-97 |
| Value Originated (\$ Million) |           |           |            |                    |         |
| All transport                 | 1,343,174 | 5,846,334 | 6,943,988  | 8.56               | 4.40    |
| Parcel                        | 41,853    | 563,277   | 855,897    | 16.29              | 11.03   |
| %                             | 3.12      | 9.63      | 12.33      | 7.11               | 6.37    |
| Tons Originated (Thousands)   |           |           |            |                    |         |
| All transport                 | 3,311,992 | 9,688,493 | 11,089,733 | 6.23               | 3.43    |
| Parcel                        | 2,615     | 18,892    | 23,689     | 11.65              | 5.82    |
| %                             | 0.08      | 0.19      | 0.21       | 4.94               | 2.53    |
| Ton-Miles (Millions)          |           |           |            |                    |         |
| All transport                 | 758,984   | 2,420,915 | 2,661,363  | 6.47               | 2.40    |
| Parcel                        | 1,497     | 13,151    | 17,994     | 13.24              | 8.15    |
| %                             | 0.20      | 0.54      | 0.68       | 6.31               | 5.93    |

Sources: U.S. Department of Commerce, Bureau of the Census, (1981). 1977 Economic Census, Transportation-Commodity Transportation Survey, Table 2 Shipment Characteristics by Manufacturing Establishments—Commodities and Means of Transportation, Communications, and Utilities (U.S. Government Printing Office, Washington D.C.).

U.S. Department of Commerce, Bureau of the Census, (1993). 1992 Census of Transportation, Communications, and Utilities, 1993 Commodity Flow Survey, Table 6b Shipment Characteristics by Three-Digit Commodity and Mode of Transportation for the United States: 1993 (U.S. Government Printing Office, Washington D.C.), Diskette.

U.S. Department of Commerce, Bureau of the Census, (1999). 1997 Economic Census, Transportation-1997 Commodity Flow Survey, Table 7 Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for the United States: 1997 (U.S. Government Printing Office, Washington D.C.), Diskette.

Table 7. Value of shipments via parcel service compared to traditional modes in Commodity Flow Surveys of 1977, 1993, and 1997. (Million Dollars)

| Transportation Mode   | Year    |           |           | Growth, % per year |         |
|-----------------------|---------|-----------|-----------|--------------------|---------|
|                       | 1977    | 1993      | 1997      | 1977-97            | 1993-97 |
| Rail (1)              | 229,241 | 330,476   | 395,324   | 2.76               | 4.58    |
| Truck (2)             | 885,957 | 4,403,495 | 4,981,531 | 9.02               | 3.13    |
| Air (3)               | 30,583  | 139,087   | 229,062   | 10.59              | 13.28   |
| Water (4)             | 34,818  | 77,105    | 85,852    | 4.62               | 2.72    |
| Pipeline (5)          | 50,374  | 90,198    | 113,497   | 4.15               | 5.91    |
| Parcel Delivery       | 41,853  | 563,277   | 855,897   | 16.29              | 11.03   |
| Other and Unknown (6) | 70,348  | 242,691   | 282,824   | 7.20               | 3.90    |

Sources: Same as Table 6.

(1) 1993 & 1997 – Includes: Rail, and Truck and Rail survey categories.

(2) 1977 – Includes: Motor Carrier, and Private Truck survey categories.

1993 – Includes: Private Truck, For-hire truck, and Private Truck and For-hire Truck survey categories.

1997 – Includes: Truck (For-hire, and Private Truck)

(3) 1993 – Includes: Air, and Truck and Air survey categories.

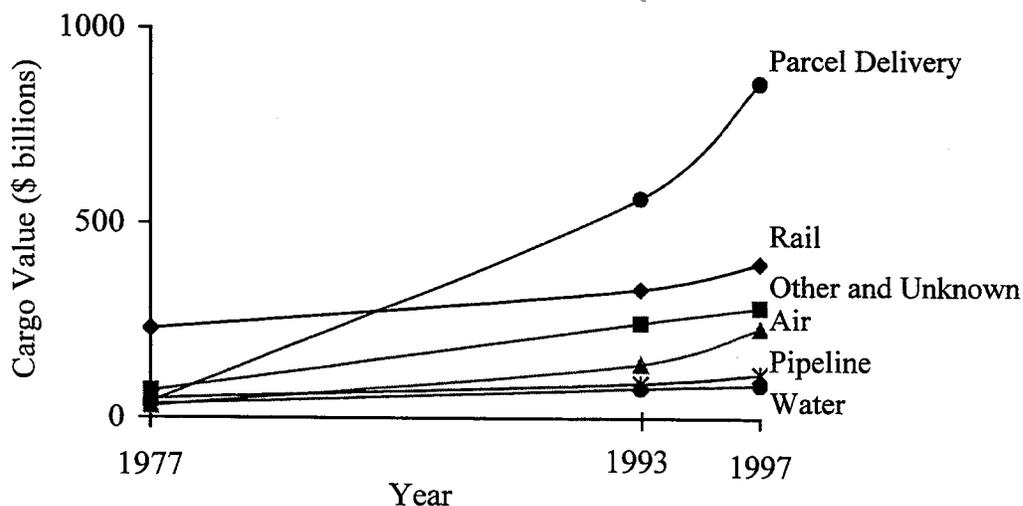
(4) 1993 – Includes: Inland Water, Great Lakes, Deep Sea Water, Truck and Water, Rail and Water, Inland Water and Great Lakes, and Inland Water and Deep Sea Water survey categories

1997 – Includes: Water (Shallow Draft, Great Lakes, and Deep Draft), Truck and Water, and Rail and Water.

(5) 1993 – Includes: Pipeline, and Truck and Pipeline survey categories.

(6) 1997 – Includes: Other multiple modes, and Other and Unknown survey categories.

Figure 7. Value of shipments via parcel service compared to traditional modes in Commodity Flow Surveys, 1977 to 1997.

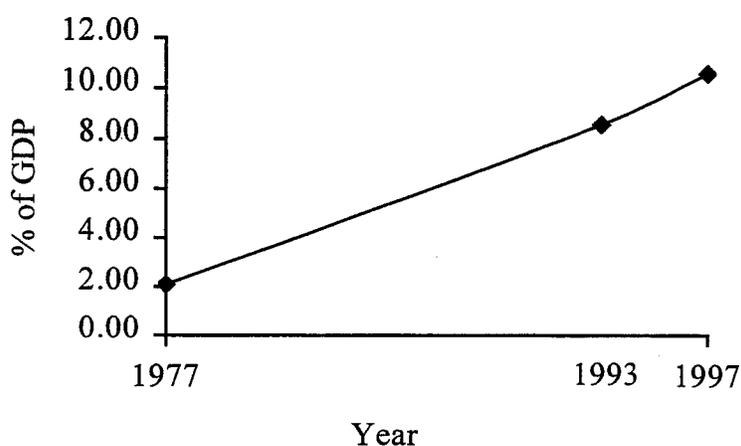


Source: Table 7.

It is also interesting to note that cargo tons originated by parcel carriers, and the ton-miles carried by parcel companies, are larger than those of the air freight mode (including the air and truck mode). In the 1997 survey, parcel ton-miles were about 18.0 billion, while air freight was about 6.2 billion.

Further evidence of the growing importance of parcel transportation to the economy is presented in Figure 8. This figure shows the growth of the value of parcel shipments as a percentage of Gross Domestic Product (GDP) for the three years covered by the CTS. The parcel percentage of GDP has grown steadily from 210% in 1977 to 8.58% in 1993 and then 10.56% in 1997.

Figure 8. Value of parcel service shipments compared to Gross Domestic Product, 1977, 1993 and 1997.



Sources: Value: Table 6; GDP: Congressional Information Service (1998). "GDP in Current and Real (1992) Dollars: 1960 to 1997," No. 715. In *Statistical Abstract of the United States*, 1998. Available from: *Statistical Universe* (Online Service, <http://web.lexis-nexis.com/statuniv> on 03/21/2000). Bethesda, MD: Congressional Information Service.

#### 4.2. Characteristics of Parcel Shipments

Having established the overall share of parcel service in moving freight, it is also instructive to look at the nature of what is carried by parcel service and its role relative to other forms of transport. The two most recent commodity flow surveys, in 1993 and 1997, provide sufficient data for this, while the earlier survey (1977) does not (the smallest category of shipment weight in that survey being 500 lbs.).

Table 8 presents the breakdown of parcel traffic by weight of shipment, in 1997. Looking first at value of shipments, shipments that were in the smallest weight category, less than 50 lb., were a very substantial fraction of all parcel shipments—65.0%. This percentage consistently dropped as shipment size (weight) increased, as might be expected, with almost all parcel service shipments being less than 500 lb. Tons and ton-miles show the same pattern, but the percentage represented

by the smallest size category (less than 50 lb.) is less in both cases. What is noteworthy is that parcel carriers are used for many shipments that are quite large—much larger than typically would be thought of as a parcel. Thus parcel carriers are now providing a more general transportation service than just the movement of very small shipments, and carry a substantial quantity of shipments larger than 100 lb. (It should be noted that the 1993 survey yields very similar results; these can be found in Appendix Table D1. In general, there has been a slight increase in the percentage of shipments via parcel service in weight classes larger than the under 50 lb. category.)

Table 8. Parcel Shipment Value, Tons, and Ton-miles by Shipment Size in 1997

| Shipment Size        | Value<br>(Mil \$) | Value<br>% | Tons<br>(1,000) | Tons<br>% | Ton-<br>Miles<br>(Mil) | Ton-<br>Miles<br>% | Average<br>Miles<br>Per<br>Shipment |
|----------------------|-------------------|------------|-----------------|-----------|------------------------|--------------------|-------------------------------------|
| All Weight Classes   | 855,897           | 100.0%     | 23,689          | 100.0%    | 17,994                 | 100.0%             | 813                                 |
| Less than 50 lb.     | 556,167           | 65.0%      | 10,321          | 43.6%     | 8,260                  | 45.9%              | 819                                 |
| 50 to 99 lb.         | 114,589           | 13.4%      | 3,988           | 16.8%     | 2,916                  | 16.2%              | 729                                 |
| 100 to 499 lb.       | 155,966           | 18.2%      | 7,265           | 30.7%     | 5,224                  | 29.0%              | 723                                 |
| 500 to 749 lb.       | 19,377            | 2.3%       | 1,168           | 4.9%      | 834                    | 4.6%               | 706                                 |
| 750 to 999 lb.       | 9,258             | 1.1%       | 791             | 3.3%      | 608                    | 3.4%               | 760                                 |
| 1,000 to 9,999 lb.   | 1,383             | 0.2%       | 157             | 0.7%      | S                      | S                  | 970                                 |
| 10,000 to 49,999 lb. | -                 | -          | -               | -         | -                      | -                  | -                                   |
| 50,000 to 99,999 lb. | -                 | -          | -               | -         | -                      | -                  | -                                   |
| 100,000 lb. or more  | -                 | -          | -               | -         | -                      | -                  | -                                   |

Source: U.S. Department of Commerce, Bureau of the Census, (1999). 1997 Economic Census, Transportation-1997 Commodity Flow Survey, Table 4. Shipment Characteristics by Mode of Transportation and Shipment Size for the United States: 1997 (U.S. Government Printing Office, Washington D.C.), Diskette.

Notes:

- Represents data equal to zero or less than one unit of measure

S Data does not meet publication standards because of high sampling variability or other reasons.

Another way of looking at the role of parcel service is to examine its share of the overall transport market for shipments of different sizes. Figure 9 shows the share of shipments by value using parcel service and other modes in 1997. Parcel's share in the smallest weight category is the largest, at 65.17%, but this drops with increasing weight to 4.91% in the 750 to 999 lb. category (the largest weight for which shipments were recorded as moving via parcel service). Truck service has an increasing share of cargo as weight increases. Air exhibits the same reduction of market share with increasing weight as parcel, albeit with much smaller market share.

Figure 9. Parcel service industry's share of U.S. freight market by shipment weight in 1997  
Source: Table 9.

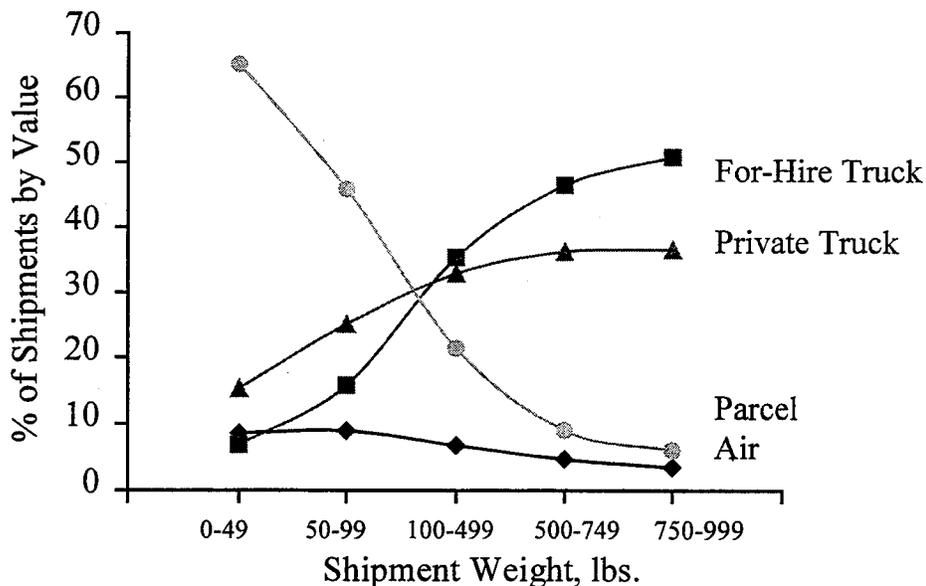


Table 9 provides more detail on market shares, and compares 1997 with 1993 data. It is interesting to note that parcel's percentage of all such shipments in the smallest weight category, less than 50 lbs., increased from 63.35% by value in 1993 to 65.16% in 1997. Its percentage share of tons and ton-miles in the under 50 lbs. category also increased over this period, as can be seen in Part b of the table. Furthermore, parcel's share of shipments in all size categories in which it had any cargo (up to the 750 to 999 lbs. category) increased from 1993 to 1997, for all three measures—value, tons, and ton-miles. This is of course consistent with the prior data on parcel service's increasing share of the national freight market based on revenue.

What is most surprising in Table 9, however, is the significant share that parcel carriers now have of larger size shipments. Clearly they are not only carrying what is traditionally thought of as parcel-sized shipments, but are also carrying an increasing percentage of the larger shipments that would be thought of as less-than-truckload shipments. We conjecture that this reflects shippers' preferences for the quality features of the parcel carriers' service. These features include both transportation services and related logistics services that facilitate the smooth and efficient flow of commerce. In terms of transportation, it includes offering: speed and transit time options (including faster service than land carriers over long distances), guaranteed time-definite deliveries, shipment tracking, and substantial price reductions for the slower services that shippers can trade off with inventory costs and customer response times. The value-added services include, as we discussed earlier, integration of the transportation data networks (EDI and Internet-based) with those of the shippers and receivers, allowing for smooth and almost instantaneous flow of information, integration of transportation with warehousing and order fulfillment, and integration with the flow of funds, both nationally and

Table 9. Parcel carriers' share of freight market by shipment weight in 1993 and 1997

| a. Share based on value. |        | Percent of Value via |                           |                |  |
|--------------------------|--------|----------------------|---------------------------|----------------|--|
| Weight Range             | Parcel | Private Truck        | Air (Including Air&Truck) | For-Hire Truck |  |
| Less than 50 lb.         |        |                      |                           |                |  |
| -1993                    | 63.35% | 17.07%               | 8.59%                     | 7.12%          |  |
| -1997                    | 65.16% | 15.24%               | 8.58%                     | 6.84%          |  |
| 50 to 99 lb.             |        |                      |                           |                |  |
| -1993                    | 42.31% | 27.82%               | 0.29%                     | 16.58%         |  |
| -1997                    | 45.86% | 25.06%               | 8.96%                     | 15.76%         |  |
| 100 to 499 lb.           |        |                      |                           |                |  |
| -1993                    | 15.95% | 33.02%               | 0.22%                     | 40.63%         |  |
| -1997                    | 21.37% | 32.89%               | 6.70%                     | 35.37%         |  |
| 500 to 749 lb.           |        |                      |                           |                |  |
| -1993                    | 4.73%  | 35.74%               | 0.06%                     | 51.92%         |  |
| -1997                    | 8.99%  | 36.31%               | 4.63%                     | 46.45%         |  |
| 750 to 999 lb.           |        |                      |                           |                |  |
| -1993                    | 4.91%  | 33.33%               | 0.11%                     | 52.79%         |  |
| -1997                    | 6.00%  | 36.62%               | 3.42%                     | 50.88%         |  |

| b. Share based on tons and ton-miles. |        | Percent of Tons and Ton-miles via |               |           |                               |           |                |           |
|---------------------------------------|--------|-----------------------------------|---------------|-----------|-------------------------------|-----------|----------------|-----------|
| Weight Range                          | Parcel |                                   | Private Truck |           | Air (Including Air and Truck) |           | For-Hire Truck |           |
|                                       | Tons   | Ton-Miles                         | Tons          | Ton-Miles | Tons                          | Ton-Miles | Tons           | Ton-Miles |
| Less than 50 lb.                      |        |                                   |               |           |                               |           |                |           |
| -1993                                 | 43.05  | 77.65                             | 40.63         | 4.01      | 2.50                          | 9.95      | 7.89           | 6.73      |
| -1997                                 | 48.36  | 83.07                             | 37.89         | 3.63      | 1.62                          | 4.95      | 6.55           | 7.12      |
| 50 to 99 lb.                          |        |                                   |               |           |                               |           |                |           |
| -1993                                 | 25.26  | 60.02                             | 57.98         | 9.58      | 0.04                          | 0.20      | 11.21          | 19.33     |
| -1997                                 | 28.08  | 65.53                             | 54.60         | 8.97      | 1.15                          | 5.51      | 10.06          | 18.09     |
| 100 to 499 lb.                        |        |                                   |               |           |                               |           |                |           |
| -1993                                 | 6.67   | 20.33                             | 68.53         | 16.95     | S                             | 0.28      | 20.78          | 53.85     |
| -1997                                 | 8.93   | 27.07                             | 66.42         | 16.57     | 0.78                          | 4.75      | 19.16          | 49.46     |
| 500 to 749 lb.                        |        |                                   |               |           |                               |           |                |           |
| -1993                                 | 2.50   | 8.48                              | 70.21         | 19.51     | 0.01                          | 0.11      | 24.35          | 64.78     |
| -1997                                 | 3.12   | 10.02                             | 69.71         | 19.35     | 0.54                          | 3.34      | 22.66          | 64.19     |
| 750 to 999 lb.                        |        |                                   |               |           |                               |           |                |           |
| -1993                                 | 1.42   | 5.38                              | 71.41         | 21.57     | 0.01                          | 0.05      | 23.99          | 67.51     |
| -1997                                 | 2.58   | 9.12                              | 70.22         | 21.38     | 0.38                          | 2.09      | 23.10          | 65.04     |

Source: Appendix D, Table D2.

internationally. (These value-added services will be discussed more fully in Section 5.) Clearly the parcel carriers have been at the vanguard of offering shippers service (and price) packages that they want and use.

Table 9 also reveals the general pattern that the parcel service's share of shipments drops as shipment size increases, as might be expected. For example, in 1997 parcel's share of value for the 50 to 99 lb. category was 45.86%, compared to 65.16% for the smaller size category. It further drops to 21.37% for the 100 to 499 lbs. category. Three other modes identified in the survey are important carriers of shipments in the ranges carried by parcel carriers. These are private truck, air (including the mode air and truck), and for-hire truck. As can be seen from this table, the market share of these modes increases with increasing shipment weight. At 1000 lb. and above, parcel carriers have no share according to the 1997 survey.

A further tabulation reveals that shippers are choosing parcel carriers primarily for higher value shipments and for longer distance transport. This is shown in Table 10, which lists average shipment value per ton and the average length of haul for parcel and the three other modes used for virtually all shipments in these weight categories in 1997. Compared to trucking, which is the most widely used other mode, the data suggest that parcel service is used for longer distance shipments and for shipments of higher value commodities. Parcel carriers have an average haul in the range of 700 to 820 miles, and private trucking, the most widely used alternative mode, has an average haul of less than 70 miles—essentially a local movement. For-hire truckers are probably mostly less-than-truckload-lot carriers, and the average haul length is much larger for these, but still somewhat less than that for parcel shipments. Air is not heavily used, but has the longest average haul, as might be expected. In terms of value of cargo, air has by far the highest average value, but parcel is next in value in the range of \$50,000 per ton for the smallest size shipments, dropping to about \$11,000 per ton for the largest weight category. The two truck modes handle lower value shipments in general, although at the higher shipment weight categories, for hire trucking has a value almost equal to that of parcel.

Table 10. Average shipment value per ton and average haul by shipment size and mode in 1997

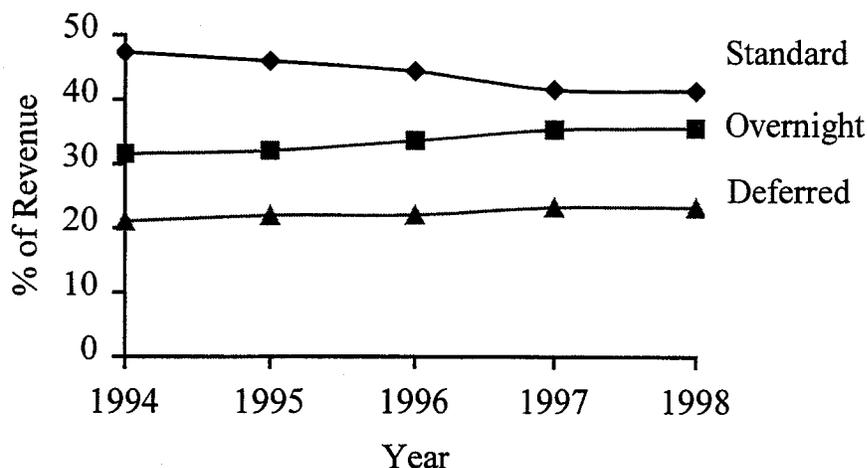
| <u>Weight Range</u>       | <u>Parcel</u> | <u>Private Truck</u> | <u>Air (Including Air and Truck)</u> | <u>For-Hire Truck</u> |
|---------------------------|---------------|----------------------|--------------------------------------|-----------------------|
| Less than 50 lb.          |               |                      |                                      |                       |
| Avg. Value, \$(1,000)/ton | 53.86         | 16.07                | 211.54                               | 41.71                 |
| Avg. Haul, miles          | 819           | 45                   | 1,367                                | 500                   |
| 50 to 99 lb.              |               |                      |                                      |                       |
| Avg. Value, \$(1,000)/ton | 28.70         | 8.07                 | 136.32                               | 27.53                 |
| Avg. Haul, miles          | 729           | 51                   | 1,498                                | 552                   |
| 100 to 499 lb.            |               |                      |                                      |                       |
| Avg. Value, \$(1,000)/ton | 21.17         | 4.38                 | 75.73                                | 16.34                 |
| Avg. Haul, miles          | 723           | 57                   | 1,456                                | 609                   |
| 500 to 749 lb.            |               |                      |                                      |                       |
| Avg. Value, \$(1,000)/ton | 16.23         | 2.93                 | 48.12                                | 11.53                 |
| Avg. Haul, miles          | 706           | 63                   | 1,409                                | 640                   |
| 750 to 999 lb.            |               |                      |                                      |                       |
| Avg. Value, \$(1,000)/ton | 11.03         | 2.48                 | 42.29                                | 10.47                 |
| Avg. Haul, miles          | 760           | 68                   | 1,225                                | 629                   |

Source: Appendix D, Table D1.

