UNIVERSAL SERVICE WITHOUT A MONOPOLY[1]

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1. OVERVIEW

The competitive advantages of scale and scope in the delivery function of monopoly posts vis-à-vis potential entrants are well known.[2] This paper extends the examination of the monopoly by focusing on the competitive advantage incumbent posts enjoy from their established upstream infrastructure. The paper shows how the extensive system of cost based worksharing discounts in sorting and transportation has in fact created a large scale competitive upstream industry in the private U.S. economy.

Over 60 percent of U.S. postal volume receives some type of worksharing discount. Yet, less than 16 percent of total volume is presorted all the way to the carrier route level and dropped shipped at local or area offices by the private sector. This indicates a cost advantage for the Postal Service in sorting to the carrier route level and transporting to delivery areas. Based on these marketplace results, the paper argues that the contestable volume available to delivery entrants is limited and that the incumbent retains a *de facto* monopoly for well over 80 percent of the mail. Thus, even if the Postal Service lost all its contestable volume, it could make up the lost overhead contribution with a modest (under 3 percent) price increase on *de facto* monopoly volume and continue to meet its Universal Service Obligation (USO).

The paper also discusses the advantages of deregulation, differences in the USO of posts in industrial countries and provides statistics on delivery route profitability.

2. ADVANTAGES OF DEREGULATION

The opportunity costs of monopolies are now well understood. Telephone, airline and trucking deregulation has led to such innovations, real price declines and job growth that they have received much credit for recent U.S. economic growth. With its extension to the electric and natural gas industries, deregulation has become the norm in the U.S. economy. The Postal Service remains one of the last *de jure* monopolies.

Two small exemptions to the U.S. letter mail monopoly imply extensive opportunity costs because they have led to development of major industries employing tens of thousands of workers and have added greatly to U.S. economic growth. In 1979, faced with imminent legislation to remove urgent letters from the monopoly, the

[2] *See* Bradley and Colvin (1995) and Cohen, Ferguson, Waller and Xenakis (1999).

Postal Service exempted them on its own. The result has been the blossoming of the overnight delivery industry, which to this day is transforming our national and international logistics infrastructure in ways totally unforeseen when the monopoly was modified. Few would claim that the express industry would have developed as it did had the Postal Service been able to maintain and enforce its total monopoly on letters.

The second modification to the monopoly took place in 1986 when President Reagan directed the Postal Service to exempt outward international letters from the monopoly. Important, but less far-reaching, developments have taken place as a result. The exemption in the U.S. gave impetus to the international remail industry. Real prices and quality of service for international mailers have improved, and competition has led to innovative new services. The economy as well as international mailers have benefited.

The U.S. Postal Service has not ignored the movement toward deregulation. It has unbundled its processing and transportation functions with worksharing discounts based on its avoided costs. This has promoted competitive upstream activity as mailers and third party consolidators exploit the difference between their own costs and the discounts. Today over 60 percent of total mail volume is workshared.[3] Since 1976, which marked the introduction of the first worksharing discount, total mail volume has grown from 90 to 200 billion pieces. Advertising in particular has benefited. It has grown nearly fourfold. Worksharing and mail growth combined with scale economies have kept postage rates quite low notwithstanding relatively high wages.[4]

3. DEREGULATION OUTSIDE THE UNITED STATES

Although the monopoly on the delivery of letters has received little public discussion in the U.S., it has received much attention abroad. The European Commission has called into question the extent of the monopoly and has sought ways to introduce competition into the postal sector.[5] Many countries have reduced the

[3] This includes bulk barcoded, presorted or dropshipped mail.
[4] *See* Cohen, Chu, Ferguson, and Xenakis (1997).
[5] European Commission (1992).

scope of their postal monopolies by lowering price or weight ceilings.[6] More significantly, Sweden and New Zealand have eliminated the postal monopoly and German law eliminates the monopoly at the end of 2002. All three countries have derived significant benefits from these actions.

3.1 Sweden.

At the beginning of 1993, Sweden abolished its monopoly, but Sweden Post had begun to plan for deregulation in earnest by the beginning of the decade. The number of full time equivalents employed by Sweden Post and total mail volume from that time forward indicate large productivity gains:[7]

	Employment	Volume (millions)
1990	53,620	4,177
1993	47,081	4,532
1998	39,475	5,566

According to Sweden Post officials, these trends are projected to continue. During this period more than 700 post offices were franchised, sorting centers were consolidated, and more automation (OCRs and barcoding) was installed. The regulator has reported that service levels have been maintained. Sweden Post continues its USO including service to its substantial northern rural areas.

A large number of small competitors have emerged along with a large competitor, City Mail, which provides delivery twice a week in areas of Stockholm and two other major cities. It serves large volume customers who can prepare carrier route presorted mail. City Mail has managed to capture about 20 percent of the market in its service areas. Overall, however, Sweden Post maintains about a 95 percent market share.[8]

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[6] The U.S. has no price or weight ceiling for its letter monopoly.

[7] Sweden Post Annual Report, 1998.

[8] The competition authorities have found that Sweden Post had abused its market dominance while competing with City Mail. No anti-competitive allegations have been made since 1997 and, at least since then, Sweden Post has presumably been in compliance with competition laws.

3.2 Germany.

A 1992 law called for abolition of the monopoly and for privatization. According to Deutsche Post officials, reunification with East Germany in 1989 caused the Post's personnel ranks to swell because of overstaffing in the East German Post. These excess workers were eliminated from the force between 1989 and 1995. The latter year, then, can be used to benchmark reduction in employment as the German Post prepared for deregulation and privatization. The reduction in full time workers and increase in total mail volume also indicate substantial productivity improvements:

	Employment	Volume (millions)
1995	266,822	20,654
1996	247,120	20,234
1997	229,589	21,699
1998	217,366	22,721

Although it is not possible to separate the effects of impending deregulation from impending privatization, it would seem that both events would call for the same type of efficiencies.

3.3 New Zealand.

The monopoly was abolished in New Zealand in 1998. The authors have not been able to obtain mail volume and employment data from the Post, but according to the regulator, in the period leading up to deregulation, the Post reduced staffing and reduced the price of the standard letter from 45 to 40 cents. According to the regulator, several small firms have begun to compete and New Zealand Post has a subsidiary which entered the market. The Post itself has not lost much market share, however.

4. UNIVERSAL SERVICE OGLIGATION

The USO differs significantly among industrialized countries with respect to availability of delivery, frequency of service, and type of delivery.[9] Moreover, the USO implies price uniformity only for single piece mail.

