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EDITORIAL INTRODUCTION

IDENTIFYING HUMAN TRAFFICKING VICTIMS

Improving our approach to human trafficking

Mohamed Mattar, *Senior Editor*
Johns Hopkins University

Shanna Van Slyke, *Managing Editor*
Florida State University

This segment of *Criminology & Public Policy* focuses on a different kind of theft than one usually encounters in a criminological journal—the forceful, fraudulent, or coercive trafficking of humans. The research article by Amy Farrell, Jack McDevitt, and Stephanie Fahy of Northeastern University (2010, this issue) provides nationally representative evidence of a strong relationship between infrequent investigations of human trafficking and the perception of human trafficking as being uncommon by high-ranking state, county, and municipal law-enforcement officers. Conversely, agencies identify more cases of human trafficking in jurisdictions where senior management regards it as being more widespread. Agencies that do not train officers in the identification and investigation of human trafficking cases, moreover, report fewer investigations compared with agencies that do train their officers. Similarly, agencies with specialized protocols and that assign specialized units to human trafficking conduct more investigations than agencies that do not prioritize human trafficking by allocating more resources to its investigation. Equally troubling as the lack of concern reported by these high-ranking law-enforcement officials toward human trafficking was the finding that one-fifth of these agencies frequently deport identified victims, which gives weight to victim advocates' concerns that current law-enforcement strategies discourage reporting.

Farrell et al. advance our knowledge of human trafficking by identifying factors that influence the identification of human trafficking incidents. They cite prior research that had placed estimates of the problem from a conservative low of 600,000–800,000 people trafficked internationally each year to highs of 2.45 million and 27 million. Compared with the 14,500–17,500 people trafficked into the United States each year, Farrell et al. note that the

Direct correspondence to Mohamed Mattar, The Paul H. Nitze School of Advanced International Studies (SAIS), Johns Hopkins University, Pernstein-Offit 506, Washington, DC (e-mail: mmattar@jhu.edu); Shanna Van Slyke, Center for Criminology and Public Policy Research, Florida State University, 325 John Knox Road, Suite L-102, Tallahassee, FL (e-mail: svanslyke@fsu.edu).

U.S. government has identified fewer than 2,000 victims of human trafficking this century. The policy problem is clear: We are not identifying cases of human trafficking or the victims, nor then are we prosecuting, convicting, and punishing perpetrators of human trafficking (i.e., those who traffick or those who purchase people). From a deterrence standpoint, this latter policy problem suggests a low likelihood of apprehension and sanctioning for engaging in this type of income-generating criminal activity, although the complexity of these crimes is clearly indicative of planning, organization, and rational thought—all of which render these offenders highly receptive to deterrent legislation and law-enforcement policies and practices. As Chappell and Walsh (1974) observed, however, this also is the case for other forms of seemingly rational economic crimes such as white-collar crime. From a human-rights standpoint, the former policy problem reflects a systemic lack of recognition of the significance and prevalence of human trafficking matched by inadequate resources devoted to the prevention and mitigation of human trafficking.

More optimistically, as Farrell et al. point out, the most recent reauthorization of the Trafficking Victims Protection Act (2000) in 2008 expanded the government's investigatory resources and jurisdiction. Hopefully, the empirical evidence Farrell et al. (this issue) provide on the strong relationship between perceptions, training and resource allocation, and the actual identification of human trafficking cases will inform governmental decisions regarding how and where to focus its newly expanded resources. Fusing criminological research with years of practical experience, Fiona David consulting with the Australian Institute of Criminology (2010, this issue), Elżbieta Goździak of Georgetown University (2010, this issue), Kristiina Kangaspunta from the United Nations (2010, this issue), and Barbara Ann Stolz with the U.S. Government Accountability Office (2010, this issue) have read Farrell et al.'s research article and in their responding policy essays provide recommendations for improving governmental preparation and responses to human trafficking. These experts emphasize the seriousness of the problem, and they stress the need for multi-disciplinary and multi-agency approaches to understanding and ultimately reducing the incidence of human trafficking victimization.

