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# An economic analysis of apathetic behavior: Theory and experiment $\stackrel{\text{tr}}{\sim}$

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#### Abstract

The apathy of bystanders often prevails when instances of bullying, hidden crime and extortion occur in communities such as schools, business work areas, underclass ghettos, prisons and the military. The present study models apathetic behavior as a non-cooperative game and attempts to verify this theory through experiments. Furthermore, our research suggests that the apathy of bystanders generally decrease as the number of citizens in a community decrease. In our experimental cases, if the number of members in a group decreases from 40 members to 20 members, the concerned and helpful behavior of bystanders increases by 21%. © 2007 Elsevier Inc. All rights reserved.

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### 1. Introduction

Bullying can contribute to an environment of fear and intimidation in school and other places, and has become serious matters in the world (Olweus et al., 1999). For example, according to National Conference of State Legislatures in the U.S.A., 17 states enacted school safety laws

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concerning bullying and student harassment between 1994 and 2004. The OECD jointly with Norwegian Government and University held an International Policy Conference on School Bullying and Violence in 2004. According to a 1996-survey of 2900 middle and high school students by the Seoul Family Court in South Korea, about 90% of the students was physically threatened by other students (Ort, 1999). However, bystanders may not be willing to tattle the illegal activities to the school authorities.

Bullying is also observed at workplace. The cost of violence and bullying at work is very large as well. For example, the UK nation-wide survey of workplace bullying reported that the bullied group was found to have higher absenteeism due to bullying and, the currently bullied group was found to have on average 7 days more off work in a year than those who were neither bullied nor had witnessed bullying taking place. Those who are bullied also decide to leave their organization as a result of their experience. This example of bullying in the UK could be appropriate for other countries as well (Martino, 2002; Hoel et al., 2001).

There are similar situations as bullying. In crime-ridden areas, people are extremely reluctant to testify against those whom they have observed robbing and killing because they expect that the criminals will not go to jail and will punish any witnesses that testify. Another situation may be political revolution. If you revolt and not enough others join you, you will be punished. If the number of people who revolt reaches a threshold, the revolt will succeed and revolutionaries will be rewarded rather than punished.

The purpose of this paper is to address this question of why the apathy of bystanders predominates despites their compassionate feelings<sup>1</sup>. To this end, we formulate the phenomenon of bullying in a school as a non-cooperative *n* person game. This game is a kind of binary choice public goods game with threshold. We will also examine the relevance of our model by experiment. The rest of paper is organized as follows: Section 2 formulates the model. Section 3 derives three type Nash equilibria and examines the stability of the equilibrium by introducing a dynamic adjustment process. We consider policy implications in Section 4. Experiment study is reported in Section 5. Final section gives concluding remarks.

#### 2. The Model

We consider bullying in school. A schoolyard has a bully who does bad stuff that is observed by the *n* other children but not by the teacher. The teacher will punish the bully if at least *t* of the children tattle on him. If she does not tattle and fewer than *t* other people tattle, she pays a cost *b* of being annoyed by continued harassment from the bully in a schoolyard. If she does tattle and fewer than t - 1 other people tattle, she should pay not only the cost *b* but an extra cost *c* (perhaps the bully gives her extra harassment as punishment for her tattling). If at least *t* people in the class tattle, then the bully is stopped. In this case nobody in the class has to pay the cost *b*, nor do those who tattled have to pay any cost for tattling (perhaps the bully is sent to reform school and cannot punish the squealers). The unusual, but perhaps often realistic, feature

<sup>&</sup>lt;sup>1</sup> Bystanders may not be willing to report the illegal activities to the school authorities. The reason for this may be explained as follows. The students' recognition of the illegal instances which occur in their classroom is higher by several percentage points than the teachers' recognition of the same instance (Rigby and Slee, 1991). But this number reverses itself when the actual reports of instances are counted. According to a survey of 20,000 students carried out by the Ministry of Education in Japan (1994/1996), the rate of discovery of instances of bullying by teachers is two to three times higher than the rate of discovery based on reports of students.

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