4.1 Availability of Service.

According to Universal Postal Union (UPU) delivery statistics,[10] many postal administrations provide every address with delivery service. However, several countries, including the U.S., require certain households to pick up mail at a postal facility.[11]

4.2 Frequency of Service.

Some postal administrations deliver six days per week, while others deliver only five days per week. UPU data indicates that several postal administrations provide fewer deliveries per week to rural areas than to urban areas. Some administrations provide even fewer deliveries per week to remote areas.

4.3 Type of Delivery.

Many countries provide door delivery to every address, even to apartments in multistory buildings, while others deliver to clusters of boxes near the entrance of multistory buildings. Depending on the neighborhood, the U.S. provides door delivery, curb delivery (i.e., to a box placed curbside so that a motorized carrier can serve it without leaving the vehicle), or delivery to a centralized kiosk (containing mailboxes for all residents in a small geographic area). The U.S. and some other countries provide

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[9] The USO also pertains to retail or counter service where, according to Universal Postal Union (UPU) statistics, there are even greater differences among industrialized countries.

[10] *See* UPU (Annual).

[11] In Australia, for example, about 100,000 of the addresses in remote areas receive no delivery and customers must pick up their mail at postal facilities. In the U.S., customers within a quarter mile of any post office, which has no city delivery, must pick up their mail because rural carriers do not deliver to them. Formerly these customers had to pay $12.00 a year to rent a post office box, but recently the Postal Service decided to eliminate this charge.

rural delivery to a roadside box, which must be placed on the carrier's line of travel. Consequently, some rural customers living on roads not on the carrier's line of travel must travel considerable distances to get their mail.

4.4 Uniform Prices.

While every postal administration provides a uniform price for single piece mail, Sweden has established a lower tariff for bulk mail in areas where it faces competition. Virtually every other postal administration has some form of contract rates, usually based on volume. Often the terms of the contracts are secret. Generally, contract rates are made available only to selected customers. Perhaps only the U.S. has a uniform tariff for all its domestic mail with no exceptions.[12,13]

5. UNITED PARCEL SERVICE (UPS) AND THE USO

Many observers would argue that United Parcel Service in the U.S. is a universal service provider. It delivers to every address in the continental U.S. that is accessible by road. Unlike the Postal Service, UPS routinely goes to the door of dwellings in rural areas. Thus, it could be argued that UPS provides more uniform and better service than the Postal Service. Early in this decade, UPS began to impose an extra charge for residential (as opposed to commercial) delivery and recently it imposed an additional charge for residential addresses in remote areas. These changes made UPS prices more cost based.[14] In the last decade, the Postal Service has gained some market share in residential parcels and a new competitor, Roadway Package Express, has gained market share in commercial package delivery. Without question UPS has market dominance and most observers would say that UPS remains a *de facto* monopoly. It would be surprising to the great majority of parcel shippers (who rely on

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[12] The Postal Rate Commission regulates rates for domestic mail. The Postal Service sets its own international rates where it has established contract rates for selected international mail customers.

[13] As noted above, the U.S. has cost-based worksharing discounts available to every mailer on the same terms.

[14] Unlike the Postal Service, UPS has no economies of scope between parcels and letters. Because the delivery density of parcels to residential areas is much lower than in commercial areas, UPS costs for residential delivery are higher than for commercial delivery.

UPS to reach every address) to be told that UPS is not a universal service provider simply because it has surcharges for residential delivery.

UPS, presumably, has some money losing residential delivery areas in spite of its surcharges. The fact that it has achieved and maintains *de facto* monopoly status enables it to serve money-losing areas and withstand competition. Experience thus far in Sweden and New Zealand also suggests that incumbent postal services can survive competitive challenges and still maintain a universal service.

6. THE MONOPOLY AND THE UNIVERSAL SERVICE OBLIGATION

The standard argument for the monopoly is that it is needed in order to maintain universal service at uniform prices. The argument is most often expressed in terms of an assumed urban/rural cross subsidy. An earlier paper by the authors[15] has shown that there is no urban/rural cross subsidy in the United States. Collectively, rural routes are profitable.[16]

Many city and rural routes are unprofitable, however. Thus, a plausible argument remains that in order to provide universal service, at uniform prices, a monopoly is needed to allow cross subsidy of unprofitable routes by profitable ones. Implicit in the argument is that the Postal Service must charge prices for delivery on profitable routes that are so far above cost that successful entry by a competitor is inevitable, and that once entry takes place, the incumbent would have to sacrifice universal service in order to survive.

On the other hand, the incumbent provider, even without monopoly protection, has great economies of scale (and scope) owing to the fact that over half of the costs in the delivery function are fixed. The ability to spread fixed costs over large volumes make incumbents formidable competitors. If an incumbent's scale economies (i.e., volumes and fixed cost of delivery) are large enough; it may well be that the incumbent can cross subsidize money-losing routes and still have lower costs than a potential cream skimmer. Under these circumstances, the incumbent is a *de facto* monopoly

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[15] *See* Cohen, Ferguson, and Xenakis (1993).

[16] The paper divided routes served by rural carriers into quintiles based on population density. All quintiles except the least dense were profitable. Only 2.5 percent of all U.S. households are in this quintile. The loss on this quintile was $121 million or 0.3 percent of the $39 billion in postal costs for that year.

capable of sustaining the universal service obligation. A recent paper by the authors quantified the difficulties an entrant would have in competing with the U.S. Postal Service.[17]

Even if cream skimming entrants were able to compete successfully with the incumbent by virtue of lower wages or more efficient operations, there is a question of how much mail would be available to these entrants. We show that only a limited portion of the market is contestable and, consequently, the incumbent can maintain the USO even with successful entry. We also show that this conclusion holds even if substantial portions of First-Class Mail are diverted to electronic funds transfer (EFT).

7. ROUTE PROFITABILITY AND DELIVERY FREQUENCY

Table 1 shows that in the U.S. about half of city residential delivery routes[18] and only 27% of rural carrier routes were unprofitable in 1997.[19,20,21] Because the volume of mail delivered on them is low, the revenues generated do not cover their cost. Routes which are unprofitable at a delivery frequency of six days per week would become profitable with less frequent delivery. This can be seen in table 1 which displays the percentage of city residential and rural routes which are profitable at six days per week delivery, and the percentage that would be profitable with less frequent delivery. Route profitability improves as delivery frequency declines because of the large fraction of

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[17] *See* Cohen, Ferguson, Waller, and Xenakis (1999).

[18]Residential routes have fewer than 30 percent of their deliveries to businesses.

