



Quality competition with profit constraints[☆]

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ARTICLE INFO

Article history:

Received 29 August 2011

Received in revised form 18 July 2012

Accepted 8 September 2012

Available online 17 September 2012

JEL classification:

D21

D43

L13

L30

Keywords:

Profit constraints

Quality competition

Altruistic providers

ABSTRACT

Firms in markets such as health care and education are often profit constrained due to regulation or their non-profit status, and they are often viewed as being altruistic towards consumers. We use a spatial competition framework to study incentives for cost containment and quality provision by altruistic firms facing profit constraints. If prices are regulated, profit constraints lead to lower cost containment efforts, but higher quality if and only if firms are sufficiently altruistic. Under price competition, profit constraints reduce quality and cost containment efforts, but lead to lower prices if and only if firms are sufficiently altruistic. Profit constrained firms' cost containment efforts are below the first-best, while their quality might be too high or too low. If prices are regulated, profit constraints can improve welfare and be a complement or substitute to a higher regulated price, depending on the degree of altruism.

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1. Introduction

In many markets, goods or services are provided by firms that face constraints on profit distribution, either because they have non-profit status or because they are subject to regulation which limits the amount of profits that can be distributed to the owners of the firm. In these cases, profits must be (wholly or partially) reinvested in the firm or spent on 'perquisites'.

In this paper we analyse theoretically how profit constraints affect firms' choices regarding quality, price, and cost containment. The main applications of our analysis are regulated markets such as health care, child care, long-term care and education, and we are particularly interested in analysing whether profit-constrained firms in such markets are likely to offer higher or lower quality than firms that do not face any constraints on profit distribution. This goes to the heart of the question of whether owners of private firms that receive public funding should be allowed to distribute profits, which is often a hotly contested policy issue with regulatory practices that vary across countries.

[☆] We are grateful for valuable comments from two anonymous referees, seminar participants at the University of Bergen, the University of Minho/NIPE, University of Lausanne, and the HEB/HERO workshop in Geilo, 2011. The usual disclaimer applies.

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To give a motivating example from education markets, in 1992, Sweden embarked on a radical education reform programme, which has recently become the subject of intense debate in the UK.¹ The Swedish reform introduced free school choice and liberalised entry by removing school ownership restrictions, including the ban on private for-profit schools. Private schools receive public funding corresponding to the average cost per student for each student from the municipality in which the school is located, but are not allowed to charge any top-up fees or 'cherry pick' pupils according to background. The Conservatives claim that the Swedish experiment has been successful and consider introducing school choice and removing the ban on for-profit schools in the UK. Labour, in contrast, claim that the Swedish reform has failed, and in April 2010, Ed Balls (then Secretary of State for Education) wrote a letter to Michael Gove (the current Secretary of State for Education), stating the following: '*Parents and taxpayers across the country will be rightly shocked that you are willing to allow taxpayers' money to be diverted from its intended purpose – the education of our children – to the profits of the private companies you want to prove it, even more so because the evidence from Sweden is that this very policy caused educational standards across the country to fall.*'²

In this paper we directly address the concern expressed in the above statement by analysing how firms' incentives for quality provision (for example, the 'educational standards' of schools) depend on their ability to distribute profits. We analyse this question within a theoretical framework that is commonly used for studying competition in markets such as health care and education, namely a spatial competition model where consumers make their purchasing decisions based on travelling distance, quality and price. In the main version of the model, we assume that prices are regulated and that firms compete only on quality. Subsequently, we extend the model to allow for price competition. We also allow the firms to become more cost efficient by investing in cost containment effort. Quality is taken to be observable, but non-contractible, as is commonly assumed in the literature,³ and we assume that there are both monetary and non-monetary costs associated with quality provision. Furthermore, we assume that firms are altruistic in the sense that they care about profits and (to some extent) consumers' benefit. Finally, we model profit constraints as being equivalent to a tax on profits,⁴ the basic underlying assumption being that owners prefer compensation in cash over alternative modes of compensation, such as perquisites.⁵