David (this issue) contrasts the U.S. problem with accurately identifying the incidence of human trafficking with Australia's effort to track the number of investigations, the number of victims funded through its federal support system, and the number of investigations resulting in a prosecution referral. She identifies populations of trafficked persons who are unlikely to be reflected in national incidence statistics, and proposes that "policy makers may have to contend with the reality that, while they need 'evidence' of trafficking in persons in order to justify expenditure on anti-trafficking programs, improved evidence about the nature and extent of trafficking in persons will only emerge if funding is provided for appropriately targeted programs and responses." As a first way around this knowledge gap, she recommends that policy makers recognize the value of forms of evidence other than incidence statistics, such as qualitative case studies of victims. Second, she recommends drawing upon the experience of law-enforcement practitioners, sex worker advocates, and social workers, and then using "independent, robust, high-quality research to test and validate the opinions of experts."

Goździak (this issue) recounts a case study of a child victim of human trafficking, highlighting numerous occasions when the child encountered law-enforcement officials who did not ask her questions that would have revealed she was a victim, and therefore did not recognize her as such or rescue her from the situation. Goździak describes how 100,000 unaccompanied children each year cross the border into the United States under the same conditions as this particular case study victim, yet no research has examined these children, including whether they go on to live in the United States as human trafficking victims. Eight thousand of these children are remanded to federal custody, furthermore, wherein less than 10% of them are deemed eligible for benefits. She notes, "To date, not a single child survivor of trafficking has been identified at the border; all identifications occurred at a much later point." Consequently, Goździak recommends increasing resources and efforts to identify human trafficking victims at the borders, implementing standardized intake protocols at immigration detention centers, prioritizing the identification of child victims of human trafficking, and improving the information flow among governmental and nongovernmental agencies.

Kangaspunta (this issue) amasses human trafficking data from across the globe and discusses the difficulty of comparing statistics from one country to the next and how that hinders the implementation and evaluation of anti-trafficking strategies. Consistent with Davis and Goździak, she explains how incidence statistics based on the number of victims who are assisted systematically misrepresents, or at least underestimates, human trafficking because so few victims are identified and thus have the opportunity to be assisted. Kangaspunta provides statistics indicating that less than 5% of victims are officially identified as human trafficking victims, and informs us of a new international initiative to develop a composite human trafficking severity index. Using existing information from agencies such as the United Nations Office on Drug and Crime, the International Organization for Migration, the International Labour Organization, and the U.S. State Department, the index will include approximately 120 countries for nearly the past two decades and is designed to overcome country-to-country comparability issues to inform the development of responsive anti-trafficking policies.

Stolz (this issue) explains how law-enforcement is hampered in its investigation of human trafficking by the reluctance of victims to self-identify and by how this type of crime falls outside of traditional law-enforcement experience, training, and protocol. She notes recent U.S. Bureau of Justice initiatives funding community task forces designed to raise public awareness, identify more victims, and establish inter-agency protocols. Stolz supports Farrell et al.'s (this issue) findings and associated policy recommendations and offers guidance in implementing these recommendations based on the task force experiences. For example, she explains that agency leadership, officers on the job, and new recruits tend to have different training needs. Different communities also have varying needs, and so the evaluations will need to specify the type of law-enforcement system for which specific training and protocols are effective and then make this information readily available.

The task forces mentioned by Stolz (this issue) were established in 2006–2008, precisely at the end of Farrell et al.'s (this issue) 6-year study period, and the grant requirements reflect the empirical evidence and associated policy recommendations summarized in this segment of *Criminology & Public Policy*. Not only have Farrell et al. enhanced our understanding of the determinants of human trafficking case identification, then, but also they have conducted what has the potential to be a solid baseline assessment by which the federally funded, locally executed interventions could be evaluated in future research.

References

Chappell, Duncan and Marilyn Walsh. 1974. Receiving stolen property: The need for systematic inquiry into the fencing process. *Criminology*, 11: 484–497.

David, Fiona. 2010. Increasing identification of trafficking in persons? Time to include labor inspectors, unions, and employers. *Criminology & Public Policy*. This issue.