[19]Route profit is defined as the revenue of the mail delivered on a route minus the total cost of delivery and all other attributable costs of the mail delivered on that route. The cost of delivery used in the calculation of profit for each city carrier route is the total residential delivery costs divided by the number of city residential routes; whereas, for rural routes, the delivery costs are calculated on a route by route basis. In Cohen, Ferguson, and Xenakis (1993) aggregate delivery profits were calculated for each quintile of rural routes' density distribution versus the calculation at route level in this paper. An appendix detailing the method used to calculate revenue costs and profits is available on the Postal Rate Commission web site (prc.gov) or from the authors.

[20]Although rural routes have slightly less revenue than city routes on average, the wages are lower and the work rules are more flexible.

[21]These figures were developed by assuming that overtime was distributed evenly for the city routes. Overtime comprises about 14 percent of city delivery costs and about 2 percent of rural route costs.

fixed costs in delivery (54 percent on city residential and rural routes)[22]. Table 1 also shows how total delivery profits would increase were delivery frequency to decrease.

Table 1

Profitable Routes as Delivery Days are Reduced
(1997)

Days of Delivery Per Week	Rural Carriers (percent)	City Carriers (Residential Routes) (percent)	All Carriers (percent)	Total Delivery Profit ($ billions)
6	73	48	55	2.3
5	81	58	65	3.8
4	89	69	75	5.3
3	96	81	85	6.8
2	99	91	93	8.3
1	100	98	98	9.8

Source: Rural Carrier Cost System, 1997; Rural Carrier National Mail Count, 1997; City Carrier Cost System, 1997; Revenue, Pieces & Weight (RPW) Report, 1997; Cost & Revenue Analysis (CRA), Cost Segments & Components Report, FY 1997.

Because unprofitable routes would become profitable at a reduced frequency of delivery, the uniform frequency of delivery is what is implicitly being supported by the monopoly; it is not universal service, as such. Departure from a uniform nationwide delivery frequency in an attempt to reduce the loss from unprofitable routes might be politically unacceptable in countries which now have uniform frequency. Because mail volume is highly correlated with income,[23] delivery frequency would become correlated with income.[24] In a competitive environment, however, a privatized postal service might be able to rationalize delivery in this way.[25]

The total loss from unprofitable routes in 1997 was about $2.3 billion or 4.0 percent of the $58 billion total revenue for that year. This corresponds to what is called

[22] Out-of-office time is over two thirds fixed.

[23] *See* Towards Postal Excellence, The Report of the President's Commission on Postal Organization, June, 1968, page 96; The Household Mailstream Study, Institute for Social Research, 1978, Volume 1, page 49; The Household Diary Study, U.S. Postal Service, 1987 through 1997 (see sections on the impact of demographics); Kolin and Davis (1999).

[24] The availability of many commercially provided services are correlated with income (banks, retail stores, physicians, etc.).

[25] For a period of several years during the 1990's, UPS delivered less frequently to selected residential areas than it did to commercial areas.

the net avoided cost measure of the USO[26], and equates to about one and a half cents of the revenue from the First-Class stamp (33¢) with a proportionate amount from all other mail. By this measure, the burden of universal service appears relatively minor.

Arguably the postal monopoly allows this degree of cross subsidy, but it also allows monopoly rents. A Postal Service sponsored study concludes that postal employees subject to collective bargaining enjoy a wage and fringe benefit premium of 29.5 percent relative to comparable workers in the private sector.[27] This was about $10 billion in 1997; several times the loss on unprofitable routes.

8. COMPARATIVE ADVANTAGE OF AN ENTRANT

An entrant's frequency of delivery would involve a tradeoff between cost minimization and service levels necessary to secure market share. Reducing frequency *vis-à-vis* the incumbent allows the entrant to reduce its fixed delivery costs, but it also reduces the entrant's attractiveness to time value mailers. Speed of delivery is important to mailers of a large percentage of First-Class letters, periodicals published weekly or more frequently, and some advertising mail. The authors are not aware of studies of First-Class and advertising mail that would allow their partition according to time sensitivity. Absent such studies, we will assume that entrants will adopt a twice a week delivery frequency. This assumption is consistent with the behavior of the only known large-scale competitor for an established incumbent, City Mail.

The argument supporting the monopoly is based on an entrant's comparative advantage as a consequence of the incumbent cross subsidizing its delivery routes. An entrant would target profitable routes only, while reducing its fixed cost by delivering less frequently than the incumbent. Even with less volume, it is argued the entrant would be able to undercut the incumbent's average cost of delivery. Thus, the argument rests on the comparative advantage the incumbent would have in the delivery function. The contestable market would, however, be determined by the economics of upstream mail processing and transportation.

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[26] *See* Rodriquez, Smith and Storer (1999).
[27] Wachter, Hirsch, and Gillula (1995).

9. CONTESTABLE MAIL

Without competitive upstream activity, only the few mailers who can presort their mail to the routes serviced by the entrant and who are in proximity to the areas served by entrants could supply them with mail. Fortunately for prospective entrants, the Postal Service has unbundled upstream sorting and transportation with a whole range of discounts for barcoding, presorting and dropshipping[28]. These discounts are based largely on avoided costs. The response by mailers and third party consolidators has been substantial, and they have essentially become upstream competitors of the Postal Service. They presort as deeply as practical and transport mail as close to the delivery point as practical, given the available incentives. Consequently, a significant amount of mail could be made available to entrants without great additional effort. To help quantify this mail, table 2 displays volumes of single piece and presorted First-Class, publications and advertising mail.[29]

Much of the carrier route volume which is produced in proximity to entrants could be delivered by them without additional upstream activity. Mail which is produced at points distant from the entrant must be transported to the entrant. Table 3 displays the distribution of carrier route presorted advertising mail by entry point as a result of dropship incentives. We can see that Sectional Center Facility (SCF) and Delivery Distribution Unit (DDU) carrier route presorted mail would be available to entrants along with a small fraction of the Bulk Mail Center (BMC) and nondropshipped volume.[30] We estimate that 75 percent of carrier route advertising mail would be available to entrants.

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[28] No dropship incentives are available for First-Class Mail. Not all discounts pass through 100 percent of cost savings due to rate design considerations.

[29] Single piece First-Class and presort mail without barcodes must be barcoded by the Postal Service in order to sort the mail by machine to the walk sequence of the carrier. Currently only letter mail is walk sequenced by machine. The Postal Service will be introducing machines to walk sequence flat mail in the next few years.

[30] BMC dropshipped mail and nondropshipped mail would be available to entrants who happened to be located nearby.

