Gold and Silver health plans: Accommodating demand heterogeneity in managed competition

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A B S T R A C T

New regulation of health insurance markets creates multiple levels of health plans, with designations like "Gold" and "Silver." The underlying rationale for the heavy-metal approach to insurance regulation is that heterogeneity in demand for health care is not only due to health status (sick demand more than the healthy) but also to other, "taste" related factors (rich demand more than the poor). This paper models managed competition with demand heterogeneity to consider plan payment and enrollee premium policies in relation to efficiency (net consumer benefit) and fairness (the European concept of "solidarity"). Specifically, this paper studies how to implement a "Silver" and "Gold" health plan efficiently and fairly in a managed competition context. We show that there are sharp tradeoffs between efficiency and fairness. When health plans cannot or may not (because of regulation) base premiums on any factors affecting demand, enrollees do not choose the efficient plan. When taste (e.g., income) can be used as a basis of payment, a simple tax can achieve both efficiency and fairness. When only health status (and not taste) can be used as a basis of payment, health status-based taxes and subsidies are required and efficiency can only be achieved with a modified version of fairness we refer to as "weak solidarity." An overriding conclusion is that the regulation of premiums for both the basic and the higher level plans is necessary for efficiency.

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1. Introduction

In economic terms, an individual's utility from medical treatment generally depends on her health status (e.g., her general medical condition, the illness she suffers from, and the severity of this illness) as well as other factors such as her income, education and tastes which affect utility and demand for most goods and services. Respecting individual preferences calls for taking into account both sets of factors in deciding her best treatment. However, particularly in managed care environments, supply-side factors and rationing rules also affect care provided. The clinician treating this patient may not weigh all of the factors affecting her utility equally. Either because of professional inclination or unfamiliarity with patient preferences, clinicians may be more responsive to the individual's health status than to other "taste" factors affecting her utility. An immediate consequence of this simple observation is that individuals in a health plan will receive similar treatment if their health status is the same, even if their benefits

from the services are not. Social efficiency will not generally be served by such uniform treatment, and welfare could be improved if individuals with greater "taste" for health services were in different plans than those with lower taste.

In the U.S., pursuit of public policy objectives of extending coverage and controlling costs brings health insurance more under public control, and consequently, accommodating demand heterogeneity becomes an issue for regulation rather than simply being "left to the market." One public policy response to demand heterogeneity creates "Gold," "Silver" and possibly other heavy-metal plans representing levels of coverage and generosity. The publicly created health insurance market in Massachusetts designates Platinum, Gold and Silver Plans, and national health care reform calls for Platinum, Gold, Silver and Bronze. The design of efficient and equitable health policy in this policy context is the focus of this paper. We carry out the analysis when two types of health plans can efficiently serve tastes, a basic plan which we term "Silver" and a more generous plan which we term "Gold."

This paper studies how to efficiently and fairly implement a "Silver" and "Gold" health insurance plan within a policy context of managed competition. In managed competition, private plans compete for enrollees subject to regulation of premiums and ben-

efits (Enthoven, 1980). Managed competition characterizes health policy in many countries, including Germany, Israel, Netherlands, Switzerland, the U.S. and other countries where regulated private plans compete in a market for enrollees. Our "Silver Plan" covers a basic bundle of health care services. The "Gold Plan" offers better coverage/higher quality of care, but is more expensive. For efficiency, we want groups with a higher willingness to pay for health care to be in the Gold Plan. For fairness, we want the sick and the healthy to pay the same for plan membership in both plans. As far as we know, the literature does not contain a description of an enrollee premium–plan payment policy that achieves these two objectives.

After a literature review in Section 2, Section 3 describes our model in which consumers differ in two dimensions, health status and "taste" for health care, and are served by competing managed health care plans. A Regulator pays plans and may levy plan-specific taxes. Plans compete on services and premiums. We lay out explicit criteria for what we mean by efficiency and fairness. Efficiency is based on maximizing net consumer benefit. Fairness is based on the solidarity principle that the sick should pay the same as the healthy for health insurance. Section 4 considers the case in which both health status and "taste" are available as a basis of payment. The natural interpretation of "taste" in this case is "income," a taste-related individual characteristic that can be used to condition premiums or as basis for taxation. We show that incremental cost pricing of individual premiums is efficient but unfair, and that average cost premiums are fair but not efficient. By use of a new policy with an income-based tax on plan membership the Regulator can achieve both an efficient and fair allocation.

Many factors affecting demand (e.g., subjective valuation of health) cannot be used as a basis for either Regulator payment to plans or premiums charged to enrollees. Section 5 considers regulation when taste cannot be used as a basis for payment. We show that no payment policy leads to both efficiency and fairness. When we weaken the solidarity principle to be that the sick pay no more for health insurance than the healthy, efficiency and fairness can be achieved. We describe the tax and premium policy that achieves efficiency and "weak solidarity" in this context. Section 6 concludes the paper and comments on applications of our analysis to payment systems built around the idea of managed competition.

