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 industry and its importance to U. S. commerce. It summarizes findings of a recent study completed at the University of Pennsylvania.

One measure of the size of the parcel industry is its revenue. 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:

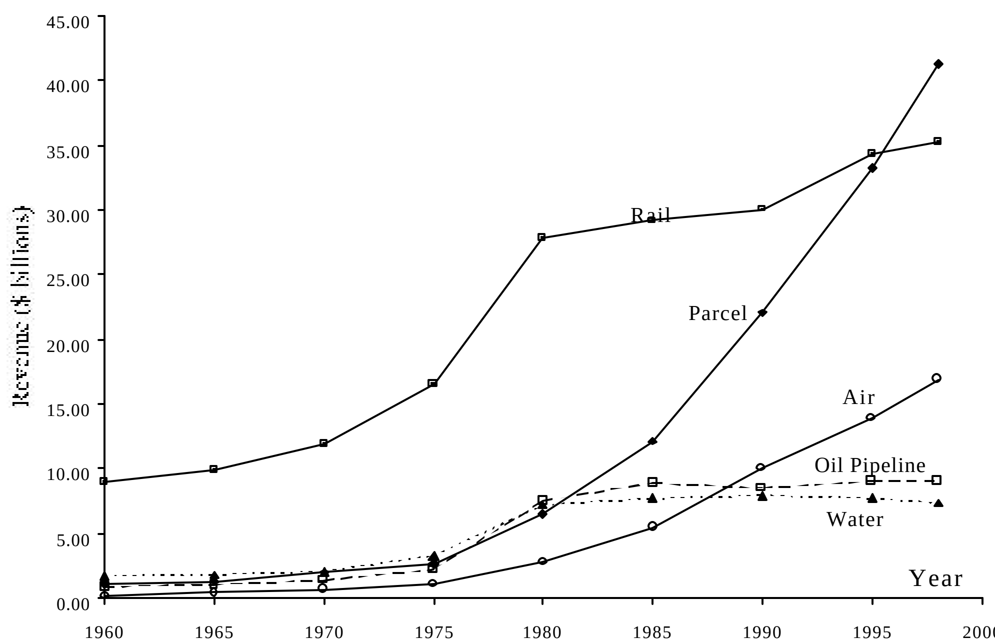
- Parcel carriers	$37.9 billion
- Railroads	35.4
- Airlines	16.3
- Pipelines (oil)	8.7
- Water	7.7
- For-hire trucking	159.7
- Private trucking	230.6

The parcel carriers' revenue in 1997 was equal to 8.0% of the 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 air transport, and it overtook water by 1985, and passed rail by 1997.

Another way of looking at the size of the parcel industry is to examine what it delivers—literally! In the Bureau of Transportation Statistics' first *Commodity Flow Survey*, in 1977, 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%. (Differences in the surveys suggest that the percentage in 1977 was overstated relative to other modes and years.) Parcel's growth in just the four years from 1993 to 1997 (the last two surveys) has been phenomenal, the parcel percentage of total shipment value growing from 9.6% to 12.3%, for a compound growth rate of 6.4% per year.

Another illuminating statistic is the value of goods shipped via parcel carriers as a percentage of 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 the parcel system



include those used in most of the fastest growing segments of our society. These include pharmaceuticals, medical supplies, chemicals, electronic products, computers and related equipment, precision instruments, printed matter, apparel, and repair parts, among others. Recent trends including globalization, customized mass production, lean inventory management, rapid customer response, and electronic commerce, among others -- all suggest that parcel transport is likely to grow in importance in the future.

Two critical features of these trends stand out. One is that parcel carriers are inherently multimodal (e.g., using air for overnight and truck for three day delivery), and they are inherently intermodal (coordinating the movement 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 boxcar loads, 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, or 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.

FOLD HERE

What are the implications of this study? One quite naturally deals with data. 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. The methods used in this study provide a basis for doing this, by government or others.

But there is a far more important implication. It is that the traditional modal structure of governmental involvement with transportation is in need of overhaul. Modal institutional structures are not likely to serve the transportation system or our society well. The traditional modal approaches – organizations, policies, funding mechanisms, and regulations--should be evaluated, and revised as appropriate, so that they encourage and support rather than stifle innovation and improvement. Clearly this structure has been changing, but the weight of two centuries of history is heavy. While such efforts may take many years to complete, changes can, and should, be introduced incrementally.

FOLD HERE

RESEARCH SUMMARY

PARCEL SERVICE AND THE ECONOMY

by

Edward K. Morlok
UPS Foundation Professor of Transportation
and Professor of Systems Engineering

August 8, 2000

Department of Systems Engineering
University of Pennsylvania

This report and the complete report can be found at
http://www.seas.upenn.edu/sys/logistics/parcelstudy.html