Table 2

Presortation Levels of Mail
(1997)

	Volume (billions)	Percent of Total Mail
First-Class		
Single Piece	57.2	30.0
Presort (without barcodes)	6.2	3.3
Barcoded Mail		
Basic	4.8	2.5
3-Digit	20.4	10.7
5-Digit	9.6	5.0
Carrier Route	1.5	0.8
Publications		
Basic	0.8	0.4
3-Digit	1.9	1.0
5-Digit	3.1	1.6
Carrier Route	4.6	2.4
Advertising Mail		
Basic	8.8	4.6
3/5-Digit	33.9	17.8
Carrier Route	34.4	18.0
Other Mail	3.7	1.9
TOTAL	190.9	100.0

Source: 1997 Revenue, Pieces, and Weight (RPW) Report

Dropship incentives do not reflect all the costs saved in publications mail.[31] We assume that if they did, the distribution of dropshipped carrier route publications mail would resemble that of carrier route advertising mail which has an incentive structure that is more cost based. Because 75 percent of carrier route advertising mail would be available to entrants, we assume that 75 percent of carrier route publications mail would be available to entrants.

[31] Rate design for publications mail reflects dropship incentives only for the advertising weight (as opposed to the editorial weight) of the publication.

Table 3

Distribution of FY 1997 ECR Mail
By Drop Entry Point

	Piece Volumes (billions)	Percent Distribution Of Piece Volume
Non-Dropshipped	3.8	12.2
BMC Entry	6.2	19.6
SCF Entry	14.8	47.1
DDU Entry	6.7	21.1
Total	31.5	100.0

Source: USPS 1997 Billing Determinants, G-6, page 2 of 5

Bulk Mail Center (BMC) - 21 nationwide
Section Center Facility (SCF) - 500 nationwide
Delivery Distribution Unit (DDU) - 24,000 nationwide

The amount of First-Class Mail presorted to carrier route in table 2 reflects the fact that discounts are offered only in the relatively few locations where the Postal Service has decided not to install delivery walk sequencing automation.[32] With cost based incentives, entrants should be able to persuade mailers and third party consolidators to sort 5-digit mail to the carrier route level. On the other hand, much of this mail is time sensitive. Sorting First-Class Mail to the carrier route level for entrants would force consolidators and some mailers to separate their mail into two processing streams (time sensitive and not so time sensitive). Dividing mail into two streams, in turn, would cause the depth of sort of both streams to suffer. In addition, mail for those routes not served by entrants would have to be handed over to the Postal Service which would provide only the 5-digit discount. Thus, the extra effort required to sort mail to routes not served by entrants would not be fully recompensed. Under these circumstances, we estimate that in addition to carrier route First-Class, half of 5-digit First-Class Mail would be available to entrants.

[32] These are the areas which have too few routes to earn a satisfactory return on investment for the automation.

Not all contestable mail is delivered on residential routes. Some of it is delivered on business and mixed routes and much is picked up at post offices (especially by large volume recipients). Table 4 displays contestable volumes delivered on residential routes only.

Table 4

Contestable Volumes
(billions)

First-Class	4.6
Publications Mail	3.0
Advertising Mail	22.0
Total	29.6

This is 15.5 percent of total mail volume. The limited amount of contestable mail may make entry a marginal proposition.

10. LIMITS ON THE EXPANSION OF THE CONTESTABLE MARKET

The discount offered by the Postal Service can be looked on as the price it pays mailers and third party consolidators for sorting and transportation. In order to increase the volume of carrier route and dropshipped mail, the Postal Service would have to pay a higher price. An entrant likewise would have to pay a higher price to secure more of this mail. This would increase the entrant's cost relative to the Postal Service and make the entrant less competitive.

Another approach to boosting contestable volume would be for entrants themselves to engage in upstream processing. However, we have seen that a relatively large mailer and third party consolidator infrastructure already exists, which in effect competes with the Postal Service to provide upstream services. For an entrant to increase the size of the contestable market it must not only have lower costs than the Postal Service, it must also have lower costs than the existing competitive sector.

The basic problem of postal sorting is that eventually mail must be sorted and transported to about 220,000 delivery routes which are located all over the U.S. Very large national mailings, large to medium regional mailings and medium to small local mailings may contain enough volume to be sorted efficiently to carrier route, bundled

and transported to the SCF or DDU level. We might think of these as single source mailings direct to multiple routes. Most mailings, however, are not large enough to be efficiently sorted and transported to the carrier routes on which they are to be delivered. We might think of them collectively as multi-source mailings with indirect connections to carrier routes. They account for all the single piece and most of the bulk mail. Multi-source mailings must be aggregated for efficient sorting and transportation within the sorting/transportation network. The hierarchy of this network is:

BMCs[a]	21
3-digit areas	900
5-digit areas	24,000
Carrier routes	220,000

[a] Preferential mail (First-Class and publications bypass BMCs)

The Postal Service has determined that ten pieces is the minimum practical bundle size for carrier route mail.[33] The minimum quantity to qualify for 5-digit or 3-digit presort ranges between 125 and 150 pieces depending on shape and class. Basic presort contains residual pieces, none of which qualify for 3-digit presort discounts.

An entrant taking on the aggregation function on a national basis would have to aggregate mail and then sort to 220,000 carrier routes. It would need a nationwide network of sorting facilities with a scheduled transportation infrastructure to maintain reasonable service standards. This would be a formidable undertaking for an entrant.

To provide upstream processing and transportation outside the local area would to a great extent involve duplicating the Postal Service's network. Modern postal processing is increasingly capital intensive, employing specialized optical character readers, barcode sorters, barcode printers, and specialized container handling equipment. Proper utilization of barcodes requires complex software. The incumbent has had years to invest in plant, equipment, software and procedures, and has much human capital at its disposal. Because of the large capital requirements, and the likely high cost of capital for an entrant, a competitor would have little competitive advantage

[33] Six pieces for publications mail.

even if its labor costs were somewhat lower. Moreover, a large amount of the equipment used in modern postal sortation would not be readily salable nor would the development cost of the necessary software be recoverable if an entrant tried to exit the upstream business. It could well be that a failed entrant would sacrifice most of its investment. In addition, startup costs would be large while the entrant was gaining enough market share to breakeven.

A sensible question at this point would be if upstream competition on a national scale is too difficult, why not compete on a smaller regional basis? The answer is that we already have much competition on a regional basis. Every city of size in the U.S. has at least one and frequently several consolidators that presort mail. Most of the mail they handle is First-Class, but publications and advertising mail are natural extensions. The U.S. economy is very price sensitive. The fact that these aggressive entrepreneurs do not process more mail is evidence that it is either too difficult to gather more mail or that they would not have a cost advantage over the Postal Service.

