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Financing and funding health care: Optimal policy and political implementability☆

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ABSTRACT

Health care financing and funding are usually analyzed in isolation. This paper combines the corresponding strands of the literature and thereby advances our understanding of the important interaction between them. We investigate the impact of three modes of health care financing, namely, optimal income taxation, proportional income taxation, and insurance premiums, on optimal provider payment and on the political implementability of optimal policies under majority voting. Considering a standard multi-task agency framework we show that optimal health care policies will generally differ across financing regimes when the health authority has redistributive concerns. We show that health care financing also has a bearing on the political implementability of optimal health care policies. Our results demonstrate that an isolated analysis of (optimal) provider payment rests on very strong assumptions regarding both the financing of health care and the redistributive preferences of the health authority.

1. Introduction

Health care funding traditionally receives great attention by health economists. The primary topic of interest is optimal provider payment and how the environment, e.g., competition and information, shapes the optimal reimbursement system (see Chalkley and Malcomson, 2000, for an overview). The question of how the required revenue to reimburse providers should be raised, that is, how health care financing should be organized, has received less attention. The normative literature typically asks whether a social health care system is suited to improve social welfare and if so what size of the system is optimal (see, e.g., Blomqvist and Horn, 1984; Cremer and Pestieau, 1996, and Breyer and Haufler, 2000). Positive financing frameworks investigate how the politico economy equilibrium depends on voter heterogeneity (see, e.g., Epple and Romano, 1996a,b, and Gouveia, 1997). Surprisingly, health care financing and funding are mostly analyzed in isolation: research on provider payment ignores how health care is being financed and the financing literature neglects how the funds are being used. By simultaneously analyzing health care financing and funding our study fills this gap and thereby advances the understanding of the important health care financing and funding interaction. Additionally, the current article analyzes both, the optimal and the political allocation. This allows us to identify inefficiencies that are rooted in the political decision making process and to assess whether optimal policies are politically feasible.

We investigate the impact of three modes of health care financing, namely, optimal income taxation, proportional income taxation, and insurance premiums, on optimal provider payment and on the political implementability of optimal policies under majority voting. We consider a standard multi-task agency framework where the health care provider chooses the quality of care and cost reducing effort. More quality in health care is beneficial to patients and to the provider who is considered (partially) altruistic. More quality increases treatment costs and cost reduction effort lowers them. Individuals differ along two dimensions, i.e., risk and

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income. Given this heterogeneity an allocation is assessed along three dimensions: quality, effort, *and* the distribution of income (or, equivalently, the numéraire commodity). If optimal income taxation is feasible — or in the absence of redistributive concerns — and if quality and effort are contractible, the first-best allocation can be implemented. When quality and effort are non-contractible, the health authority uses a linear cost-sharing arrangement to steer the provider's incentives to invest in quality and to exert effort. As the health authority has two margins but only one instrument the first-best allocation can no longer be implemented. The health authority then uses the cost-sharing parameter to optimally trade off the inefficiencies in quality and effort. If health care financing is through optimal income taxes, this tradeoff is not blurred by any redistributive consequences which the financing of health care provision might have.

The second-best allocation is then contrasted with allocations under alternative financing regimes, namely, proportional income taxes and insurance premiums. We call the resulting allocations third-best. With proportional income taxation, income is redistributed from high-income agents to low-income ones and from low-risk agents to high-risk ones. Depending on the distributional characteristics of risk and income the third-best policy may imply more cost-sharing than the second-best policy and with it higher quality and less effort, causing health care expenses to be higher. When health care financing is through insurance premiums the second-best quality-effort tradeoff is affected if and only if insurance premiums involve some pooling. Then, premiums redistribute income from low-risk agents to high-risk ones with the extent being governed by the degree of pooling. The comparison between the second-best and third-best allocations hinges on the distributional characteristic of risk and on the extent of pooling.

To complete the picture, we derive the allocations under majority voting and contrast them with the optimal policies for both proportional income taxes and insurance premiums. While the redistributive preferences of the health authority are governed by the distributional characteristics, the preferences of the median voter depend on individual heterogeneity. This implies that, only in knife-edge cases, can the optimal (third-best) policies be implemented as political equilibria. For the case of proportional income taxes the comparison of the two allocations depends on how the relative inequity between risk and income compares to the relative distributional characteristics between these two dimensions. For insurance premiums it is only the inequity in risk together with the extent of pooling and its relation to the distributional characteristic of risk that matters.

