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Asymmetric information and user orientation in general practice: Exploring the agency relationship in a best–worst scaling study

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ABSTRACT

This study uses a best–worst scaling experiment to test whether general practitioners (GPs) act as perfect agents for the patients in the consultation; and if not, whether this is due to asymmetric information and/or other motivations than user orientation. Survey data were collected from 775 GPs and 1379 Danish citizens eliciting preferences for a consultation. Sequential models allowing for within-person preference heterogeneity and heteroskedasticity between best and worst choices were estimated. We show that GPs do not always act as perfect agents and that this non-alignment stems from GPs being both unable and unwilling to do so. Unable since GPs have imperfect information about patients' preferences, and unwilling since they are also motivated by other factors than user orientation. Our findings highlight the need for multi-pronged strategies targeting different motivational factors to ensure that GPs act in correspondence with patients' preferences in areas where alignment is warranted.

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1. Introduction

The patient–doctor relationship describes one of the cornerstones in the universal provision of health care services. Understanding and correct mapping of the relationship are important as these provide a basis for the design of efficient economic incentive schemes, and in the analysis of demand for and optimal delivery of health care services. This is especially true for primary care, as demonstrated by the substantial research within this area over the last decades including – but not limited to – research on remuneration systems and how they affect GP behavior (e.g., Gosden et al., 2000; Hennig-Schmidt et al., 2011; Scott and Shiell, 1997; van den Berg et al., 2009), GPs' roles as gatekeepers (e.g., Brekke et al., 2007; Dusheiko et al., 2006), supplier-induced demand (e.g., Dijk et al., 2013; Labelle et al., 1994), and patient moral hazard (e.g., Dijk et al., 2013; Doran et al., 2005). During the last decades, this research has provided valuable input to health policy makers. Still, many issues remain unresolved including the influence of different motivational factors on GP behavior, and the GPs' role in optimizing patients' pathways and in the delivery of patient-centered primary care services.

The patient–doctor relationship deviates from the assumptions made in traditional agency theory on several well-known dimensions (see, e.g., Blomqvist, 1991; Gafni et al., 1998; Mooney and Ryan, 1993; Ryan, 1994; Scott, 2000). First, the relationship is characterized by double-sided asymmetric information; that is, GPs have incomplete information on patients' health status, behavior and preferences for treatment on one side, and patients have incomplete information on clinical diagnosis and treatment options on the other side. Second, the GP is assumed to take the utility of the patient into account when maximizing his/her own utility; that is, having a genuine concern for the welfare of the patient, thereby acting as an agent for the patient. This altruistic motivation has been referred to in the literature as 'user orientation' to signal the public service provider's interest in doing good for the individual recipient (the patient) as opposed to 'public service motivation' concerning the interest in doing good for collective entities (all patients) (Andersen et al., 2011; Jensen and Andersen, 2015; Vandenabeele, 2008). Accordingly, GPs can be considered double agents, meaning that they have to satisfy two principals – the individual patient consulting the GP, and the health care authorities contracting with the GPs and representing the joint interest of all patients. Given this triangular nature of the agency relationship, it is likely that the interests of the GP and the individual patient are not always perfectly aligned. Thus, non-alignment could stem from uncertainty about the patient's preferences (that is, asymmetric information) and/or conflict between user oriented motivation and other motivations such as personal

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financial incentives,[1] public service motivation,[2] and/or paternalism (e.g. focusing more narrowly on the patient's health benefits). Consequently, GPs are expected to make trade-offs between the individual and the collective interest which may cause GPs to refrain from acting as perfect agents for the patients in order to optimize scarce resources.[3]

Inspired by the work of (among others) Cheraghi-Sohi et al. (2008) and Scott and Vick (1999), we set out to further investigate the GP–patient encounter by studying both patients' and GPs' preferences for characteristics of a consultation using a stated preference (SP) methodology. With the application of a split questionnaire design, we also elicited GPs' perceptions of patients' preferences by asking them to choose the type of consultation they believe their typical patient would prefer. With this approach, we seek to identify the extent to which GPs are well-informed about patients' preferences (whether there is any asymmetric information), and to what extent GPs refrain from being perfect agents for the patients. This enables us to answer the following three research questions: (1) Do GPs act as perfect agents for the patients (comparison of GPs' preferences with patients' preferences)? If not, is this due to (2) uncertainty about patients' preferences and therefore asymmetric information between GPs and patients (comparison of GPs' perceptions of patients' preferences with patients' preferences), and/or (3) deviations caused by other motivational factors than user orientation (comparison of GPs' perceptions of patients' preferences with GPs' preferences)? That GPs' actions are not always congruent with the preferences of their individual patients is expected due to GPs' double agency. That GPs do not always know patients' preferences is of more concern, since the presence of asymmetric information implies that GPs cannot act as perfect agents for their patients even in situations where they intend to do so. This potential problem is highly relevant in light of the widespread focus on patient satisfaction as an indicator of quality and the standard of services more broadly, and for the delivery of patient-centered care (Greenfield and Braithwaite, 2008).