Regional sorting capability would present other problems. Only so much mail destined for a region originates in that region. Thus, the volume available would be limited. Secondly, much of the mail originating in a region is exported. A regional operator would have to turn that mail over to the Postal Service in exchange for the worksharing discount. If the regional competitor offered prices to the mailer lower than the Postal Service, it would lose money on this mail.

We conclude that it is not likely that the volume of contestable mail would expand beyond the amounts shown in table 4. These are the figures we use in the following sections.

11. COMPETITIVE ROUTES, CONTESTABLE MAIL AND THE USO

Entrants would have to decide on which routes to compete. They would, of course, select routes where they had the greatest chance of success. Likely they would also limit the number of routes in order to limit startup losses and risk. We think it plausible that entrants would compete on routes with above average contestable volume. We will refer to these as competitive routes. There are 84 thousand competitive routes. They deliver 67 percent of the contestable mail. Contestable mail

constitutes 27 percent of all mail on competitive routes.[34] If all contestable mail on competitive routes were delivered by entrants, they would deliver only 10 percent of total mail.

Accordingly, if entry took place on all competitive routes and if entrants captured all the contestable volume on those routes, the Postal Service would lose at most 10 percent of its total mail. The 1997 overhead contribution from this "lost" mail would have been $1.6 billion.[35] This was 2.7 percent of total revenues in 1997 and 7.9 percent of total overhead[36] in that year. Recovering the lost overhead would have required an average 2.9 percent price increase on all remaining mail. By way of comparison, four of the nine postal rate increases between 1971 and 1998 have exceeded three percent in real terms.

The own price elasticity of noncontestable mail is much less than the contestable mail. The weighted average own price elasticity of contestable mail is –0.49, while the weighted average own price elasticity of the remaining mail is –0.30.[37] Thus, the volume response to price increases would not be expected to have much impact on the competitive scenario.

It does not seem, therefore, that the loss of all the contestable mail would threaten the Postal Service's ability to carry out its obligations under the USO. Furthermore, if faced with competition we could expect the Postal Service to improve its productivity as we have seen in Sweden, Germany, and New Zealand. It could well be that under competition, Postal Service costs would decrease more than revenues, even if the Service lost all of its contestable volume.

Faced with competition, the Postal Service would probably respond by offering discounts to selected, very large mailers of contestable mail. Such discounts would emulate the behavior of most other postal administrations which already offer discounts

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[34] The actual volume captured by City Mail in the areas it serves (20 percent) is well within the range of contestable mail in the U.S.

[35] This is calculated as revenue minus delivery costs and attributable upstream costs.

[36] Total revenue in 1997 was $58.3 billion; institutional costs were $20.2 billion.

[37] The volume weighted price elasticities were calculated using own price elasticities developed by Postal Service witnesses George S. Tolley (USPS-T-6), Thomas E. Thress (USPS-T-7) and Gerald L. Musgrave (USPS-T-8) in Docket No. R97-1. The source of volume figures, used as weights, is the RPW Report for FY 1997.

selectively, even though they maintain legal monopolies. The Service would be attempting to prevent the loss of profitable volume and to prevent entrants from achieving enough volume for them to breakeven. If selective discounts were not sufficient, the Service could broaden its approach and lower the rates for all contestable mail. The rate floor would be unit incremental costs. Its weighted average for contestable mail was about 7.2 cents in 1997.[38] A regulator would presumably allow this approach in order to ensure that only efficient entry occurred (i.e., where an entrant's average cost was below the incumbent's unit incremental cost).

As prices for contestable mail fall towards incremental costs, prices for *de facto* monopoly mail would rise to make up the lost institutional contribution. As long as the Postal Service retains enough low elasticity mail over which it has a *de facto* monopoly, it will remain able to perform its universal service obligations. Under these conditions there would be little chance of a death spiral (where prices increase in response to volume losses to competitors, causing further price increases and volume loses). Moreover, the concept of the USO is not immutable.[39] As the financial base to support the USO shrinks, the obligations of the Postal Service may also decline.[40]

12. USO AND ELECTRONIC FUNDS TRANSFER (EFT)

Because the internet appears to be an excellent vehicle for bill payment and bill presentation, it is widely expected that significant amounts of First-Class Mail will be lost to EFT over the first decade of the next century. Analyses of the 1997 Postal Service Household Diary Study, plus an analysis by the Postal Service of business to business payments, indicates that 45 percent of First-Class Mail consists of payments and bills. Losing half of that mail would mean the loss of 22 billion pieces and $3.7

[38] This is the unit attributable delivery cost plus local processing costs for FY 1997.
[39] Twice a day delivery was the norm until the early 1950s and door delivery was the norm until the 1970s.
[40] *See* Rawnsley and Lazur (1999).

billion in overhead contribution. This was 6.3 percent of 1997 revenue and would have required an increase in prices of 6.7 percent on the remaining mail to make up the lost revenue.

Losing this much First-Class Mail to EFT would reduce the total volume of contestable mail on competitive routes by a half billion pieces. Losing all contestable mail on competitive routes in addition to half the mail subject to EFT would reduce the overhead contribution by $5.2 billion that would require a rate increase of 9.8 percent. Again, we do not think that condition would threaten universal service.

If the Service lost half of its EFT volume, it would become predominantly an advertising medium.[41] Under these circumstance, the Postal Service might consider reducing delivery frequency for residential routes. As can be seen from table 1, reducing delivery to three days per week on residential routes would have saved about

$4.5 billion in 1997, nearly offsetting the loss of all contestable mail and half of the volume subject to EFT diversion.

13. CONCLUSION

The advantages of incumbency are great. The incumbent enters the competitive world with huge scale advantages over startup entrants. The incumbent also has infrastructure in place that provides it with access to mail which cannot be economically collected and presorted to the carrier route level by private sector competitors. This infrastructure limits the amount of contestable mail to less than 16 percent of total volume. The resulting *de facto* monopoly on well over 80 percent of the mail gives the incumbent the ability to make up institutional contribution from lost contestable mail. Thus, we find that the incumbent can survive competition even while maintaining universal service.

Operating under a legal monopoly for over 150 years has allowed the Postal Service to build its scale and upstream infrastructure. In a deregulated environment, it would seem fair recompense to require the incumbent to continue its universal service

[41] Already more advertising mail is delivered to households than First-Class. Moreover, First-Class itself contains about ten percent pure advertising according to the 1997 Household Diary Study.

obligation. Sweden and New Zealand recognized the advantages of incumbency and have required the incumbent to maintain the USO without subsidy.

