6. AN INITIAL VIEW OF THE DETERMINANTS OF POSTAL COSTS

6.1. Introduction

The previous chapter has considered levels of postal costs in Europe. In the present chapter we consider factors affecting the structure and levels of postal costs. We saw in Section 5.3 that, not surprisingly, postal cost levels rise with mail volumes. In the next section, Section 6.2, we explore the relationship between costs and mail volumes in more detail. Specifically we are concerned with the way that <u>unit</u> costs vary with mail volume, by distinguishing between returns to scale, returns to density and returns to scope. In Section 6.3 we consider the potential impact of demographic factors, such as population density and the proportion of the population living in urban areas, on unit costs. Section 6.4 is concerned with the impact of the postal infrastructure on unit costs: we consider whether there are any apparent relationships between the level of infrastructure provided (sorting offices, levels of automation, delivery offices and post boxes) and postal unit costs. Section 6.5 considers Universal Service Obligations and unit costs, while Section 6.6 considers quality of service and unit costs. Section 6.7 reviews the approach adopted in this chapter and looks forward to the econometric evidence to be presented in Chapters 7 and 8.

All of the analysis in this chapter is in terms of apparent relationships. We want to see if the data we have collected show any patterns that might indicate what are the main factors determining postal costs and the way that costs vary with output. But such an analysis is an imperfect substitute for a more detailed statistical analysis which separates out the impact of each individual driver on costs. Such analysis has already been used by other researchers in the postal sector, and in Chapter 7 we review the results of this earlier analysis. In Chapter 8 we present our own multiple regression analysis using the data collected and collated in this study.

6.2. Economies of Scale, Density and Scope

An important factor determining the cost per unit of providing postal services is the way that costs change when output changes. If unit costs fall when output increases, then increases in output will mean that unit costs will fall and the service provided by the operator will become more attractive to customers if prices fall in line with the reduction in unit costs.

In order to interpret evidence on how costs vary with output it is necessary to understand the difference between <u>economies of scale</u>, <u>economies of density</u> and <u>economies of scope</u>.

The distinction between economies of scale and economies of density is a crucial distinction in <u>network industries</u>, of which postal services are an important example.

The definitions are as follows:

- <u>Economies of scale</u> relate to what happens to unit costs when traffic and size of network increase in the same proportion.

    - if unit costs fall when output and network size increase in the same proportion there are economies of scale;

    - if unit costs are unchanged when output and network size increase in the same proportion there are constant returns to scale; and

    - if unit costs increase when output and network size increase in the same proportion there are diseconomies of scale.

- <u>Economies of density</u> relate to what happens to unit costs when traffic increases on a fixed network:

    - if unit costs fall when traffic increases on a fixed network there are economies of density;

    - if unit costs are unchanged when traffic increases on a fixed network there are constant returns to density; and

    - if unit costs increase when traffic increases on a fixed network there are diseconomies of density.

- Economies of scope relate to what happens to unit costs when a single firm produces two or more different types of output (e.g. letters and parcels):

    - if unit costs fall when the two or more types of output are provided by the same firm there are economies of scope;

    - if unit costs do not change when the two or more types of output are provided by the same firm there are neither economies nor diseconomies of scope; and

    - if unit costs increase when the two or more types of output are provided by the same firm there are diseconomies of scope.

Figure 6.1 illustrates the distinction between economies of scale and economies of density by showing a case where there are economies of density but constant returns to scale. Point A shows unit costs, c_1, at the existing mail volumes, q_1. If mail volume were to increase on the fixed network from q_1 to q_2, then unit costs would fall to c_2 along the unit cost curve which shows unit cost with the network fixed. However, if an increase in mail volume from q_1 to q_2 could only be achieved by an equal proportionate increase in the size of the network, then unit costs would not change as the operator would move out along the horizontal unit cost curve that shows constant returns to scale.

Figure 6.1
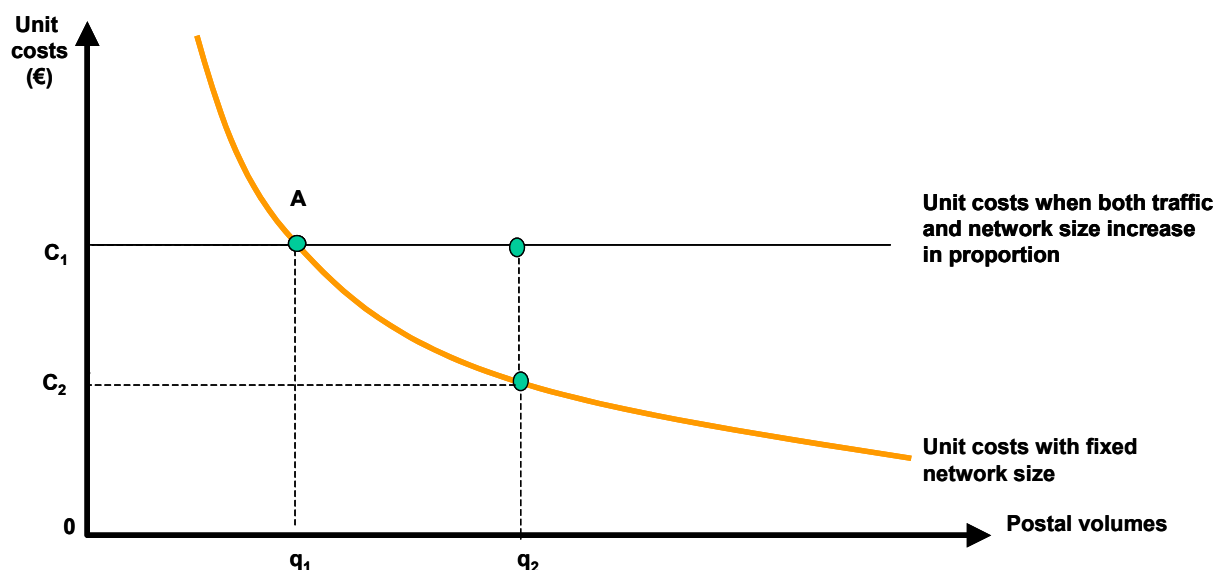**Economies of Density and Constant Returns to Scale**

Figure 6.2 attempts to show whether there is any apparent relationship between unit costs (defined as costs of letters plus parcels traffic, divided by total letter volume) and volume. The figure shows unit costs in 2002 converted to euros using 2002 PPP exchange rates. The data are those which we use in our econometric analysis, so they have been converted into as comparable a form as possible.[29] The data show universal service providers which have very different network sizes, so it would not be possible to use this figure to distinguish between returns to scale and returns to density. However, there is no clear indication that unit mail costs are lower for the higher volume operators. Instead, there is a very wide spread of unit costs between the different lower volume operators, and much less spread between the three operators which have annual volumes around 20 billion letters.

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[29]   Appendix D explains how we have done this.