DIBOGS-Beiträge zur Gesundheitsökonomik und Sozialpolitik

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Wettbewerb und Kosten-Nutzen-Analysen

Abstracts of the 8th DIBOGS-Workshop, Göttingen 2013

herausgegeben von Laura Birg, Annika Herr und Andreas Schmid

DIBOGS-Beiträge zur Gesundheitsökonomik und Sozialpolitik

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Band 8

DIBOGS
Duisburg - Ilmenau - Bayreuther Oberseminar zur Gesundheitsökonomik und Sozialpolitik e.V.

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Was ist DIBOGS?

Der DIBOGS e.V. ist aus dem Duisburg-Ilmenau-Bayreuther Oberseminar zur Gesundheitsökonomik und Sozialpolitik (DIBOGS) hervorgegangen. Der Verein hat sich zum Ziel gesetzt, den wissenschaftlichen Nachwuchs auf dem Gebiet der Wirtschaftswissenschaften in den Forschungsfeldern Gesundheitsökonomik, Gesundheitspolitik und Sozialpolitik zu fördern. Zu den Aktivitäten des Vereins zählt u.a. ein gesundheitsökonomischer Workshop, der erstmalig im Jahr 2005 ausgerichtet wurde und der sich zentral an gesundheitsökonomische Nachwuchswissenschaftler richtet. Ziel ist es, einen möglichst regen Erfahrungsaustausch herbeizuführen und insofern Unterstützung bei der Vorbereitung und Durchführung von Dissertations- oder Habilitationsvorhaben, sowie sonstigen wissenschaftlichen Projekten oder Publikationen zu bieten.

Der Workshop stellt nicht die Präsentation an sich, sondern den Austausch über das jeweilige Thema in den Mittelpunkt. Alle Papiere gehen den Teilnehmern im Vorfeld zu. Während des Workshops stehen für jedes Papier 45 Minuten zur Verfügung. Anstatt eines Vortrags setzt sich ein Ko-Referent intensiv mit dem Papier auseinander, worauf sich eine Diskussion unter den Teilnehmenden anschließt. Seit 2006 gibt es zu jedem Workshop einen Sammelband, der die (fach-)politische Öffentlichkeit über die diskutierten Themen informieren soll.

Der vorliegende Band „DIBOGS-Beiträge zur Gesundheitsökonomik und Sozialpolitik“ enthält die Zusammenfassungen/Abstracts ausgewählter Beiträge des achten Duisburg-Ilmenau-Bayreuther Oberseminars zur Gesundheitsökonomik und Sozialpolitik (DIBOGS), das am 15. November 2013 in Göttingen stattgefunden hat. Die Zusammenfassung soll einen ersten Überblick über die diskutierten Papiere geben, die unter den ggf. jeweils angegeben Links auch im Detail gelesen werden können. Weitere Informationen zum Sammelband sowie zur Teilnahme am Workshop entnehmen Sie bitte der Webseite der Deutschen Gesellschaft für Gesundheitsökonomie (www.dggoe.de) unter der Rubrik Ausschüsse: Nachwuchswissenschaftler.

Rebate Contracts: A Differential-Game Approach

Julia Graf*

Korreferent: Laura Birg#

Worldwide, expenditures for pharmaceuticals and other medical non-durables have substantially increased over recent years. Many different attempts have been made to cut costs. Prominent among these are rebate contracts.

There exist various papers on rebate contracts in very different contexts. However, the overall impact of rebate contracts on prices and quantities in equilibrium is unclear. One major assumption of most of the existing articles are either static prices over time or that there is an instantaneous and permanent price adjustment. However, neither of these concepts fits in reality in the health care context. Prices and quantities are adjusted, but not instantaneously. The demand adjustment in the health care context reacts rather sluggishly. In our paper, we use this demand concept in a market for a homogeneous good with dynamic duopolistic competition, introducing rebate contracts. This comprises three distinct behavior rules, followed by the manufacturers, depending on the information set available: the open-loop, the feedback and the closed-loop solution concepts.