Note: Average Value per Ton was found by dividing the Value by Tons for each mode of transportation within each weight class.

Additional insight into this is provided by the trends in revenues of parcel carriers for the different service classes that they provide. Broadly speaking, there is the traditional ground service, which is the slowest but the cheapest. The second is the overnight service, which is considerably more expensive. And the third is deferred service, which provides for delivery in two or three days, with a guarantee like the overnight service, and which is priced between the two others. Figure 10 shows the trends of revenues from each of these service classes for the Big Four carriers in the last five years. (Only five years are included because earlier data for UPS are unavailable.) While standard service revenue has been growing, its share of revenues is declining. Overnight service has increased in share the most, representing over one-third of revenues in 1998, and deferred service has also been increasing in share slightly. Thus shippers are choosing faster services and ones which offer guarantees of delivery. It should be noted that both FedEx Ground (formerly RPS) and UPS have added a delivery guarantee to their ground service, for shipments that are delivered to business customers, reinforcing the apparent importance of delivery guarantees.

Figure 10. Share of Big Four parcel revenues from overnight, deferred and standard service, 1994-1998.



<sup>a</sup> Source: Appendix A, Table A1. Data includes revenues of Big Four parcel carriers.

Thus these data reinforce what was stated earlier about the role of parcel carriers. The high value of parcel shipments and the long average haul length suggest that parcel is being chosen for its level of service and value-added logistics features, in preference to other modes, trucking in particular.

#### 4.3. What commodities move via parcel service?

The commodity flow surveys also permit an examination of which commodities are shipped via parcel service, and thus by implication which types of industries and services are dependent on parcel service. While it is surely true that virtually all businesses and families in the U.S. depend to some extent on parcel service, there undoubtedly are variations in the degree of direct dependence. One might imagine, for example, that the growth of parcel service usage reflects, at least to some extent, growth in types of businesses and activities that naturally use small shipments of high value or time sensitive items. These data shed some light on this.

As we have seen, in 1997 12.3% of all goods transported moved via parcel carriers, as measured by shipment value. One approach to looking at unusual dependence on parcel service is to identify those commodities, out of a total of 42 commodities (at the two digit Standard Classification of Transportation Goods--SCTG--code level) for which more than this percentage of their value transported was via parcel carriers. These nine commodities are listed in Table 11. Also listed there are three additional commodities, for which the total value of cargo transported via parcel service in 1997 was quite large (indicated by an asterisk after the commodity name). These twelve commodities represented 94.9 % of the value of all commodities moved by parcel carrier in the 1997 survey.

Table 11. Commodities with large percentages of shipments via parcel service, and growth, 1977-1997.

| Commodity (SCTG Code)                                                        | % Shipment Value<br>via Parcel |       |       | % Growth Of<br>Shipment Value Via<br>All Modes |         |
|------------------------------------------------------------------------------|--------------------------------|-------|-------|------------------------------------------------|---------|
|                                                                              | 1977                           | 1993  | 1997  | 1977-97                                        | 1993-97 |
| Pharmaceutical Products (21)                                                 | 8.24                           | 16.41 | 32.59 | 15.13                                          | 8.25    |
| Chemical Products And Preparations,<br>N.E.C.* (21)                          | 1.30                           | 5.39  | 7.89  | 8.73                                           | 3.18    |
| Plastics and Rubber* (24)                                                    | 1.28                           | 6.18  | 8.37  | 7.90                                           | 3.43    |
| Printed Products (29)                                                        | 11.19                          | **    | 23.77 | 8.62                                           | **      |
| Textiles, Leather, and Articles of<br>Textiles or Leather (30)               | 9.85                           | 13.39 | 17.81 | 7.49                                           | -3.87   |
| Articles of Base Metal (33)                                                  | 1.56                           | 12.66 | 16.35 | 1.02                                           | -8.51   |
| Machinery (34)                                                               | 4.47                           | 16.86 | 13.21 | 6.30                                           | 9.53    |
| Electronic, Other Electrical, and<br>Office Equipment and<br>Components (35) | 8.46                           | 24.54 | 28.30 | 11.91                                          | 11.43   |
| Motorized and Other Vehicles<br>(Including Parts)* (36)                      | 0.18                           | 4.54  | 4.25  | 8.33                                           | 4.03    |
| Transportation Equipment, N.E.C.<br>(37)                                     | 1.79                           | 10.16 | 12.26 | 5.64                                           | -5.93   |
| Precision Instruments and Apparatus<br>(38)                                  | 12.60                          | 29.70 | 48.30 | 9.58                                           | -5.55   |
| Miscellaneous Manufactures<br>Products (40)                                  | 16.65                          | 24.28 | 27.37 | 16.38                                          | 17.88   |

Sources: See Appendix D, Table D3.

Some of these commodity categories are self explanatory, like Pharmaceuticals, while others like Transportation Equipment could be a variety of things. To interpret these, we had to revert to the 1993 survey, as the 1997 survey did not have sufficient detail on commodity breakdowns to be clear on the composition. We identified specific commodities from the 1993 survey at the three-digit level that comprised the 1997 two-digit level commodities that were major users of parcel service. We then examined these detailed commodity categories to identify the industries or sectors of the economy in which they are used. Thus we were able to identify industries or sectors which appeared to rely relatively heavily on parcel service, and these are presented in Table 12.

Table 12. Industries that are major users of parcel service based upon interpretation of the Commodity Flow Survey of 1993 and 1997.

Medical Equipment  
 Medical Supplies  
 Computers and Related Electronic Equipment  
 Clothing and Accessories  
 Office Supplies  
 Military Ordnance and Precision Equipment  
 Hardware  
 High Technology Engineering and Scientific Activities in Research and Industry  
 Musical, Sports and Hobby Equipment and Supplies  
 General Industrial Equipment and Parts  
 Printing and Publishing (periodicals, books, advertising, etc.)  
 Consumer Electronic Equipment (TVs, radios, etc.)  
 Industrial Machinery and Parts  
 Aircraft Parts  
 Electrical Transmission and Distribution Equipment  
 Photographic Equipment and Supplies

Source: Appendix D, Table D4.

It is clear that this list of industries includes many that are central to our economy and are growing rapidly. Particularly noteworthy is the inclusion of the medical field and computer and other high technology equipment. Clearly parcel services are very important in these industries, for distributing products (like PCs and related equipment) and also in the medical field for transporting supplies—often with critical time deadlines for hospital or other uses. Returning to Table 11, it is now clear why the growth rate of value of commodities transported in many of the categories is so high; these are growth areas of the economy, including computers, health care, and high technology goods for science, industry and consumers.

## 5. TRENDS AND THE FUTURE OF THE PARCEL INDUSTRY

A natural point of departure in looking at trends of parcel traffic in recent years is to try to answer the question of why the parcel industry has grown so rapidly and become such a large sector of the transportation industry. To some degree, the Vice President of General Motors Corp. gave the answer in a statement at a 1994 conference:

“Changing manufacturers’ needs will require smaller lot sizes and more frequent deliveries....

“For the transportation industry, the talking points to remember when making step-function change include the following:

- A manufacturing lot size of one,
- Material continually moving,
- Value added at every step, and
- Manufacturing’s dependence on transportation to move even the smallest lot with the highest frequency and speed possible.”<sup>5</sup>

For a whole variety of reasons, from the standpoint of the producer and seller of goods, the ideal transportation system keeps things moving rapidly and reliably, and does not delay goods in order to accumulate an entire truckload, or railcar load, of cargo. And other users of transportation would surely express similar sentiments—retailers, wholesalers, and certainly individuals and households.

Parcel carriers are basically trying to provide this type of transportation service—moving items individually, or in small batches, quickly and reliably. They also provide the associated services that are often essential for the shipper, including continuous tracking so that the shipper knows where her goods are, pick up and delivery at the customers’ premises, and integration of information flow to facilitate the transactions between shipper and receiver.

But faster transport, in small shipments, comes at a price, so that it is necessary to delve deeper to understand why parcel services have grown and why all projections of which we are aware predict an even larger role for this type of transportation. This is best accomplished by examining different segments of the transportation market, as it serves the manufacturing and service sectors.

In the manufacturing sector, in the last two decades, we have seen tremendous changes, which have brought an unparalleled standard of living to the U.S. as well as unrivaled variety in goods available. These are the result of many developments that are related to the transportation and

---

<sup>5</sup> Donald A. Pais, “Keynote Address,” *International Symposium on Motor Carrier Transportation*, Transportation Research Board Conference Proceedings 3 (National Academy Press, Washington, D.C. 1994), p. 11. Pais was Vice President, North American Operations Production Control and Logistics, General Motors Corp.

parcel service. With parcel services delivering a value of goods equal to over 10 % of our Gross Domestic Products, as we have seen, it is clear that they play a very important role in the economy.

The reliance placed on parcel carriers reflects what may be described as four key trends in industry in recent years. These are: mass customization, inventory reduction, use of high technology equipment, and focus on core competencies. These will be discussed, followed by a discussion of changes in the retailing sector and their impact of parcel service.

### 5.1. Mass Customization

Mass customization refers to the mass production by very efficient means of a much wider variety of goods than heretofore was available. This mass customization has affected almost all consumer goods; personal computers offer an excellent example. Each buyer of a computer now typically wants particular features, including memory size, screen, and optional features such as a modem or audio, among others. If PC makers were to stock all the different combinations, inventories would be enormous, and the cost would be prohibitive. Instead, many have transitioned to making the PC to order, in the sense that the final configuration of each is postponed until the customer's order is received, at which time the exact components are installed and the PC shipped. For the customer to be satisfied, her PC must arrive quickly after the order. Each PC must be sent individually to the proper customer, without delay, arrive undamaged, and its receipt acknowledged for proof of delivery and payment.

Parcel carriers are obviously crucial in this chain of delivery. It is only that type of carrier that can handle a small shipment like a PC, at a reasonable price, and which can offer the guaranteed delivery with authentication that is necessary for such a transaction. Thus the parcel service is an integral part of modern supply chains.

This has opened up a related business for many parcel companies, the business of providing distribution or other facilities, and in many cases actually performing the order taking and distribution activities. For example, when a customer orders a printer from Hewlett-Packard using its Web Site, or via telephone, the order actually is handled by FedEx, which stocks all of the printers that H-P sells online at a dedicated "E-distribution" center in Memphis<sup>6</sup>. FedEx ships the order, and this triggers a e-mail notification to the customer that the printer is on its way, and also a message to H-P that the FedEx center now has one less printer in stock, so that H-P can plan its replenishment production.

A similar relationship exists between UPS and Micron, and Idaho-based electronics firm. UPS actually takes the orders sent to Micron's Web site, and provides the information to Micron so that it can provide the customer with the order status and delivery date<sup>7</sup>. This is all part of the natural expansion of the parcel business into the logistics—the process of deciding what to order

---

<sup>6</sup> "Shipping Firms Exploit IT to Deliver E-Commerce Goods," Computerworld, <http://www.computerworld.com/home/print.nsf/all/990802B816> read on 02/09/00.

<sup>7</sup> Kelly Barron (2000), "Logistics in Brown," *Forbes*, Jan. 10, 2000, p.83.

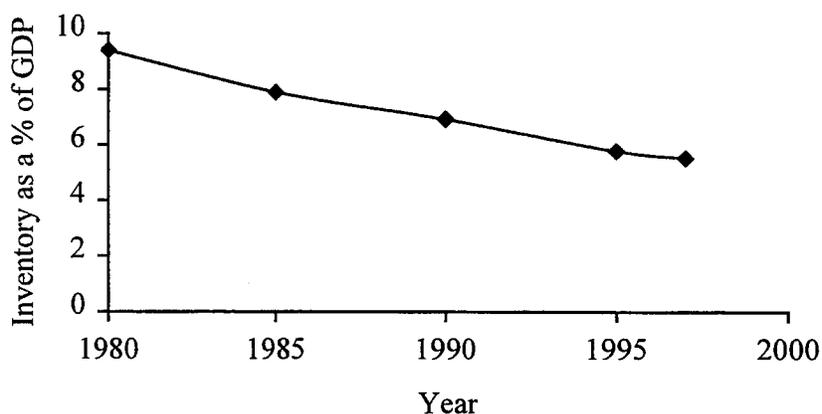
and what to ship where and via what means. This of course is usually tightly integrated with the production and other processes of the customer firm, as it is an integral part of the “product” that firm provides to its customers.

## 5.2. Reduction in Inventories

Another trend that encourages the greater use of parcel carriers is the reduction in inventories of manufactured products. This was an element in the previous examples, of course. But the trend has been a general one, impacting almost all types of manufactured goods. The amount of inventory that has been removed from supply chains in the last twenty years is amazing. Figure 11 presents data on the reduction in the value of inventory in the U.S. since 1980, from 9.41% of Gross Domestic Product (GDP) then to 5.52% of our GDP in 1997.

Much of this has resulted from using faster and more reliable transportation services, of which the parcel service is a preeminent example. Parcel service helps to reduce inventories in three ways. One reduction comes from the small shipment size; less time is taken accumulating a shipment, and similarly a shipment, being smaller, is used more rapidly at the destination end. The second is a result of the reliability of parcel service, which reduces the need for safety stocks to protect against late deliveries. The third is that parcel service tends to have shorter in-transit delivery times than most other forms of transportation, reducing the in-transit inventory (although this is not included in the data in Figure 11, of course).

Figure 11. Inventory as a percentage of Gross Domestic Product, 1980-1997



Sources: Inventory: Congressional Information Service (1998). "Manufacturers' Shipments, Inventories, and Orders: 1970 to 1997," No. 1237. In *Statistical Abstract of the United States*, 1998. Available from: *Statistical Universe* (Online Service, <http://web.lexis-nexis.com/statuniv> on 03/21/2000). Bethesda, MD: Congressional Information Service. GDP: Congressional Information Service (1998). "GDP in Current and Real (1992) Dollars: 1960 to 1997," No. 715. In *Statistical Abstract of the United States*, 1998. Available from: *Statistical Universe* (Online Service, <http://web.lexis-nexis.com/statuniv> on 03/21/2000). Bethesda, MD: Congressional Information Service.

### 5.3. Use of Advanced Technology

A third trend is the increasing use of sophisticated technology in almost all sectors of the economy, from testing laboratories to hospitals to factories. High tech equipment is expensive, and as a result parcel carriers often deliver it. Also, duplicate machines are installed only sparingly, and as a result, when a repair part is needed, it is needed immediately. Again parcel carriers, with guaranteed same day and next day services, have provided the essential transportation link. As noted earlier, this has led many suppliers to locate their parts warehouses at major hubs in the parcel air network. For example, in 1996, Federal Express and Amdahl Corp., a national parts supplier established a national network of 50 Express Distribution Depots (EEDs) so that needed parts can be supplied rapidly throughout the nation. Each depot has only a small inventory, this being replenished every time a part is ordered. The delivery of emergency parts is vital to many customers, preventing expensive down time of crucial machines and operations.

An even more interesting example is the recently announced plan by Intermec Technologies Corp of Everett, WA, to provide repair services and repair parts to its North American printer and scanner customers from the UPS air hub in Louisville, KY. A UPS subsidiary, SonicAir, has built a 900,000 sq. ft. Louisville Technology and Logistics Center at the end of the runway at UPS Louisville air hub. SonicAir will provide about 100 highly skilled technicians to repair Intmec's printers and scanners. Items needing repair will be sent to this facility, repaired, and then can be returned via UPS flights for next day delivery. Even if the repair was not completed and the item transferred to UPS until 1 AM in the morning, in most cases it can still be delivered the next morning. In addition, parts previously stored at Intermec's manufacturing sites and repair depots will be relocated to the Louisville facility. This should allow Intermec to reduce its inventory of repair parts, streamline its parts distribution network, and reduce costs while improving customer service. The synergy between the speed of parcel service and the reduction in non-transport customer service costs is significant<sup>8</sup>.

Thus if one wishes to be able to deliver goods in parcel-sized shipments to customers quickly, then the best location is at the hub terminal of a parcel carrier. It comes as no surprise then that many businesses have chosen to locate warehouses and distribution centers at such sites, as we have seen. As air parcel service has grown, more cities now have hubs, and these areas are benefiting from their excellent accessibility to national and international markets in the form of expanded manufacturing and distribution activities.

### 5.4. Focus on Core Competencies

Other services that enhance the ability and ease of firms to exchange goods are now being introduced by parcel companies. A good illustration is UPS recent entry into secure Internet document exchange. In partnership with Hewlett-Packard, in May 1999, UPS began offering

---

<sup>8</sup> UPS (2000), "SonicAir to provide Intermec customers faster repairs and rapid spare parts delivery" 2000 News Releases, <http://www.ups.com/bin/shownews.cgi?20000105sonicair> (read on 03/01/00)

UPS Document Exchange, which is designed to electronically send paper-based documents across the Internet. This enables documents that were once sent via overnight delivery to be sent much more rapidly and cheaply over the Internet, to multiple recipients if desired. The parallel with the earlier statements about the transformation of the transportation field should be evident: Here UPS is offering to replace its traditional movement of things via transportation with delivery of information via electronic means<sup>9</sup>.

Yet another is the recent entry of UPS into the flow of funds<sup>10</sup>. This is seen as a natural but clearly innovative expansion from supporting the flow of information associated with delivery to the flow of payments. This is intended to replace the traditional process by which a business gets paid by another. The current model is: a purchase order is prepared, goods are shipped, an invoice is sent, delivery is acknowledged, and signatures or approvals are obtained for payment, and finally payment is made. This involves considerable paperwork, processing, and delay. With the new system, once goods arrive and are signed for—electronically, all the other actions necessary for payment can be executed. This saves an enormous amount of person-hours of effort, and delay in the seller being paid.

All these services offered by parcel companies enable firms to focus on their core competencies, and not expend effort and talent trying to do business support functions that are better done by experts. Just as it would make no sense for all firms to individually try to provide all of their transportation needs, it similarly makes no sense for them to provide all their other logistics and business support functions.

### 5.5. Retailing

As for the future, all the trends point to greater reliance on parcel services. One set of reasons is that all of the trends that have been discussed above are continuing for the foreseeable future. Another is that global commerce is increasing, as more nations enter the global economy and more goods are shipped longer distances. This increases the amount transported, and this is of course part of the growth of parcel carriers that we have seen.

But another trend is likely to increase the role of parcel carriers significantly. This is the growth of Internet and telephone sales. Retailing is undergoing a transformation in which ordering by a customer to whom the item is then delivered is becoming more and more common. This is exemplified by the explosion in e-commerce that was especially noticeable during the last Christmas season, but the growth is far more than that. And of course the items must be delivered. And that is where parcel carriers are almost alone in their serving of this market.

The growth of retail e-commerce promises to have tremendous impact, rivaling the massive changes that have affected retailing in the last 70 years. The first of these was of course the shift from the multi-layered fixed price selling chain with concentrated downtown stores that

---

<sup>9</sup> "Shipping Firms Exploit IT to Deliver E-Commerce Goods," Computerworld, <http://www.computerworld.com/home/print.nsf/all/990802B816> (read on 02/09/00).

<sup>10</sup> "UPS Capital President addresses banking conference," 2000 News Releases, Jan. 5, 2000. <http://www.ups.com/bin/shownews.cgi?20000128fundflow-1.c> (read on 03/01/00).

was toppled by the emergence of large suburban stores in the 1950s and 60s. This was followed in the 1980s and 1990s by mega-retailers which eliminated middlemen and reduced the price of almost all retail goods. These are exemplified by such retail giants as Wal-Mart for general merchandise and Borders for books.

We are now at the beginning stage of another revolution in retailing, in which the Internet is enabling manufacturers and stores to link with customers almost anywhere. No longer is physical proximity an important feature. Customers shop for items on the web, or via other means, and place orders electronically. The goods are then delivered to their homes, or in some cases, places of business.

This emerging reconfiguration of the selling chain is illustrated in Figure 12<sup>11</sup>. In it electronic shipping and ordering replace the trip to the store, and parcel delivery replaces the return trip home with the goods. Other factors are also contributing to what is expected to be surge in business to consumer parcel volume. One of course is the steady rise in two-wage-earner households. Another is the increase in the workweek. And a third is the increase in the variety of goods available. It is simply increasingly likely that the Internet will be the one place where a buyer can find information about the range of products available. All this leads to more home delivery business.

The implications for parcel carriers are obvious, and enormous. As this type of retail selling and buying increases in popularity, so does the business of parcel carriers.

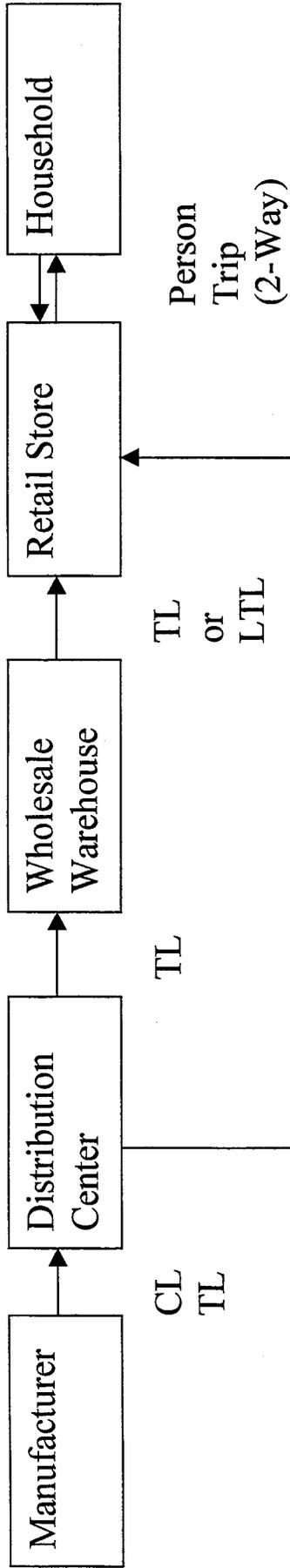
To date only some parcel carriers have sought out this type of home delivery business, as it is a high cost segment of the business. Of course, USPS and UPS have long provided this type of service. The high cost arises from the dispersion of homes and the low volume of deliveries to each site, increasing the distance traveled per delivery. Also, often no one is home, requiring a second or third call by the delivery truck driver (or in the case of the U.S. Postal Service return of the item to the local post office for later pick up by the addressee). And then there is the problem of arranging for pick up or convenient sending of returns. All this has led to what is referred to as the "last mile" problem in business to consumer e-commerce.

