

***Controversial issues in cost allocation: outdoor
delivery and mail priorities***

***Presentation for WIK
Königswinter Postal Seminar
"Competition in Postal Services:
A return to senders?"***

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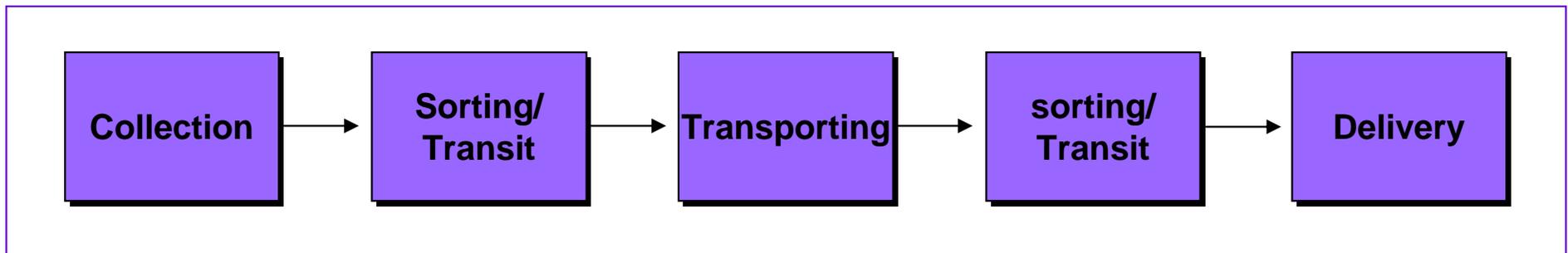
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2. Possible cost allocation methods
3. Approach followed by ARCEP

Context:

ARCEP's decision on cost accounting principles

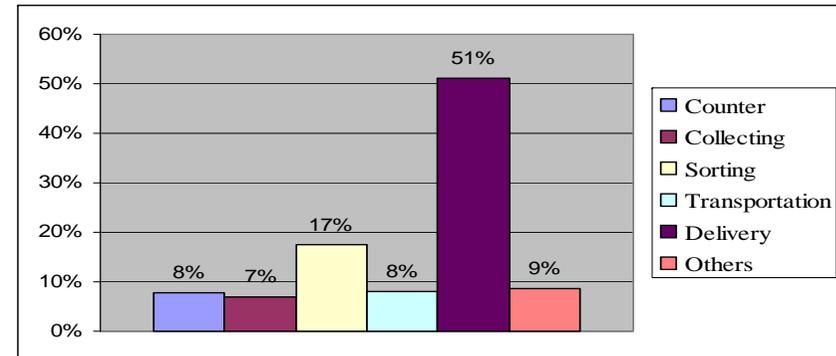
- ARCEP set out in the decision n° 2008-0165 the cost allocation rules to be used by La Poste when producing regulatory accounts
- The analyses conducted by ARCEP on the accounting system of La Poste focused on the general architecture and on the cost drivers of the processes of the postal value chain



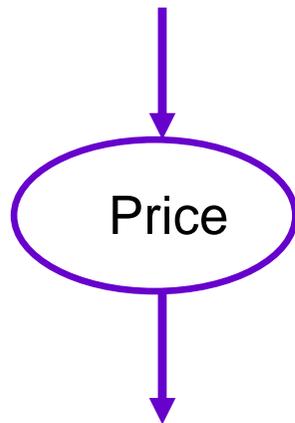
- Particular emphasis on the delivery process

Context: Issues

- Delivery represents a significant proportion of
 - Postal costs
 - Fixed common costs



Cost allocation



Competition
development

- Tariffs should be cost oriented

Analysis of the outdoor delivery

- **Outdoor delivery breaks down**

- Variable costs and direct costs: load time
- Fixed and common cost: route time
 - 3 cost drivers identified: **urgency**, Weight/Format, delivery mode (Walk/motorcycle/car)

- **Urgency (first, second, third class service) is considered as a cost driver:**

In order to provide the next day service required by the first class mail (delivery on day J+1) a six days a week delivery is needed, which is different from the third class mail (delivery on day J+7) which needs only one day a week delivery or the second class mail (delivery on day (J+2)/J+3) which needs 3 days a week delivery

- **How the cost of the route time of a six days a week delivery organization can be assigned among 3 services of different priorities?**

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How common and fixed cost in the delivery could be allocated among different products?

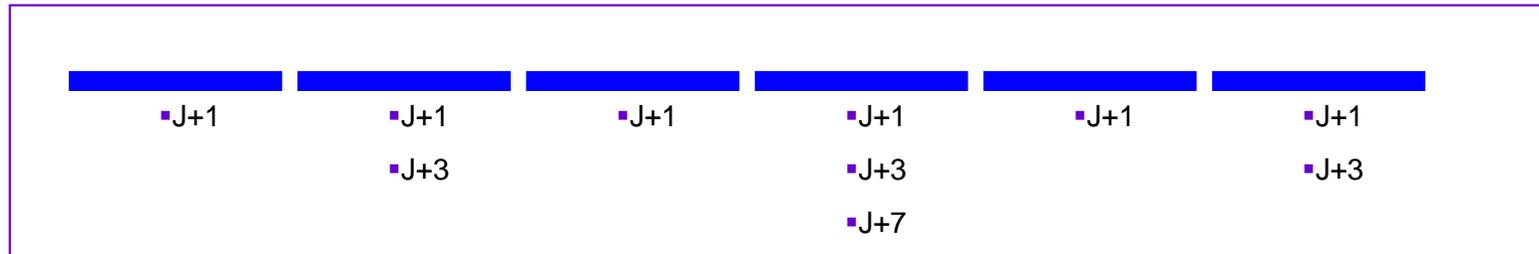
- Requirement: any chosen method should lead to allocations without cross-subsidies
- The cost assigned to each product or class of products should not be superior to their stand-alone cost (not inferior to the incremental cost)
- Applied to postal economy, the stand alone cost of a product is defined as the cost incurred by an operator if each class of mails would be delivered separately
 - First class products (delivery on day J+1): organization of 6 days a week delivery (equivalent of 6 times a daily route time)
 - Second class products (delivery on day J+2/J+3): 3 days a week
 - Third class products (delivery on day J+7): 1 day a week

