

## Abstract

This is a study of productivity and quality change in the public health services in Sweden, covering the period 1960–1990. It is part of a larger study of productivity in the public sector 1980–1992 (Ds 1994:24).

Ideally, productivity should include adjustments for quality change. This is, however, both in public services and in private production difficult to achieve. That part of quality change which consists of a change in the composition of production is usually included in the productivity measures by weighing different outputs with prices or cost shares. But that part which consists of a change in the quality of singular outputs is more difficult to include. The standard procedure is to adjust the worth of the product by the cost increase associated with the quality increase. This works less well in the case of health care. It works for trivial changes of quality, such as room service, but not for crucial quality changes in treatment, affecting life and death, restored physical functions, pain etc. In the case of room service it is likely that there exists a correspondence between the cost increase and a monetary valuation of the quality increase. This is less likely in the case of changes affecting people's health. There are other ways of taking quality changes into account such as estimating the change in the number of quality adjusted expected life years. However, these methods are all novel and contain difficult ethical issues. Therefore, quality will for the time being, and possibly also in the future, have to be measured alongside productivity. Developments in the health services will have to be evaluated on account of on the one hand the changes in productivity and on the other hand the changes in quality.

The study reiterates the results from both an earlier study on productivity change 1960 to 1980 and the recent study on productivity change 1980–1992 in the public health services. Over the years 1960–1992 the real cost of the average weighed visit to doctors and nurses and admission to hospitals for treatment has increased twofold. The question is: is there an equivalent quality increase? and is the total increase in health care costs due to more expensive treatments?

The study investigates quality change in the health services by sampling 29 diagnoses and asking how the typical patient was treated around 1960 and with what result in respect of diagnostic accuracy, ability to treat various kinds of patients, acute and long term morbidity, acute and long-term complications, restored physical functions, pains and trouble from treatment, length of treatment and life quality. The same question is asked

about the treatment of the same kind of patient, but concerning treatment in the beginning of the 1990's.

Renowned specialists from thirteen disciplines of medicine, who have a life-long clinical experience, have worked out the answers according to a structured set of questions. Their answers have been classified along scales such as "no change of acute morbidity", "slightly reduced acute morbidity", "a marked reduction of acute morbidity (20–50 percent)" and "a large reduction in acute morbidity (more than 50 percent)".

Questions were also put about rough estimates of the cost of treatment for the typical patient now and then, the number of patients and total cost increase concerning the specific diagnoses.

The sampled diagnoses represent 36 percent of the public health services (excluding institutions for chronic and old-age patients). It is not a random sample, but efforts have been made to make it representative, i.e. to include both diagnoses with quality increases and with no increase. Whether or not the sample is in fact representative of the whole health service sector cannot be judged.

The results indicate that there has been a marked increase in quality over the thirty years, and that much of the quality increase has taken place in the eighties. The most striking increases in quality are the following.

Diagnostic accuracy has increased for all but three diagnoses. In nineteen diagnoses the possibility to treat new groups of patients (the old and the very young patients and patients suffering from other diseases) have increased. Acute morbidity has been decreased concerning seventeen diagnoses. Long-term morbidity has decreased less. Physical functions are restored to a larger extent today in the case of nineteen diagnoses. In seven of these physical functions could not be restored very well or at all thirty years ago. But today it is being done. To some extent these medical advances have had a price in the form of increased acute complications and longer periods of treatment. The overall picture, though, is that both the length of the treatment and the complications have been reduced.

Diagnoses, the treatments of which show large increases in quality, are peptic ulcer, fractured hip, prostatic hypertrophy, total hip replacement, cataract, lower limb fracture, cardiac valvular disease and the care of premature babies. Acute morbidity has been decreased with 50 percent or more, physical functions can be restored almost completely, long term morbidity has been reduced, treatments involve less pains and trouble etc. Diagnoses that show hardly any or very small increases in quality are several forms of cancer (in the lungs, ovary and prostate), glaucoma and insufficient lung function.

There seems to be no connection between the increase in quality and the increase in costs. Several of these illnesses are treated with higher quality and lesser costs today than in the beginning of the sixties. Other illnesses

are treated with both higher quality and higher costs and still others are treated with higher costs but very little quality increase.

Finally, the question is posed whether with these new insights the cost increase in public health care can be explained. From 1960 to 1990 the increase is 235 percent. Productivity has dropped 100 percent. Overall, the quality increase must have made the average visit to the doctor and the average admission twice as valuable in order to compensate for the cost increase per visit and admission (productivity decline). Is this so? This is a difficult question to answer, but it is up to the electorate and its politicians to evaluate such information as is presented in this report in order to do so.

On top of this there is still another difficult question. Why has visits and admissions increased 66 percent per inhabitant (taking age into account)? This is a factual question, that may be resolved by more research. It is a critical question, since productivity measures are based upon the statistics of visits and admissions. If the number of visits and admissions has increased without a corresponding increase in the amount of treatment given, measures of productivity will underestimate the productivity decline. On the other hand, if the amount of treatment has increased without a corresponding increase in the number of visits and admissions, measures of productivity will overestimate the productivity decline.