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Appendix. Method Used To Calculate Revenue, Costs and Profits

Costs, revenue and profits in this paper are based on Postal Service data for Fiscal year 1997 (FY 1997) from: the Cost and Revenue Analysis (CRA); the Revenue, Pieces and Weight (RPW); Rural Carrier Cost System (RCCS), Rural Carrier National Mail Count (RCNMC), and the City Carrier Cost System (CCCS). The following describes how the results are derived from these standard Postal Service reports and data systems.

Route Profit = Revenue from mail delivered on route
minus upstream/non-delivery attributable costs for mail delivered on route
minus total cost of operating the route

where

Revenue from Mail Delivered on Route = Sum of revenue from each subclass, where

Revenue from each subclass = Average revenue per subclass piece times subclass volume delivered on the route from CCCS (city routes), and RCNMC and RCCS (Rural Routes);

Average revenue per subclass piece = Annual subclass revenue from RPW divided by annual volume of subclass from RPW.

See Table 1 for development of average revenue by subclass.

Upstream/Non-delivery Attributable Costs for Mail Delivered on Route = Sum of upstream unit attributable cost for each subclass times the delivered volume of the subclass, where

Upstream unit attributable cost for each subclass = Unit attributable cost for each subclass from CRA – unit attributable delivery cost for each subclass

Unit attributable delivery cost for each subclass = Annual attributable delivery costs for each subclass divided by the annual RPW volume for the subclass

Annual attributable delivery costs for each subclass = Direct labor attributable costs by subclass for city carriers (Segment Segments 6 & 7), special delivery messengers (Cost Segment 9) and rural carriers (Cost Segment 10) plus indirect or piggybacked delivery costs from CRA.

See Table 2 for calculation of attributable unit delivery cost and Table 3 for calculation of upstream/non-delivery attributable costs.

Total Cost of Operating the Route (city routes) = Total residential city carrier delivery costs divided by number of city routes, where

Total residential city carrier delivery costs = Labor costs accrued on city residential routes (CRA Costs Segments 6 and 7) times a piggyback factor of 1.36 for costs in other segments associated with city carrier delivery.

Table 4 details the calculation of the piggyback factor using data from the last rate case, Docket No. R97-1, and identifies the specific cost items included. The piggyback factor accounts for such things as carrier supervisors, equipment used by carriers, carfare etc. These are costs allocated to the delivery function by the Postal Service and Commission in rate cases.

Number of Routes = average of the number city routes for end of FY 1996 and FY 1997 reported to the Commission by the Postal Service from the Delivery Statistics File times the percentage of Segment 6 and 7 costs that are accrued on residential routes (to estimate the percentage of total routes that are residential routes.) Table 5 provides the calculation of the number of routes and the cost per route.

Total Cost of Operating a Route (rural routes) = Total rural carrier delivery costs assigned to rural routes in proportion to time spent on the route, where.

Total Rural Carrier Delivery Costs = Labor accrued costs (CRA Cost Segment 10) times a piggyback factor of 1.21 for costs in other segments associated with rural carrier delivery.

Number of Routes = average of the number rural routes for end of FY 1996 and FY 1997 as reported annually to the Commission by the Postal Service from the Delivery Statistics File for City and Rural Routes.

Table 6 shows volume, cost, revenue and profit statistics for rural carrier routes.

The total profit and number of profitable routes is calculated as a weighted sum of the route profits for the routes in the RCNMC and CCCS using SAS programs.

The percentage of profitable routes is the number of profitable routes divided by the total number of routes times 100%.

Table 1. Development of Revenue Per Piece by Subclass

Fiscal Year 1997

Rate Category	Total Revenue and Volume 1/ (In Thousands) Total Revenue	Volume	Subclass	Revenue per Piece by Subclass 2/ (In Dollars) Rev. / Pc.
First Class Mail:			First Class Mail:	
Single-Piece	21,486,056	54,240,238	Single-Piece	0.39613
[redacted]			[redacted]	
Single-Piece Cards	616,937	3,003,755	Single-Piece Cards	0.20539
[redacted]			[redacted]	
Total First-Class	33,397,563	99,659,942		
Priority Mail	3,856,010	1,068,181	Priority Mail	3.60988
Express Mail	824,698	63,633	Express Mail	12.96023
Mailgrams	1,979	5,326	Mailgrams	0.37157
Total Periodicals	2,045,504	10,411,404	Total Periodicals	0.19647
Standard (A):			Standard (A):	
Single Piece	137,290	171,188	Single Piece	0.80198
Bulk Rate Regular ECR	4,552,271	31,504,820	Bulk Rate Regular ECR	0.14449
[redacted]			[redacted]	
BR Nonprofit ECR	219,929	2,871,973	BR Nonprofit ECR	0.07658
[redacted]			[redacted]	
Total Standard (A)	12,875,970	77,253,630		
Standard (B):			Standard (B):	
Parcel Post	771,206	236,928	Parcel Post	3.25502
Bound Printed Matter	451,886	521,726	Bound Printed Matter	0.86614
Special Standard Rate	356,717	202,732	Special Standard Rate	1.75955
Library Rate	45,244	27,018	Library Rate	1.67459
Total Standard (B)	1,627,550	988,404		
USPS Penalty Mail	-	377,330	USPS Penalty Mail	-
Free for the Blind	-	53,301	Free for the Blind	-
Total Domestic Mail	54,552,205	189,881,151		
International Mail	1,614,815	1,006,908	International Mail	1.60374
Total All Mail	56,267,020	190,888,059	Total All Mail	0.29476
Special Services:			Special Services:	
Registry	95,193	16,254	Registry	5.85659
Insurance	61,046	33,771	Insurance	1.80765
Collect-On-Delivery	21,778	4,706	Collect-On-Delivery	4.62771
Certified	342,850	284,504	Certified	1.20508
Return Receipts	289,415	260,547	Return Receipts	1.11080
Special Delivery	1,387	139	Special Delivery	9.97842

1/ Source: Fiscal Year 1998 Revenue, Pieces and Weight Report (RPW)
2/ Mail categories combined into subclasses are highlighted