But the growth in e-commerce is expected to be so large that parcel carriers are searching for ways to provide this service, presumably at a profit. FedEx has created a new service for business to home delivery (which was not offered by the previous ground service arm, RPS), under the name FedEx Home Delivery. And in November 1999 Airborne announced a partnership with USPS, called Airborne @ Home, to provide home deliveries.<sup>12</sup>

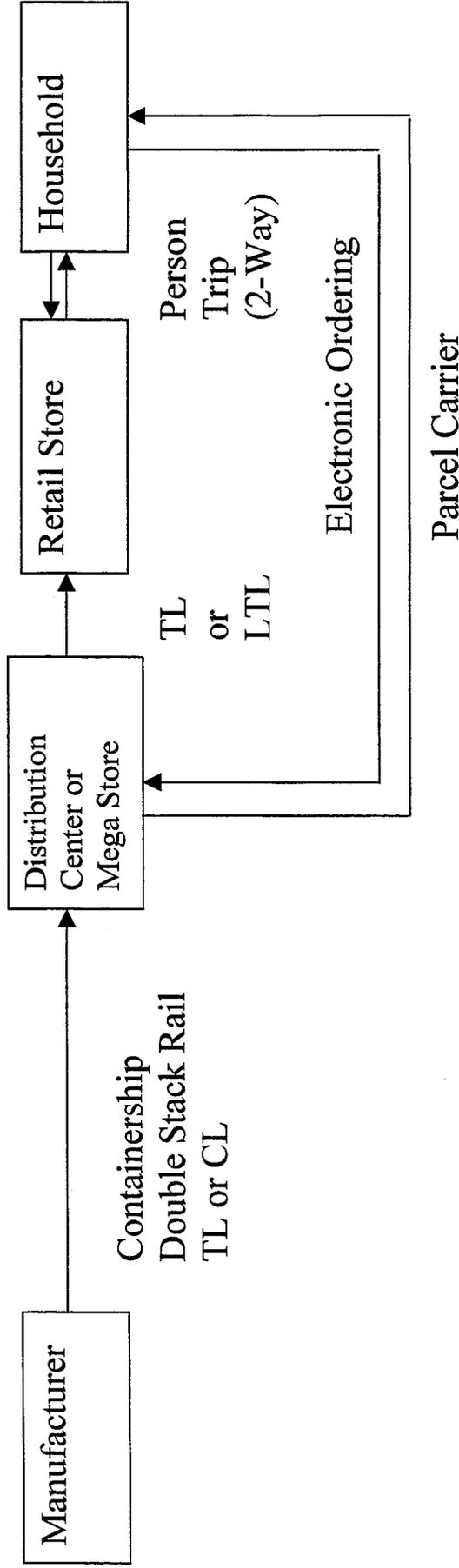
---

<sup>11</sup> Figure partly based on that in the article: Satish Jindel, "Delivering E-commerce," Air Cargo World, March 1999, <http://www.jindel.com/html/cargoworld.html> (read on 02/11/00.)

<sup>12</sup> FedEx, Press Release, "FedEx Unleashes the Power of its Brand", 1/19/00, <http://www.fedex.com/us/about/ground/pressreleases/pressrelease011900.html>, as seen on 8/8/00/ Airborne Express, Press Release, "Airborne Pairs with Postal Service in Offering New Parcel Delivery Service for Business-to-Residential Customers", 6/3/99, <http://www2.airborne.com/press/item.asp?strRelSeqNbr=74>, as seen on 8/8/00.



a. Traditional pattern through 1980s and early 1990s.



b. Emerging pattern for 21<sup>st</sup> century

Note: CL indicates carload, LTL indicates less-than-truckload, and TL indicates truck load.

Figure 12. Reconfiguration of the retail selling chain.

## 6. CONCLUSIONS AND IMPLICATIONS

Over the last few decades the parcel services have grown to become a major player in the transportation field. Their role is especially significant because they typically move items of high value, and often ones whose delivery is so time-sensitive that delay can shut down a factory or impair the ability to deliver medical care. The service that they provide has been at the vanguard of innovations to transportation services and related, customer-supporting services. In the transportation arena, this has included the use of different modes to provide the range of speed vs. price options that shippers want, so that they can optimize their transportation costs, inventory levels, production processes, and customer response. Different modes are integrated to meet these speed and other service requirements at minimum cost. Related services include the shipment tracking, confirmation of delivery, and triggering of funds transfer based on the completion of exchange of goods—and the smooth flow of relevant data electronically between the transport carrier, the shipper, the receiver, and any other parties to the shipment transaction. The role of parcel carriers in transportation has long been under-recognized, largely it seems because of the traditional modal orientation in thinking about transportation. But the wave of the future is clearly in the direction of integrated transportation and logistics service offerings, where parcel carriers are leading the rest of the industry. Such transportation and logistics services permit the user to optimize its supply and selling chain, and thereby reduce the delivered cost of goods and services, and increase customer satisfaction.

What are the implications of this study? One is that the traditional modal view of transportation, in which the transportation system is looked at as a collection of modes and their companies or agencies, is out of date. Freight transportation is increasingly a service that transcends modal boundaries. This trend is exemplified by parcel service, which now has revenues in excess of all of the traditional freight modes except trucking. Its importance to the economy is obvious from the fact that parcel carriers deliver over 10% of our Gross Domestic Product each year. The traditional modal structure of governmental policy making, planning, and regulation is increasingly mismatched to the freight transportation system.

While that structure may take many years to adapt, some changes can be introduced incrementally. This study, with its focus on data describing the parcel service industry, suggests one: to gather data not only on the individual modes, but also on intermodal and multimodal transportation services, including parcel service. This would provide a baseline and indicators of the growth and health of these elements of the transportation industry. The methods used in this study provide the basis for such data gathering, for the parcel service industry.

The second implication is that freight transportation is increasingly seen by businesses as an integral part of their production and selling chains. It is no longer an essentially separate business activity. From this broader perspective, the central issues and opportunities for improving the system are focused on how to use transportation in the overall production and distribution process so as to reduce the delivered prices of goods and services, increase product quality and customer satisfaction, and provide rapid customer response. The types of transportation services that optimize this larger system are not likely to be those that would be chosen looking at transportation alone. The growth of parcel service relative to more traditional forms of transportation provides a

perfect illustration: It is generally more expensive per ton-mile than other forms of transportation, but is increasingly used because of the non-transport benefits to the customer--producers and buyers of goods.

Finally, this implies a broader view of the system that is being optimized, by transportation companies, public sector infrastructure agencies, and government. For transportation service providers, this means that they must be flexible and nimble, and respond to new needs stemming from changes in the production and distribution system. For government, this means that policies and programs based on the older modal view of transportation will need to change as well, in order to pave the way for an increasingly intermodal and multimodal transportation system to adapt to the changing economic landscape of globalization, mass customization, and rapid customer response.

# APPENDICES

Table A1. Big Four parcel carriers' domestic revenues

|            |                              | \$ Millions   |               |               |             |             |             |             |             |             |             |             |
|------------|------------------------------|---------------|---------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>I</b>   | <b>Airborne<sup>a</sup></b>  | <u>1988</u>   | <u>1989</u>   | <u>1990</u>   | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
| I.a        | Overnight                    | 553           | 708           | 900           | 948         | 936         | 1,016       | 1,044       | 1,080       | 1,439       | 1,914       | 2,093       |
| I.b        | Deferred                     | 32            | 41            | 78            | 193         | 321         | 466         | 610         | 776         | 656         | 593         | 614         |
| I.c        | Total Domestic               | 584           | 749           | 978           | 1,142       | 1,257       | 1,482       | 1,654       | 1,856       | 2,095       | 2,507       | 2,707       |
| <b>II</b>  | <b>FedEx<sup>b</sup></b>     | <u>1988</u>   | <u>1989</u>   | <u>1990</u>   | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
| II.a       | Overnight                    | 3,109         | 3,634         | 4,025         | 4,156       | 4,358       | 4,735       | 5,130       | 5,577       | 6,053       | 6,574       | 7,029       |
| II.b       | Deferred                     | 565           | 620           | 682           | 760         | 902         | 1,058       | 1,212       | 1,332       | 1,515       | 1,947       | 2,233       |
| II.c       | FedEx_Ground <sup>c</sup>    | 654           | 730           | 806           | 883         | 957         | 1,039       | 1,135       | 1,265       | 1,326       | 1,559       | 1,808       |
| II.d       | Total Domestic               | 4,329         | 4,984         | 5,513         | 5,799       | 6,218       | 6,832       | 7,477       | 8,174       | 8,895       | 10,080      | 11,070      |
| <b>III</b> | <b>UPS<sup>d</sup></b>       | <u>1988</u>   | <u>1989</u>   | <u>1990</u>   | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
| III.a      | Overnight                    |               |               |               |             |             |             | 2,905       | 3,269       | 3,734       | 4,054       | 4,690       |
| III.b      | Deferred                     |               |               |               |             |             |             | 1,928       | 2,041       | 2,207       | 2,314       | 2,464       |
| III.c      | UPS_Ground                   |               |               |               |             |             |             | 12,110      | 12,463      | 12,940      | 12,500      | 13,496      |
| III.d      | Total Domestic               | <u>10,149</u> | <u>11,266</u> | <u>12,367</u> | 13,694      | 14,721      | 15,822      | 16,943      | 17,773      | 18,881      | 18,868      | 20,650      |
| <b>IV</b>  | <b>USPS<sup>e</sup></b>      | <u>1988</u>   | <u>1989</u>   | <u>1990</u>   | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
| IV.a       | Overnight                    | 536           | 587           | 640           | 661         | 636         | 638         | 681         | 717         | 759         | 832         | 876         |
| IV.b       | Deferred                     | 1,351         | 1,451         | 1,607         | 1,841       | 2,128       | 2,388       | 2,759       | 3,136       | 3,455       | 3,930       | 4,246       |
| IV.c       | Parcel Post                  | 924           | 911           | 940           | 1,047       | 1,186       | 1,226       | 1,396       | 1,525       | 1,550       | 1,659       | 1,773       |
| IV.d       | Total Domestic               | 2,811         | 2,948         | 3,187         | 3,549       | 3,950       | 4,252       | 4,836       | 5,378       | 5,764       | 6,421       | 6,895       |
|            | <b>Overnight</b>             | <u>1988</u>   | <u>1989</u>   | <u>1990</u>   | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|            | I.a + II.a + IV.a            | 4,198         | 4,929         | 5,565         | 5,765       | 5,930       | 6,389       | 6,855       | 7,374       | 8,251       | 9,321       | 9,998       |
|            | I.a + II.a + III.a<br>+ IV.a |               |               |               |             |             |             | 9,760       | 10,643      | 11,985      | 13,375      | 14,688      |
|            | <b>Deferred</b>              | <u>1988</u>   | <u>1989</u>   | <u>1990</u>   | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|            | I.b + II.b + IV.b            | 1,947         | 2,111         | 2,367         | 2,795       | 3,351       | 3,912       | 4,581       | 5,244       | 5,626       | 6,470       | 7,092       |
|            | I.b + II.b + III.b<br>+ IV.b |               |               |               |             |             |             | 6,509       | 7,285       | 7,833       | 8,784       | 9,556       |
|            | <b>Ground</b>                | <u>1988</u>   | <u>1989</u>   | <u>1990</u>   | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|            | II.c + IV.c                  | 1,578         | 1,642         | 1,746         | 1,930       | 2,143       | 2,265       | 2,530       | 2,790       | 2,876       | 3,218       | 3,581       |
|            | II.c + III.c +<br>IV.c       |               |               |               |             |             |             | 14,640      | 15,253      | 15,816      | 15,718      | 17,077      |
|            | <b>GrandTotal</b>            | <u>1988</u>   | <u>1989</u>   | <u>1990</u>   | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|            | I.c + II.d + III.d<br>+ IV.d | 17,872        | 19,948        | 22,046        | 24,184      | 26,145      | 28,389      | 30,909      | 33,181      | 35,635      | 37,877      | 41,322      |

<sup>a</sup> Source: Total Domestic Revenues: SEC Filings (Annual Report) of Airborne Express from 1990-1999. Overnight and deferred category revenues are computed using shipment and revenue per shipment data in the Annual Report. The overnight category consists of Overnight Air Express and Next Afternoon services. The deferred category consists of the Second Day service. Original data is defined for the year ending Dec 31.

<sup>b</sup> Source: Total Domestic Revenues: SEC Filings (10-K) of Federal Express from 1988-1999. Overnight and deferred category revenues for years 1993-1999: Q2FY00StatBook.xls (available at [http://www.corporate-ir.net/ireye/ir\\_site.zhtml?ticker=fdx&script=700](http://www.corporate-ir.net/ireye/ir_site.zhtml?ticker=fdx&script=700) on 02/06/2000). The overnight category consists of FedEx First Overnight, Priority Overnight and Standard Overnight services. The deferred category consists of the FedEx 2<sup>nd</sup> Day and FedEx Express Saver services. Federal Express data does not include the revenues of any other subsidiaries under FDX Corp. Original data is defined for the fiscal year ending May 31. Data in the table has been adjusted for the calendar year ending Dec 31 by adding 5/12<sup>th</sup> of the value for the current fiscal year and 7/12<sup>th</sup> of the value for the next fiscal year.

<sup>c</sup> FedEx Ground refers to the FedEx Ground Service (formerly known as RPS). Source: Years 1993-1999: Q2FY00StatBook.xls (available at [http://www.corporate-ir.net/ireye/ir\\_site.zhtml?ticker=fdx&script=700](http://www.corporate-ir.net/ireye/ir_site.zhtml?ticker=fdx&script=700) on 02/06/2000). Years 1988-1992: No official source was located, hence estimated using a 3.8% share of the combined earnings of USPS, UPS, FedEx and Airborne for that period. (The figure of 3.8% was used because RPS' revenue in the calendar year 1994 was 3.8% of the combined earnings of the Big Four in that year).

<sup>d</sup> Source: Years 1994 – 1998: SEC Filings (Prospectus) for UPS in 1999. Years 1991 – 1993: Total domestic revenues from SEC Filings (10-K) for UPS of America. Years 1988 – 1990: Total revenues: Notable Corporate Chronologies. Percentage of Total Revenues that is Domestic was computed from a linear regression on data for 1991 to 1998 from UPS of America. The overnight category consists of UPS Next Day Air, UPS Next Day Air Early A.M. and UPS Next Day Air Saver services. The deferred category consists of the UPS 2<sup>nd</sup> Day Air , UPS 2<sup>nd</sup> Day Air A.M. and UPS 3 Day Select services. UPS Ground is a separate category. All data from 1989 to 1998 is defined for the year ending Dec 31.

<sup>e</sup> Source: Annual Report of the Postmaster General. The overnight category includes the Express Mail service only. The deferred category includes Priority Mail only. The other category which includes parcel services is Standard Mail (B). It consists of the following sub-categories: Parcel Post, Bound Printed, Special Standard Mail, Library Mail. Original data is defined for the Government Fiscal Year ending Sep 30. Data in table has been adjusted for the calendar year ending Dec 31 by adding 9/12<sup>th</sup> of the value for the current fiscal year and 3/12<sup>th</sup> of the value for the next fiscal year.

Table A2. Big Four parcel carriers' domestic shipments

|            |                             | Shipments (Millions) |             |             |             |             |             |             |             |             |             |             |
|------------|-----------------------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>I</b>   | <b>Airborne<sup>a</sup></b> | <u>1988</u>          | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
| I.a        | Overnight                   | 43.4                 | 60.4        | 78.8        | 88.0        | 96.7        | 109.9       | 118.1       | 131.0       | 174.4       | 226.6       | 244.5       |
| I.b        | Deferred                    | 2.5                  | 3.5         | 6.8         | 17.9        | 33.1        | 50.4        | 69.1        | 94.2        | 79.5        | 70.1        | 71.7        |
| I.c        | Total Domestic              | 45.9                 | 63.8        | 85.6        | 105.9       | 129.9       | 160.2       | 187.1       | 225.2       | 253.9       | 296.7       | 316.2       |
| <b>II</b>  | <b>FedEx<sup>b</sup></b>    | <u>1988</u>          | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
| II.a       | Overnight                   |                      |             |             |             |             | 327.1       | 368.5       | 411.5       | 446.6       | 470.8       | 491.9       |
| II.b       | Deferred                    |                      |             |             |             |             | 110.5       | 132.7       | 144.4       | 160.6       | 200.6       | 225.7       |
| II.c       | FedEx_Ground <sup>c</sup>   |                      |             |             |             |             |             |             |             |             |             |             |
| II.d       | Total Domestic              |                      |             |             |             |             | 437.6       | 501.1       | 555.9       | 607.2       | 671.5       | 717.6       |
| <b>III</b> | <b>UPS<sup>d</sup></b>      | <u>1988</u>          | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
| III.a      | Overnight                   |                      |             |             |             |             |             | 148.1       | 169.0       | 193.0       | 208.0       | 238.3       |
| III.b      | Deferred                    |                      |             |             |             |             |             | 158.2       | 181.1       | 193.8       | 195.1       | 198.9       |
| III.c      | UPS_Ground                  |                      |             |             |             |             |             | 2506.5      | 2517.1      | 2543.8      | 2408.8      | 2449.8      |
| III.d      | Total Domestic              |                      |             |             |             |             |             | 2812.8      | 2867.2      | 2930.7      | 2811.8      | 2887.0      |
| <b>IV</b>  | <b>USPS<sup>e</sup></b>     | <u>1988</u>          | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
| IV.a       | Overnight                   | 47.5                 | 54.6        | 58.4        | 56.8        | 53.0        | 53.4        | 56.3        | 56.9        | 59.1        | 64.9        | 66.8        |
| IV.b       | Deferred                    | 445.2                | 482.6       | 521.0       | 543.9       | 604.4       | 690.7       | 794.5       | 886.1       | 970.0       | 1092.1      | 1170.2      |
| IV.c       | Parcel Post                 | 661.8                | 635.2       | 671.0       | 712.6       | 759.3       | 775.7       | 887.7       | 939.4       | 958.8       | 997.1       | 1028.3      |
| IV.d       | Total Domestic              | 1154.5               | 1172.3      | 1250.3      | 1313.3      | 1416.7      | 1519.8      | 1738.5      | 1882.4      | 1987.9      | 2165.4      | 2265.3      |
|            | <b>Overnight</b>            | <u>1988</u>          | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|            | I.a + IV.a                  | 90.9                 | 115.0       | 137.1       | 144.7       | 149.7       | 163.2       | 174.4       | 188.0       | 233.5       | 291.4       | 311.3       |
|            | I.a + II.a + III.a + IV.a   |                      |             |             |             |             |             | 690.9       | 768.5       | 873.1       | 970.2       | 1041.5      |
|            | <b>Deferred</b>             | <u>1988</u>          | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|            | I.b + IV.b                  | 447.7                | 486.0       | 527.8       | 561.8       | 637.5       | 741.1       | 863.5       | 980.3       | 1049.6      | 1162.2      | 1241.9      |
|            | I.b + II.b + III.b + IV.b   |                      |             |             |             |             |             | 1154.4      | 1305.8      | 1404.0      | 1557.9      | 1666.5      |
|            | <b>Ground</b>               | <u>1988</u>          | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|            | III.c + IV.c                |                      |             |             |             |             |             | 3394.1      | 3456.5      | 3502.6      | 3405.9      | 3478.1      |
|            | <b>GrandTotal</b>           | <u>1988</u>          | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|            | I.c + II.d + III.d + IV.d   |                      |             |             |             |             |             | 5239.5      | 5530.7      | 5779.7      | 5934.1      | 6186.0      |

<sup>a</sup> Source: SEC Filings (Annual Report) of Airborne Express from 1990-1999. The overnight category consists of Overnight Air Express and Next Afternoon services. The deferred category consists of the Second Day service. Original data is defined for the year ending Dec 31.

<sup>b</sup> Source: Overnight and deferred category for 1993-1999: Q2FY00StatBook.xls (available at [http://www.corporate-ir.net/ireye/ir\\_site.zhtml?ticker=fdx&script=700](http://www.corporate-ir.net/ireye/ir_site.zhtml?ticker=fdx&script=700) on 02/06/2000). Total

annual shipments are computed from average daily package data and annual operating weekdays for 1993-1999 from Q2FY00StatBook.xls. The overnight category consists of FedEx First Overnight, Priority Overnight and Standard Overnight services. The deferred category consists of the FedEx 2<sup>nd</sup> Day and FedEx Express Saver services. Federal Express data does not include the revenues of any other subsidiaries under FDX Corp. Original data is defined for the fiscal year ending May 31. Data in the table has been adjusted for the calendar year ending Dec 31 by adding 5/12<sup>th</sup> of the value for the current fiscal year and 7/12<sup>th</sup> of the value for the next fiscal year.

<sup>c</sup> FedEx\_Ground refers to the FedEx Ground Service (formerly known as RPS). No data has been located.

<sup>d</sup> Source: Years 1994 – 1998: SEC Filings (Prospectus) for UPS in 1999. Total annual shipments are computed from average daily package data and annual operating weekdays for 1993-1998. The overnight category consists of UPS Next Day Air, UPS Next Day Air Early A.M. and UPS Next Day Air Saver services. The deferred category consists of the UPS 2<sup>nd</sup> Day Air , UPS 2<sup>nd</sup> Day Air A.M. and UPS 3 Day Select services. UPS Ground is a separate category. All data from 1994 to 1998 is defined for the year ending Dec 31.

<sup>e</sup> Source: Annual Report of the Postmaster General. The overnight category includes the Express Mail service only. The deferred category includes Priority Mail only. The other category which includes parcel services is Standard Mail (B). It consists of the following sub-categories: Parcel Post, Bound Printed, Special Standard Mail, Library Mail. Original data is defined for the Government Fiscal Year ending Sep 30. Data in table has been adjusted for the calendar year ending Dec 31 by adding 9/12<sup>th</sup> of the value for the current fiscal year and 3/12<sup>th</sup> of the value for the next fiscal year.

Table A3. Big Four parcel carriers' average revenue per shipment <sup>a</sup>

|            |                           | <b>\$/Shipment</b> |             |             |             |             |             |             |             |             |             |             |
|------------|---------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>I</b>   | <b>Airborne</b>           | <u>1988</u>        | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
| I.a        | Overnight                 | 12.73              | 11.73       | 11.43       | 10.78       | 9.68        | 9.25        | 8.84        | 8.24        | 8.25        | 8.45        | 8.56        |
| I.b        | Deferred                  | 12.73              | 11.73       | 11.43       | 10.78       | 9.68        | 9.25        | 8.84        | 8.24        | 8.25        | 8.45        | 8.56        |
| I.c        | Total Domestic            | 12.73              | 11.73       | 11.43       | 10.78       | 9.68        | 9.25        | 8.84        | 8.24        | 8.25        | 8.45        | 8.56        |
| <b>II</b>  | <b>FedEx</b>              | <u>1988</u>        | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
| II.a       | Overnight                 |                    |             |             |             |             | 14.47       | 13.92       | 13.55       | 13.56       | 13.96       | 14.29       |
| II.b       | Deferred                  |                    |             |             |             |             | 9.58        | 9.13        | 9.22        | 9.43        | 9.70        | 9.89        |
| II.c       | FedEx_Ground              |                    |             |             |             |             |             |             |             |             |             |             |
| II.d       | Total Domestic            |                    |             |             |             |             | 15.61       | 14.92       | 14.70       | 14.65       | 15.01       | 15.43       |
| <b>III</b> | <b>UPS</b>                | <u>1988</u>        | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
| III.a      | Overnight                 |                    |             |             |             |             |             | 19.62       | 19.34       | 19.34       | 19.49       | 19.69       |
| III.b      | Deferred                  |                    |             |             |             |             |             | 12.18       | 11.27       | 11.39       | 11.86       | 12.39       |
| III.c      | UPS_Ground                |                    |             |             |             |             |             | 4.83        | 4.95        | 5.09        | 5.19        | 5.51        |
| III.d      | Total Domestic            |                    |             |             |             |             |             | 6.02        | 6.20        | 6.44        | 6.71        | 7.15        |
| <b>IV</b>  | <b>USPS</b>               | <u>1988</u>        | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
| IV.a       | Overnight                 | 11.27              | 10.74       | 10.97       | 11.64       | 12.00       | 11.96       | 12.10       | 12.60       | 12.84       | 12.83       | 13.12       |
| IV.b       | Deferred                  | 3.03               | 3.01        | 3.08        | 3.39        | 3.52        | 3.46        | 3.47        | 3.54        | 3.56        | 3.60        | 3.63        |
| IV.c       | Parcel Post               | 1.40               | 1.43        | 1.40        | 1.47        | 1.56        | 1.58        | 1.57        | 1.62        | 1.62        | 1.66        | 1.72        |
| IV.d       | Total Domestic            | 2.43               | 2.51        | 2.55        | 2.70        | 2.79        | 2.80        | 2.78        | 2.86        | 2.90        | 2.97        | 3.04        |
|            | <b>Overnight</b>          | <u>1988</u>        | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|            | I.a + IV.a                | 11.97              | 11.26       | 11.23       | 11.12       | 10.50       | 10.14       | 9.89        | 9.56        | 9.41        | 9.43        | 9.54        |
|            | I.a + II.a + III.a + IV.a |                    |             |             |             |             |             | 6.70        | 6.59        | 6.79        | 7.01        | 7.35        |
|            | <b>Deferred</b>           | <u>1988</u>        | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|            | I.b + IV.b                | 3.09               | 3.07        | 3.19        | 3.62        | 3.84        | 3.85        | 3.90        | 3.99        | 3.92        | 3.89        | 3.91        |
|            | I.b + II.b + III.b + IV.b |                    |             |             |             |             |             | 4.59        | 4.56        | 4.50        | 4.39        | 4.39        |
|            | <b>Ground</b>             | <u>1988</u>        | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|            | III.c + IV.c              |                    |             |             |             |             |             | 3.98        | 4.05        | 4.14        | 4.16        | 4.39        |
|            | <b>GrandTotal</b>         | <u>1988</u>        | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|            | I.d + II.d + III.d + IV.d |                    |             |             |             |             |             | 5.68        | 5.77        | 5.94        | 6.12        | 6.39        |

<sup>a</sup> Revenue per shipment is calculated using relevant data from Tables A1 and A2.