Farrell, Amy, Jack McDevitt, and Stephanie Fahy. 2010. Where are all the victims? Understanding the determinants of official identification of human trafficking victims. *Criminology & Public Policy*. This issue.

Goździak, Elżbieta M. 2010. Identifying child victims of trafficking: Toward solutions and resolutions. *Criminology & Public Policy*. This issue.

Kangaspunta, Kristiina. 2010. Measuring the immeasurable: Can the severity of human trafficking be ranked? *Criminology & Public Policy*. This issue.

Stolz, Barbara Ann. 2010. Human trafficking: Policy. *Criminology & Public Policy*. This issue.

Mohamed Mattar is executive director of the Protection Project and a research professor of law at The Paul H. Nitze School of Advanced International Studies (SAIS), Johns Hopkins University. He is recognized as an international expert on anti-trafficking legislation and he has testified on the subject before congressional committees. Mattar previously served as adjunct professor of law at Georgetown University Law Center and at American University's Washington College of Law and as assistant professor at Alexandria University in Egypt and Arab University of Beirut. He was legal adviser to the Abu Dhabi Free Zone Authority of the United Arab Emirates, the Arab National Bank in Saudi Arabia, and the Embassy of the United Arab Emirates in Washington, DC.

Shanna Van Slyke is managing editor of *Criminology & Public Policy* and is engaged with postdoctoral research and teaching at Florida State University's College of Criminology and Criminal Justice. Her main research interests are the social control of white-collar crime and the roles of stereotypes and social identification in contributing to disparities in the criminal justice system. Her publications have appeared in *Crime, Law, & Social Change*, *Journal of Criminal Justice*, and *Georgetown Journal of Poverty Law & Policy*.

RESEARCH ARTICLE

IDENTIFYING HUMAN TRAFFICKING VICTIMS

Where are all the victims?

Understanding the determinants of official identification of human trafficking incidents

Amy Farrell
Jack McDevitt
Stephanie Fahy
Northeastern University

Research Summary

The passage of new laws that criminalize the trafficking of persons for labor and sexual services has raised public awareness about the problem of human trafficking. In response, police must understand the problem, identify human trafficking victims, and make arrests. The numbers of victims identified to date, however, has paled in comparison with official estimates, which leads some to question the existence of a human trafficking problem. Missing from this debate is information about how frequently police encounter human trafficking and how well prepared officers are to handle these cases. Analyzing survey responses from a national sample of police agencies in the United States, we found that less than 10% of police agencies identified human trafficking cases from 2000 to 2006. Larger agencies were more likely to identify cases of human trafficking, but the agency leader perception about the problem in their local communities as well as taking steps to prepare officers to identify and respond were the most important factors to increasing human trafficking identification by police.

This project was supported by Award No. 2005-IJ-CX-0045, awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this presentation are those of the authors and do not necessarily reflect the views of the Department of Justice. Direct correspondence to Amy Farrell, College of Criminal Justice, Northeastern University, 360 Huntington Avenue, Boston, MA 02115 (e-mail: am.farrell@neu.edu); Jack McDevitt, College of Criminal Justice, Northeastern University, 400 Churchill Hall, Boston, MA 02115-5000 (e-mail: j.mcdevitt@neu.edu); Stephanie Fahy, Institute on Race and Justice, Northeastern University, 400 Churchill Hall, Boston, MA 02115-5000 (e-mail: s.fahy @neu.edu).

Policy Implications

This study provides much needed information about why U.S. officials have identified so few human trafficking victims. By understanding how often and under what conditions police find, investigate, and prosecute cases of human trafficking, we will be in a better position to identify and overcome barriers to police responses to trafficking and understand the limitations of official statistics about human trafficking. Data from a national survey also provide a baseline measure of police identification of human trafficking, against which we can gauge the progress of future anti-trafficking efforts.