Possible cost allocation methods

- Intuitive application of Shapley's rule (Game theory):

- Hypothesis

- 1 daily delivery is needed for the 3 products
- 2 daily deliveries are needed for the J+1 product and the J+2/J+3
- 3 daily deliveries are needed only for the J+1



- In terms of cost, the Shapley 's rule assigns

- J+7 products: $1/3 \times 1D = 6 \%$
- J+3 products: $1/3 \times 1D + 1/2 \times 2D = 22 \%$
- J+1 products: $1/3 \times 1D + 1/2 \times 2D + 3D = 72 \%$

Possible cost allocation methods

- Louderback's rule assigns to each product:
 - its incremental cost
 - (Common costs – incremental cost) is divided among products in proportion of the stand alone cost
 - J+7 products: 7 %
 - J+3 products: 21,5 %
 - J+1 products: 71,5 %

- Previous allocation applied by La Poste based on Louderback's rule
 - J+7 products: 5 %
 - J+3 products: 15 %
 - J+1 products: 80 %

Conclusion

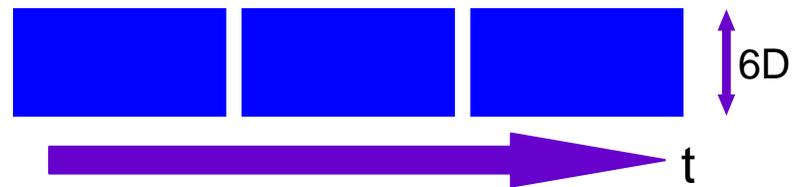
- Many different allocations respect the previous requirement. Any solutions between the two following extremes:
 - At one extreme: the totality of the fixed cost delivery is attributed to the (J+1) letters
 - J+1 = its stand alone cost = 6 daily deliveries = 100 %
 - J+3 and J+7 = 0
 - At the other extreme: 50 % of the delivery cost is attributed to the (J+1) letters and 50 % to the second and third class letters (= the incremental cost of the J+1)
 - J+1 = 3 daily deliveries = 50 %
 - J+3 and J+7 = 3 daily deliveries = 50 %

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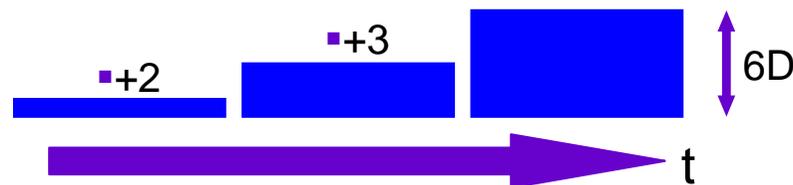
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Competition scenario on the French postal market

- Two different underlying competition scenarios
 - In the first case: a postal operator which comes into market will first deliver $J+1$ letters and then $(J+3)$ and $(J+7)$
 - Cost of $J+1$: 6 “Deliveries” (equivalent of 6 times a daily route time)
 - Incremental cost of $J+2/3$ and $J+7$: 0



- In the second case: a postal operator which comes into market will first deliver $J+7$ and $J+2/J+3$ letters and finally $(J+1)$ letters
 - Cost of $J+7$ = 1
 - Incremental cost of $J+2/3$: 2 “Deliveries”
 - Incremental cost of $J+1$: 3 “Deliveries”



How the cost of the route time of a six days a week delivery could be assigned among products?

- For ARCEP, the second scenario is closer to the competition development on the French postal market

- But the second solution does not take into account the scope economies of La Poste, that is why ARCEP modified the second solution in order to enable La Poste to benefit from the economies of scope of each product:
 - In the case of stand-alone deliveries, 10 “deliveries” (the equivalent of 10 daily route time) would be needed
 - In the case of common deliveries, only 6 deliveries would be needed
 - **Economy of scope: 4 deliveries**
 - How to share this economy of scope out among products? In proportion of the stand-alone cost of each product

How the cost of the route time of a six days a week delivery could be assigned among products? (2)

- In first order logic: stand alone-cost
 - First class products (J+1): cost of 6 “Deliveries”
 - Second class products (J+2/J+3): cost of 3 “Deliveries”
 - Third class products (delivery on day J+7): cost of 1 “Delivery”
- In second order logic: a correction is applied which decreases the previous cost allocation in taking into account the redistribution of the economies of scope
 - (J+1) products are assigned the cost of $3.6 D = [6 D - (6/10 \times 4 D)] = 60 \%$
 - (J+2/J+3) products are assigned the cost of $1.8 D = [3 D - (3/10 \times 4 D)] = 30 \%$
 - (J+7) products are assigned the cost of $0.6 D = [1 D - (1/10 \times 4 D)] = 10 \%$

Conclusion

Advantages of Arcep's method

- Close to the Competition scenario
- Respects the economic rule which lead to allocations without cross-subsidies
- Allows the redistribution of scope economies for each product

Fixed cost	J+1	J+3	J+7
Totality of the fixed cost attributed to J+1	100 %	-	-
La Poste	80 %	15 %	5 %
Shapley (Louderback)	72 %	22 %	6 %
ARCEP	60 %	30 %	10 %
Incremental cost attributed to J+1	50 %	33 %	17 %