



Criminal registries, community notification, and optimal avoidance



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ABSTRACT

This paper studies how community notification of criminal registries affects neighborhood behavior and shows that notification is not always optimal. Using a game-theoretic model of a neighborhood, I establish optimal information disclosure policies when law-abiding neighbors' actions generate inefficiencies. In my model, notification helps to deter criminal activity by making it harder to victimize informed citizens. On the other hand, notification affects the incentives for costly avoidance by law-abiding citizens, which generates negative externalities. My main results highlight the complementary relationship between notification policies and criminal penalties. In particular, I show that notification is always welfare-improving when penalties are large, but can be harmful when penalties are small.

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1. Introduction

Criminal registry notification laws provide information about past offenders to at-risk neighbors. Informing the neighborhood, the thinking goes, has two advantages. First, informed law-abiding neighbors are better able to watch over known offenders. Second, once apprised of any potential threats, law-abiding neighbors reduce the number of opportunities available to criminals, an effect known as *target hardening* in the criminology literature. This form of community policing leads to higher detection rates and makes attacking more costly for registered criminals. In addition to these benefits, I study how notification affects law-abiding neighbors' incentives to use inefficient and costly avoidance measures to protect themselves, thereby placing their neighbors at greater risk. My main results highlight the complementary relationship between notification policies and criminal penalties. I show that notification is always welfare-improving when penalties are large, but can be harmful when penalties are small. Therefore, the government's

decision to notify communities of criminals in their midst depends in part on how severely it wants to penalize repeat offenders.

Modeling the neighborhood as a game in which each informed law-abiding neighbor independently chooses his avoidance level (i.e. fraction of the day to stay indoors), I first study how notification policies and criminal penalties affect incentives for avoidance. I show that avoidance obeys strategic complementarities: the more one's neighbors stay inside, the greater the incentives to remain indoors oneself. I prove that equilibria exist and are necessarily symmetric. Equilibrium avoidance may increase or decrease in the notification rate depending on whether informing the marginal citizen mainly serves to deter crime or decrease the average amount of time spent outside.

I next turn to the issue of designing optimal notification policies in a neighborhood where individuals' actions create inefficiencies. The government controls both the penalty on convicted felons and the notification rate, and the main results of the paper highlight the importance of getting these two policy levers working together. I show that there always exists a penalty large enough to ensure that equilibrium avoidance decreases in the fraction of the population informed. Whenever this is the case, social welfare is necessarily increasing in the notification rate, and is therefore maximized by a "scarlet letter" policy which informs the entire neighborhood. The higher notification rate leads to lower expenditures on avoidance

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and greater deterrence, since the probability of detection is larger when more informed people are outside.

But this sword cuts both ways because notification with too small of a penalty can be harmful. This occurs when the benefits of notification (e.g. deterrence) are small relative to the inefficiency generated by avoidance. In this case, notification entails a significant cost but little benefit; criminals are insufficiently deterred by small penalties and the law-abiding neighbors suffer from staying indoors. The government is then better off keeping the criminals' identities secret in order to ensure society does not waste energy on costly and inefficient avoidance.

Even if penalties are small, however, I show that notification can be beneficial if the target hardening effect is large. When this is the case, notification leads to a large increase in the cost of attacking for criminals, and therefore generates deterrence despite small penalties.

Penalties for repeat offenders in practice may involve jail time, pecuniary payments, and probation. Further, being publicly outed as an offender may entail relocation costs, public shaming, and harassment. In my model, these costs are all rolled into one parameter, the government-set penalty. When deciding whether to attack or not, criminals weigh the expected costs, which depend on the probability of detection, the penalty, and the target hardening effect, against the benefits they receive from committing the crime. This suggests that the correct way to interpret the magnitude of the penalty is in relation to criminals' desire to commit the crime.

