



Public order and private payments: Evidence from the Swedish soccer league



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ABSTRACT

Should organizers of events share the associated costs of maintaining public order? We address this question by using unique data from the Swedish soccer league where co-payment for police were introduced for some clubs only. The difference-in-differences analysis shows that co-payments increased private guards by 40% and suggests a reduction of unruly behavior by 20%. The results are consistent with our model, where co-payments alleviate under-provision in efforts by organizers to combat problems such as hooliganism due to externalities and free-riding on police services. The model also sheds light on the critique that co-payments could lead financially constrained organizers to provide less security.

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1. Introduction

Violence and disorder in connection with large public events and sizable costs for deployment of police has attracted considerable media attention in Europe. Soccer hooliganism is the most notable example, but problems also arise in connection with other events, such as rock concerts, festivals and even political rallies.

A contentious issue is whether those who arrange, and profit from, an event should also bear a *fair* share of its cost to society, especially since the displacement of police resources carries an opportunity cost.¹ In several countries, organizers of commercial events are required to share the cost for police. In the UK the police recovers approximately £3 m out of £6 m annually for large events requiring

more than 300 police officers (Metropolitan Police, 2009).² The New York Police Department has also begun to recoup costs from event organizers, including, for example, the New York Marathon (Belson, 2012). A controversial Dutch government bill proposed that event organizers, but initially not soccer clubs, pay for police (Ministry of Justice and Security, 2011). Despite ongoing debate in Italy regarding who should pay for policing of soccer games (see e.g., De Ponti, 1999) clubs do not pay for police. In Germany, there is a discussion on how to reduce hooliganism, but clubs are not required to contribute to police payments (Zeit, 2010). In Sweden, co-payments were recently

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¹ For example, Marie (2010) finds that police displacement during soccer games increases property crime.

² The Association of Chief Police Officers' guidance paper on setting charges distinguish between different types of events: commercial, non-commercial and statutory events. It states that "Authorities are strongly recommended to charge the full economic cost of special police services provided for commercial events" (Association of Chief Police Officers, 2011). The police spends £25 m on football matches nationwide where £8 m is recouped from clubs (Hughes, 2010). However, it has been questioned if the payments have the intended consequences (House of Commons Home Affairs Committee, 2009).

abolished after a heated media debate and two recent Swedish government reports with conflicting views on the matter (Erikson, 2012; Svensson, 2013).

In this paper, we empirically study the effects of introducing co-payments for police in the Swedish soccer league, in the light of implications from a simple economic model. While the policy debate has focused primarily on fairness, we instead highlight that the organizers' provision of security at arenas (e.g., guards, gates and fences, admission policies, CCTV systems) can be subject to both externalities and free-riding on police effort (e.g., monitoring outside arenas, use of police intelligence units, arresting and incarcerating trouble-makers), which may lead to an inefficient allocation of efforts and too much unruly behavior. Free riding may arise since the ultimate responsibility for public safety rests with the police, who must compensate if private security arrangements are inadequate.³ The model differs from a standard public finance model in that private and public efforts jointly affect the outcome, and that the public actor has a "bail-out" responsibility. The model therefore has a sequential structure, where the organizer chooses its effort to reduce unruly behavior, anticipating police behavior. Police is then deployed to maximize social welfare. Not surprisingly, this results in inadequate private security and too much police. Our analysis demonstrates circumstances under which co-payments can alleviate these problems.

Critics of co-payment have worried that they may lead the police to deploy too many officers.⁴ Another concern is that the financial burden imposed on organizers could crowd out spending on security for budget constrained organizers. We extend the model to address these questions. We find that co-payments could be harmful if the police maximizes its budget, rather than social welfare, but that crowding out of private security spending, in favor of event quality, only occurs if the organizer's utility is very concave in quality.

We exploit a unique natural experiment from the highest Swedish soccer league *Allsvenskan*. Starting in the spring season 2012, clubs organized as corporations were required to pay 25% of the cost for police services in connection to matches, while those organized as non-profit organizations were not. The level was raised to 100% on July 1, 2012. We use this variation in a difference-in-difference design where 13 out of 16 clubs were not incorporated, and exempt from payments. Using information from internal police reports, filed game by game, we find that incorporated clubs increased guards by around 15% during the first part of the reform and by 40% during the second part.⁵ The evidence also suggest a decrease in unruly behavior inside stadiums during home games, first by 10% and then by 20%.