Prices and quantities in equilibrium under the dynamic solution concepts differ from the static ones. Under Cournot competition and perfect competition, prices net of rebates and quantities in equilibrium are unaffected by rebate contracts. Contrary, under the three dynamic solution concepts prices and quantities in equilibrium differ due to two aspects. Introducing dynamic price adjustment leads to increasing (decreasing) quantities (prices) in equilibrium compared to static Cournot competition. Additionally, and in contrast to static solution concepts, rebates are not entirely captured by higher prices, but affect equilibrium outcomes. Increasing rebates stimulate demand, leading to higher prices. However, the demand-stimulating effect lags behind. Thus, the price increase is too small to internalize the total effect, which induces decreasing prices net of rebates granted.

Comparing equilibrium prices under the dynamic solution concepts, prices under the closed-loop solution are lower than those under the feedback solution. Prices under the open-loop solution concept exceed both the others. Equilibrium quantities, on the contrary, are lowest in case of the open-loop solution concept, followed by those in the feedback case and closed-loop solution concepts.

Analyzing equilibrium outcomes of the dynamic solution concepts, we find that the evolution of equilibrium quantities and prices depends on rebates. The differences between quantities and prices under the dynamic solution concepts vanish with increasing rebates

granted. Additionally, with rising discounts, quantities and prices net of rebates in equilibrium approach quantities and prices under perfect competition.

Based on the combination of rebate contracts and dynamic solution concepts, this paper also introduces a theoretical model for the evidence-based discussion on the harms and benefits of rebate contracts. By evaluating the impact of dynamic solution concepts, we provide alternative instruments, and contribute to the growing body of literature on health care issues.

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Defining Hospital Markets – An Application to the German Hospital Sector

Corinna Hentschker*, Andreas Schmid** und Roman Mennicken***

Korreferent: Thu-Van Nguyen #

The correct definition of the product market and of the geographic market is a prerequisite for assessing market structures in antitrust cases and for the calculation of concentration measures. For hospital markets, both dimensions are controversially discussed in the literature. Using data for the German hospital market we aim at elaborating the need for differentiating the product market and at investigating the effects of different thresholds for the delineation of the geographic market based on patient flows when calculating concentration measures.

As basis for the product market we use all German hospitals which offer "acute in-patient care" as our benchmark. To decompose the product market we identify ten diagnoses that represent a wide range of hospital admissions, covering nonsurgical and surgical procedures, standard and complex as well as elective and emergency cases. With this, we assume that only hospitals compete with each other which offer treatment in the respective condition. The procedure for defining the geographic market is based on the cumulative-marginal rule. The approach analyzes patient flows on ZIP code level allowing for a very detailed hospital (system) specific delineation of geographic markets. The rule applied states that the relevant market of a hospital system consists of the minimal number of ZIP code areas needed to account for x% of all treated patients of the hospital (cumulative cutoff value). Furthermore, all ZIP codes are added to the market that account for at least y% of all patients treated by the relevant hospital system (marginal cutoff value), resulting in the x/y-rule. The 60/01-rule serves as our benchmark-rule but we use various thresholds. Based on the defined product and geographic market, we calculate the market share for the considered hospital system and its competitors. The market share is defined as the number of a hospital system's patients in the relevant market divided by the total number of patients in the relevant market. This results in the Herfindahl Hirschman Index (HHI) which is defined as the sum of all squared market shares of all competitors in the market. The HHI is a measure for assessing market concentration; values higher than 0.18 indicate that a hospital system operates in a market with high concentration.

We find that the German hospital sector is highly concentrated, confirming the results of a singular prior study. Furthermore, using a very general product market definition such as

“acute in-patient care” averages out severe discrepancies that become obvious when concentration is considered on the level of individual diagnoses. In contrast, varying thresholds for the definition of the geographic market has only impact on the level of concentration, while the correlation remains high. Our results underline the strong need for more empirical research regarding an adequate definition of the product market for hospital services.

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A New Hip at the Sea-Side - Medical Tourism and Hospital Competition

Laura Birg*

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This paper studies the impact of patient mobility on quality in a hospital market with a regulated price in a two-country-extension of the framework of Brekke et al. (2011a).

In the European Union, health policy, including the general design of health care systems, falls in the member states' competence (Treaty on the Functioning of the European Union (TFEU), Art. 168). As a result, health care systems in Europe differ substantially. These differences between health care systems can make traveling abroad specifically for treatment attractive, if prices are lower, quality is higher, waiting lists are shorter or other treatments than at home are available. Directive 2011/24/EU provides citizens in European Union with the right to choose among health care providers across all EU member states. Countries have to reimburse patients for cross-border medical treatment when this treatment is also covered in the patients' home country.