Table B1. Big Four parcel carriers' international revenues

\$ Millions

|                       | <u>1988</u> | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> |
|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Airborne <sup>a</sup> | 1,014       | 1,102       | 1,174       | 1,223       | 1,308       | 1,408       | 1,424       | 1,507       | 1,640       | 1,618       | 1,607       |
| FedEx <sup>b</sup>    | 851         | 1,034       | 1,233       | 1,325       | 1,797       | 1,960       | 2,346       | 2,886       | 2,989       | 2,934       | 3,237       |
| UPS <sup>c</sup>      | 412         | 593         | 765         | 956         | 1,084       | 1,246       | 1,538       | 1,865       | 2,203       | 2,573       | 2,899       |
| USPS <sup>d</sup>     | 184         | 198         | 200         | 222         | 225         | 235         | 311         | 368         | 376         | 398         | 362         |
| Total                 | 2,462       | 2,926       | 3,371       | 3,727       | 4,414       | 4,849       | 5,618       | 6,626       | 7,208       | 7,523       | 8,105       |

<sup>a</sup> Source: SEC Filings (Annual Report) of Airborne Express from 1990-1999. Original data is defined for the year ending Dec 31.

<sup>b</sup> Source: SEC Filings (10-K) of Federal Express from 1988-1999. Original data is defined for the fiscal year ending May 31. Data in the table has been adjusted for the calendar year ending Dec 31 by adding 5/12<sup>th</sup> of the value for the current fiscal year and 7/12<sup>th</sup> of the value for the next fiscal year.

<sup>c</sup> Source: Years 1994 – 1998: SEC Filings (Prospectus) for UPS in 1999. Years 1991 – 1993: SEC Filings (10-K) for UPS of America. Years 1988 – 1990: Total revenues: Notable Corporate Chronologies. Percentage of Total Revenues that is international was computed from a linear regression on data for 1991 to 1998 from UPS of America. All data from 1989 to 1998 is defined for the year ending Dec 31.

<sup>d</sup> Source: Annual Report of the Postmaster General Original data is defined for the Government Fiscal Year ending Sep 30. Data in table has been adjusted for the calendar year ending Dec 31 by adding 9/12<sup>th</sup> of the value for the current fiscal year and 3/12<sup>th</sup> of the value for the next fiscal year.

Table C1. Approximate time series of parcel service domestic revenue, 1960-1997

\$ Millions

| Year | Parcel Service    |                  |                  |                  |                  | Sum    | National<br>Freight<br>Bill <sup>d</sup> | Ratio,<br>Parcel Sum<br>to Bill, % |
|------|-------------------|------------------|------------------|------------------|------------------|--------|------------------------------------------|------------------------------------|
|      | USPS <sup>a</sup> | REA <sup>b</sup> | UPS <sup>c</sup> | Bus <sup>c</sup> | Air <sup>c</sup> |        |                                          |                                    |
| 1960 | 616               | 373              | 5                | 33               | 15               | 1,042  | 47,767                                   | 2.18                               |
| 1965 | 707               | 435              | 93               | 61               | 32               | 1,328  | 64,931                                   | 2.05                               |
| 1970 | 1,091             | 313              | 420              | 102              | 32               | 1,958  | 83,978                                   | 2.33                               |
| 1975 | 1,109             | 133              | 1,175            | 156              | 72               | 2,645  | 115,839                                  | 2.28                               |
| 1980 | 1,707             | 0                | 3,963            | 234              | 663              | 6,567  | 213,736                                  | 3.07                               |
| 1985 | 2,279             | 0                | 6,771            | 245              | 2,844            | 12,139 | 273,612                                  | 4.44                               |
| 1990 | 3,269             | 0                | 10,868           | 126              | 7,570            | 21,833 | 350,949                                  | 6.22                               |
| 1995 | 5,378             | 0                | 15,314           | 130              | 10,362           | 31,184 | 444,452                                  | 7.02                               |
| 1996 | 5,764             | 0                | 16,024           | 131              | 11,353           | 33,272 | 467,510                                  | 7.12                               |
| 1997 | 6,421             | 0                | 15,730           | 131              | 12,802           | 35,084 | 503,491                                  | 6.97                               |

<sup>a</sup> Source: See Appendix A, Tables A1 and A4.

<sup>b</sup> Source: Eno Transportation Foundation, Inc. (1995). Transportation in America, p.53 (Revenues of Federally Authorized Domestic Carriers).

<sup>c</sup> Source: Eno Transportation Foundation, Inc. (1998). Transportation in America, p.55 (Intercity Small Shipments Handled by Commercial Carriers: UPS (Trucking only as reported to the Interstate Commerce Commission and later to U.S. Dept. of Transportation), Bus, and Air (Domestic) Specialized). These data exclude revenue from the transportation of mail.

<sup>d</sup> Source: All years except 1995: Eno Transportation Foundation, Inc. (1997). Transportation in America: Historical Compendium 1939-1995.

|                                    |       |
|------------------------------------|-------|
| % growth of % of bill, 1960 – 1995 | 3.394 |
| % growth of % of bill, 1960 – 1997 | 3.188 |

## Appendix D

### COMMODITY FLOW SURVEYS

Notes on the Commodity Transportation Surveys of 1977, 1993 and 1997.

The 1977 Commodity Transportation Survey, 1993 Commodity Flow Survey, and 1997 Commodity Flow Survey are sometimes difficult to compare due to the evolution of the mode of transport classifications, and commodity classifications and industries covered in each survey. These changes are potential sources of error when comparing the results of the various surveys.

#### Mode of Transport

The 1977 Commodity Transportation Survey (CTS) divides the transportation modes into Rail, For-hire motor carrier/ICC, For-hire motor carrier/non-ICC, Private truck, Air, Water, Pipeline, Parcel delivery, and Other categories. Survey respondents were requested to supply only the mode of transport that moved the shipment the longest distance. The Parcel delivery category includes shipments by the US Postal Service and parcel delivery companies. Messenger service deliveries are included in the Other category.

The 1993 Commodity Flow Survey (CFS) modes include Rail, For-hire truck, Private truck, Air, Inland water and/or Great Lakes, Deep sea water, Pipeline, (Parcel delivery, U.S. Postal Service, or courier), Other, and Unknown. The 1993 CFS also publishes multiple mode shipments where two or more modes of transportation are used with the exception of the Other, Unknown, or Parcel delivery, U.S. Postal Service, or courier categories. The Parcel delivery, U.S. Postal Service, or courier category is considered inherently multi-modal. The Parcel delivery, U.S. Postal Service, or courier category consists of all delivery services that carry letters, parcels, packages, and other small shipments that typically weigh less than 100 pounds.

The 1997 Commodity Flow Survey (CFS) includes the Railroad, For-hire truck, Private truck, Air, Shallow draft vessel, Deep draft vessel, Pipeline, Parcel delivery/courier/U.S. Postal Service, Other mode, and Unknown modes. The 1997 CFS also publishes multiple mode shipments where two or more modes of transportation are used with the exception of the Other, Unknown, or Parcel delivery/courier/U.S. Postal Service categories. The Parcel delivery/courier/U.S. Postal Service category is considered inherently multi-modal. The Parcel delivery/courier/U.S. Postal Service category consists of delivery services, parcels, packages, and other small shipments that typically weigh less than 100 pounds.

#### Commodity Classifications

The 1977 CTS uses the Commodity Classification for Transportation Statistics (TCC) system to classify the various commodities. According to the 1977 CTS, the TCC system is nearly identical to the Standard Transportation Commodity Code (STCC) system. If that is the case, then the STCC had changed a great deal in the period between the 1977 CTS

and the 1993 CFS. The STCC system employed in the 1993 CFS appears to be completely different than the TCC. The 1997 CFS uses a completely different system of commodity classification called the Standard Classification of Transported Goods (SCTG) code.

*Industries Covered*

- |      |                                                                                                                                                                                                                                                                                                                         |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1977 | All manufacturers                                                                                                                                                                                                                                                                                                       |
| 1993 | Manufacturers, Mining, All wholesale, Video Tape Distributors, Catalog Mail-order houses, Auxiliaries (e.g., warehouses)<br>Excluded farms, forestry, fisheries, oil and gas extraction, governments, construction, transportation, households, foreign establishments, and most establishments in retail and services. |
| 1997 | Manufacturers, Mining, All wholesale, Catalog Mail-order houses, Auxiliaries (e.g., warehouses)<br>Excluded farms, forestry, fisheries, oil and gas extraction, governments, construction, transportation, households, foreign establishments, and most establishments in retail and services.                          |

Sources: U.S. Department of Commerce, Bureau of the Census, 1997 Economic Census, Transportation-1997 Commodity Flow Survey, pp. 3-6, Appendix D. U.S. Department of Commerce, Bureau of the Census, 1992 Census of Transportation, Communications, and Utilities; 1993 Commodity Flow Survey, Introduction, pp. V-VIII. U.S. Department of Commerce, Bureau of the Census, 1977 Economic Census, Transportation-Commodity Transportation Survey, Introduction, pp. V-VI.

Table D1. Parcel Shipment Value, Tons, and Ton-miles by Shipment Size for the U.S.: 1993

| Shipment Size        | Value<br>(Mil \$) | Value<br>% | Tons<br>(1,000) | Tons<br>% | Ton-<br>Miles<br>(Mil) | Ton-<br>Miles<br>% | Avg.<br>Miles<br>Per<br>Shipment |
|----------------------|-------------------|------------|-----------------|-----------|------------------------|--------------------|----------------------------------|
| All Weight Classes   | 563,277           | 100.0%     | 18,892          | 100.0%    | 13,151                 | 100.0%             | 734                              |
| Less than 50 lb.     | 374,903           | 66.6%      | 9,378           | 49.6%     | 6,714                  | 51.1%              | 739                              |
| 50 to 99 lb.         | 78,973            | 14.0%      | 3,224           | 17.1%     | 2,136                  | 16.2%              | 664                              |
| 100 to 499 lb.       | 94,078            | 16.7%      | 4,996           | 26.4%     | 3,339                  | 25.4%              | 652                              |
| 500 to 749 lb.       | 8,421             | 1.5%       | 876             | 4.6%      | 643                    | 4.9%               | 591                              |
| 750 to 999 lb.       | 6,901             | 1.2%       | 419             | 2.2%      | 318                    | 2.4%               | 764                              |
| 1,000 to 9,999 lb.   | -                 | -          | -               | -         | -                      | -                  | -                                |
| 10,000 to 49,999 lb. | -                 | -          | -               | -         | -                      | -                  | -                                |
| 50,000 to 99,999 lb. | -                 | -          | -               | -         | -                      | -                  | -                                |
| 100,000 lb. or more  | -                 | -          | -               | -         | -                      | -                  | -                                |

Source: U.S. Department of Commerce, Bureau of the Census, 1992 Census of Transportation, Communications, and Utilities; 1993 Commodity Flow Survey; Table 4. Shipment Characteristics by Mode of Transportation and Shipment Size for the United States: 1993

Table D2. All Modes vs. Selected Modes Shipment Value, Tons, Ton-Miles, Avg. Miles, and Avg. Value Per Ton by Shipment Size (&lt; 1,000 lb.) for the U.S.: 1993 and 1997

|                              | 1993              |                 |                    |                                       |                               | 1997              |                 |                   |                                         |                             |
|------------------------------|-------------------|-----------------|--------------------|---------------------------------------|-------------------------------|-------------------|-----------------|-------------------|-----------------------------------------|-----------------------------|
|                              | Value<br>(Mil \$) | Tons<br>(1,000) | Ton-Miles<br>(Mil) | Avg. Value*<br>Per Ton<br>(1,000)/Ton | Avg. Miles<br>Per<br>Shipment | Value<br>(Mil \$) | Tons<br>(1,000) | on-Miles<br>(Mil) | Avg. Value*<br>Per Ton<br>\$(1,000)/Ton | Avg. Mile<br>Per<br>Shipmen |
| Less than 50 lb.             |                   |                 |                    |                                       |                               |                   |                 |                   |                                         |                             |
| All Modes                    | 591,779           | 21,783          | 8,647              | 27.17                                 | 539                           | 853,289           | 21,348          | 9,950             | 39.97                                   | 574                         |
| Parcel                       | 374,903           | 9,378           | 6,714              | 39.98                                 | 739                           | 556,012           | 10,324          | 8,265             | 53.86                                   | 819                         |
| %                            | 63.35%            | 43.05%          | 77.65%             |                                       |                               | 65.16%            | 48.36%          | 83.07%            |                                         |                             |
| Private Truck                | 101,000           | 8,850           | 347                | 11.41                                 | 42                            | 130,000           | 8,088           | 361               | 16.07                                   | 45                          |
| %                            | 17.07%            | 40.63%          | 4.01%              |                                       |                               | 15.24%            | 37.89%          | 3.63%             |                                         |                             |
| Air(Includes<br>Air & Truck) | 50,814            | 545             | 860                | 93.24                                 | 1,211                         | 73,193            | 346             | 493               | 211.54                                  | 1,367                       |
| %                            | 8.59%             | 2.50%           | 9.95%              |                                       |                               | 8.58%             | 1.62%           | 4.95%             |                                         |                             |
| For-Hire Truck               | 42,145            | 1,718           | 582                | 24.53                                 | 496                           | 58,347            | 1,399           | 708               | 41.71                                   | 500                         |
| %                            | 7.12%             | 7.89%           | 6.73%              |                                       |                               | 6.84%             | 6.55%           | 7.12%             |                                         |                             |
| 50 to 99 lb.                 |                   |                 |                    |                                       |                               |                   |                 |                   |                                         |                             |
| All Modes                    | 186,656           | 12,764          | 3,559              | 14.62                                 | 294                           | 249,541           | 14,200          | 4,450             | 17.57                                   | 312                         |
| Parcel                       | 78,973            | 3,224           | 2,136              | 24.50                                 | 664                           | 114,451           | 3,988           | 2,916             | 28.70                                   | 729                         |
| %                            | 42.31%            | 25.26%          | 60.02%             |                                       |                               | 45.86%            | 28.08%          | 65.53%            |                                         |                             |
| Private Truck                | 51,935            | 7,401           | 341                | 7.02                                  | 49                            | 62,538            | 7,753           | 399               | 8.07                                    | 51                          |
| %                            | 27.82%            | 57.98%          | 9.58%              |                                       |                               | 25.06%            | 54.60%          | 8.97%             |                                         |                             |
| Air(Includes<br>Air & Truck) | 542               | 5               | 7                  | 108.40                                | 1,390                         | 22,356            | 164             | 245               | 136.32                                  | 1,498                       |
| %                            | 0.29%             | 0.04%           | 0.20%              |                                       |                               | 8.96%             | 1.15%           | 5.51%             |                                         |                             |
| For-Hire Truck               | 30,944            | 1,431           | 688                | 21.62                                 | 554                           | 39,334            | 1,429           | 805               | 27.53                                   | 552                         |
| %                            | 16.58%            | 11.21%          | 19.33%             |                                       |                               | 15.76%            | 10.06%          | 18.09%            |                                         |                             |
| 100 to 499 lb.               |                   |                 |                    |                                       |                               |                   |                 |                   |                                         |                             |
| All Modes                    | 589,693           | 74,922          | 16,423             | 7.87                                  | 223                           | 727,368           | 82,166          | 19,601            | 8.85                                    | 243                         |
| Parcel                       | 94,078            | 4,996           | 3,339              | 18.83                                 | 652                           | 155,417           | 7,340           | 5,306             | 21.17                                   | 723                         |
| %                            | 15.95%            | 6.67%           | 20.33%             |                                       |                               | 21.37%            | 8.93%           | 27.07%            |                                         |                             |
| Private Truck                | 194,695           | 51,342          | 2,783              | 3.79                                  | 55                            | 239,203           | 54,573          | 3,248             | 4.38                                    | 57                          |
| %                            | 33.02%            | 68.53%          | 16.95%             |                                       |                               | 32.89%            | 66.42%          | 16.57%            |                                         |                             |
| Air(Includes<br>Air & Truck) | 1,317             | S               | 46                 | S                                     | 915                           | 48,769            | 644             | 932               | 75.73                                   | 1,456                       |
| %                            | 0.22%             | S               | 0.28%              |                                       |                               | 6.70%             | 0.78%           | 4.75%             |                                         |                             |
| For-Hire Truck               | 239,608           | 15,566          | 8,844              | 15.39                                 | 588                           | 257,282           | 15,746          | 9,694             | 16.34                                   | 609                         |
| %                            | 40.63%            | 20.78%          | 53.85%             |                                       |                               | 35.37%            | 19.16%          | 49.46%            |                                         |                             |
| 500 to 749 lb.               |                   |                 |                    |                                       |                               |                   |                 |                   |                                         |                             |
| All Modes                    | 178,173           | 35,059          | 7,586              | 5.08                                  | 207                           | 219,136           | 38,955          | 8,852             | 5.63                                    | 225                         |
| Parcel                       | 8,421             | 876             | 643                | 9.61                                  | 591                           | 19,705            | 1,214           | 887               | 16.23                                   | 706                         |
| %                            | 4.73%             | 2.50%           | 8.48%              |                                       |                               | 8.99%             | 3.12%           | 10.02%            |                                         |                             |
| Private Truck                | 63,687            | 24,616          | 1,480              | 2.59                                  | 61                            | 79,579            | 27,155          | 1,713             | 2.93                                    | 63                          |
| %                            | 35.74%            | 70.21%          | 19.51%             |                                       |                               | 36.31%            | 69.71%          | 19.35%            |                                         |                             |
| Air(Includes                 | 112               | 5               | 8                  | 22.40                                 | 1,695                         | 10,153            | 211             | 296               | 48.12                                   | 1,409                       |

|                              |         |        |        |       |       |         |        |        |       |       |
|------------------------------|---------|--------|--------|-------|-------|---------|--------|--------|-------|-------|
| Air & Truck)                 |         |        |        |       |       |         |        |        |       |       |
| %                            | 0.06%   | 0.01%  | 0.11%  |       |       | 4.63%   | 0.54%  | 3.34%  |       |       |
| For-Hire Truck               | 92,506  | 8,538  | 4,914  | 10.83 | 587   | 101,790 | 8,826  | 5,682  | 11.53 | 640   |
| %                            | 51.92%  | 24.35% | 64.78% |       |       | 46.45%  | 22.66% | 64.19% |       |       |
| 750 to 999 lb.               |         |        |        |       |       |         |        |        |       |       |
| All Modes                    | 140,468 | 29,517 | 5,910  | 4.76  | 197   | 154,348 | 32,484 | 7,260  | 4.75  | 223   |
| Parcel                       | 6,901   | 419    | 318    | 16.47 | 764   | 9,258   | 839    | 662    | 11.03 | 760   |
| %                            | 4.91%   | 1.42%  | 5.38%  |       |       | 6.00%   | 2.58%  | 9.12%  |       |       |
| Private Truck                | 46,816  | 21,077 | 1,275  | 2.22  | 61    | 56,525  | 22,810 | 1,552  | 2.48  | 68    |
| %                            | 33.33%  | 71.41% | 21.57% |       |       | 36.62%  | 70.22% | 21.38% |       |       |
| Air(Includes<br>Air & Truck) | 155     | 2      | 3      | 77.50 | 1,940 | 5,286   | 125    | 152    | 42.29 | 1,225 |
| %                            | 0.11%   | 0.01%  | 0.05%  |       |       | 3.42%   | 0.38%  | 2.09%  |       |       |
| For-Hire Truck               | 74,159  | 7,082  | 3,990  | 10.47 | 570   | 78,532  | 7,503  | 4,722  | 10.47 | 629   |
| %                            | 52.79%  | 23.99% | 67.51% |       |       | 50.88%  | 23.10% | 65.04% |       |       |

Sources: U.S. Department of Commerce, Bureau of the Census, 1997 Economic Census, Transportation-1997 Commodity Flow Survey, Table 4. Shipment Characteristics by Mode of Transportation and Shipment Size for the United States: 1997. U.S. Department of Commerce, Bureau of the Census, 1992 Census of Transportation, Communications, and Utilities; 1993 Commodity Flow Survey; Table 4. Shipment Characteristics by Mode of Transportation and Shipment Size for the United States: 1993

S Data does not meet publication standards because of high sampling variability or other reasons.

\* Avg. Value per Ton was found by dividing the Value by Tons for each mode of transportation within each weight class.