Problems of sequential interaction and free riding arise in many areas of economics. One example is the Samaritan's dilemma, i.e., that charity may reduce effort, discussed by Buchanan (1975) – a question of relevance for the scope of the welfare state.⁶ Here, altruism causes free riding directly. In our case, the effect is primarily mediated through the externality. Similar issues arise in public goods

³ Recent evidence shows that both private efforts (House of Commons Home Affairs Committee, 2009; Priks, 2013) and certain types of police (Poutvaara and Priks, 2009) are indeed efficient in reducing violence.

⁴ One reason is that the police cares more about officers' safety. The House of Commons Home Affairs Committee (2009) report quotes an English football league official: "There are occasions where the deployment of police is perhaps exaggerated in some cases, perhaps the intelligence that may have been gathered is not sufficiently scrutinized and match commanders may take a safe view on those circumstances and sometimes that causes friction between the club and the police forces".

⁵ This is in line with an internal survey by the Swedish police. A senior officer in each police district was asked "Do you believe that the costs for police which organizers have to pay for public events affect their attitude to take a larger responsibility for security in upcoming events?" (Swedish police, 2012). Nine out of eleven districts charging for events in 2012 answered yes.

⁶ Other work exploring altruism and sequential interaction include Lindbeck and Weibull (1988) and Bruce and Waldman (1990). In Lindbeck and Nyberg (2006) altruistic parents instill norms reducing child utility to mitigate free riding.

games with sequential contributions (see Varian, 1994). The parties' interests are then connected via the level of the public good rather than altruism, while in our paper both altruism and externalities matter. Another example is the literature on soft budget constraints, pioneered by Kornai (1979), dealing with effects of anticipated "bail outs" in shortage economies, such as the former Eastern Bloc. Similar dynamic commitment problem arise in different contexts, as discussed in a survey by Kornai et al. (2003), and not the least in financial markets. Here, like in our model, external effects may lead to bail outs, and free riding.

The paper proceeds as follows. In Section 2 we analyze a simple model of co-payments. Section 3 examines the effect of co-payments in a natural experiment from Swedish soccer league. Section 4 concludes.

2. The model

To highlight the economic mechanisms studied in the empirical section we examine a model where public events give rise to unruly behavior. This can be mitigated by efforts of event organizers and the police, denoted, x , and, y respectively. The marginal effort costs, c_o and c_p , are assumed to be constant. The organizer may be charged a co-payment, τy , for police services, where τ is set before x and y are chosen. The organizer chooses x with regard to its utility, W^o . The police maximizes social welfare, measured as the sum of W^o and the welfare of the rest of society, W^r , net of effort costs.⁷

$$W^r(x, y) + W^o(x, y) - c_o x - c_p y \quad (1)$$

Co-payments are merely transfers and do not affect social welfare. We assume that W^o and W^r are thrice continuously differentiable, strictly increasing and strictly concave in x and y , that $\lim_{x \rightarrow 0} W_x^o = \lim_{y \rightarrow 0} W_y^r = \infty$, and that x and y are substitutes, so W_{xy}^o and $W_{xy}^r < 0$. We also assume that there is an interior optimum (x^*, y^*) , which requires that $(W_{xx}^o + W_{xx}^r)(W_{yy}^o + W_{yy}^r) > (W_{xy}^o + W_{xy}^r)^2$, at least at the optimum point.

Given the police's ultimate responsibility for public order, decisions are assumed to be sequential, with the organizer first choosing x and the police choosing y in response to this. We solve the model backwards, beginning with the police's choice of y , given x . The equilibrium concept is subgame-perfect-Nash-equilibrium, ruling out non-credible threats by the police of not shouldering its responsibility for public order.

The first-order condition for a welfare maximizing choice of y is $W_y^r + W_y^o - c_p = 0$. This implicitly defines the police's best response to the organizer's choice of x , $y(x)$. Note that its slope $y_x = -(W_{xy}^r + W_{xy}^o) / (W_{yy}^r + W_{yy}^o)$ is strictly negative, since all 2nd derivatives of W are strictly negative.

The organizer maximizes $W^o(x, y) - c_o x - \tau y(x)$ and the first-order condition for its choice of x is:

$$W_x^o + W_y^o y_x - (\tau y_x + c_o) = 0, \quad (2)$$

where $\tau y_x + c_o$ is the organizer's effective marginal cost for x , i.e., the marginal resource cost for x net of the marginal reduction in co-payments. The optimal effort, x^o , is unique if the following condition holds,

$$W_{xx}^o + 2W_{xy}^o y_x + W_{yy}^o (y_x)^2 + (W_y^o - \tau) y_{xx} < 0. \quad (3)$$

⁷ W^r can be seen as a measure of aggregate benefits excluding benefits from unruly behavior, in the spirit of Stigler (1970), or as a utilitarian measure including such utility, in line with Polinsky and Shavell (2000), but with a negative net effect.

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