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Curing Germany's health care system by mandatory health premia?

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ABSTRACT

A current proposal for reforming the German statutory health insurance suggests replacing earnings-related contributions by per-capita health premia. Combining a computable general equilibrium analysis with abundant empirical data on heterogenous household types, we investigate both the distributional and allocative impact of such a reform proposal. Our results indicate efficiency gains in terms of GDP and employment. This is because employed households of all skill types would increase their labour supply. Yet, while these household types would benefit from introducing health premia, others, such as those including pensioners or unemployed individuals, may suffer in terms of equivalent variations, despite tax-financed compensating transfers to these low-income households. Nonetheless, such transfers are an essential part of the reform proposal in order to mitigate redistributional effects. By comparing two different compensation schemes, we find that higher transfers go along with higher GDP and employment. This result may indicate that more redistribution comes at no efficiency costs.

1. Introduction

With the statutory health insurance introduced by Bismarck in 1883, Germany's social security and health care systems have evolved over more than a century. As a result of their imperfect harmonisation during this long period, these systems display partly contradicting distributional as well as redistributional effects. The statutory health insurance (SHI), in particular, entails a number of redistribution mechanisms: (1) from healthy people to persons with high morbidity, (2) from young to old people, (3) from childless single households to families with children and (4) from employees with higher earnings to those with lower earnings. For civil servants, self-employed, and employees with high earnings, there is, however, the possibility of opting out from the SHI and, therefore, avoid the implicit redistribution. Typically, these people are members of the private health insurances (PHI).

Moreover, as the German SHI is based on earnings-related contributions to sickness funds, health care contributions very much resemble payroll taxes, thereby causing deadweight losses. Lowering these deadweight losses is one of the major aims of recent proposals to reform Germany's current health care system. In this respect, a prominent strand of reform proposals suggests levying uniform per-capita health premia instead of earnings-related contributions. Breyer et al. (2004), for instance, vote for health premia that are unrelated to income and, in addition, are mandatory for civil servants, self-employed, etc.[1] While thus broadening the financial basis, the rationale behind such a reform is that it may increase overall efficiency as a consequence of declining effective marginal tax rates.

Breyer et al. (2004) also propose compensating transfers to poor households in order to alleviate the dramatic redistributional effects arising from the replacement of earnings-related contributions by uniform health premia, which evidently must be larger for low-income households than their current earnings-related contributions. An important implication of this proposal is that income redistribution is shifted from the health insurance to the tax system, thereby substantially broadening the tax base. According to Breyer and Haufler (2000), this approach may entail efficiency gains. This issue is all the more important, as the health care and tax systems use different bases and schedules, divergent upper ceilings, and apply to distinct types of individuals.

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[1] The proposals of Breyer et al. (2004), the German Council of Economic Experts (2004) and Rürup and Wille (2004) are similar in spirit, but Rürup and Wille (2004) only focus on SHI-insured individuals, leaving the PHI untouched, while Breyer et al. (2004) and the German Council of Economic Experts (2004) propose to include privately insured individuals as well.

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Using an applied computable general equilibrium (CGE) model that takes account of feedback effects resulting from price and wage responses, we assess both the distributional and allocative impacts arising from the introduction of health premia for only the SHI-insured individuals. We distinguish between two reform scenarios that differ in the compensation scheme for low-income households. In Scenario 1, a household is entitled to compensating transfers if the health premia exceed a threshold of 10% of its gross income. Scenario 2 implies household-specific compensations for those households whose burden, measured as the ratio of health premia to gross household income, would be higher than in the status quo.

Several features distinguish our analysis, which treats Germany as a small open economy. Firstly, unlike other applied CGE models in the area of health and social policy, such as Arntz et al. (2008) and Rutten et al. (2006), we consider four, rather than only two types of labour supply: low-, medium- and high-skilled work and a type of labour supply that is not liable to mandatory health care and other social security contributions. Secondly, in addition to unemployed individuals, we take particular account of pensioners, as low-income households are frequently found among these groups. Thirdly, rather than using stylised facts, we incorporate the most recent health care, social security, and income tax schedules of 2008.

There are numerous articles that investigate the effects of potential reforms of the German SHI with different foci. Most importantly, Knappe and Arnold (2002) analyse the health premia proposal with respect to efficiency and justice. These authors find that an increase in the income tax base allows for financing compensating transfers without increasing the households' marginal tax rates. While this analysis is a partial equilibrium study and, hence, is unable to capture feedback effects, Fehr and Jess (2006) show, using a CGE framework, that a health premia reform leads to both higher employment and GDP. In contrast to Fehr and Jess (2006), who balance the government's budget by raising consumption taxes, we adjust the income tax schedule. This is in line with Boeters et al. (2006), who model a reform of the social assistance within a CGE framework.

