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Health care cost in Switzerland: Quantity- or price-driven?☆



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ABSTRACT

In Switzerland, per capita health care costs vary substantially from canton to canton and rise considerably and steadily from year to year. Since costs are equal to the product of quantities and prices, the question arises whether regional cost variations and cost increase over time are quantity- or price-driven. Depending on the answer, the containment of health care costs must be approached differently.

This article examines the cost of mandatory health insurance in Switzerland for the period from 2004 to 2010 and breaks it down into quantity and price effects. The main result of the cross-section analysis reveals that regional cost differences are mainly due to quantity differences. Similarly, the longitudinal analysis shows that the cost increase across all health care services is primarily caused by increasing per capita quantities.

Any attempt to contain costs must therefore focus primarily on the extent of medical care utilization, and the key challenge to be met is how to identify medical care services which do not have a positive effect on patients' health status.

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1. Introduction

Two observations serve as the starting point for the study: Firstly, there are large regional differences in per capita health care costs across Switzerland, reflected by the substantial variance in the premiums paid for mandatory health insurance in Swiss cantons. Secondly, there is a steady increase in per capita costs over time. Over the past fifteen years, costs for mandatory health care services outpaced overall GDP growth and amounted to 4.25% of GDP in 2010 [2].

In order to understand regional cost variation and be able to limit medical cost growth, we must first identify the sources of the regional disparity and of the cost growth.

Since costs are the product of prices and quantities, the first step is to decompose costs into prices and quantities. Obviously, measures to contain costs must differ substantially depending on whether cost changes are driven by price or quantity.

The present study examines mandatory health care services in Switzerland and covers the period from 2004 to 2010. Since mandatory health insurance covers a variety of services, prices and quantities across all services cannot be compared directly but must be calculated and expressed in terms of price and quantity indices.

Interestingly, most studies on the decomposition of regional medical care cost variations are conducted in the USA [3]. Whereas in other countries regional variations in total health care expenditures is an issue, the cost differences are usually not split into prices and quantities [4,5].

In Switzerland, the decomposition of costs into prices and quantities is of special interest because, due to the federal state structure, the Swiss health care system is organized along cantonal borders. As a consequence, prices are not determined centrally and can vary from canton to

☆ This study was commissioned by santésuisse, the Swiss association of health insurers. An earlier study covering only the period from 2004 to 2005 was published in 2008 and focuses on productivity and efficiency measures [1].

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canton. To what extent the decentralized price setting is responsible for regional cost variations is one of the questions that will be analyzed in the following.

2. Data and methodology

2.1. Data selection and preparation

Most of the necessary data input has been extracted from the data pool of *santésuisse*, the Swiss health insurance association. The data pool comprises all mandatory health care transactions of the health insurance companies. To capture the full cost of mandatory health care services, the data supplied by *santésuisse* is complemented by data on public subsidies to hospitals as published by the Swiss Federal Statistical Office [6]. In addition, the price development of pharmaceuticals over time is described by the corresponding sub-index of the Swiss consumer price index, also published by the Swiss Federal Statistical Office.

The study distinguishes various health care services such as out-patient services by physicians, physiotherapists, and hospitals, in-patient hospital services, pharmaceuticals, nursing homes, and laboratory services. The in-patient hospital services are further divided into ten sub-categories ranging from university hospitals to local hospitals and specific clinics such as psychiatric institutions. In total, the costs of the 16 categories amount to almost 20 billion Swiss francs. Together with the yearly subsidies to public hospitals of approximately eight billion Swiss francs, costs in the amount of 28 billion Swiss francs are included in the calculations. The only other service worth mentioning is home care with a cost share of a little less than 2%. Here no meaningful split into price and quantity was possible, because home care services are charged partly on a time tariff and partly in the form of a lump sum. Since the available data does not distinguish the two forms of payment, home care was excluded from the data.

While 10 different hospital categories were distinguished, some of the smaller Swiss cantons do not have many of these categories. For the purpose of this study, the semi-cantons of Appenzell-Ausserrhoden and Appenzell-Innerrhoden, as well as Obwalden and Nidwalden, have been merged with their larger neighbors, St. Gallen and Lucerne, respectively. As a consequence, the original number of 26 cantons and semi-cantons has been reduced to 22 regions.

In order to calculate per capita results, special attention needs to be given to the determination of the cantonal population figures. When using these figures, it must be remembered that care providers such as hospitals and medical practitioners not only offer services to the resident population but also across cantonal borders. Dividing the cantonal cost of care providers by the number of the resident population, therefore, yields biased per capita results. To correct this bias, a matrix of inter-cantonal service flows is used to convert the resident population into the “medically cared for population”. Per capita measures, then, are calculated as cost and quantities per medicated population.

2.2. Index calculation

The challenge in trying to break down costs into quantities and prices lies in the fact that mandatory health insurance covers a range of different services. Therefore, prices and quantities across all services must be reproduced as indices [7]. In order to derive such indices, the cost of each service must be expressed individually as the product of quantities and prices. To this end, a plausible quantity and price indicator must be selected for each service. The following briefly describes what price and quantity indicators were chosen for each health care category.

2.2.1. Ambulatory services (out-patient hospital services, practitioners, and physiotherapists)

The information provided by TARMED, the Swiss medical tariff scheme for out-patient services, was used to break down the costs for all ambulatory services. The scheme assigns each medical service a specific number of tax points, based on the time required to render the service. The tax points serve as a quantity indicator for out-patient treatments. Medical costs are then determined by multiplying the tax points by so called tax point values which are to be understood as the price of a standardized service. The tax point values are the result of a negotiation process. Regionally, they vary by up to 20%, which is one reason why prices for medical services vary across Switzerland.

2.2.2. In-patient hospital services and nursing homes

With in-patient hospital services, it was not possible to use a similar procedure to the one used for ambulatory services to split the costs because no country-wide DRG scheme was in place in the period from 2004 to 2010. Therefore, “hospital day per hospital category” was used as the smallest standardized quantity measure that could be inferred from the data. Such a procedure implies that a hospital day at a given hospital category represents the same output all over the country. It does not, however, suggest that a day in a university hospital is comparable to, say, a day in a local hospital.

The implicit price for in-patient hospital services was then calculated as total hospital cost per hospital day and category. Again, the costs per hospital day and category vary considerably from canton to canton and constitute a second reason why prices are different across cantons.

2.2.3. Pharmaceuticals and laboratory services

With pharmaceuticals and laboratory services, there are no regional price differences but only price changes over time. To account for these price changes on the national level, we again relied on tax point values for laboratory services and on the consumer price sub-index for pharmaceuticals as published by the Swiss Federal Statistical Office.

This information on prices and quantities for each health care category was used to determine Paasche quantity and Laspeyres price indices. These were calculated in two ways, once without and once with public subsidies to hospitals. Since these subsidies vary substantially from canton to canton, the resulting price indices using net

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