Table 2. Calculation of Attributable Unit Delivery Costs

Fiscal Year 1997

	Attributable Costs 1/				Unit Attributable Costs			Piggyback Factors 2/			Piggybacked Unit Attributable Costs			
	City Delivery Carriers (000)	Special Delivery Msgs. (000)	Rural Carriers (000)	Total Volume 1/ (000)	City Delivery Carriers (in Cents)	Special Delivery Msgs. (in Cents)	Rural Carriers (in Cents)	City Delivery Carriers	Special Delivery Msgs.	Rural Carriers	City Delivery Carriers (in Cents)	Special Delivery Msgs. (in Cents)	Rural Carriers (in Cents)	Total Attributable Delivery (in Cents)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
First Class Mail:														
Single-Piece	2,006,962	685	307,088	54,240,238	3.700	0.001	0.566	1.347864	1.514322	1.214785	4.987	0.002	0.688	5.677
Presort Letters & Parcels	1,090,186	300	282,404	40,062,616	2.721	0.001	0.705	1.375743	1.513664	1.216540	3.744	0.001	0.858	4.602
Single-Piece Cards	96,394	37	25,882	3,003,755	3.209	0.001	0.862	1.361589	1.561614	1.216311	4.369	0.002	1.048	5.419
Presort Post Cards	38,703	17	5,221	2,353,333	1.645	0.001	0.222	1.377787	1.457573	1.214728	2.266	0.001	0.269	2.536
Priority Mail	124,127	908	16,891	1,068,181	11.620	0.085	1.581	1.410317	1.509322	1.215538	16.388	0.128	1.922	18.439
Express Mail	24,088	82,538	5,350	63,633	37.855	129.709	8.408	1.479211	1.507422	1.213374	55.995	195.527	10.202	261.723
Mailgrams	311	43	29	5,328	5.839	0.807	0.544	1.467901	1.476501	1.208674	8.568	1.192	0.958	10.418
Total Periodicals	352,631	28	158,856	10,411,404	3.387	0.000	1.526	1.352799	1.424781	1.213996	4.582	0.000	1.852	6.435
Standard (A):														
Single Piece	34,628	7	1,012	171,188	20.228	0.004	0.591	1.335182	1.651545	1.213856	27.008	0.007	0.718	27.732
Bulk Rate Regular ECR	772,874	5	265,830	31,504,820	2.453	0.000	0.844	1.367927	1.199281	1.213439	3.356	0.000	1.024	4.380
Bulk Rate Regular Other	976,321	7	325,202	32,527,736	3.002	0.000	1.000	1.361291	1.335461	1.214859	4.086	0.000	1.215	5.301
BR Nonprofit ECR	49,679	-	11,171	2,871,973	1.730	0.000	0.389	1.361361	1.000000	1.213370	2.355	0.000	0.472	2.827
Bulk Rate Nonprofit Other	221,238	3	72,361	10,177,913	2.174	0.000	0.711	1.370093	1.234466	1.217518	2.978	0.000	0.866	3.844
Standard (B):														
Parcel Post	46,920	36	10,816	236,928	19.803	0.015	4.565	1.427901	1.524634	1.216814	28.277	0.023	5.555	33.855
Bound Printed Matter	54,527	-	10,980	521,726	10.451	0.000	2.105	1.450029	1.230541	1.213619	15.155	0.000	2.554	17.709
Special Standard Rate	26,803	3	4,180	202,732	13.221	0.001	2.062	1.428427	1.214832	1.213521	18.885	0.002	2.502	21.389
Library Rate	9,668	3	892	27,018	35.784	0.011	3.302	1.435296	1.214831	1.214142	51.360	0.013	4.008	55.382
USPS Penalty Mail	17,301	1	1,070	377,330	4.585	0.000	0.284	1.329891	1.167714	1.213618	6.098	0.000	0.344	6.442
Free for the Blind	3,031	-	763	53,301	5.687	0.000	1.431	1.380859	1.000000	1.212686	7.851	0.000	1.736	9.587
International Mail	25,863	15,177	2,785	1,006,909	2.569	1.507	0.277	1.391015	1.507857	1.213510	3.573	2.273	0.336	6.181
Total All Mail	5,972,255	99,778	1,508,783	190,888,060	3.129	0.052	0.790	1.363703	1.507498	1.214925	4.267	0.079	0.960	5.306
Special Services:														
Registry	5,260	45	2,415	16,254	32.361	0.277	14.858	1.435645	1.489308	1.213175	46.459	0.412	18.025	64.897
Insurance	4,771	-	3,638	33,771	14.128	0.000	10.773	1.431060	1.000000	1.212610	20.217	0.000	13.063	33.280
Collect-On-Delivery	2,426	4	4,044	4,706	51.551	0.085	85.933	1.394746	1.167694	1.213133	71.901	0.099	104.248	176.248
Certified	108,447	-	55,304	288,018	37.653	0.000	19.202	1.408603	1.000000	1.212897	53.045	0.000	23.290	76.335
Special Delivery	688	2,512	174	139	494.964	1807.194	125.180	1.000000	1.000000	1.000000	494.964	1807.194	125.180	2427.338
Total Attributable	6,100,194	102,357	1,575,671	190,888,060	3.196	0.054	0.825	1.364575	1.507461	1.214838	4.361	0.081	1.003	5.444
Other Costs	5,718,276	970	1,952,604	-										
Total Costs	11,818,470	103,327	3,528,275	190,888,060	6.191	0.054	1.848	1.364575	1.507461	1.214838	8.449	0.082	2.245	10.776

1/ Source: FY 1997 Cost and Revenue Analysis (CRA), PRC Version
2/ Source: Docket No. R97-1, PRC-LR-8, Chapter I, pages 15 of 74, 26 of 74 and 32 of 74

Table 3. Calculation of Upstream/Non-Delivery Unit Attributable Costs

Fiscal Year 1997
(in Cents)

	Total Attributable Unit Costs 1/ (1)	Total Attributable Unit Delivery Costs 2/ (2)	Non delivery Attributable Unit Cost (3) =(1)-(2)
First Class Mail:			
Single-Piece	25.265	5.677	19.588
Presort Letters & Parcels	11.056	4.602	6.454
Single-Piece Cards	18.719	5.419	13.299
Presort Post Cards	5.907	2.536	3.371
Priority Mail	202.050	18.439	183.611
Express Mail	979.418	261.723	717.695
Mailgrams	26.173	10.418	15.755
Total Periodicals	20.436	6.435	14.001
Standard (A):			
Single Piece	149.745	27.732	122.012
Bulk Rate Regular ECR	6.656	4.380	2.276
Bulk Rate Regular Other	15.657	5.301	10.356
BR Nonprofit ECR	5.783	2.827	2.956
Bulk Rate Nonprofit Other	11.973	3.844	8.129
Standard (B):			
Parcel Post	352.778	33.855	318.922
Bound Printed Matter	72.079	17.709	54.370
Special Standard Rate	127.807	21.389	106.418
Library Rate	209.223	55.382	153.841
USPS Penalty Mail	67.456	6.442	61.014
Free for the Blind	54.536	9.587	44.948
International Mail	140.271	6.181	134.090
Total All Mail	18.754	5.306	13.448
Special Services:			
Registry	525.181	64.897	460.285
Insurance	142.910	33.280	109.629
Collect-On-Delivery	363.047	176.248	186.799
Certified	128.266	76.335	51.931
Special Delivery	3213.669	2427.338	786.331
Money Orders	68.987	0.757	68.230
Stamped Envelopes	3.932	0.000	3.932
Special Handling	2.208	0.000	2.208
Post Office Box	3033.601	3.710	3029.891
Return Receipt 3/			3.270
Total Attributable	19.437	5.444	13.993
Total Costs	29.895	10.776	19.120