This interpretation helps to explain why notification is used for some crimes, but not others. Many crimes entail severe penalties (e.g. sex offenses, murder, drug trafficking), but not all offenders of these crimes are subject to public notification. My results show that, in order for notification to increase community welfare, the penalty must not be large in an absolute sense, but it must be large in relation to criminals' desire to commit the crime. If penalties are not large relative to criminal desire, as could be argued for crimes like murder and drug trafficking, public notification will not improve welfare absent significant target hardening effects.¹

The theoretical results from the model can be used to generate predictions which could be tested with the appropriate data. In particular, when the target hardening effect is small, community notification and penalties for repeat offenders are complementary policies. This implies that, conditioning on the type of crime, communities with higher notification rates should levy larger penalties on repeat offenders. This prediction could be tested using both cross-sectional and time series data. In a cross section, one would expect to see a positive correlation between the percentage of law-abiding neighbors who are aware of criminals' identities in their community and the penalties given out to repeat offenders. In a panel dataset, one would expect to see a similar positive correlation over time within a community as notification policies were first implemented and later expanded. Such empirical research, which lies beyond the scope of the present paper, would inform policy decisions on when to use community notification policies and with what intensity to pursue notification.

1.1. Background

The most well-publicized criminal registry notification policy is known as "Megan's law," a federal mandate which requires

¹ It is also possible that some types of crimes are such that penalties are large relative to the criminals' desire to commit the crime, yet repeat offenders are not subject to public notification. This likely occurs for crimes which are less costly to victims (e.g. disorderly conduct, motor vehicle offenses, theft). For these types of crimes, the costs of creating, maintaining, notifying, and using registry information are likely greater than the benefits of notification.

states to notify the public of registered sex offenders in their neighborhood.² But there are registries and notification policies for many other types of criminals. Some examples of approved or proposed registries and community notification policies are for criminals convicted of homicides, gang crimes, elderly abuse, animal abuse, drug dealing and manufacturing, drunk driving, and murder (Goode, 2011). The format of registries is not standardized, but they usually contain information about the offenders including name, address, physical characteristics, photos, and information about the crime committed. By far the most common method of notification is via an online database, searchable by anyone with an internet connection. Other methods used to notify potential victims (or to supplement the online database) include holding community meetings, sending letters through the mail, posting flyers, holding a registry at the police station, and door-to-door notification.

1.2. Related literature

The present paper studies the optimal disclosure of information in a model of social interaction in which agents' actions generate externalities and inefficiencies. I contribute to, and bring together, two previously unrelated literatures. The first relevant literature studies the effects of the externalities and inefficiencies of individuals' responses to crime. Previous research has focused on how public policy should respond to inefficiencies in individuals' use of observable and unobservable precautions against theft (Shavell, 1991), participation in neighborhood watch groups (Huck and Kosfeld, 2007), and substitution between public and private protection from crime (Clotfelter, 1977).³ In my model, law-abiding neighbors can use avoidance measures to protect themselves from crime. But avoidance generates negative externalities because protecting oneself often comes at the cost of exposing another. Government policy must take into account the neighborhood response to notification in deciding whether to disclose criminal identities.⁴

The second relevant literature, which is outside of the economics of crime, studies the value of publicly disclosing information. Jin and Leslie (2003) find that the Los Angeles restaurant hygiene report card program is welfare improving not just because consumers can more easily patronize clean restaurants, but also because restaurants have greater incentives to increase their cleanliness. Dranove et al. (2003) reach the opposite conclusion in a study of the health care provider report card program instituted in New York due to providers' ability to "game the system". My result that notification can be welfare increasing or decreasing arises because individuals' incentives may not be aligned with society's. Whether disclosing criminals' identities or keeping them secret is optimal depends precisely on how much deterrence notification provides relative to how much families keep off the streets. The government imposed penalty is needed to generate sufficient deterrence so that incentives are aligned and disclosing criminal identities improves welfare.

Previous research on criminal registries and notification policies has focused on sex offenders. These studies are primarily concerned with the effect notification has on recidivism rates (Prescott and

² The law is named for Megan Kanka, who was murdered at age 7 by a prior sex offender and neighbor. Since community notification was not in effect at that time, the offenders' neighbors were unaware of his prior offenses.

³ Other works in this literature include Clotfelter (1980), Ferrer (2010), and Bjerk (2010).

⁴ Not all responses to fear of crime generate negative externalities; in Section 5 I discuss how including actions which generate positive externalities would affect the model and its predictions. As one example, Ayres and Levitt (1998) study the positive externalities generated by Lojack, a device which aids in the retrieval of stolen cars.

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