Finally, it should be noted that, rather remarkably, risk-rated premiums imply second-best optimal health care *provision* for both the third-best allocation and the political outcome. The reason being that risk-rated premiums preclude any form of redistribution. There is then no conflict in the electorate about how to shape the health care system and second-best health care provision results. From the normative end it does not pay off to distort the optimal policy away from the second-best as the associated efficiency losses are not compensated by redistributive gains. As the resulting income distribution may not be optimal the equilibrium allocation may not be second-best efficient. Our results demonstrate that studies on optimal provider payment that neglect health care financing rest on very strong assumptions regarding the redistributive motives of the health authority, or on health care financing.

This article relates to two strands of the health economics literature. First, provider payment. The papers of Chalkley and Malcomson (1998a,b), Ma (1994), and, more recently, Eggleston (2005), and Kaarbøe and Siciliani (2011), show that mixed payment systems, i.e., a combination of capitation payments and cost-sharing, will generally be optimal. Whether quality incentives are high powered or low powered depends on the respective environment. It may relate to the quality elasticity of demand as in the first three papers, or to the complementarity between the different dimensions under consideration (the latter two papers). We use a simplified version of their models enabling us to integrate health care financing. There are only two articles we are aware of that consider a median voter approach to provider payment, namely, Gravelle (1999) and Nuscheler (2003). These papers look at how optimal capitation payments for physicians relate to the ones that would be implemented by majority voting. Both papers do not consider a multi-task agency framework and remain silent about health care financing.

Second, the health care financing literature. The normative literature typically takes an optimal income taxation approach and asks whether there is a case for redistributive social health care financing in the presence of progressive income taxation. Blomqvist and Horn (1984) and Cremer and Pestieau (1996), for instance, show that the desirability of social health insurance in parallel to an optimal income taxation scheme crucially depends on the correlation between income and health risk. For the empirically relevant case of a negative correlation, a redistributive public health care system can improve on a purely private health care market.[2] Breyer and Haufler (2000) advocate for a strict separation of income redistribution and health care financing as this would allow for better health insurance contracts (in terms of *ex post* moral hazard) and more efficient public financing in general (lower shadow costs of public funds). Political feasibility of optimal policies and provider reimbursement are ignored. The positive literature on health care financing aims at explaining the existence of public health care, its size and its form of financing. Epple and Romano (1996a) and Gouveia (1997) were the first to address these issues.[3] The former paper considers agent heterogeneity in income and shows that there is an 'ends against the middle' equilibrium when public health care can be topped up by actuarially fair private health insurance. Gouveia (1997) shows that this result continues to hold when heterogeneity in risk is added to the framework. Both papers derive conditions under which a mixed health care system with public and private health care financing arises. The mode of public financing, however, is taken as given. We explicitly analyze the consequences of alternate financing regimes on economic allocations. Rather than taking a reduced form approach where a health good is uniformly distributed to those who need it, we add a multi-task provider payment setting to the model. Finally, Epple and Romano (1996a) and Gouveia (1997) offer no normative analysis. By contrast, the current article studies normative and positive allocations and demonstrates how they compare to one another. Kifmann (2005) extends Gouveia's analysis by introducing a constitutional stage where voters have a say on the mode of health care financing. But, again, a normative analysis is missing as well as the integration of provider payment.

Finally, our paper relates to the normative literature that analyzes both, health care financing and funding. Zeckhauser (1970) was the first to simultaneously analyze provider payment and health care financing. Ma and McGuire (1997) generalized this framework. These papers analyze optimal health insurance in an *ex post* moral hazard setting. We consider a multi-task agency setup instead and investigate a much richer set of financing regimes. Moreover, their frameworks are normative in nature. An analysis

[2] Kifmann and Roeder (2011) extend the analysis to premium subsidies and examine whether this approach is superior to social health insurance from a welfare perspective. For a negative correlation they find that combining premium subsidies with social health insurance is the optimal policy.

[3] Epple and Romano (1996b) is another example. In this article the authors investigate a framework where individuals can opt out the public plan and buy private health insurance. As a result, preferences are no longer single-peaked.