Previous studies have used SP methods to investigate the concurrence of doctors' and patients' preferences (e.g., Carlsen and Aakvik, 2006; Payne et al., 2011; Van den Hombergh et al., 2005; Vedsted et al., 2002), whereas other SP studies have compared doctors' perceptions of patients' preferences with patient preferences (e.g., Cox et al., 2007; Marshall et al., 2009; Mühlbacher and Nübling, 2010; Neuman and Neuman, 2009; Pedersen et al., 2012). Evidence on the degree to which doctors know patients' preferences is mixed, as are results on whether doctors' and patients' utility functions are aligned, with the majority of studies suggesting that differences exist. However, none of these studies are capable of identifying the extent to which possible discrepancies stem from doctors pursuing other goals than to satisfy patient preferences (such as financial incentives or public service motivation), or from asymmetric information between GPs and patients.[4] One way to explore the agency relationship in greater detail is to include all three perspectives (patient, GP, and GP perception) in one study. Although significant information can be obtained from such a setting, none of the aforementioned studies have attempted to do this. The present study fills this gab in the literature by providing a first attempt at a combined investigation of the agency relationship in general practice using a SP framework.[5]

We use the agency model to study preferences for characteristics of a consultation not involving treatment decisions. Hence, clinical considerations on diagnosis and treatment are of less concern, implying that asymmetry of information due to patients' lack of clinical knowledge can be disregarded as a potential (and acceptable) explanation for divergence in preferences. We survey a random sample of the Danish population and GPs and apply a best–worst scaling case 3 (BW3) experiment (Lancsar et al., 2005; Louviere et al., 2004, 2015; Marley and Louviere, 2005; Marley and Pihlens, 2012). The BW3 experiment is an SP approach and a variant of the more traditional choice experiment. In a BW3 experiment respondents are presented with a number of choice sets and are, in each choice set, asked to choose not only the best alternative (as in a traditional choice experiment) but also the worst alternative among those available. BW3 has received attention in the literature since it provides richer information on preferences compared to traditional choice experiments, due to the possible insights into the full preference ordering of respondents. BW3 is ideal in exploration of the agency relationship since more knowledge is obtained on the existence of possible discrepancies in preferences compared to, for example, traditional choice experiments. Hence, the method is useful in obtaining additional choice information and in providing a better understanding of the process of preference formation. Furthermore it enables us to gain knowledge on for which specific elements in the consultation the asymmetry in information exists, and on which elements GPs deviate from acting as perfect agents for both best and worst choices. Our data are analyzed using a sequential best–worst approach via a multinomial logit (MNL) specification that takes account of within-person heterogeneity and heteroskedasticity; that is, allowing for differences in scale and utility within best–worst choices. To date, this approach has only been used in a few other studies (e.g., Louviere et al., 2015; Scarpa et al., 2011;), and never in the area of health economics. Our results show that GPs predominantly know patients' preferences within a consultation, but that asymmetric information exists when it comes to patients' most preferred aspect of the consultation, which involves discussions on their general health status and lifestyle. Furthermore, we find evidence that GPs are not solely user oriented and refrain from being perfect agents for the patients. This is the case, for instance, with respect to time allocated to explain the problem during the consultation. These results are robust to various specification checks.

The remainder of the paper is structured as follows. Section 2 provides an overview of the organizational context of general practice in Denmark, and describes our theoretical model on the agency relationship in general practice. Section 3 describes the survey design, data collection, statistical models, and hypotheses to be tested. In Section 4 results are presented and these are further discussed in section 5. Section 6 offers our conclusions.

2. Theoretical underpinning

2.1. The setting

Like in most other European countries, GPs in Denmark are private entrepreneurs on contract with third-party payers; that is, the Danish

[1] The literature has traditionally distinguished between extrinsic and intrinsic motivation, where intrinsic motivation is defined as the doing of an activity for the enjoyment of the activity itself in contrast to extrinsic motivation where an activity is done in order to attain some separable outcome (that is, external reward) such as financial incentives (Benabou and Tirole, 2003; Frey and Jegen, 2001; Ryan and Deci, 2000).

[2] According to Jacobsen et al. (2014), and in line with Ryan and Deci (2000), public service motivation can be seen as a type of internalized extrinsic motivation.

[3] By perfect agency we refer to a situation in which the GP works as a perfect agent for the patient thus making the same decision as the patient would, where the patient to possess the same clinical expertise as the doctor. This also includes taking the patient's cost, such as time, into account.

[4] Other studies have focused on the trade-off between altruistic and financial incentives. This includes recent experimental research by Godager and Wiesen (2013), studying the degree of GPs' altruism in choice of medical treatment.

[5] Only one study (Hirth et al., 2000) has previously attempted this approach, albeit with a specific policy focus and without analyzing the findings in the theoretical context of the agency relationship.

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