Table D3. Parcel service share of freight movements for selected commodities with large percentage of commodity value shipped via parcel based on Commodity Flow Surveys of 1977, 1993, and 1997.

|                                                                            | Value, \$ Millions |             |             | Growth, % per year |                |
|----------------------------------------------------------------------------|--------------------|-------------|-------------|--------------------|----------------|
|                                                                            | <u>1977</u>        | <u>1993</u> | <u>1997</u> | <u>1977-97</u>     | <u>1993-97</u> |
| SCTG 21, Pharmaceutical Products                                           |                    |             |             |                    |                |
| -All Modes                                                                 | 13,408             | 163,482     | 224,448     | 15.13              | 8.25           |
| -Parcel                                                                    | 1,105              | 26,825      | 73,149      | 23.32              | 28.50          |
| -%                                                                         | 8.24               | 16.41       | 32.59       | 7.12               | 18.71          |
| SCTG 23, Chemical Products And Preparations, N.E.C.                        |                    |             |             |                    |                |
| -All Modes                                                                 | 39,279             | 184,857     | 209,487     | 8.73               | 3.18           |
| -Parcel                                                                    | 511                | 9,970       | 16,531      | 18.99              | 13.48          |
| -%                                                                         | 1.30               | 5.39        | 7.89        | 9.44               | 9.99           |
| SCTG 24, Plastics And Rubber                                               |                    |             |             |                    |                |
| -All Modes                                                                 | 60,891             | 243,646     | 278,832     | 7.90               | 3.43           |
| -Parcel                                                                    | 778                | 15,063      | 23,334      | 18.54              | 11.56          |
| -%                                                                         | 1.28               | 6.18        | 8.37        | 9.84               | 7.88           |
| SCTG 29, Printed Products                                                  |                    |             |             |                    |                |
| -All Modes                                                                 | 49,794             | **          | 260,327     | 8.62               | **             |
| -Parcel                                                                    | 5,570              | **          | 61,884      | 12.79              | **             |
| -%                                                                         | 11.19              | **          | 23.77       | 3.84               | **             |
| SCTG 30, Textiles, Leather, and Articles of Textiles or Leather            |                    |             |             |                    |                |
| -All Modes                                                                 | 89,406             | 444,037     | 379,161     | 7.49               | -3.87          |
| -Parcel                                                                    | 8,810              | 59,470      | 67,527      | 10.72              | 3.23           |
| -%                                                                         | 9.85               | 13.39       | 17.81       | 3.01               | 7.39           |
| SCTG 33, Articles of Base Metal                                            |                    |             |             |                    |                |
| -All Modes                                                                 | 185,547            | 237,316     | 227,182     | 1.02               | -8.51          |
| -Parcel                                                                    | 2,895              | 30,046      | 37,134      | 13.61              | 5.44           |
| -%                                                                         | 1.56               | 12.66       | 16.35       | 12.47              | 6.60           |
| SCTG 34, Machinery                                                         |                    |             |             |                    |                |
| -All Modes                                                                 | 122,960            | 289,806     | 417,103     | 6.30               | 9.53           |
| -Parcel                                                                    | 5,502              | 48,853      | 55,084      | 12.21              | 8.50           |
| -%                                                                         | 4.47               | 16.86       | 13.21       | 5.57               | -5.92          |
| SCTG 35, Electronic, Other Electrical, and Office Equipment and Components |                    |             |             |                    |                |
| -All Modes                                                                 | 91,563             | 563,994     | 869,674     | 11.91              | 11.43          |
| -Parcel                                                                    | 7,747              | 138,428     | 246,124     | 18.88              | 15.47          |
| -%                                                                         | 8.46               | 24.54       | 28.30       | 6.22               | 3.63           |
| SCTG 36, Motorized and Other Vehicles (Including Parts)                    |                    |             |             |                    |                |
| -All Modes                                                                 | 115,216            | 487,494     | 570,981     | 8.33               | 4.03           |
| -Parcel                                                                    | 209                | 22,123      | 24,266      | 26.84              | 2.34           |

|                                              |        |         |         |       |       |
|----------------------------------------------|--------|---------|---------|-------|-------|
| -%                                           | 0.18   | 4.54    | 4.25    | 17.13 | -1.64 |
| SCTG 37, Transportation Equipment, N.E.C.    |        |         |         |       |       |
| -All Modes                                   | 43,096 | 164,981 | 129,185 | 5.64  | -5.93 |
| -Parcel                                      | 771    | 16,769  | 15,840  | 16.31 | -1.41 |
| -%                                           | 1.79   | 10.16   | 12.26   | 10.10 | 4.81  |
| SCTG 38, Precision Instruments and Apparatus |        |         |         |       |       |
| -All Modes                                   | 25,322 | 198,492 | 157,946 | 9.58  | -5.55 |
| -Parcel                                      | 3,191  | 58,955  | 76,295  | 17.20 | 6.66  |
| -%                                           | 12.60  | 29.70   | 48.30   | 6.95  | 12.93 |
| SCTG 40, Miscellaneous Manufactured Products |        |         |         |       |       |
| -All Modes                                   | 20,250 | 217,977 | 420,883 | 16.38 | 17.88 |
| -Parcel                                      | 3,372  | 52,922  | 115,199 | 19.31 | 21.47 |
| -%                                           | 16.65  | 24.28   | 27.37   | 2.52  | 3.04  |

\*Source: U.S. Department of Commerce, Bureau of the Census, 1977 Economic Census, Transportation-Commodity Transportation Survey, Table 2 Shipment Characteristics by Manufacturing Establishments--Commodities and Means of Transport By Destination: 1977. U.S. Department of Commerce, Bureau of the Census, 1992 Census of Transportation, Communications, and Utilities; 1993 Commodity Flow Survey; Table 6b Shipment Characteristics by Three-Digit Commodity and Mode of Transportation for the United States: 1993. U.S. Department of Commerce, Bureau of the Census, 1997 Economic Census, Transportation-1997 Commodity Flow Survey, Table 7 Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for the United States: 1997. Percentages were derived from survey data.

\*Commodities for which the quantities moved via parcel carrier were large, but not at least 12.3% of value in 1997.

\*\*Data did not meet Census publication standards.

#### Note for Table D3:

The basis for choosing the commodities included in this table is: (1) All two-digit commodities in the 1997 Commodity Flow Survey where the percentage of commodity value moved by the parcel/courier/US Postal Service mode relative to the total value of that commodity transported was greater than or equal to the average value moved by the parcel/courier/US Postal Service mode relative to the total value for all commodities in the survey (12.3%). (2) All two-digit commodities in the 1997 Commodity Flow Survey where the value of the commodity moved via parcel/courier/US Postal Service was significant (exceeding 10 billion dollars). Three commodities were included because of the significance of the value moved (\$ Millions): SCTG 23 (\$16,531), SCTG 24 (\$23,334), and SCTG 36 (\$24,266). The highest value among the remaining commodities was SCTG 32 (\$6,032).

Table D4. Industries and activities related to commodities with high parcel transport market share using 1993 detailed commodity code groups.

|                                                                     | Clothing and Accessories | Printing and Publishing | Hardware | Small Military Equipment | Industrial Machinery, Equipment and Parts | Computers and Accessories | TVs, Radios, Other Electrical Equipment and Parts | Electrical Transmission or Distribution Equipment | Communication Equipment | Medical Supplies, Medical Equipment, and Pharmaceuticals | Scientific and Precision Equipment | Photograph Equipment and Supplies | Office Supplies | Musical Instruments or Parts | Toys and Athletic Goods | Industrial Supplies |
|---------------------------------------------------------------------|--------------------------|-------------------------|----------|--------------------------|-------------------------------------------|---------------------------|---------------------------------------------------|---------------------------------------------------|-------------------------|----------------------------------------------------------|------------------------------------|-----------------------------------|-----------------|------------------------------|-------------------------|---------------------|
| Textile Mill Products                                               |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Miscellaneous Fabricated Textile Products                           | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Narrow Fabrics, Cotton, Silk Or Wool, Or Man-Made Fibers            | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Apparel and Other Textile Products                                  | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Fur Goods                                                           | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Caps, Hats, Or Millinery Or Hat Bodies                              | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Women's Misses', Children's, Or Infants' Clothing                   | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Men's, Youths', Or Boys' Clothing Or Uniforms                       | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Miscellaneous Apparel Or Accessories                                | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Leather and Leather Products                                        | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Leather Goods, NEC                                                  | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Leather Gloves Or Mittens                                           | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Luggage Or Handbags, Leather Or Other Materials                     | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Rubber and Miscellaneous Plastic Products                           |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Rubber Or Plastic Hose Or Belting                                   |                          |                         |          |                          | ✓                                         |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Rubber and Plastics Footwear                                        | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Printing and Publishing                                             |                          | ✓                       |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Chemicals and Allied Products                                       |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Pharmaceuticals                                                     |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         | ✓                                                        |                                    |                                   |                 |                              |                         |                     |
| Fabricated Metal Products                                           |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Cutlery, Hand Tools, Or General Hardware                            |                          |                         | ✓        |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Bolts, Nuts, Screws, Rivets, Washers, Or Other Industrial Fasteners |                          |                         | ✓        |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |



Table D4 (continued)

|                                                                            | Clothing and Accessories | Printing and Publishing | Hardware | Small Military Equipment | Industrial Machinery, Equipment and Parts | Computers and Accessories | TVs, Radios, Other Electrical Equipment and Parts | Electrical Transmission or Distribution Equipment | Communication Equipment | Medical Supplies, Medical Equipment, and Pharmaceuticals | Scientific and Precision Equipment | Photograph Equipment and Supplies | Office Supplies | Musical Instruments or Parts | Toys and Athletic Goods | Industrial Supplies |
|----------------------------------------------------------------------------|--------------------------|-------------------------|----------|--------------------------|-------------------------------------------|---------------------------|---------------------------------------------------|---------------------------------------------------|-------------------------|----------------------------------------------------------|------------------------------------|-----------------------------------|-----------------|------------------------------|-------------------------|---------------------|
| Transportation Equipment                                                   |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Motorcycles, Bicycles, and Parts                                           |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Aircraft Or Parts                                                          |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Instruments and Related Products                                           |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Ophthalmic Or Opticians Goods                                              |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         | ✓                                                        |                                    |                                   |                 |                              |                         |                     |
| Surgical, Medical Or Dental Instruments Or Supplies                        |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         | ✓                                                        |                                    |                                   |                 |                              |                         |                     |
| Optical Instruments Or Lenses                                              |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         | ✓                                                        |                                    |                                   |                 |                              |                         |                     |
| Engineering, Laboratory, Or Scientific Instruments                         |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          | ✓                                  |                                   |                 |                              |                         |                     |
| Measuring, Controlling, Or Indicating Instruments                          |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          | ✓                                  |                                   |                 |                              |                         |                     |
| Watches, Clocks, Clockwork Operated Devices, Or Parts                      | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Photographic Equipment Or Supplies                                         |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    | ✓                                 |                 |                              |                         |                     |
| Miscellaneous Manufacturing Industries                                     |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Jewelry, Silverware, or Plated Ware                                        | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Costume Jewelry, Buttons, Novelties, Or Notions                            | ✓                        |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Pens, Pencils, Or Other Office Materials, Or Artists' Materials            |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   | ✓               |                              |                         |                     |
| Toys, Amusements, Sporting Or Athletic Goods                               |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 | ✓                            |                         |                     |
| Musical Instruments Or Parts                                               |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 | ✓                            |                         |                     |
| Stone, Clay, Glass, and Concrete Products                                  |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Pottery                                                                    |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         |                     |
| Abrasive, Asbestos Products, Or Miscellaneous Nonmetallic Mineral Products |                          |                         |          |                          |                                           |                           |                                                   |                                                   |                         |                                                          |                                    |                                   |                 |                              |                         | ✓                   |

Note: Some of these commodity categories are self explanatory, like Apparel and Pharmaceuticals, while others like Transportation Equipment could be a variety of things. To interpret these, we had to revert to the 1993 survey, as the 1997 survey did not have sufficient detail on commodity breakdowns to be clear on the composition. We identified specific commodities from the 1993 survey at the three-digit level that comprised the 1997 two-digit level commodities that were major users of parcel service. We then examined these detailed commodity categories to identify the industries or sectors of the economy in which they are used. Thus we were able to identify industries or sectors which appeared to rely on parcel service in a significant way. This led to Table 38, which lists the industries that are major users of parcel service based upon interpretation of the Commodity Flow Surveys of 1993 and 1997

Table D5. High parcel use commodities, value and parcel market share, 1977 and 1993.

| SURVEY YEAR | CODE            | DESCRIPTION                                                          | PARCEL (Mil \$)                   | PARCEL % | ALL MODES (Mil \$) |        |
|-------------|-----------------|----------------------------------------------------------------------|-----------------------------------|----------|--------------------|--------|
| 1977        | <u>SCTG 21</u>  |                                                                      |                                   |          |                    |        |
|             | TCC 2831        | Drugs (Biological And Botanical Products)                            | 1,105                             | 8.24%    | 13,408             |        |
| 1993        | STCC 283        | Drugs                                                                | 26,825                            | 16.41%   | 163,482            |        |
|             | <u>SCTG 23</u>  |                                                                      |                                   |          |                    |        |
| 1977        | <u>TCC 2815</u> | Cyclic Intermediates And Dyes                                        | 2                                 |          | 5,762              |        |
|             | TCC 2816        | Inorganic Pigments                                                   | 6                                 |          | 1,395              |        |
|             | TCC 284         | Soap And Other Detergents                                            | 353                               |          | 16,874             |        |
|             | TCC 2851        | Paints, Enamels, Lacquers, Shellacs, Allied Products                 | 8                                 |          | 5,925              |        |
|             | TCC 289         | Miscellaneous Chemical Products                                      | 142                               |          | 9,323              |        |
|             | Total           |                                                                      | 511                               | 1.30%    | 39,279             |        |
| 1993        | STCC 284        | Soap or Other Detergents, Cleaning Preparations, Cosmetics, Perfumes | 6,357                             |          | 81,137             |        |
|             | STCC 285        | Paints, Enamels, Lacquers, Shellacs, Or Varnishes                    | 402                               |          | 25,268             |        |
|             | STCC 286        | Gum Or Wood Chemicals                                                | 87                                |          | 2,361              |        |
|             | STCC 287        | Agricultural Chemicals                                               | 430                               |          | 34,210             |        |
|             | STCC 289        | Miscellaneous Chemical Products                                      | 2,694                             |          | 41,881             |        |
|             | Total           |                                                                      | 9,970                             | 5.39%    | 184,857            |        |
|             | 1977            | <u>SCTG 24</u>                                                       |                                   |          |                    |        |
|             |                 | <u>TCC 30</u>                                                        | Rubber And Miscellaneous Products | 750      |                    | 38,008 |
|             |                 | TCC 2821                                                             | Plastics Materials                | 28       |                    | 22,883 |
|             | Total           |                                                                      | 778                               | 1.28%    | 60,891             |        |
| 1993        | STCC 30         | Rubber Or Miscellaneous Plastics Products                            | 13,944                            |          | 175,267            |        |
|             | STCC 282        | Plastic Materials Or Synthetic Fibers, Resins, Or Rubber             | 1,119                             |          | 68,379             |        |
|             | Total           |                                                                      | 15,063                            | 6.18%    | 243,646            |        |
| 1977        | <u>SCTG 29</u>  |                                                                      |                                   |          |                    |        |
|             | TCC 27          | Printed Matter                                                       | 5,570                             | 11.19%   | 49,794             |        |

|      |                |                                                        |         |        |         |  |
|------|----------------|--------------------------------------------------------|---------|--------|---------|--|
| 1977 | <u>SCTG 30</u> |                                                        |         |        |         |  |
|      | <u>TCC 22</u>  | Textile Mill Products                                  | 358     |        | 35,284  |  |
|      | TCC 23         | Apparel, Other Finished Textile Products, Incl. Knit   | 7,614   |        | 45,988  |  |
|      | TCC 31         | Leather And Leather Products                           | 838     |        | 8,134   |  |
|      | Total          |                                                        | 8,810   | 9.85%  | 89,406  |  |
| 1993 | STCC 22        | Textile Mill Products                                  | 7,828   |        | 102,189 |  |
|      | STCC 23        | Apparel Or Other Finished Textile Products             | 44,973  |        | 291,203 |  |
|      | STCC 31        | Leather Or Leather Products                            | 6,669   |        | 50,645  |  |
|      | Total          |                                                        | 59,470  | 13.39% | 444,037 |  |
| 1977 | <u>SCTG 33</u> |                                                        |         |        |         |  |
|      | <u>TCC 33</u>  | Primary Metal Products                                 | 433     |        | 102,969 |  |
|      | TCC 34         | Fabricated Metal Products Exc. Ordnance, Mach., Trans. | 2,462   |        | 82,578  |  |
|      | Total          |                                                        | 2,895   | 1.56%  | 185,547 |  |
| 1993 | STCC 34        | Fabricated Metal Products                              | 30,046  |        | 237,316 |  |
| 1977 | <u>SCTG 34</u> |                                                        |         |        |         |  |
|      | <u>TCC 35</u>  | Machinery, Except Electrical                           | 5,502   |        | 122,960 |  |
| 1993 | STCC 35        | Machinery, Excluding Electrical                        | 89,578  |        | 442,770 |  |
|      | STCC 357       | (Minus) Office, Computing, Or Accounting Machines      | 40,725  |        | 152,964 |  |
|      | Total          |                                                        | 48,853  | 16.86% | 289,806 |  |
| 1977 | <u>SCTG 35</u> |                                                        |         |        |         |  |
|      | <u>TCC 36</u>  | Electrical Machinery, Equipment, And Supplies          | 7,747   |        | 91,563  |  |
| 1993 | STCC 357       | Office, Computing, Or Accounting Machines              | 40,725  |        | 152,964 |  |
|      | STCC 36        | Electrical Machinery, Equipment, Or Supplies           | 97,703  |        | 411,030 |  |
|      | Total          |                                                        | 138,428 | 24.54% | 563,994 |  |
| 1977 | <u>SCTG 36</u> |                                                        |         |        |         |  |
|      | <u>TCC 371</u> | Motor Vehicles And Equipment                           | 190     |        | 114,336 |  |
|      | TCC 3751       | Motorcycles, Bicycles, And Parts                       | 19      |        | 880     |  |

|      |           |        |        |         |
|------|-----------|--------|--------|---------|
|      | Total     | 209    | 0.18%  | 115,216 |
| 1993 | STCC 371  | 18,194 |        | 479,729 |
|      | STCC 375  | 3,929  |        | 7,765   |
|      | Total     | 22,123 | 4.54%  | 487,494 |
| 1977 | SCTG 37   |        |        |         |
|      | TCC 372   | 596    |        | 24,691  |
|      | TCC 3732  | 101    |        | 6,702   |
|      | TCC 374   | 18     |        | 4,257   |
|      | TCC 37691 | 50     |        | 3,641   |
|      | TCC 379   | 6      |        | 3,805   |
|      | Total     | 771    | 1.79%  | 43,096  |
| 1993 | STCC 372  | 14,881 |        | 115,111 |
|      | STCC 373  | 1,045  |        | 18,728  |
|      | STCC 374  | 177    |        | 6,049   |
|      | STCC 376  | S      |        | 9,720   |
|      | STCC 379  | 666    |        | 15,373  |
|      | Total     | 16,769 | 10.16% | 164,981 |
| 1977 | SCTG 38   |        |        |         |
|      | TCC 38    | 3,191  | 12.60% | 25,322  |
| 1993 | STCC 38   | 58,955 | 29.70% | 198,492 |
| 1977 | SCTG 40   |        |        |         |
|      | TCC 39    | 3,372  | 16.65% | 20,250  |
| 1993 | STCC 19   | 1,824  |        | 17,174  |
|      | STCC 39   | 51,098 |        | 200,803 |
|      | Total     | 52,922 | 24.28% | 217,977 |

## Appendix E

## CHOICE OF BIG FOUR PARCEL CARRIERS

The choice of Airborne, Federal Express, UPS, and U.S. Postal Service as carriers whose combined operations and revenues are a good indication of the entire domestic parcel service industry was based on many criteria. These are discussed in Section 3. However, the statement that their revenue appears to be at least 90% of the entire industry needs explanation. This is based on two sources. One is an estimate of the market shares of carriers in the overnight delivery market as of June 1998, that was made by the Colography Group and reported in The Wall Street Journal (Jaffe and Brannigan 1998). The shares were given as:

|                  |       |
|------------------|-------|
| FedEx            | 45.5% |
| Airborne Express | 22.8% |
| UPS              | 20.8  |
| Postal Service   | 6.4   |
| DHL Worldwide    | 2.4   |
| Others           | 2.8   |

Our Big Four parcel carriers account for 95.5% of this market, accepting the percentages given above for the four carriers. (The total does not equal 100% apparently due to rounding errors.) Alternatively, they represent 94.8% using the remainder for DHL and others.

Source: Jaffe Greg and Martha Brannigan (1998). Possible FedEx Walkout Threatens to disrupt Holidays, The Wall Street Journal, November 12, 1998, p. 4B.

The second source is a tabulation of market shares for the "Package Delivery Market in 1997" published in the Market Share Reporter – 2000. It reports information from the Chicago Tribune, August 2, 1998, p. C1, "from *Dean Report*", and the estimates of the market shares were:

|                       |       |
|-----------------------|-------|
| Postal Service        | 44.0% |
| UPS                   | 42.0  |
| Federal Express       | 7.0   |
| Freight Consolidators | 3.0   |
| Others                | 4.0   |

These estimates appear to refer to ground or other low speed services, and may refer to a particular segment of the industry—the original source could not be located. But the three carriers which are included in our Big Four parcel carrier group account for 93% of the total.

Source: Lazich, Robert S. (1999), Ed., Market Share Reporter – 2000, (The Gale Group, 27500 Drake Rd, Farmington Hills, MI) p. 2

## Appendix F

## INFORMATION ON PARCEL AND RELATED COMPANIES

Below (in Table F1) is a list of parcel freight transportation companies identified in two main sources of information on U.S. companies that identified the parcel industry specifically, Hoover's<sup>1</sup> and Mergent Industry Review<sup>2</sup>. Our concern is with the U.S. domestic parcel service industry, and therefore we used the following criteria to determine whether a carrier listed in these sources was a member of this group or not.

- 1) They carry parcels i.e. primarily packages under 200 pounds.
- 2) They deal directly with the shipment owner, and are not merely an intermediary.
- 3) They carry parcels of many types i.e., are not a niche player.
- 4) More than \$500 million dollars in U.S. sales for the most recently reported year.

It should be noted that there are many regional and specialized (niche) parcel carriers not listed here. Many of these are members of either the Express Carriers Association or the Messenger Courier Association of the Americas, and a list of members in these groups appear in Tables F2 and F3 respectively.

Table F1. List of parcel companies from *Hoover's* and *Mergent Industry Review*.

## Air Cargo

[www.aircargo-inc.com](http://www.aircargo-inc.com)

Privately owned

- Air Cargo has only 200 employees, an extremely small number relative to the larger players.

Air Cargo is owned by a large number of airlines<sup>3</sup>. They provide value added services to the airfreight industry. The services they offer include: cargo terminal handling, pickup & delivery, road feeder service, and same day & next day service-small package<sup>4</sup>.

## Air Express International Corp.

NASDAQ: AEIC

[www.aeilogistics.com](http://www.aeilogistics.com)

- This company is primarily a cargo transportation company
- Has recently been purchased by Deutsche Post.
- The #1 US based airfreight forwarder.
- This company provides international ocean freight services, customs brokerage services, and global logistics management.
- Sales for 1998 of \$1,513.2 million.

<sup>1</sup> Hoover's Online, <http://www.hoovers.com>, as seen on 1/26/00

<sup>2</sup> Mergent FIS, Inc., Mergent's Industry Review: Freight Transportation, Vol. 18, No. 12, 11/12/99 (New York, NY), pg.3

<sup>3</sup> Air Cargo, Inc., <http://www.air-cargo-inc.com/aci/>, as seen on 01/28/00

<sup>4</sup> Air Cargo, Inc., Products. <http://www.air-cargo-inc.com/aci/products.htm>, as seen on 01/28/00

Deutsche Post AG has just purchased AEI Logistics and is integrating its operations into the Intercontinental Business Unit of Danzas. The newly formed company will be the number one airfreight forwarder in the world and one of the top five ocean freight forwarding companies in the world<sup>5</sup>.

AIRT, Inc.

NASDAQ: AIRT

[www.airt.net](http://www.airt.net)

- Provides overnight air cargo services to the air express delivery industry.
- Provides aviation related parts brokerage and overhaul services.
- Provides aviation ground support equipment products.
- Sales for 1998 of just over \$50 million.

Two AIRT subsidiaries, Mountain Air Cargo, Inc. (MAC) and CSA Air, Inc. (CSA), do provide "small package overnight air freight delivery services on a contract basis". MAC and CSA currently operate 95 aircraft under agreements with Federal Express<sup>6</sup>.

Airborne Freight Corporation

NYSE: ABF

[www.airborne.com](http://www.airborne.com)

- Provides overnight express, next-day, and second-day delivery, as well as ocean shipping services. Airborne ranks #3 in US airfreight shipping.
- Sales for 1998 of \$3,074.5 million.

AirNet Systems, Inc.