The model considers the market for an elective hospital treatment in two countries differing in size and the number of hospitals, which are represented by two Salop circles.

In both countries, there is a unit mass of patients uniformly distributed on the respective circle. A patient demands one treatment from the most preferred hospital or no treatment at all. As in Brekke et al. (2011b), hospitals maximize an objective function given by a lump-sum transfer to hospitals, gross profit from treatment and patient benefit from treatment less the cost of quality provision. The degree of altruism, i.e. the weight of patient benefit in the objective function is assumed to be positive, but incomplete. Hospitals compete in quality levels, while the treatment price is regulated.

A fraction of patients is assumed to be mobile and considers treatment abroad, if quality is higher and/or the treatment price is lower. The remaining fraction of patients is immobile and seeks treatment only in the home country.

If patient mobility is only caused by quality differences, because treatment prices are identical or patients receive full reimbursement, quality in the home country is lower and quality in the foreign country is higher under patient mobility. Quality in the home country decreases in the mobile fraction and quality in the foreign country increases in the mobile fraction of patients.

If patient mobility is caused by quality and price differences, but the densities of hospitals are identical in both countries, i.e. the market structure, quality in the home country is higher under

patient mobility, if the fraction of mobile patients is sufficiently low and/or the number of hospitals is sufficiently high. Quality in the foreign country is higher under patient mobility. Quality in the home country decreases in the mobile fraction and quality in the foreign country increases in the mobile fraction.

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Cost-Utility-Analysis Comparing Heavy-Weight and Light-Weight Mesh in Laparoscopic Surgery for Unilateral Inguinal Hernias

Dmitrij Achelrod* und Tom Stargardt**

Korreferent: Stefan Scholz #

Background: Hernioplasty is one of the most common surgery procedures in the United Kingdom. Although laparoscopic hernioplasty has been approved by the National Institute for Clinical Excellence (NICE), the type of mesh to be used has not been further elucidated. Lightweight mesh (LWM) has the potential to diminish chronic groin pain but its cost-effectiveness, as compared to heavy-weight mesh (HWM), is still not determined.

Objective: The objective of this paper is to conduct a cost-utility analysis (CUA) between laparoscopic hernia surgery with HWM and LWM for unilateral inguinal hernias.

Methods: A Markov model was constructed in order to simulate costs and health outcomes of laparoscopic hernia surgery over a period of twelve months from the perspectives of the National Health Service (NHS) and society (England). The central outcome was cost per quality-adjusted life year (QALY) gained. Surgery results and pain prevalence ratios were obtained from the randomized control trial conducted by Bittner et al. (2011). Other model input parameters were drawn from literature and public sources of the English NHS. Deterministic and probabilistic sensitivity analyses were conducted in order to test the robustness of the results.

Results: From the perspective of society, laparoscopic surgery with LWM entails lower incremental costs (-£88.85) compared to the HWM technology but yields a minimally smaller incremental effect (-0.00094 QALYs). The deterministic incremental cost-effectiveness ratio (ICER) for HWM compared to LWM totals to £94,899 per QALY. The probabilistic ICER amounts to £118,750 (95% CI: £57,603 – £180,920). Due to the fact that costs from productivity losses were not accounted for in the NHS perspective, LWM induces higher incremental costs (£13.09) and a smaller incremental effect (-0.00093). This results in a dominance of HWM over LWM both in the deterministic and probabilistic scenario (ICER 95% CI: -£12,382 – -£21,590). In the societal perspective, LWM's probability of being cost-effective is 50.7% at a willingness-to-pay of £20,000. The deterministic one-way sensitivity analysis reveals that the utility of living with hernia pain – i.e. the intensity of hernia pain - is one of the most crucial determinants of dominance in the societal and NHS perspective.

Discussion: A strictly dominant hernioplasty technique (LWM or HWM) across both analysis perspectives does not emerge. There is no clear support for adopting LWM as a standard treatment in the NHS perspective. In the societal perspective, the minor differences in costs and

patient outcomes between HWM and LWM give LWM at least the potential of enhancing outcomes and diminishing costs.

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The welfare impact of parallel imports: A structural approach applied to the German market for oral antidiabetics

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Assessment of a spatial panel model for the efficiency analysis of the heterogonous healthcare systems in the world

Vahidin Jeleskovic* und Benjamin Schwanebeck*

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