The subsequent section sketches the major components of our basic general equilibrium model. Section 3 presents the counterfactual reform setup. The results of the CGE simulations are discussed in Section 4. The last section summarises the main results and concludes.

2. Basic general equilibrium model

Amongst institutions such as a bank and the government, our static general equilibrium model includes a large variety of heterogenous household types and three kinds of insurances (see Fig. 1 in Appendix A): (1) a private health insurance (PHI), (2) a statutory health insurance (SHI), and (3) a social security insurance (SSI), covering pension, unemployment and permanent care insurance. In addition to a non-health good, households consume a homogenous health good. Each good is exclusively produced by a single, specialised firm using capital, labour and intermediate inputs.

2.1. Households

Household types differ in three characteristics, the first being the distinction between single and couple households, the second being the individuals' labour market qualification, and the third being their social status (see Table 1).

All in all, there are 66 household types, 10 of which are female single households, 10 types reflect male single households with 9 different labour market qualification and social status combinations and one type for a privately insured[2] single person, while all other types represent couple households. By differentiating between male and female single households, the available abundant health care data set can be fully exploited. In this way, we take account of the differences in average health care expenditures among males and females, as well as of pensioners versus labour force participants. Furthermore, with the distinction between nine combinations of skills and social status and a single type reflecting privately insured single persons, it is possible to draw a detailed picture of the potential impact of health premia on the German society, specifically on unemployed individuals as well as pensioners.

Table 1
Household type features.

Marital status	[# Types]	Qualification	Social status
		Low skilled	Employed
Single women	$[3 \times 3 + 1 = 10]$	Medium skilled	Unemployed
Single men	$[3 \times 3 + 1 = 10]$	High skilled	Pensioner
Couples	$[6 \times 6 + 9 \times 1 + 1 = 46]$	privately insured	

Note: There are 46 couple-household types, as can be seen as follows using the abbreviations: ls (low skilled), ms (medium skilled), hs (high skilled), e (employed), u (unemployed), p (pensioner). There are $9 = [\text{ls, ms, hs}] \times [\text{e, u, p}]$ households in which only one spouse is *privately insured* and there is only one type with both spouses being *privately insured*. If no spouse is *privately insured*, there are $36 = 6 \times 6$ household types, as results from the product: [ls–ls, ls–ms, ls–hs, ms–ms, ms–hs, hs–hs] × [e–e, e–u, e–p, u–u, u–p, p–p].

2.1.1. Household budget constraint

The gross factor income YFG_h of household type h, $h = 1, \ldots, 66$, equals the sum of the capital income and the individuals' earnings:

$$YFG_h = p_K \cdot KS_h + \sum_p p_{L,h,p} \cdot LS_{h,p}, \tag{1}$$

where it is only summed over individuals $p = 1, 2$ in case of couple households. p_K and $p_{L,h,p}$ denote the price of capital and gross wage rates, respectively, KS_h designates exogenous fixed capital supply and $LS_{h,p}$ labour supply. Each household pays income tax TY_h, depending on its annual gross factor income:

$$TY_h = \begin{cases} 0 & \text{if } YFG_h \le 7664 \\ -1607 + 0.18\,YFG_h + 2.4 \cdot 10^{-6} YFG_h^2 & \text{if } 7665 \le YFG_h \le 52\,151 \\ -7914 + 0.42 \cdot YFG_h & \text{if } 52\,152 \le YFG_h \le 250\,000 \\ 0.45 \cdot YFG_h - 15\,414 & \text{if } YFG_h \ge 250\,001 \end{cases} \tag{2}$$

This function reflects the German indirect progressive income tax schedule of 2008, where the average tax rate, $ty_h := TY_h/YFG_h$, increases with the income level. Households with an annual income lower than the subsistence level of 7664€per year are exempted from income tax. If household income reaches the threshold of 250 001€, the marginal tax rate equals 45%.

For SHI-insured individuals, earnings $YLG_{h,p} := p_{L,h,p} \cdot LS_{h,p}$ represent the basis for their contributions to health care ($HC_{h,p}$) and other social security ($SC_{h,p}$) contributions. Both are paid by employer and employee in equal proportions, where $HC^H_{h,p} = 0.5 \cdot HC_{h,p}$ and $SC^H_{h,p} = 0.5 \cdot SC_{h,p}$ denote the employee's shares. The health care contribution rate $hr_{h,p}$ and social-security contribution rate $cr_{h,p}$ are given by $hr_{h,p} := HC^H_{h,p}/YLG_{h,p}$ and $cr_{h,p} :=$

[2] The group of privately insured individuals covers amongst others civil servants, self-employed and employees with high earnings. In contrast to the three skill types displayed in Table 1, gross earnings of privately insured individuals are not liable to health care and other social security contributions.