2. Literature review

From the beginning, proponents of managed competition recognized the problem of serving heterogeneous demands in a health insurance market in which a Regulator specifies a basic plan, and allows competition on price and quality (Diamond, 1992; Enthoven, 1980). Heterogeneity in demand stems from differences in health status and heterogeneity associated with "taste" factors. Health status heterogeneity is addressed by risk-adjustment of the payments made to health plans.[1] Taste heterogeneity raises distinct issues and comes about when, for example, higher-income groups are willing to pay for higher quality care than is provided in the basic plan. "Taste adjustment" of plan payments would not

attain efficiency if clinicians in a plan failed to allocate resources in response to tastes.[2]

Researchers have characterized premium policies that achieve either efficiency or fairness, but not both. One way to accommodate diverse tastes with a Silver and Gold Plan sets the premium for the Silver Plan at the same for all. Then, the Regulator charges each person the incremental cost they would incur in the Gold over the Silver Plan, and lets them choose the plan they want (Keeler et al., 1998). This premium policy efficiently sorts individuals among the plans, but by charging more for the sick, violates principles of equity.

Entohoven and Kronick (1989) and others argue that managed competition accommodates tastes by allowing Gold Plans to both upgrade services over a Silver Plan and also charge a higher premium to pay for the upgrade. The idea, as expressed by Pizer et al. (2003), is that "Beneficiaries who highly value certain benefits can search for a plan that offers those benefits and pay the marginal premium that corresponds to their choice." This policy is fair in the sense that everyone pays the same for plan membership, but it fails to efficiently sort consumers between plans. If the premium for the Gold Plan is average (not marginal) incremental cost, low-cost consumers will be inefficiently discouraged and high-cost consumers will be inefficiently encouraged to join the Gold.[3]

As far as we know there has not been much research in economics addressing the issues of efficiency and equity in markets where consumers' demand is driven by both tastes and need. One exception is Bundorf et al. (2009), who show in a theoretical analysis that uniform pricing will generally not lead patients to efficiently sort themselves across plans. We also obtain this result in the context of our model and use it as a benchmark for the analysis that follows. The second and larger part of their paper estimates the efficiency loss due to inefficient pricing. Our paper differs from Bundorf et al. (2009) in several important aspects. First, we study explicitly the market equilibrium that will emerge under different regulatory regimes. Second and more important, our concern is not only with efficiency but also with fairness. In fact, one of our main objectives is to demonstrate the tension between efficiency and fairness that emerges in markets where consumers differ not only in their needs but also in their tastes, and to propose mechanism to address this tension.[4] Third, we propose several regulatory policies that can be applied to implement both an efficient and fair allocation, under various assumptions about the tools available to the regulatory agency.

In order to characterize premium and plan payment policies that achieve efficiency and fairness, we analyze payment policy within an explicit model of managed competition. Surprising in light of its popularity as a basis for national policy, the managed competition paradigm – competing managed care plans subject to regulation of

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[1] A large literature in health economics studies how to pay plans so as to induce them to accept enrollees across risk groups and to provide services efficiently. For reviews, see Newhouse (2002) and Van de Ven and Ellis (2000). In managed competition the public sector collects the revenues and repackages it as risk-adjusted payments before sending it to plans. Importantly, decision makers within the health plans, i.e., clinicians, must be willing to allocate funds according to health status, a reasonable if oftentimes implicit assumption. Demand heterogeneity can also stem from factors clinicians may be less responsive to in resource allocation decisions, a point we call attention to in this paper.

[2] It would also likely be unacceptable politically to collectively finance a plan payment system that paid more for groups with higher taste for health care.

[3] In very special circumstances a single Gold Plan premium can sort consumers efficiently between two plans (see Feldman and Dowd (1982), Ellis and McGuire (1987) or Cutler and Reber (1998) for such models) but in general as we explain in more detail below, a single premium either set by the market or by a Regulator does not lead to efficient sorting between two plan types. Bundorf et al. (2009) points out the special assumption in these models.
Miller (2005) considers optimal sorting in a different context, an employer setting an incremental premium employees must pay for a more generous plan. Miller points out that the employer may be able to set the payment (which in this context goes back to the employer) to extract some of the additional surplus sicker workers get from employer-based health insurance.

[4] Smart (2000) considers insurance against a financial loss when consumers differ in probability of loss and in risk aversion. This form of demand heterogeneity also interferes with efficiency of markets when firms cannot price risk separately to the different risk groups.