NYSE: ANS

[www.airnet.com](http://www.airnet.com)

- Transports cancelled checks and financial documents for banks.
- Sales for 1998 of \$113.7 million.

According to their 1998 10K report, "Overview of AirNet's business AirNet Express(SM), the integrated national air transportation network of AirNet Systems, Inc., operates between 100 cities in more than 40 states and delivers over 18,000 time-critical shipments each working day. AirNet's check delivery service, which generates approximately 82% of AirNet's revenues, is the leading transporter of canceled checks and related information for the U.S. banking industry, meeting more than 2,200 daily deadlines. AirNet's express service, which generates approximately 17% of AirNet's revenues, provides specialized, high priority delivery service for customers requiring

---

<sup>5</sup> Air Express International Corporation, Information Center, "Deutsche Post Completes Tender Offer for Air Express International", 02/10/00,

<http://www.aeilogistics.com/informationcenter/00feb10.html>, as seen on 02/28/00

<sup>6</sup> Air Transportation Holding Company, Inc., Company Overview, <http://www.airt.net/airtinfo.htm>, as seen on 02/28/00

late pick-ups and early deliveries combined with prompt, on-line delivery information. AirNet's fixed base operations, which account for approximately 1% of AirNet's revenues, also offer retail aviation fuel sales and related ground services for customers in Columbus, Ohio.”<sup>7</sup>

#### Alliance Airlines

Privately owned

[www.allianceairlines.com](http://www.allianceairlines.com)

- Cargo service company
- Sales for 1998 of \$40.0 million<sup>8</sup>.

Alliance provides road feeder and handling services to over 110 international airlines<sup>9</sup>.

#### ARAMEX International Limited

NASDAQ: ARMX

[www.aramex.com](http://www.aramex.com)

- Most of this company's sales revenues come from shipments within the Middle East and Indian subcontinent.
- Sales for 1998 of \$83.6 million.

Provides domestic inter-city same day and overnight delivery services. Also, provides international shipments of documents and small parcels<sup>10</sup>.

#### Atlas Air, Inc.

NYSE: CGO

[www.atlasair.com](http://www.atlasair.com)

- Hauls cargo around the world for the major airlines.
- Enables carriers to focus on passengers without abandoning cargo services.
- Sales for 1998 of \$422.2 million.

Atlas provides aircraft, crew, maintenance, and insurance (ACMI) on a contract basis or international air carriers. Customers include: British Airways, China Airlines, Lufthansa, and Federal Express. The company is the only pure air cargo outsourcer and largest ACMI carrier in the freight service business. “It operates the world's largest fleet off 747-200 freighter aircraft, and has become the world's third largest cargo carrier, behind only Federal Express and UPS.”<sup>11</sup>

#### Baltic International

<sup>7</sup> SEC Filings (10-K) of Air Net for 1998, pg.3

<sup>8</sup> Alliance Airlines, Company Background,

<http://www.allianceairlines.com/backgrnd/backgrnd.html>, as seen on 02/28/00

<sup>9</sup> Alliance Airlines, Company Background,

<http://www.allianceairlines.com/backgrnd/backgrnd.html>, as seen on 02/28/00

<sup>10</sup> Aramex International Ltd., Express, <http://www.aramex.com/expservice.html>, as seen on 01/28/00

<sup>11</sup> Atlas Air, About Atlas Air, <http://www.atlasair.com/about.html/>, as seen on 01/28/00

OTC: BISAE

- Has sold off all parts of operations except the Beer distributorship in the Baltic States.
- Sales for 1998 of 0.7 million dollars.

Business Post Group plc

London: BPG

- Overnight and express delivery within Ireland and UK.
- Handles overseas deliveries through an alliance with Airborne Express.
- Sales for 1998 of \$163.2 million.

Canada Post Corp.

Government owned agency

[www.canadapost.ca](http://www.canadapost.ca)

- Replaced Canada's post office.
- Sales for 1998 of \$3,568.7 million.

Circle International Group, Inc.

NASDAQ: CRCL

[www.circleintl.com](http://www.circleintl.com)

- Global air and ocean freight forwarding and integrated logistics services<sup>12</sup>.
- Sales for 1998 of \$737.7 million.

CNF Transportation

NYSE: CNF

[www.cnf.com](http://www.cnf.com)

- Provides truckload, LTL, intermodal, and logistics services.
- The Emery Worldwide subsidiary provides airfreight services. Emery can handle parcels but primarily freight. The average weight of a shipment is 248 pounds.
- Sales for 1998 of \$4,941.5 million.
- In 1994, EWA was awarded a 10-year contract with the USPS to provide air transport of Express and Priority Mail<sup>13</sup>.

According to the CNF Transportation Inc. 1998 10K Report:

“While Emery's freight system is designed to handle parcels, packages and shipments of a variety of sizes and weights, its air freight operations are focused primarily on heavy air freight (defined as shipments of 70 pounds or more) as opposed to envelopes. In 1998, Emery's air freight shipments weighed an average of approximately 248 pounds and generated average revenue of approximately \$229 per shipment.”<sup>14</sup>

Consolidated Delivery & Logistics, Inc.

AMEX: CDV

[www.cdl.net](http://www.cdl.net)

<sup>12</sup> SEC Filings (10-K) of Circle International Group Inc. for 1998, pg.1

<sup>13</sup> CNF Inc., History And Background, <http://www.cnf.com/pressKit/cnf.html>, as seen on 02/14/00

<sup>14</sup> SEC Filings (10-K) of CNF Inc. for 1998, pg.8

- Provides same-day airfreight and ground delivery for commercial clients.
- Sales for 1998 of \$185.7 million.

According to a press release:

“As vice president of CD&L, Drew Kronick is guiding the company, attempting to make it a prominent player in domestic and international delivery. Kronick detailed some of the features that allow his company to deliver “the total package.”

Q. How is your service different from those offered by UPS (United Parcel Service) or FedEx?

A. It is really simple. We are in the time-critical delivery business. Most of our business happens same-day, where FedEx and UPS business is overnight. So we are providing a solution to a customer who needs to have it happen now and who's got some time-critical delivery component inside his particular operation that he is having a problem with.

Q. What different delivery components do you offer?

A. Our business is divided into three areas: We have an air division, which is about a third of our business. Domestically and internationally, we provide time-critical delivery solutions, meaning that if you're going to Europe and it's a two-day point for UPS or FedEx, many times we'll deliver it with other value-added components to the delivery.

The smallest part of our business, which is about 12 percent, is our on-demand, same-day, point-to-point rush courier product. The largest and fastest-growing part of our business is our corporate out-sourcing.”<sup>15</sup>

CWT Distribution Limited

Singapore: CWTD

[www.cwt.com.sg](http://www.cwt.com.sg)

- A substantial provider of chemical logistics.
- Provides logistics systems including consulting, freight forwarding, documentation, and customs clearance.
- Sales for 1998 of \$87.8 million.

*Deutsche Post AG*

Government owned agency

[www.postag.de](http://www.postag.de)

- Does provide same-day letter and parcel delivery, primarily in Europe.
- Owns 23% of DHL Worldwide.
- The leading freight forwarder worldwide.
- Recently purchased freight forwarder Air Express International<sup>16</sup>.

<sup>15</sup> Consolidated Delivery & Logistics, Inc, CD&L in the News, “Clifton Couriers Race FedEx, UPS”, June 1999, <http://www.cdl.net/news10.html>, as seen on 02/14/00

- Sales for 1998 of \$18,399 million.

*DHL Worldwide*

Privately owned

www.dhl.com

- Deutsche Post and Lufthansa each own approximately 25%.
- World's largest international express delivery service.
- Japan Airlines recently sold its 20% stake in DHL International<sup>17</sup>.
- DHL International is contemplating an IPO within a three-year timeframe<sup>18</sup>.
- Sales for DHL Worldwide Express in 1998 of \$5,000 million.

"DHL Worldwide Express is composed of DHL Airways, Inc., which serves all locations in the U.S. and its territories; and DHL International, Ltd. And its agents and affiliated companies, which serve all locations outside the U.S. and its territories."<sup>19</sup>

According to the Forbes web page, DHL Airways is on their list of the "Forbes The Top 500 Private Companies".

| Year | Rank | Revenue<br>(\$mil)  |
|------|------|---------------------|
| 1996 | 194  | 959 <sup>20</sup>   |
| 1997 | 167  | 1,085 <sup>21</sup> |
| 1998 | 142  | 1,226 <sup>22</sup> |
| 1999 | 134  | 1,348 <sup>23</sup> |

---

<sup>16</sup> Air Express International Corporation, Information Center, "Deutsche Post Completes Tender Offer for Air Express International", 02/10/00,

<http://www.aeilogistics.com/informationcenter/00feb10.html>, as seen on 02/28/00

<sup>17</sup> DHL Worldwide Express, Press Release, "Japan Airlines Sells 20% Stake In DHL International", 12/13/99, [http://www.dhl-usa.com/press\\_display/1,1555,47,00.html](http://www.dhl-usa.com/press_display/1,1555,47,00.html), as seen on 02/14/00

<sup>18</sup> DHL Worldwide Express, Press Release, "Japan Airlines Sells 20% Stake In DHL International", 12/13/99, [http://www.dhl-usa.com/press\\_display/1,1555,47,00.html](http://www.dhl-usa.com/press_display/1,1555,47,00.html), as seen on 02/14/00

<sup>19</sup> DHL Worldwide Express, Press Release, "Japan Airlines Sells 20% Stake In DHL International", 12/13/99, [http://www.dhl-usa.com/press\\_display/1,1555,47,00.html](http://www.dhl-usa.com/press_display/1,1555,47,00.html), as seen on 02/14/00

<sup>20</sup> Forbes.com, Inc., Forbes: The 500 Top Private Companies, 1996, <http://www.forbes.com/tool/toolbox/private500/asp/alphaindex.asp?index=d,96>, as seen on 01/04/00

<sup>21</sup> Forbes.com, Inc., Forbes: The 500 Top Private Companies, 1997, <http://www.forbes.com/tool/toolbox/private500/asp/alphaindex.asp?index=d,97>, as seen on 01/04/00

<sup>22</sup> Forbes.com, Inc., Forbes: The 500 Top Private Companies, 1998, <http://www.forbes.com/tool/toolbox/private500/asp/alphaindex.asp?index=d,98>, as seen on 01/04/00

Dispatch Management Services Corp.

AMEX: RPD

[www.dms-corp.com](http://www.dms-corp.com)

- Primarily a bicycle, foot, and car courier in 18 US cities.
- A large portion of sales revenues come from software licensing fees to other courier services.
- Sales for 1998 of \$188.6 million.

According to their 1999 10K report, Dispatch Management “was formed to create one of the largest providers of urgent, on-demand, point-to-point ("Point-to-Point") delivery services in the world. The Company focuses on Point-to-Point delivery by foot, bicycle, motorcycle, car and truck and operates in 22 of the largest metropolitan markets in the United States as well as in the United Kingdom, Australia, and New Zealand.”<sup>24</sup>

Dynamex Inc.

AMEX: DDN

[www.dynamex.com](http://www.dynamex.com)

- Provides on-demand delivery of time sensitive, non-faxable materials anywhere in a city.
- Offers delivery services in about 20 Canadian and 21 US cities.
- Approximately 60% of the sales revenues come from US operations.
- Sales for 1998 of \$239.7 million.

“Dynamex offers a range of same-day transportation and distribution services for clients of all sizes and needs. We provide services within cities, between cities and between countries. When our clients require a seamless national or international network of transportation and distribution services, we partner with other providers anywhere in the world.”<sup>25</sup>

Eagle USA Air Freight Inc.

NASDAQ: EUSA

[www.eagleusa.com](http://www.eagleusa.com)

- The Eagle Freight Services subsidiary does provide same-day local pickup and delivery services.
- The freight primarily weighs more than 50 pounds.
- Sales for 1998 of \$595.1 million.

---

<sup>23</sup> Forbes.com, Inc., Forbes: The 500 Top Private Companies, 1999, <http://www.forbes.com/tool/toolbox/private500/asp/alphaindex.asp?index=d,99>, as seen on 01/04/00

<sup>24</sup> SEC Filings (10-K) of Dispatch Management Services Corp. for 1998

<sup>25</sup> Dynamex Inc., Company Overview, <http://www.dynamex.com/Profile/DefaultTxt1.asp>, as seen on 02/14/00

“Eagle USA Airfreight, Inc. is engaged in the business of providing air freight forwarding and other transportation and logistics services. Historically, the Company has grown through the expansion of its domestic air freight forwarding customer base and terminal network. In the past two fiscal years, the Company has rapidly expanded its terminal network from 47 in September 1996 to 71 in September 1998. As the Company has expanded nationwide, it has broadened the services it provides to include local pick-up and delivery and truck brokerage services as well as various "value added" logistics services.”<sup>26</sup>

Expeditors International of Washington, Inc.

NASDAQ: EXPD

[www.expd.com](http://www.expd.com)

- Primarily a freight forwarder and consolidator.
- Buys cargo space in volume and resells.
- Customs broker.
- Sales for 1998 of \$1,063.7 million.

FDX Corp.

NYSE:FDX

[www.fedexcorp.com](http://www.fedexcorp.com)

- Parent corporation for Federal Express.
- Parent corporation for RPS.
- Sales for 1999 of \$16,774 million.

*Fine Air Services*

Private (but NASDAQ:BIGF is proposed)

[www.fineair.com](http://www.fineair.com)

- Offers a fleet of planes and ground transport to third parties.
- Sales for 1998 of \$116.1 million.

*Forward Air Corporation*

NASDAQ:FWRD

[www.forwardair.com](http://www.forwardair.com)

- Picks up packages from airfreight forwarders then sends them by truck to terminals near their destinations.
- Sales for 1998 of \$130.4 million.

Fritz Cos., Inc.

NASDAQ: FRTZ

[www.fritz.com](http://www.fritz.com)

- #1 US Customs broker.
- Provides door-to-door transport and logistics for importers and exporters.

---

<sup>26</sup> Eagle USA Airfreight, Inc., Company Info, Investors' Overview, [http://www.corporate-ir.net/ireye/ir\\_site.zhtml?ticker=eusa&script=2100](http://www.corporate-ir.net/ireye/ir_site.zhtml?ticker=eusa&script=2100), as seen on 02/14/00

- Sales for 1999 of \$1,387.7 million.

Hays plc

London: HAS

[www.hays-plc.com](http://www.hays-plc.com)

- Offers courier service and overnight delivery in Europe.
- Sales for 1999 of \$2,955.9 million.

Japan Postal Service

Government owned agency

[www.postal.mpt.go.jp/new-eng/index.htm](http://www.postal.mpt.go.jp/new-eng/index.htm)

- This is the postal service for Japan.
- Sales for 1998 of \$20,741 million.

Kitty Hawk Inc.

NASDAQ:KTTY

[www.kha.com](http://www.kha.com)

- Functions as a dedicated airfreight carrier for the US, South America, and Pacific Rim.
- Services offered include scheduled air cargo shipments and air logistics.
- Sales for 1998 of \$714.9 million.

According to their web page, Kitty Hawk offers three major lines of business: Air freight carrier services (contract charters), scheduled freight services (dedicated solely for freight forwarders), and air logistics services<sup>27</sup>.

La Poste

Government owned agency

[www.laposte.fr](http://www.laposte.fr)

- This is the postal service for France.
- Sales for 1998 of \$15,831 million.

Nippon Express Co., Ltd.

Tokyo Exchange

[www3.nittsu.co.jp](http://www3.nittsu.co.jp)

- The world's #1 airfreight forwarder.
- Japan's biggest security transportation company.
- The #1 airfreight consolidator from Japan to Asia, Europe, and Americas<sup>28</sup>.
- Operations are primarily in Japan (1400 centers in Japan, 200 in rest of world).
- Does offer parcel home delivery.
- Sales for 1998 of \$13,387 million.

<sup>27</sup> Kitty Hawk, Inc. About Us, <http://www.kha.com/about-kittyhawk.html>, as seen on 02/14/00

<sup>28</sup> Nippon Express Co., Ltd., Nippon Express News, "Nippon Express Steadily Maintains No.1 Share", Extract from "Nikkan Koku Boeki", February 20, 1998, <http://www3.nittsu.co.jp/EDOC/JAFA97E.HTM>, as seen on 02/14/00

Ocean Group plc

London: OGP

[www.oceangroup.uk.com](http://www.oceangroup.uk.com)

- Offers services as an express courier in Europe.
- 60% of revenues are in logistics services.
- Sales for 1998 of \$2,202.3 million.

Pittston BAX Group

NYSE: PZX

[www.baxworld.com](http://www.baxworld.com)

- This company does offer door-to-door delivery and overnight service to major cities in the US.
- BAX Global is a freight transport and logistics company that derives 2/3 of its revenue from overseas.
- Sales for 1998 of \$1,777 million.

“BAX Global is primarily engaged in North American overnight and second day freight, and international time definite air and sea transportation, freight forwarding, supply chain management services and international customs brokerage...

BAX Global specializes in highly customized global freight forwarding and supply chain management services. It concentrates on providing service to customers with significant supply chain management needs, such as manufacturers of computer and electronics equipment. BAX Global offers its customers a variety of service and pricing alternatives for their shipments, such as guaranteed overnight delivery, second-day delivery or deferred service in North America...

Including United States export and import revenue, BAX Global's international operations accounted for approximately 65% of its revenues in 1998. Intra-US revenues accounted for 35% of total revenues in 1998.”<sup>29</sup>

The Post Office

*Government owned agency*

[www.postoffice.co.uk](http://www.postoffice.co.uk)

- The postal service for the UK.
- Sales for 1999 of \$11,307 million.

Post und Telekom Austria AG

Government owned agency

[www.pta.at](http://www.pta.at)

- The postal service for Austria.
- Sales for 1998 of \$5,788 million.

SkyNet Holdings, Inc.

---

<sup>29</sup> SEC Filings (10-K) of The Pittston Company for 1998, pg.5

OTC: SKYN

[www.skynetholdings.com](http://www.skynetholdings.com)

- Delivers time sensitive documents, primarily in Australia, US and the UK.
- Sales for 1999 of \$41.0 million.

TNT Post Group N.V.

NYSE: TP

[www.tntpost-group.com](http://www.tntpost-group.com)

- Delivers mail in the Netherlands.
- Offers worldwide mail, express mail, and logistics services.
- The express package service is concentrated primarily in Europe and Asia.
- Sales for 1998 of \$8,530 million.

The following is an excerpt from a speech given by the CEO of TNT Post.

“I won’t give away any secrets, but for the sake of completeness: TPG’s subsidiary TNT is a global express company, with company-owned facilities in 60 countries and delivery capabilities in over 200 countries. We look upon Europe as our home market, so it is only natural that, when a conference such as this is organised, TNT acts as a conference sponsor. TNT aspires to a leadership position in Europe. At the moment we are investing in our express network, especially here in Europe, to increase its density and quality. The takeover of the French express company Jet Services in December 1998 was an important step. As well as offering complete international European coverage, TNT now has full domestic coverage at the heart of Europe: the UK, Benelux, Germany, Italy and France. Last year we opened our new air hub in Liège, here in Belgium. This is one of the world’s most advanced express hubs. Some of you will be able to see this for yourselves, as I understand there will be a visit to the European Express Centre later this week. Outside Europe, TNT is well positioned in Asia, Australia and South America.”<sup>30</sup>

Transborder Air Cargo, Inc.

Privately owned

[www.transborderaircargo.com](http://www.transborderaircargo.com)

- Offers road feed services between US and Canada<sup>31</sup>.
- Air delivery, freight, and parcel services.

UPS

NYSE: UPS

[www.ups.com](http://www.ups.com)

- World’s #1 package delivery company.

<sup>30</sup> Scheepbouwer, Ad, “Growing into the next century: the challenges ahead for the mail and express business”, 05/18/99, <http://www.tntpost-group.com/English/news/speeches/growingintothextcen.../content.htm>, as seen on 02/14/00

<sup>31</sup> Transborder Air Cargo Inc., <http://www.transborderaircargo.com/>, as seen on 1/26/00

- Sales for 1998 of \$24,788 million.

USPS (US Postal Service)  
Government owned agency  
www.usps.gov

- Sales for 1998 of \$60,072 million.

Yamato Transport Co., Ltd.  
Tokyo Exchange

- Japan's largest door-to-door delivery service.
- Service area mainly in Asia<sup>32</sup>.
- Sales for 1999 of \$6,445 million.

\*The source for all information in this paper is Hoover's Online unless otherwise noted.