Taken together, these model ingredients are particularly suited to describe provider behaviour in markets such as education, health care, long-term care and child care. In all these markets, quality is an important competition variable, whereas prices might be regulated or not. Travelling costs also play a potentially important role in determining demand, e.g., distance to nearest school, hospital, kindergarten, nursing home, etc.⁶ Furthermore, altruistic provider preferences are generally acknowledged to be a relevant characteristic of such markets.⁷ Finally, in many countries, a significant share of education, health care, long-term care and child care services is provided either by non-profit institutions or by for-profit ones that are subject to some form of profit regulation.⁸

In contrast to the main bulk of the literature on non-profit firms,⁹ constraints on profit distribution are taken to be exogenous in our analysis. The main reason for this is that we do not confine our study to non-profit firms, but to profit-constrained firms more broadly. Indeed, many firms are profit-constrained not by choice but by regulation. For instance, most European countries do not allow for-profit schools to operate in their publicly funded educational system, as highlighted by our example from the UK. Another interesting example is Norway, where regulatory practices regarding profit distribution differ enormously between two otherwise similar markets: education and child care.¹⁰ Whereas owners of private government-dependent schools are not allowed to distribute any profits, owners of private government-dependent kindergartens have

¹ See, for instance, the article 'Swedish-Style "Free Schools" Won't Improve Standards' in the Guardian (9 February 2010).

² Balls, Ed. 'Profit-Making Schools—My Letter to Michael Gove'. 11 April 2010 (<http://www.edballs.co.uk>).

³ See Ma (1994) and Chalkley and Malcomson (1998a,b) for a detailed discussion on this issue in the health care context. Our approach follows closely the literature on quality competition, like Ma and Burgess (1993), Wolinsky (1997) and Brekke et al. (2006).

⁴ A similar approach is used by Glaeser and Shleifer (2001) and Ghatak and Mueller (2011) in the context of non-profit firms. See also Hansmann (1980, pp. 873–875) for anecdotal support for this formulation. Lakdawalla and Philipson (2006) model the distribution constraint on non-profit firms as a (potentially binding) profit cap, whereas in Easley and O'Hara (1983) the non-profit firm's profit is set in a contract between the firm and the society.

⁵ Non-pecuniary compensation ('perquisites') may involve different types of improvement in the working environment, such as lower effort levels, free meals, shorter workdays, longer vacations and better office facilities.

⁶ Empirical studies of the US health care market show that travelling distance and quality are the main predictors of hospital choice (Kessler and McClellan, 2000; Tay, 2003).

⁷ In the literature on health care provision, the assumption that health care providers (e.g., doctors and nurses) are, at least to some extent, altruistic, is widely used and recognised. See, e.g., Ellis and McGuire (1986), Chalkley and Malcomson (1998a,b), Eggleston (2005), Heyes (2005), Jack (2005), Kaarboe and Siciliani (2010), Brekke et al. (2011a), Brekke and Nyborg (2010) and Choné and Ma (2011). An alternative approach, suggested by Iversen and Lurås (2000), is that physicians have lexicographic preferences in patients' health and income, so that health services are provided until the marginal health effect is equal to zero. There is also a recent literature on 'motivated agents' in the broader public sector (Besley and Ghatak, 2006; Halonen-Akatwijuka and Propper, 2008; Makris, 2009). See Francois and Vlassopoulos (2008) for an extensive review of the motivated agents literature. The empirical evidence also suggests that altruism and motivation are important components of healthcare workers job (Page, 1996; Le Grand, 2003) and that job satisfaction depends on both pecuniary and non-pecuniary aspects of employment (Shields and Ward, 2001; Antonazzo et al., 2003; Ikenwilo and Scott, 2007; Leonard and Masatu, 2010; Godager and Wiesen, 2011; Henning-Schmidt et al., 2011).

⁸ Rose-Ackerman (1996) reports figures showing that health and education institutions constitute well over 70 percent of the non-profit sector in the US, while the equivalent average figure for a group of 7 Western countries is close to 50 percent. A similar (slightly lower) figure for a different group of Western countries (excluding the US) is reported by Salamon et al. (2007).

⁹ See Section 2 for a literature review.

¹⁰ In both markets, prices are regulated and quality is the main competition variable.

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