Keywords

human trafficking, Victims of Trafficking and Violence Prevention Act of 2000, policing, crime reporting

Public concern about the illicit movement of people for exploitive commercial sex, or labor—commonly known as human trafficking—has increased dramatically during the past 20 years (Farrell and Fahy, 2009). International groups have publicized the problem of human trafficking and have encouraged strong governmental responses (Bales, 2008; Batstone, 2007). Since the early 1990s, newspaper coverage of the phenomenon in the United States has grown from a handful of articles to more than 3,750 stories about human trafficking in 2008 alone.[1] News accounts of victimization and abuse in foreign lands intermingle with stories of women and children forced into prostitution in cities throughout the United States, putting a human face on this dehumanizing practice (see Kristof, 2007, and Landesman, 2004, as two notable examples).

Although legal changes in the 1800s abolished the lawful practices of slavery and involuntary servitude, the emergence of modern forms of slavery proved more difficult to identify and suppress. In line with a growing international movement to outlaw trafficking,[2] the U.S. Congress passed the Victims of Trafficking and Violence Prevention Act of 2000 (known as TVPA 2000). The law defined a new crime of human trafficking and enhanced penalties for existing offenses such as slavery, peonage, and involuntary servitude. Under TVPA 2000, a severe form of trafficking in persons was defined as follows:

> (A) sex trafficking in which a commercial sex act is induced by force, fraud, or coercion, or in which the person induced to perform such act has not attained 18 years of age; or

1. A LexisNexis search of articles in 565 U.S. newspapers for the phrases "human trafficking," "trafficking in persons," and "sex trafficking" between 1990 and 2006 is available upon request from the authors.

2. In November 2000, the United Nations adopted the Protocol to Prevent, Suppress, and Punish Trafficking in Persons, Especially Women and Children, which provided a definition of human trafficking to foster international cooperation in prosecuting trafficking cases and in establishing standards to the protection of victims (United Nations, 2000).

> (B) the recruitment, harboring, transportation, provision, or obtaining of a person for labor or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery (TVPA, 2000: Section 103, 8a and b).[3]

Although the term "trafficking" implies the movement of people or goods, the TVPA does not require transportation of victims across borders or state lines. Instead, the law extends prohibitions against slavery and involuntary servitude through means of force, fraud, or coercion.[4]

The TVPA was reauthorized in 2003, 2005, and most recently, in December 2008, expanding the resources and powers of law enforcement to identify and investigate trafficking offenses. The TVPA and its reauthorizations also included provisions to increase the protections and services for victims, strengthen criminal statutes, and promote public awareness of the trafficking problem (U.S. Department of State, 2009).[5] Forty-three states also passed state legislation that criminalized human trafficking and provided resources to identify offenders and provide services to victims (Polaris Project, 2009).

Because human trafficking is a largely clandestine phenomenon, it has proven particularly difficult to measure its prevalence (Laczko and Gramengna, 2003; Tyldum and Brunovskis, 2005)—a critical step to justifying anti-trafficking expenditures and to evaluating the success of programs aimed at combating the problem. Official estimates suggest between 600,000 and 800,000 persons are trafficked internationally, with 14,500 to 17,500 people trafficked annually into the United States (Miko, 2004; U.S. Department of Justice, 2004a; U.S. Department

3. The TVPA also defined sex trafficking not considered a severe form of human trafficking as follows: "The recruitment, harboring, transportation, provision, or obtaining of a person for the purpose of a commercial sex act" (TVPA, 2000: Section 103, 8c).

4. Force involves the use of physical violence such as rape, beatings, and confinement to control victims. Fraud involves false offers or promises used to induce people into trafficking situations. Coercion involves "threats of serious harm to, or physical restraint of, any person, any scheme, plan or pattern intended to cause a person to believe that failure to perform an act would result in serious harm to or physical restraint against any person; or the abuse or threatened abuse of the legal process" (TVPA, 2000: Subpart B, Section 1100.25). For more discussion of the legal extension of 13th Amendment principles to combat modern slavery in the United States, see Azmy, 2001.