---

<sup>32</sup> Kunii, Irene M., Business Week Online, "A Trucker for the Information Highway: Yamato is the Premier Delivery Service for Japan's Growing E-mart", 12/13/99, [http://www.businessweek.com/1999/99\\_50/b3659023.htm](http://www.businessweek.com/1999/99_50/b3659023.htm), as seen on 01/26/00

Table F2 Members of the Express Carriers Association

| <u>Members</u>                              | <u>City</u>      | <u>State</u> | <u>Phone</u> | <u>URL</u>                                                                        |
|---------------------------------------------|------------------|--------------|--------------|-----------------------------------------------------------------------------------|
| ASD Transportation Services**               | Berea            | OH           | 440 826 0222 | <a href="http://www.asdtransportation.com">http://www.asdtransportation.com</a>   |
| Action Delivery, Inc.**                     | Kansas City      | MO           | 816 241 3300 |                                                                                   |
| Aero Speed Expedited Delivery Services      | Sacramento       | CA           | 800-624-4049 |                                                                                   |
| American Isuzu Motors, Inc.                 | Cerritos         | CA           | 562-699-0500 |                                                                                   |
| Atlantic Freight Systems                    | Elizabeth        | NJ           | 908-289-8274 | <a href="http://www.afsnetwork.com/">www.afsnetwork.com/</a>                      |
| Bonded Messenger Service**                  | Milwaukee        | WI           | 414 933 4500 |                                                                                   |
| Brooks Courier Service, Inc.**              | Wilmington       | DE           | 302 762 4661 | <a href="http://www.4sameday.com/brooks/">http://www.4sameday.com/brooks/</a>     |
| Capital Delivery Systems**                  | Harrisburg       | PA           | 800 451 1118 |                                                                                   |
| Capital Express, Inc.**                     | Omaha            | NE           | 800 895 3583 |                                                                                   |
| Carlin Messenger Service**                  | Harrisburg       | PA           | 717 233 7244 |                                                                                   |
| CD&L                                        | Miramar          | FL           | 954 447 5000 |                                                                                   |
| Cherokee Distribution Services              | Kansas City      | MO           | 816 221 6250 |                                                                                   |
| Chicago Messenger Service**                 | Chicago          | IL           | 312 666 6800 |                                                                                   |
| Clockwork Courier, Inc.**                   | Garfield Heights | OH           | 216 581 0707 |                                                                                   |
| Comet Messenger & Delivery Svc.             | East Hanover     | NJ           | 973 503 1200 | <a href="http://www.cometmes.qpg.com/">http://www.cometmes.qpg.com/</a>           |
| Consolidated Delivery Company               | Baltimore        | MD           | 410 796 8601 |                                                                                   |
| Courier Plus Delivery Service**             | Brecksville      | OH           | 888 572 7587 |                                                                                   |
| Courier Systems Corporation**               | Nashville        | TN           | 800 767 2834 |                                                                                   |
| CTC Distribution Direct                     | Minneapolis      | MN           | 800 800 7447 | <a href="http://www.ctcdist.com/">http://www.ctcdist.com/</a>                     |
| DEC Express                                 | Burlington       | ONT          | 800 263 5185 |                                                                                   |
| Diamond Courier Service**                   | Philadelphia     | PA           | 800 959 0050 | <a href="http://www.diamondcourier.com/">http://www.diamondcourier.com/</a>       |
| Direct Drive Express, Inc.                  | Milwaukee        | WI           | 888 453 9222 |                                                                                   |
| Dunham Express Corporation                  | Madison          | WI           | 608-242-8665 | <a href="http://www.dunhamexpress.com/">http://www.dunhamexpress.com/</a>         |
| Eagle Express Systems                       | Weymouth         | MA           | 781 337 3800 | <a href="http://www.gis.net/eagleexpress/">http://www.gis.net/eagleexpress/</a>   |
| Eastern Connection                          | Wellesley        | MA           | 781 416 3262 | <a href="http://www.easternconnection.com/">http://www.easternconnection.com/</a> |
| Excel Transportation Services               | Herndon          | VA           | 703 478 0081 |                                                                                   |
| Expediting Data Center Fed Ex               | Memphis          | TN           | 901 397 3230 |                                                                                   |
| Express 60 Minutes Delivery Service, Inc.** | Fort Worth       | TX           | 817 336 5333 | <a href="http://www.exp60.com/">http://www.exp60.com/</a>                         |
| Express Courier, Inc.**                     | Nashville        | TN           | 615 333 8531 |                                                                                   |

|                                   |                     |    |              |                                                                                               |
|-----------------------------------|---------------------|----|--------------|-----------------------------------------------------------------------------------------------|
| Forward Air#                      | Springfield Gardens | NY | 718 553 7166 | <a href="http://www.forwardair.com/">http://www.forwardair.com/</a>                           |
| Global Messenger Corp.**          | Baltimore           | MD | 410 234 3100 | <a href="http://www.4sameday.com/global/">http://www.4sameday.com/global/</a>                 |
| Golden State Overnight            | Alameda             | CA | 800 322 5555 | <a href="http://www.shipgso.com/">http://www.shipgso.com/</a>                                 |
| Hatboro Delivery Service Inc.     | Warrington          | PA | 215 343 3376 |                                                                                               |
| HBI Priority Freight              | Herndon             | VA | 703 834 0800 |                                                                                               |
| HSS Logistics**                   | Tempe               | AZ | 800 242 9408 |                                                                                               |
| Information Transport Systems**   | Staten Island       | NY | 800 546 2767 |                                                                                               |
| Intercities Courier Systems**     | Omaha               | NE | 800 657 2180 |                                                                                               |
| Interstate Courier Express**      | Allentown           | PA | 800 344 4938 | <a href="http://www.interstatecourpress.com/">http://www.interstatecourpress.com/</a>         |
| Lanter Delivery Services Inc.     | Madison             | IL | 618 452 5300 | <a href="http://www.logisticslink.com/">http://www.logisticslink.com/</a>                     |
| Logistics Link                    | San Mateo           | CA | 650 347 3242 |                                                                                               |
| Madison Freight Systems**         | Waunakee            | WI | 800 236 6660 |                                                                                               |
| Marquis Messenger                 | Dallas              | TX | 214 358 3362 |                                                                                               |
| Momentum Logistics**              | Jacksonville        | FL | 904 363 0089 |                                                                                               |
| Mr. Messenger, Inc.**             | Warwick             | RI | 401 461 2240 | <a href="http://www.mrmessenger.com/">http://www.mrmessenger.com/</a>                         |
| Musicland Group, Inc.             | Minneapolis         | MN | 612 932 7950 |                                                                                               |
| Network Delivery & Distribution   | Providence          | RI | 800 543 9669 |                                                                                               |
| NEXT Distribution Services**      | Windsor Locks       | CT | 860 254 6380 |                                                                                               |
| On Time Delivery, Inc.            | Pittsburgh          | PA | 800 248 6695 |                                                                                               |
| PDQ Delivery Service, Inc.**      | Rochester           | NY | 800 836 6616 | <a href="http://www.pdqdelivery.com/">http://www.pdqdelivery.com/</a>                         |
| Primetime Delivery**              | Cleveland           | OH | 800 866 7530 | <a href="http://www.4sameday.com/primetime/">http://www.4sameday.com/primetime/</a>           |
| Priority Express Courier**        | Boothwyn            | PA | 610 364 3300 |                                                                                               |
| Priority Express, Inc.            | Des Moines          | IA | 515 243 3900 | <a href="http://www.priority-express.com/">http://www.priority-express.com/</a>               |
| Professional Delivery Systems**   | Richmond            | VA | 804 741 3777 |                                                                                               |
| Purolator                         | Chicago             | IL | 630 616 4870 |                                                                                               |
| Quick Delivery Co.                | Libertyville        | NJ | 847 816 8028 | <a href="http://www.dacacarriers.com/quickmi.htm">http://www.dacacarriers.com/quickmi.htm</a> |
| Quick Delivery, Inc.**            | Kansas City         | MO | 816 931 7800 |                                                                                               |
| Quick Delivery Service, Inc.**    | Schaumburg          | IL | 847 534 2244 | <a href="http://www.quickdelivery.com">http://www.quickdelivery.com</a>                       |
| Quicksilver Messenger Service**   | Chicago             | IL | 312 347 0126 | <a href="http://www.quicksilver.com">http://www.quicksilver.com</a>                           |
| Security Delivery Service, Inc.** | Long Island City    | NY | 718 784 9801 | <a href="http://www.sdsexpress.com/">http://www.sdsexpress.com/</a>                           |
| Spee Dee Delivery Service Inc.    | St. Cloud           | MN | 320 251 6697 | <a href="http://www.speedeedelivery.com/">http://www.speedeedelivery.com/</a>                 |
| TC Deliveries                     | Syracuse            | NY | 888 393 4976 |                                                                                               |

|                                   |                  |    |              |                                                                                       |
|-----------------------------------|------------------|----|--------------|---------------------------------------------------------------------------------------|
| The Custom Companies              | Northlake        | IL | 708 338 8888 |                                                                                       |
| The Expediting Co., Inc.          | Vandalia         | OH | 937 890 1524 |                                                                                       |
| The LTA Group, Inc.               | E. Brunswick     | NJ | 732 656 2550 |                                                                                       |
| Thruway Direct**                  | Orangeburg       | NY | 800 633 3867 | <a href="http://www.thruwaydirect.com/">http://www.thruwaydirect.com/</a>             |
| Time Critical Freight, Inc.       | Columbia         | MD | 800 994 8963 |                                                                                       |
| The Parcel Service (TPS), Inc.    | Denison          | TX | 903 786 9611 |                                                                                       |
| UCI Distribution Plus**           | Burbank          | CA | 818 845 8883 |                                                                                       |
| United Express Systems Inc.**     | Aurora           | IL | 800 826 2130 | <a href="http://www.unitedexpresssystem.com/">http://www.unitedexpresssystem.com/</a> |
| United Pool Distribution          | Columbus         | OH | 614 221 2239 |                                                                                       |
| Universal Mail Delivery Service** | Los Angeles      | CA | 818 997 7531 | <a href="http://www.universal-mail.com">http://www.universal-mail.com</a>             |
| Vermont Courier**                 | Williston        | VT | 802 865 1119 |                                                                                       |
| Western Parcel Express            | Santa Fe Springs | CA | 562 906 6300 | <a href="http://www.wpx.com/">http://www.wpx.com/</a>                                 |

SOURCE: Express Carriers Association,  
<http://www.expresscarriers.com/members.html>, as seen on  
 03/21/00.

Some of the member URLs were independently found on the  
 internet.

# Also listed in Table F1  
 \*\* Also listed as a member of the Messenger Courier  
 Association of the Americas (Table F3).

Table F3 Members of the Messenger Courier Association of the Americas (MCAA).

| <u>Members</u>                    | <u>City</u>     | <u>State</u> | <u>Phone</u>   | <u>URL</u>                                                              |
|-----------------------------------|-----------------|--------------|----------------|-------------------------------------------------------------------------|
| 24 Hours Courier Services, Inc.   | New York        | NY           | (212) 354-0066 |                                                                         |
| A.M.-P.M. Special Delivery Inc.   | Los Angeles     | CA           | (310) 398-6216 |                                                                         |
| A.S.A.P. Express!, Inc.           | San Mateo       | CA           | (650) 347-2727 | <a href="http://www.alwaysasap.com/">http://www.alwaysasap.com/</a>     |
| A-1 Delivery Services, Inc.       | Houston         | TX           | (713) 664-9999 |                                                                         |
| A-1 Express Delivery Service      | Atlanta         | GA           | (404) 888-9999 |                                                                         |
| Able Courier                      | Jacksonville    | FL           | (904) 733-6800 |                                                                         |
| AB Express, Inc.                  | Kansas City     | MO           | (816) 461-4040 |                                                                         |
| ABE/Allentown's Express, Inc.     | Nazareth        | PA           | (610) 746-2070 |                                                                         |
| Able Delivery Corp.               | Wellesley       | MA           | (781) 235-2388 |                                                                         |
| ACCA                              | Kensington      | MD           | (301) 962-7000 |                                                                         |
| Access Courier, Inc.              | St Louis        | MO           | (314) 962-8000 |                                                                         |
| Ace Expeditors, Inc.              | Orlando         | FL           | (407) 423-4223 |                                                                         |
| Action Courier Service, Inc.      | Roslyn          | VA           | (703) 522-7800 |                                                                         |
| Action Delivery**                 | Kansas City     | KS           | (816) 241-3300 |                                                                         |
| Action Express, Inc.              | Waukesha        | WI           | (414) 549-3300 |                                                                         |
| Adcom Express/ Couriers, Inc.     | Marylan Heights | MO           | (314) 209-7516 |                                                                         |
| Adcom Express/ Couriers, Inc.     | Carrollton      | TX           | (972) 919-1950 |                                                                         |
| Advanced Express                  | El Segundo      | CA           | (310) 640-8400 |                                                                         |
| Advantage Delivery Systems, Inc.  | Carmel          | IN           | (877) 815-1733 |                                                                         |
| Affordable Courier Solutions Inc. | Seminole        | FL           | (800) 808-7828 |                                                                         |
| Air & Surface Couriers            | Tustin          | CA           | (714) 832-1212 | <a href="http://www.ascouriers.com/">http://www.ascouriers.com/</a>     |
| Airline Deliver Services          | New York        | NY           | (212) 248-0667 | <a href="http://www.nymessenger.com/">http://www.nymessenger.com/</a>   |
| Airline Delivery Services         | New York        | NY           | (212) 687-5145 | <a href="http://www.nymessenger.com/">http://www.nymessenger.com/</a>   |
| Airline Delivery Services         | New York        | NY           | (212) 354-7373 | <a href="http://www.nymessenger.com/">http://www.nymessenger.com/</a>   |
| Airnet Express#                   | Columbus        | OH           | (888) 888-8463 |                                                                         |
| Airsped, Inc.                     | Chicago         | IL           | (708) 595-8600 |                                                                         |
| All Star Delivery                 | West Valley     | UT           | (888)978-9192  |                                                                         |
| American Eagle Express, Inc.      | Wilmington      | DE           | (800) 220-6070 |                                                                         |
| American Expediting Co.           | Philadelphia    | PA           | (215) 751-1199 | <a href="http://www.amexpediting.com/">http://www.amexpediting.com/</a> |
| American Expediting Company       | Atlanta         | GA           | (404) 881-3278 |                                                                         |
| American Expediting Company       | Baltimore       | MD           | (410) 247-3900 |                                                                         |
| American Expediting Company       | Charlotte       | NC           | (800) 965-2153 |                                                                         |

|                                  |              |    |                |                                 |
|----------------------------------|--------------|----|----------------|---------------------------------|
| American Expediting Company      | Morrisville  | NC | (800) 510-5186 |                                 |
| American Expediting Company      | Little Falls | NJ | (973) 256-8822 |                                 |
| American Expediting Company      | Pennsauken   | NJ | (609) 663-3300 |                                 |
| American Expediting Company      | Berea        | OH | (800) 220-1624 |                                 |
| American Expediting Company      | Bridgeport   | PA | (800) 814-3797 |                                 |
| American Expediting Company      | Harrisburg   | PA | (800) 525-3278 |                                 |
| American Expediting Company      | Pittsburgh   | PA | (800) 288-0345 |                                 |
| American Expediting Company      | Arlington    | VA | (800) 287-4092 |                                 |
| Apollo Express Courier           | Falls Church | VA | (703) 532-9011 |                                 |
| Apple Courier, Inc.              | Washington   | DC | (888) 620-3300 |                                 |
| Ariel Advertising                | Philadelphia | PA | (215) 751-0538 | info@applecourierinc.com        |
| Arrow Express                    | Los Angeles  | CA | (310) 845-1220 |                                 |
| Arrow Express                    | San Diego    | CA | (858) 684-3588 |                                 |
| Arrow Messenger Service, Inc.    | Chicago      | IL | (773) 489-6688 | http://www.arrowmessenger.com/  |
| ASD Transportation Services**    | Berea        | OH | 440/826-0222   |                                 |
| Attorneys Courier Service, LLC   | Brooklyn     | NY |                |                                 |
| B.C.O. Delivery Service, Inc.    | Houston      | TX | (713) 223-5000 |                                 |
| B.E.X. Couriers                  | Richmond     | VA | (800) 227-9686 |                                 |
| Baron Messenger Service, Inc.    | Miami        | FL | (800) 863-8345 | http://www.baronmessenger.com/  |
| Beaver Express                   | North Haven  | CT | (203) 234-2250 |                                 |
| Bee-Line Delivery Service, Inc.  | Houston      | TX | (713) 784-2100 | http://www.beelinedel.com/      |
| Best Way Trucking Service, Inc.  | Fairfield    | NJ | (973) 882-3111 |                                 |
| Blaze Express Courier Service    | Baton Rouge  | LA | (225) 755-0047 |                                 |
| Blaze Express Courier Service    | New Orleans  | LA | (504) 734-0580 |                                 |
| Blue Chip Courier                | Manalapan    | NJ | (800) 883-1000 |                                 |
| Blue Streak Courier Service      | Valley Forge | PA | (610) 935-1999 |                                 |
| Bonded Messenger Service, Inc.** | Milwaukee    | WI | (800) 793-4648 | http://www.bondedmessenger.com/ |
| Bonnie Speed Delivery, Inc.      | Cleveland    | OH | (216) 696-6033 |                                 |
| Boston Express Delivery          | Boston       | MA | (617) 739-6655 | http://www.boston-express.com/  |
| Bravo Messenger Service          | Teaneck      | NJ | (201) 836-6665 |                                 |
| Breakaway Courier Systems        | Boston       | MA | (617) 868-4008 |                                 |
| Breakaway Courier Systems        | New York     | NY | (212) 219-8500 |                                 |
| Brooks Courier Service, Inc.**   | Wilmington   | DE | (302) 762-4661 |                                 |
| Cannon Express                   | Atlanta      | GA | (404) 351-5451 |                                 |
| Capital Delivery Systems, Inc.** | Harrisburg   | PA | (717) 561-7782 |                                 |
| Capital Express, Inc.**          | Omaha        | NE | (800) 895-3583 |                                 |

|                                                      |                   |    |                |
|------------------------------------------------------|-------------------|----|----------------|
| Carlin Messenger Service**                           | Harrisburg        | PA | (717) 233-7244 |
| Carr's Delivery, Inc.                                | Corpus Christi    | TX | (361) 289-0424 |
| Carr's Delivery, Inc.                                | Harlingen         | TX | (956) 440-7900 |
| CBS Messenger Service                                | Elk Grove Village | IL | (847) 699-9160 |
| Certified Courier Corporation                        | Ft. Laudersale    | FL | (954) 771-3811 |
| Chicago Messenger Service**                          | Chicago           | IL | (312) 666-6800 |
| Choice Courier Systems, Inc.                         | Hartford          | CT | (860) 296-1005 |
| Choice Courier Systems, Inc.                         | Kenner            | LA | (504) 466-5654 |
| Choice Courier Systems, Inc.                         | Lanham            | MD | (301) 731-9550 |
| Choice Courier Systems, Inc.                         | Carstadt          | NJ | (201) 935-6300 |
| Choice Courier Systems, Inc.                         | NY                | NY | (212) 370-1999 |
| Choice Courier Systems, Inc.                         | Sharon Hill       | PA | (610) 543-4100 |
| Cirrus Express                                       | Irving            | TX | (214) 358-3174 |
| Citicouriers                                         | Houston           | TX | (713) 521-4488 |
| City Dash Courier                                    | Cincinnati        | OH | (513) 562-2000 |
| City Express Courier Service                         | Laurel            | MD | (301) 470-4040 |
| City Express, Inc.                                   | Boston            | MA | (617) 227-0330 |
| Classic Courier                                      | West Haven        | CT | (203) 932-1478 |
| Clockwork Courier, Inc.**                            | Garfield Heights  | OH | (216) 581-0707 |
| Coastline Courier, Inc.                              | Irvine            | CA | (949) 753-9700 |
| Columbus Corporate Courier                           | Reynoldsburg      | OH | (614) 864-9797 |
| Columbus Messenger Service                           | NY                | NY | (212) 989-1200 |
| Commonwealth Carrier Corporation                     | Woburn            | MA | (781) 935-7979 |
| Commonwealth Courier Service                         | Richmond          | VA | (804) 233-5771 |
| ConeJo Courier & Cartage                             | Newbury Park      | CA | (805)498-0800  |
| Connection Couriers, Inc.                            | Phoenix           | AZ | (602) 381-1020 |
| Connections Courier Service                          | Nashville         | TN | (877) 834-6802 |
| Consolidated Delivery & Logistics#                   | Clifton           | NJ | (973) 471-1005 |
| Consolidated Delivery & Logistics - Midwest Region   | Hazelwood         | MO | (314) 895-8852 |
| Consolidated Delivery & Logistics - Northeast Region | Edison            | NJ | (732) 225-6100 |
| Consolidated Delivery & Logistics - Southeast Region | Miramar           | FL | (954) 447-5000 |
| Consolidated Delivery & Logistics - Western Region   | Burlingame        | CA | (650) 652-0400 |
| Continental Messenger & Delivery                     | Glendale          | CA | (818) 260-0449 |
| Corporate Delivery Systems                           | Houston           | TX | (713) 957-8388 |
| Corporate Express Delivery Systems Inc.              | San Diego         | CA | (619) 541-7660 |
| Corporate Express Delivery Systems Inc.              | Glen Burnie       | MD | (800) 854-4200 |

<http://www.choicecourier.com/>

<http://www.city-express.com/>  
<http://www.cityexp.com/>

<http://www.columbuscourier.com/>

|                                             |                  |    |                |
|---------------------------------------------|------------------|----|----------------|
| Corporate Express Delivery Systems Inc.     | White Plains     | NY | (914) 287-0200 |
| Corporate Express Delivery Systems Inc.     | Houston          | TX | (713) 867-5070 |
| Courier Express Inc.                        | West Springfield | MA | (413) 730-6620 |
| Courier Express/ Charlotte, Inc.            | Charlotte        | NC | (704) 521-8222 |
| Courier Express/ Orlando, Inc.              | Orlando          | FL | (407) 888-9505 |
| Courier Express/Atlanta, Inc.               | Marietta         | GA | (770) 955-3030 |
| Courier Express/Birmingham, Inc.            | Birmingham       | AL | (205) 941-1880 |
| Courier One                                 | Richmond         | VA | (804) 648-7874 |
| Courier Plus**                              | Brecksville      | OH | (888) 572-7587 |
| Courier Systems Corp.**                     | Nashville        | TN | (615) 872-0111 |
| Couriers, Inc.                              | Kansas City      | MO | (816) 822-8600 |
| D.C. Express, Inc.                          | Parsippany       | NJ | (913) 989-5000 |
| Del-Vai Messengers                          | Essington        | PA | (610) 521-5200 |
| DeSantis Dispatch Corp.                     | South Kearney    | NJ | (973) 491-5455 |
| DFI Delivery Inc.                           | Fort Smith       | AR | 501-785-3524   |
| Dial Four Delivery, Inc.                    | Charlotte        | NC | (800) 354-8379 |
| Diamond Courier Service, Inc.**             | Philadelphia     | PA | (800) 959-0050 |
| DMS (Dispatch Mangement Services)#          | Beltsville       | MD | (301) 210-0899 |
| Document Delivery Systems                   | Costa Mesa       | CA | (714) 662-5555 |
| DYNAMEX INC.#                               | Irving           | TX | (972) 756-8189 |
| Eagle Delivery Service, Inc.                | Lincoln          | NE |                |
| Econo Courier, Inc.                         | Fairfield        | NJ | (973) 882-8004 |
| e-Courier, Inc.                             | Millersville     | MD | (410) 729-3082 |
| Emerald Courier                             | Burlingame       | CA | (650) 692-8643 |
| ENA Couriers                                | Seattle          | WA | (206) 624-3200 |
| Eveready Messenger                          | E. Rutherford    | NJ | (201) 460-7257 |
| Excel Courier Inc.                          | Herndon          | VA | (703) 478-0140 |
| Express 60-Minutes Delivery Service, Inc.   | Ft. Worth        | TX | (817) 654-0660 |
| Express 60-Minutes Delivery Service, Inc.** | Ft. Worth        | TX | (817) 336-5333 |
| Express Courier, Inc.                       | Jackson          | MS | (601) 355-1503 |
| Express Courier, Inc.                       | Charlotte        | NC | (704) 359-5100 |
| Express Courier, Inc.                       | Greensboro       | NC | (336) 993-1247 |
| Express Courier, Inc.                       | Charleston       | SC | (843) 824-6941 |
| Express Courier, Inc.                       | Columbia         | SC | (803) 750-7505 |
| Express Courier, Inc.                       | Greenville       | SC | (864) 627-0066 |
| Express Courier, Inc.                       | Blountville      | TN | (423) 323-6810 |

