Chapter XVIII
Economies of Scale in Distance Learning (DL)

Sudhanva V. Char
Life University, USA

ABSTRACT

As per conventional wisdom, the larger the size of the distance learning (DL) educational facility in terms of student enrollments, lower also would be the unit capital and unit operating costs. Looking at empirical evidence, the correlation between the two variables of enrollments and average total costs is unmistakable, even if not significant. In this chapter the nature and strength of such relationship is of more interest. This work discusses ramifications of scale-related economies for public policy, such as a mega or open university and so forth, for cost effectiveness of tax dollars, if any, spent on a DL unit. However, the scope of the chapter is limited to scale-related economies and it does not encompass the nitty-gritty of social cost benefit analysis. Subsequently, DL costs of a mega university are looked into to identify and quantify scale-related economies. The last part suggests what would make it possible to achieve minimum efficient scale (MES) size so that scale-related economies are achieved or diseconomies of scale are surmounted.

INTRODUCTION

One of the reasons that distance learning (DL) is alluringly attractive to some educationists at least is that it lends itself capably and economically to reach higher education to a very large body of students on a scale inconceivable for a campus-based institution. The number of students in such a modern DL facility runs into hundreds of thousands. In 1971, Walter Perry, the first administrator of the UK Open University ignored the advice of several experts to start DL on a pilot scale and let it prove its merits before expanding it into a large educational unit. In the stimulating words of John Daniel (2003), "Walter Perry ignored this advice. I believe he had two reasons. Even in those early days he understood that one of the great virtues of distance learning was the potential to operate at scale. He could already see that starting an open university required a big investment, but he could also see that if it were able to operate at scale the marginal cost of serv-

ing each additional student could be lower than in conventional institutions. He knew therefore, that if he started with a small pilot project of a few hundred students the cost per student would be enormous and people would ridicule the whole idea." That is a fit and functional elucidation of the economies of scale in DL.

Fixed costs as well as variable costs to a lower extent tend to decline as the volume of output expands. Such costs keep falling up to an optimum point beyond which the costs start climbing due to diseconomies of scale. The classic long run average cost curve (LRACC) is parabolic, although on account of the dynamics of current production systems, there are LRACCs that are not U-shaped but are L-shaped. Distance learning is a service industry and it would be interesting to explore if such economies are sizeable and the nature of such economies. The Appendix at the end shows the LRACC curve for a DL facility and it is L-shaped. We will discuss the implications later.

When up-front investment costs are spread over a larger output, average total costs, average fixed costs in particular, as well as marginal costs tend to decline. In terms of a DL facility this assertion would mean that as the number of students (or student credit hours) enrolled in distance education increases, the per student (credit hour) costs would keep declining at first, remain steady at the optimum level with further increases in enrollment, and eventually start rising slightly as still more students enroll. This fact is brought out in the estimates of the economics of a hypothetical DL unit at a southern location presented in Table 1. Note the significant change that the economies of scale make between 6,000 credit hours and 30,000 credit hours to both the costs and the net revenues. The data therein are of *ex ante* planning value, but not all encompassing to include social cost benefit analysis (SCBA), environmental benefits, and other topics beyond the scope of this study. Also such an analysis is location-specific. It is undertaken after the all conjectures and numbers are firmed up. Because of the economies (spread of fixed costs over a larger number of credit hours) in Table 1 the break-even for such credit hours is slashed substantially from 15,800 to 5,300 credit hours. Also observe that semivariable costs (also called semifixed costs) such as marketing, student support, faculty salary, and such others constitute as much as 67% of total costs at 30,000 student credit hours, going up from 55% at 6,000 credit hours. Whereas fixed costs decline from 41% of total costs at 6,000 credit hours to 23% at 30,000 credit hours. The dramatic fall in cost per credit hour is obvious. This evidence validates the presence of economies of scale in DL. In Table 4 as well, the same proof is available.

Economies of scale in DL are a hot issue in contemporary higher education, notably where there is capital deepening by making use of heavy-duty IT infrastructure consisting of cutting edge technology to deliver DL and otherwise manage it. Economies of scale and heavy investments work in step and style with each other. And in order to meet the "exploding demand" for DL courses, many universities have already launched DL programs or are contemplating them. Enrollment increases are in the range of 20 to 30% per annum (Carnevale, 2006).

The Secretary of Education, Margaret Spellings, thinks that "nearly two-thirds of all high-growth, high-wage jobs created in the next decade will require a college degree; a degree only one-third of Americans have" (Spellings, 2006). This vast hiatus between demand and supply cannot be bridged by mortar and brick institutions alone and DL has a role cut out for it in this milieu.

The government repealed early last year the federal rule mandating that colleges provide at least one half of the instruction on campus. The repeal would further augment enrollment in the online environment. According to an estimate by Eduventures in Boston, by early 2008, 1 out of 10 college students is expected to be enrolled in an online degree program. The demand for online programs will outstrip supply during the next 5 years. (Golden, 2006)