1/ Source: FY 1997 CRA, PRC Version
2/ Source: Table A-2, column (14)
3/ The non-delivery cost for Return Receipt is estimated by removing all carrier costs from the special cost study in Docket No. R97-1, USPS LR-H-107

Table 4. Development of City Carrier Piggyback Factor

Docket No. R97-1, Test Year

($ 000)

City Delivery Carrier Attributable Costs

		Office	Street	Total 1/
		(1)	(2)	(3)
1	City Delivery Carriers	3,127,163	3,159,880	6,287,043
2	Supervisors	200,133	202,226	402,359
3	Gen. Superv. Collect & Del.	108	109	218
4	Joint Supervision	26,732	27,012	53,744
5	Motor Vehicle Service	-	114,103	114,103
6	Subtotal Salaries	3,354,136	3,503,331	6,857,466
7	Higher Level Superv.	8,713	9,100	17,813
8	Admin. Clk. - Gen. Off. & Clr.	104,289	108,928	213,217
9	Cleaning & Protection	31,186	32,573	63,760
10	Plant & Equipment	15,168	15,843	31,011
11	USPS Protection Force	3,196	3,338	6,534
12	Subtotal Est. Salaries	3,516,688	3,673,113	7,189,800
13	Empl. & Labor Relations	-	-	-
14	Time & Attendance (C/S 2)	5,776	6,033	11,810
15	Time & Attendance (C/S 3)	30,000	31,335	61,335
16	Total Estimated Salaries	3,552,464	3,710,481	7,262,945
17				
18	Benefits			
19	Workers Comp. (Current Payment),			
20	repriced ann. lv., hol. lv., FERS,			
21	CSRS, Ann. COLA, & Retiree			
22	Benefits Combined	391,596	409,014	800,610
23	Unemployment Compen.	7,138	7,455	14,593
24	Total Estimated Benefits	398,734	416,470	815,204
25				
26	Other Expenses			
27	Contract Cleaners	2,130	2,153	4,283
28	Supplies & Materials	-	127,418	127,418
29	Vehicle Hire	-	15,973	15,973
30	Carfare	-	4,409	4,409
31	Driveout	-	3,881	3,881
32	Rents	30,791	31,113	61,904
33	Fuel & Utilities	17,152	17,332	34,484
34	Supplies & Services	56,048	56,635	112,683
35	Depreciation:			
36	Motor Vehicle	-	65,227	65,227
37	Building & Leasehold	26,716	26,996	53,712
38	Capital Interest - Motor Vehicle	-	9,333	9,333
39	Capital Interest - Build. Deprec.	3,823	3,863	7,686
40	Total Other Expenses	136,661	364,332	500,992
41				
42	Est. Total CDC Attrib. Costs	4,087,858	4,491,282	8,579,141

Piggyback Factor (Row 42 / Row 1) 1.364575 2/

1/ See Also: Docket No. R97-1, PRC-LR-8, Chapter I, pages 16 of 74 through 20 of 74

2/ The Piggyback factor is applicable to attributable and accrued cost.

Table 5. Calculation of Average Daily Cost per Route for City Routes

Fiscal Year 1997

Route Categories	Total Accrued Direct City Carrier Costs 1/ ($ 000)	($ 000)	Piggybacked 2/ City Carrier Costs ($ 000)	Percent Distribution	Number of Routes Total Distributed as CRA Costs	Number of Delivery Days	Average Daily Cost per Route ($)
	(1)	(2)	(3)	(4)	(5)	(6)	(7) = (3)/[(5)(6)]
1 Business Foot	174,143						
2 Business Motorized	173,515	347,658	474,405	3.1%	5,115	251	369.54
3 Residential Foot	979,955						
4 Residential Park and Loop	7,268,736						
5 Residential Curb	1,504,391	9,753,082	13,308,810	85.9%	143,484	303	**306.12**
6 Bus. & Mixed (BAM) Foot	176,494						
7 Bus. & Mixed (BAM) Park & Loop	820,129						
8 Bus. & Mixed (BAM) Curb	257,546	1,254,169	1,711,407	11.0%	18,451	303	306.12
Total	11,354,909		15,494,623	100.0%	167,049 3/		

1/ Source: FY 1997 CRA, PRC Version; Summary of Cost Components for Segments 6 & 7, W/S 7.0.4.3

2/ Costs in Column (2) multiplied by Piggyback factor (1.364575) from Table A-4, Column (3), last entry

3/ The number of total city carrier routes is an average of the FY 1996 and 1997 number of regular and auxiliary routes reported in the City Delivery Statistics National Totals: [(FY 96) 167,813 + (FY 97) 166,285] / 2 = 167,049

Table 6. Rural Carrier Route Statistics

Fiscal Year 1997

Volume/Route/Day	**2,099.22**
Boxes/Route	**447.07**
Volume/Box/Day	**4.70**

A. Daily Statistics Per Route ($)

Direct Labor Cost	180.67
Labor Overhead Cost	38.81
Vehicle (EMA) Cost	19.51
Total Delivery Cost	**239.00**
Fixed Delivery Cost	124.77
Variable Delivery Cost	114.23
Total Delivery Cost	**239.00**
Nondelivery Attr. Cost	248.14
Total Cost	**487.14**
Revenue	**556.07**
Profits	**68.93**

B. Annual Statistics for All Routes (in Millions)

Volume	**37,275.2**
Direct Labor Cost	3,208.1
Labor Overhead Cost	689.2
Vehicle (EMA) Cost	346.5
Total Delivery Cost	**4,243.8**
Fixed Delivery Cost	2,215.5
Variable Delivery Cost	2,028.3
Total Delivery Cost	**4,243.8**
Nondelivery Attr. Cost	4,406.2
Total Cost	**8,650.0**
Revenue	**9,874.0**
Profits	**1,224.0**

C. Route Statistics

Profitable Routes	42,656
Percent of Profitable Routes	**73%**
Unprofitable Routes	15,947
Percent of Unprofitable Routes	**27%**
All Routes	**58,603**
Routes in Sample	**39,534**
Sample Rate	**67.5%**