<http://www.dcxpress.com/>

<http://www.dynamex.com/>

<http://www.enacouriers.com/>

|                                          |                    |    |                |                                                                                             |
|------------------------------------------|--------------------|----|----------------|---------------------------------------------------------------------------------------------|
| Express Courier, Inc.                    | Chattanooga        | TN | (423) 510-0271 | <a href="http://www.falconexpress.com/links.htm">http://www.falconexpress.com/links.htm</a> |
| Express Courier, Inc.                    | Cookeville         | TN | (931) 526-7717 |                                                                                             |
| Express Courier, Inc.                    | Jackson            | TN | (901) 664-0887 | <a href="http://www.fbcourier.com/">http://www.fbcourier.com/</a>                           |
| Express Courier, Inc.                    | Knoxville          | TN | (423) 983-4050 |                                                                                             |
| Express Courier, Inc.                    | Memphis            | TN | (901) 521-8282 | <a href="http://www.freedomexpress.com/">http://www.freedomexpress.com/</a>                 |
| Express Courier, Inc.                    | Nashville          | TN | (615) 333-0949 |                                                                                             |
| Express Courier, Inc./Corporate Office** | Nashville          | TN | (615) 333-8531 | <a href="http://www.frontrangecouriers.com/">http://www.frontrangecouriers.com/</a>         |
| Expressway Courier Inc.                  | Danbury            | CT | (800) 955-1755 |                                                                                             |
| Falcon Express & Courier                 | Catasauqua         | PA | (800) 543-7136 |                                                                                             |
| Falcon Express Inc.                      | Kensington         | MD | (301) 942-0300 |                                                                                             |
| Fastbreak Courier, Inc.                  | Kensington         | MD | (301) 962-8600 |                                                                                             |
| Floral Delivery Solutions, Inc.          | Dallas             | TX | (972) 487-8797 |                                                                                             |
| Freedom Express                          | Tulsa              | OK | (918) 877-0111 |                                                                                             |
| Friendly Messenger Service               | Lancaster          | PA | (800) 795-3278 |                                                                                             |
| Front Range Couriers                     | Denver             | CO | (303) 371-3003 |                                                                                             |
| Global Logistics & Transportation        | Middleburg Heights | OH | (888) 744-7843 |                                                                                             |
| Global Messenger Corp.**                 | Baltimore          | MD | (800) 891-5113 |                                                                                             |
| Go Between Inc.                          | Los Angeles        | CA | (310) 276-6266 |                                                                                             |
| Guaranteed Express, Inc.                 | Mountain View      | CA | (800) 747-7874 | <a href="http://www.guaranteedexpress.com/">http://www.guaranteedexpress.com/</a>           |
| Guaranteed Express, Inc.                 | Dallas             | TX | (214) 631-8054 |                                                                                             |
| Hackbarth Delivery Service Inc.          | Mobile             | AL | (334) 478-1401 |                                                                                             |
| Hackbarth Delivery Service Inc.          | Clearwater         | FL | (727) 523-1401 |                                                                                             |
| Hackbarth Delivery Service Inc.          | Tallahassee        | FL | (850) 942-6190 |                                                                                             |
| Hackbarth Delivery Service Inc.          | Baton Rouge        | LA | (225) 752-1444 |                                                                                             |
| Hackbarth Delivery Service Inc.          | Harahan            | LA | (504) 734-1401 |                                                                                             |
| Hackbarth Delivery Service Inc.          | Jackson            | MS | (601) 948-1056 |                                                                                             |
| Halbart Express                          | Jamaica            | NY | (718) 656-8189 |                                                                                             |
| Hank's Courier Service, Inc.             | Frederick          | MD | (301) 694-6898 |                                                                                             |
| Harris Delivery Service Inc.             | Harrisburg         | PA | (800) 763-3826 |                                                                                             |
| Hartford Courier Service, Inc.           | West Hartford      | CT | (860) 561-5121 |                                                                                             |
| Heaven Sent Courier                      | Philadelphia       | PA | (215) 545-9100 |                                                                                             |
| Hot Shot Delivery Service, Inc.          | Nashville          | TN | (888) 883-5840 |                                                                                             |
| Hot Shot Delivery, Inc.                  | Phoenix            | AZ | (602) 277-4747 | <a href="http://www.hotshot-houston.com/">http://www.hotshot-houston.com/</a>               |
| Hot Shot Delivery, Inc.                  | Houston            | TX | (713) 869-5525 |                                                                                             |
| Hot Shot Services, Inc.                  | Albuquerque        | NM | (505) 344-5440 |                                                                                             |
| Hotline Courier Service                  | Dallas             | TX | (214) 749-7772 | <a href="http://www.hotlinecouriers.com/">http://www.hotlinecouriers.com/</a>               |

|                                    |               |    |                |
|------------------------------------|---------------|----|----------------|
| HSS Logistics**                    | Tempe         | AZ | (480) 894-1401 |
| IBC Messenger, Inc.                | Miami         | FL | (305) 591-8900 |
| Imperatore Courier Systems         | Little Ferry  | NJ | (201) 641-7770 |
| Impulse Courier Service, Inc.      | Whippany      | NJ | (973) 428-8580 |
| Information Transport Systems**    | Staten Island | NY | (718) 448-2767 |
| Inner-City Express                 | San Jose      | CA | (408) 288-4100 |
| Instant Delivery                   | Syracuse      | NY | (800) 888-5759 |
| Instant Delivery, Inc.             | Kansas City   | KS | (913) 432-7979 |
| Inter Cities Courier Systems**     | Omaha         | NE | (402) 342-7243 |
| Inter Cities, Capital Cartage      | Lincoln       | NE | (402) 489-5221 |
| Interstate Courier Express, Inc.** | Allentown     | PA | (610) 740-5840 |
| InTrans, Inc.                      | Cleveland     | OH | (800) 533-5715 |
| Jaguar Courier Express, Inc.       | Nesconset     | NY | (516) 698-7270 |
| Jet Messenger Service, Inc.        | Atlanta       | GA | (404) 636-6655 |
| Jet Messenger Service, Inc.        | Walpole       | MA | (508) 660-7000 |
| Jet Messenger Service, Inc.        | Edison        | NJ | (732) 287-5600 |
| Jet Messenger Service, Inc.        | West Depiford | NJ | (609) 853-6100 |
| Jet Messenger Service, Inc.        | Depew         | NY | (716) 651-9242 |
| Jet Messenger Service, Inc.        | Allison Park  | PA | (412) 487-3700 |
| Kenner Kourier Service, Inc.       | Kenner        | LA | 504/469-7657   |
| Laser Courier                      | Washington    | DC | (202) 347-7663 |
| Laser Courier                      | Atlanta       | GA | (404) 584-8060 |
| Laser Courier                      | Baltimore     | MD | (410) 685-1070 |
| Laser Courier                      | Beltsville    | MD | (301) 419-2220 |
| Laser Courier                      | Bethesda      | MD | (301) 656-6960 |
| Laser Courier                      | Alexandria    | VA | (703) 684-5444 |
| Laser Courier                      | Reston        | VA | (703) 264-1500 |
| Laser Courier                      | Richmond      | VA | (804) 648-4888 |
| Laser Courier                      | McLean        | VA | (703) 847-0550 |
| Late Nite Express                  | Carson        | CA | (310) 674-6576 |
| Le Courier, Inc.                   | Burbank       | CA | (818) 848-4151 |
| Liberty Courier, Inc.              | Woburn        | MA | (800) 439-1377 |
| Lightning Courier, Inc.            | Tyler         | TX | (903) 566-8218 |
| Madison Messenger Service**        | Waukegan      | WI | (800) 236-2130 |
| Mail Center Services (MCS)         | Shelton       | CT | (203) 924-6669 |
| Maryland Messenger Service Inc.    | Baltimore     | MD | (800) 624-7665 |

|                                                  |                  |    |                |                                                                                   |
|--------------------------------------------------|------------------|----|----------------|-----------------------------------------------------------------------------------|
| McDaniel Courier/Corporate Courier               | Little Rock      | AR | (501) 372-4817 |                                                                                   |
| Medicare Express Delivery Service, Inc. of Texas | San Antonio      | TX | (210) 979-6337 | <a href="http://www.meds-inc.com/">http://www.meds-inc.com/</a>                   |
| Mercury Mail & Messenger Service                 | West Caldwell    | NJ | (800) 227-9315 | <a href="http://www.mercurydelivery.com/">http://www.mercurydelivery.com/</a>     |
| MGG Concepts, Inc.                               | Bellmawr         | NJ | (856) 218-2598 |                                                                                   |
| Miles 2000                                       | Salt Lake City   | UT | (801) 266-5671 |                                                                                   |
| Minute Man Delivery                              | Gardena          | CA | (310) 327-3500 |                                                                                   |
| Mission Courier                                  | San Antonio      | TX | (210) 377-2387 | <a href="http://www.minutemandelivery.com/">http://www.minutemandelivery.com/</a> |
| Momentum Logistics, Inc.**                       | Jacksonville     | FL | 904-363-0089   |                                                                                   |
| MoonLite Courier Worldwide, Incorporated         | New York         | NY | (212) 473-2246 |                                                                                   |
| Moon-Lite Express                                | Fort Lee         | NJ | (800) 222-0735 |                                                                                   |
| Mr. Messenger, Inc.**                            | Warwick          | RI | (401) 461-2240 |                                                                                   |
| Music Express, Inc.                              | Burbank          | CA | (818) 845-1502 |                                                                                   |
| Need It Now Courier                              | NY               | NY | (212) 989-1919 |                                                                                   |
| Network Express, Inc.                            | Clearwater       | FL | (800) 280-9097 |                                                                                   |
| New Jersey Lawyers Service                       | Union            | NJ | (908) 686-7300 |                                                                                   |
| Next Courier, Inc.**                             | Windsor Locks    | CT | (860) 623-8979 |                                                                                   |
| North Star Delivery Inc.                         | Minneapolis      | MN | (612) 391-8097 |                                                                                   |
| NOW Courier                                      | Fort Wayne       | IN | (800) 320-0478 |                                                                                   |
| NOW Courier                                      | South Bend       | IN | (800) 362-7850 | <a href="http://www.nowcourier.com/">http://www.nowcourier.com/</a>               |
| NOW Courier & Messenger Inc.                     | Indianapolis     | IN | (317) 638-7071 |                                                                                   |
| On Time Delivery Service, Inc.                   | Fairfield        | NJ | (973) 227-0990 |                                                                                   |
| Option Courier Services, Inc.                    | Stoneham         | MA | (781) 438-9988 |                                                                                   |
| Owens Security Services, Inc.                    | Elkhart          | IN | (219) 294-3410 |                                                                                   |
| Parcels, Inc.                                    | Wilmington       | DE | (800) 343-1742 | <a href="http://www.parcelsinc.com/">http://www.parcelsinc.com/</a>               |
| PDQ Delivery**                                   | Rochester        | NY | (800) 836-6616 | <a href="http://www.pdqdelivery.com/">http://www.pdqdelivery.com/</a>             |
| Penchant Consulting, Inc.                        | Plymouth         | MN | (612) 559-9509 |                                                                                   |
| Pettyco Express                                  | Jacksonville     | FL | (904) 695-2200 | <a href="http://www.pettycoexpress.com/">http://www.pettycoexpress.com/</a>       |
| Phoenix Couriers                                 | Marietta         | GA | (770) 989-0333 |                                                                                   |
| Pillow Express & Delivery                        | Indianapolis     | IN | (317) 923-8786 |                                                                                   |
| Pioneer Express Corporation                      | S. San Francisco | CA | (888) 263-8846 |                                                                                   |
| Postal Express                                   | Bellevue         | WA | (800) 287-0613 |                                                                                   |
| Premier Courier Inc.                             | Akron            | OH | (330) 786-3333 |                                                                                   |
| Premier Courier Inc.                             | Cleveland        | OH | (216) 741-7773 |                                                                                   |
| Premier Courier, Inc.                            | Columbus         | OH | (614) 221-6433 |                                                                                   |
| Premier Eagle                                    | Los Angeles      | CA | (323) 969-0000 |                                                                                   |
| Pre-Sort's Zipp Express, LLC                     | St. Louis        | MO | (314) 842-8877 |                                                                                   |

|                                         |                  |    |                  |                                                                                           |
|-----------------------------------------|------------------|----|------------------|-------------------------------------------------------------------------------------------|
| Prestige Delivery Systems, Inc.         | Cleveland        | OH | (216) 332-8000   | <a href="http://www.digitalads.com/">http://www.digitalads.com/</a>                       |
| Primetime Delivery**                    | Cleveland        | OH | (440) 891-8855   |                                                                                           |
| Priority Couriers                       | Jacksonville     | FL | (904) 346-3988   |                                                                                           |
| Priority Dispatch, Inc.                 | Cincinnati       | OH | (513) 791-3900   |                                                                                           |
| Priority Express Courier, Inc.**        | Boothwyn         | PA | (800) 526-4646   |                                                                                           |
| Priority Mail & Messenger Service, Inc. | Chicago          | IL | (847) 617-6633   |                                                                                           |
| Priority Services                       | Charlotte        | NC | (704) 392-0668   |                                                                                           |
| ProCourier Inc.                         | West Hartford    | CT | (860) 953-7777   |                                                                                           |
| Procourier, Inc.                        | Los Angeles      | CA | (213) 481-8100   |                                                                                           |
| ProCourier, Inc.                        | Stamford         | CT | (203) 353-8898   |                                                                                           |
| Professional Courier, Inc.              | Richmond         | VA | (804) 527-0003   |                                                                                           |
| Professional Delivery Systems**         | Richmond         | VA | (804) 741-3777   |                                                                                           |
| Professional Messenger, Inc.            | San Francisco    | CA | (415) 206 7309   |                                                                                           |
| Pronto Couriers                         | Jacksonville     | FL | (904) 448-0885   |                                                                                           |
| Pyramid Couriers                        | Memphis          | TN | (901) 529-8248   |                                                                                           |
| Quick Courier Service                   | Wilmingon        | DE | (302) 656-7223   |                                                                                           |
| Quick Courier Service                   | Allentown        | PA | (800) 355-1004   |                                                                                           |
| Quick Courier Service                   | Lemoyne          | PA | (717) 975-8530   |                                                                                           |
| Quick Courier Service                   | Philadelphia     | PA | (800) 355-1004   |                                                                                           |
| Quick Courier Service                   | Pittsburgh       | PA | (412) 343-5020   |                                                                                           |
| Quick Courier Service                   | Schuylkill       | PA | (570) 385-6934   |                                                                                           |
| Quick Courier Service                   | State College    | PA | (814) 237-6720   |                                                                                           |
| Quick Courier Service                   | Wilkes-Barre     | PA | (570) 824-4650   |                                                                                           |
| Quick Courier Service, Inc.             | Plymouth Meeting | PA | (800) 355-1004   | <a href="http://www.freeyellow.com/">http://www.freeyellow.com/</a>                       |
| Quick Courier Services, Inc.            | New Orleans      | LA | (504) 940-6262   |                                                                                           |
| Quick Delivery Service, Inc.**          | Schaumburg       | IL | (847) 534-2244   | <a href="http://www.quickdelivery.com/">http://www.quickdelivery.com/</a>                 |
| Quick Delivery, Inc.**                  | Kansas City      | MO | (816) 931-7800   | <a href="http://www.quickdeliveryinc.com/">http://www.quickdeliveryinc.com/</a>           |
| Quick Messenger Service of DC, Inc.     | Washington       | DC | (800) 822Deliver | <a href="http://www.gms-dc.com/">http://www.gms-dc.com/</a>                               |
| Quick Messenger Service of MD, Inc.     | Baltimore        | MD | (410) 385-9000   |                                                                                           |
| Quicksilver Messenger Service**         | Chicago          | IL | (312) 347-0126   | <a href="http://www.quicksilver-cleveland.com/">http://www.quicksilver-cleveland.com/</a> |
| Quicksilver Messenger Service           | Cleveland        | OH | (216) 687-1616   | <a href="http://www.quicksilver-cleveland.com/">http://www.quicksilver-cleveland.com/</a> |
| Quicksilver Messenger Service           | Macedonia        | OH | (330) 908-1616   |                                                                                           |
| Quik Couriers                           | Dallas           | TX | (972) 271-6770   |                                                                                           |
| R Personal Courier Service              | Manchester       | CT | (800) 647-8637   |                                                                                           |
| R&C Errands                             | Phoenix          | AZ | (602) 431-0130   |                                                                                           |
| Rapid Express, Inc.                     | Attleboro        | MA | (508) 226-7665   |                                                                                           |

|                                           |                  |    |                |                                                                                 |
|-------------------------------------------|------------------|----|----------------|---------------------------------------------------------------------------------|
| Relay Express Inc.                        | Dayton           | OH | (800) 860-6288 |                                                                                 |
| Relay Express, Inc.                       | Cincinnati       | OH | (513) 574-0900 | <a href="http://www.relayexpress.com/">http://www.relayexpress.com/</a>         |
| Reliable Runners Courier Service          | Eastlake         | OH | (440) 530-2000 | <a href="http://www.r.runners.com/">http://www.r.runners.com/</a>               |
| Richmond Express, Inc.                    | Richmond         | VA | (804) 788-8080 |                                                                                 |
| Same Day, Inc.                            | East Granby      | CT | (800) 950-7874 |                                                                                 |
| Santa Monica Express Inc.                 | Santa Monica     | CA | (310) 458-6000 |                                                                                 |
| Security Couriers, Inc.                   | North Hollywood  | CA | (818) 509-9500 | <a href="http://www.securitycouriers.com/">http://www.securitycouriers.com/</a> |
| Security Delivery Service, Inc.**         | Long Island City | NY | (718) 784-5586 | <a href="http://www.sdsexpress.com/">http://www.sdsexpress.com/</a>             |
| Serpro, Inc./Adcom Express/Couriers, Inc. | St. Louis        | MO | (314) 209-7516 |                                                                                 |
| Service First, Inc.                       | Denver           | CO | (303) 832-9454 |                                                                                 |
| Service Messenger Company, Inc.           | Stamford         | CT | (203) 327-3111 |                                                                                 |
| Service Messenger Company, Inc.           | Rye              | NY | (914) 967-9403 |                                                                                 |
| Shotgun Delivery                          | Hayward          | CA | (800) 833-5656 | <a href="http://www.shotgun.com/">http://www.shotgun.com/</a>                   |
| Sir Lancelot Courier Service              | Media            | PA | (610) 891-6465 |                                                                                 |
| Sky Courier                               | Sterling         | VA | (703) 433-2800 |                                                                                 |
| SMC Courier Service, Inc.                 | King of Prussia  | PA | (610) 265-1460 |                                                                                 |
| Sonic Courier, Inc.                       | Tampa            | FL | (813) 286-8900 |                                                                                 |
| Sony Pictures Studios                     | Culver City      | CA | (310) 244-8822 |                                                                                 |
| South Florida Messenger Service           | Miami            | FL | (305) 754-8330 |                                                                                 |
| Special D Rapid Delivery                  | Akron            | OH | (800) 686-5439 |                                                                                 |
| Special Dispatch, Inc.                    | Indianapolis     | IN | (317) 638-0608 |                                                                                 |
| Speedy Messenger & Delivery               | Denver           | CO | (303) 292-6000 |                                                                                 |
| STAT Courier                              | Lake St. Louis   | MO | (888) 592-7828 |                                                                                 |
| State Courier Service                     | Burbank          | CA | (818) 954-0430 |                                                                                 |
| Sun Courier, Inc.                         | Gardena          | CA | 310/851-5644   |                                                                                 |
| Sunny Express                             | Hayward          | CA | (510) 264-3980 |                                                                                 |
| Sunrise Delivery Service, Inc.            | Los Angeles      | CA | (213) 464-5121 |                                                                                 |
| Sunshine State Messenger Service          | Ft. Lauderdale   | FL | (954) 975-8100 |                                                                                 |
| Team Delivery Systems                     | Burbank          | CA | (818) 238-0200 |                                                                                 |
| The Express Group, Inc.                   | Los Angeles      | CA | (310) 478-8000 |                                                                                 |
| Thruway Direct**                          | Orangeburg       | NY | (914) 735-6900 |                                                                                 |
| Thunderball Courier Systems               | New York         | NY | (212) 675-1700 |                                                                                 |
| Timely Courier (DenEl Enterprises)        | Villa Park       | IL | (630) 834-4380 |                                                                                 |
| Top Priority Messenger Service, Inc.      | Phoenix          | AZ | (602) 381-6300 |                                                                                 |
| Trans Courier Systems, Inc.               | Brockton         | MA | (800) 325-7874 |                                                                                 |
| Trans Courier Systems, Inc.               | Springfield      | MA | (800) 899-8959 | <a href="http://www.teamdelivery.com/">http://www.teamdelivery.com/</a>         |

|                                                      |                  |    |                |
|------------------------------------------------------|------------------|----|----------------|
| TransMark Inc.                                       | Somerset         | NJ | (732) 249-2479 |
| TransMark, Inc.                                      | Hazlet           | NJ | (732)249-2479  |
| TransMark, Inc.                                      | Somerset         | NJ | (732) 873-3400 |
| Transportation Coordination dba Transport Management | Los Angeles      | CA | (818) 353-9200 |
| Transportation Management LLC                        | Inglewood        | CA | (800)311-SHIP  |
| TriState Courier & Carriage                          | Wilmington       | DE | (800) 783-0945 |
| TXX Services, INC.                                   | Plainview        | NY | (516) 349-9898 |
| U.S. Express & Logistics                             | Boston           | MA | (617) 269-2626 |
| UCI Distribution Plus**                              | Burbank          | CA | (818) 845-8883 |
| UltraEx, Inc.                                        | Hayward          | CA | (800) 562-4301 |
| UltraEx, Inc.                                        | Rocklin State    | CA | (888)443-1984  |
| UltraEx, Inc.                                        | San Francisco    | CA | (800) 640-3275 |
| UltraEx, Inc.                                        | Santa Clara      | CA | (408) 844-8641 |
| UltraEx, Inc.                                        | Whittier         | CA | (800) 888-6215 |
| UltraEx, Inc.                                        | Rocklin          | CA | (888) 443-1984 |
| United Express System, Inc.**                        | Aurora           | IL | (800) 826-2130 |
| Universal Courier, Ltd.                              | Culver City      | CA | (310) 410-4500 |
| Universal Mail Delivery/ Universal Custom Courier**  | Los Angeles      | CA | (800) 672-MAIL |
| US Courier, Inc.                                     | Dallas           | TX | (214) 358-0872 |
| US Courier, Inc.                                     | Austin           | TX | (512) 926-9700 |
| US Courier, Inc.                                     | Houston          | TX | (713) 699-4697 |
| US Express Freight Systems, Inc.                     | Largo            | MD | (800) 328-8000 |
| Valley Courier & Delivery Service, Inc.              | Kingston         | NY | (800) 424-6695 |
| Valley Forge Courier Service, Inc.                   | King Of Prussia  | PA | (610) 337-9696 |
| Vermont Courier, Inc.**                              | Williston        | VT | (802) 865-1119 |
| Via Bancourier, Inc.                                 | Kansas City      | KS | (913) 831-6300 |
| VMW Express, Inc.                                    | Washington       | DC | (202) 544-9100 |
| VMW Express, Inc.                                    | Beltsville       | MD | (301) 419-3600 |
| VMW Express, Inc.                                    | Sterling         | VA | (703) 312-7100 |
| Walsh Messenger Service                              | Garden City Park | NY | (516) 746-4348 |
| Wanner's Delivery Service, Inc.                      | Willow Grove     | PA | (215) 659-7180 |
| Washington Courier, Inc.                             | Washington       | DC | (202) 775-1500 |
| Way Delivery Services                                | Lancaster        | PA | (717) 299-0991 |
| Webster, Chamberlain & Bean                          | Washington       | DC | (202) 785-9500 |
| Western Messenger, Inc.                              | San Francisco    | CA | (415) 487-4100 |
| Wheels Assured Delivery Systems                      | Indianapolis     | IN | (317) 781-1919 |

<http://www.unitedexpresssystem.com/>

<http://www.valleycourier.com/>

<http://www.walshmessenger.com/>

|                             |            |    |                |                                                                               |
|-----------------------------|------------|----|----------------|-------------------------------------------------------------------------------|
| Wingtip Courier, Inc.       | Dallas     | TX | 214-252-3235   | <a href="http://www.wingtipcouriers.com/">http://www.wingtipcouriers.com/</a> |
| World Courier Metro Inc.    | Sharon     | MA | (781) 793-0800 |                                                                               |
| World Courier Metro, Inc.   | Burlingame | CA | (650) 777-9910 |                                                                               |
| World Courier Metro, Inc.   | Santa Rosa | CA |                |                                                                               |
| World Courier Metro, Inc.   | Miami      | FL | (305) 592-1544 |                                                                               |
| World Courier Metro, Inc.   | Norcross   | GA | (770) 840-8232 |                                                                               |
| World Courier Metro, Inc.   | Rosemont   | IL | (847) 928-2600 |                                                                               |
| World Courier Metro, Inc.   | Portland   | OR | (503) 254-3334 |                                                                               |
| World Courier Metro, Inc.   | Houston    | TX | (281) 219-0356 |                                                                               |
| Zip Express Courier Service | Louisville | KY | (502) 587-6744 |                                                                               |

SOURCE: Messenger Courier Association of the Americas,  
<http://www.mcaa.com/memdir.html>, as seen on 03/21/00  
 # Also listed in Table F1

\*\* Also listed as a member of the Express Carriers  
 Association (Table F2).