5. The TVPA provides mechanisms for noncitizen victims of human trafficking who participate in the investigation and prosecution of trafficking cases or who are younger than 18 years of age, to apply for nonimmigrant status through a special visa created for trafficking victims (T-visa). Potential trafficking victims receive certification through the U.S. Department of Health and Human Services, Office of Refugee Resettlement, that will provide access to benefits including employment authorization, medical services, mental-health services, housing, and supplementary security income. If certified victims reside in the United States continuously for 3 years and actively participate in ongoing investigation and prosecution of their trafficking case, then they can apply to have their status adjusted to a green card. The TVPA permits 5,000 such adjustments annually (U.S. Department of Immigration and Customs Services, 2008).

of Justice, 2005).[6] However, these estimates have been criticized sharply for "methodological weaknesses, gaps in data and numerical discrepancies" that cast doubt on the reliability of these measures (Government Accounting Office, 2006: 2).

In addition to finding that estimates of the problem are unreliable, U.S. officials have identified fewer cases of human trafficking than official estimates predicted. More than 1,000 investigations of human trafficking were identified through federally funded anti-trafficking task forces in 2007 and 2008, but only 10% of these investigations to date had been confirmed as human trafficking (Kyckelhahn, Beck, and Cohen, 2008).[7] Approximately 881 federal human trafficking cases have been prosecuted,[8] and only a handful of state prosecutions have occurred since the passage of federal legislation in 2000 (U.S. Department of Justice, 2009). The Department of Health and Human Services has certified only 1,696 individuals as victims of human trafficking, which made them eligible to receive a special nonimmigrant visa known as a "T"-visa (U.S. Department of Justice, 2009).

Interested groups have posited several different explanations for the low numbers of identified victims. Some claim the lower-than-expected numbers of prosecutions and identified victims are evidence that government officials are not doing enough to enforce the provisions of the TVPA and providing adequate resources for anti-trafficking programming (Morse, 2007; Zeitlin, 2006). Others suggest the low numbers are evidence of insufficient coordination among agencies responsible for U.S. anti-trafficking efforts (Government Accounting Office, 2007). Still, others argue that the low numbers of prosecuted trafficking cases demonstrate that the number of victims was never as high as politicians and advocates lobbying for the passage of anti-trafficking legislation claimed (Agustin, 2007; McDonald, 2004; Weitzer, 2007) and suggest that the allocation of government resources to identify and prevent trafficking was a mistake (Markon, 2007).

Missing from this debate is information about the readiness of public officials, such as the police, who are responsible for identifying and responding to human trafficking. Existing research on police responses to trafficking is focused narrowly on the experiences of a few

6. These estimates were reduced from earlier U.S. government reports that suggested 4 million people were being trafficked internationally—roughly 50,000 of whom were trafficked into the United States (O'Neill-Richard, 1999; TVPA, 2000: Section 102, b)—and in May 2003, the U.S. government released a report estimating 18,000 to 20,000 people are trafficked annually into the United States (U.S. Department of Justice, 2004b). Other estimates placed the number of potential victims much higher. The International Labour Office has estimated that at least 12.3 million people were victims of forced labor in the world, and approximately 20% (2.45 million) included victims of human trafficking (International Labour Office, 2005). The international antislavery group, Free the Slaves, estimated that more than 27 million people are living in slavery worldwide (Bales, 2008).

7. To be confirmed as human trafficking, the case must have led to an arrest, been confirmed as human trafficking by law enforcement, or the victims must have received a visa classification as a victim of human trafficking.

8. The 881 prosecutions include 350 convictions for cases involving the sex trafficking of children, which are investigated separately from adult trafficking cases within the Department of Justice Criminal Division's Child Exploitation Obscenity Section.

large police agencies—predominately those who have participated in high-profile trafficking investigations (Clawson, Dutch, and Cummings, 2006; Shively, Hunt, Kuck, and Kellis, 2007; Wilson, Walsh, and Kleuber, 2006). From this research, we know that investigating human trafficking cases is challenging, but we do not know how often police officers in the United States come into contact with cases identified as human trafficking, the nature of these cases, or what factors predict the identification and the investigation of human trafficking. This study seeks to fill these gaps.

Law-Enforcement Response to Human Trafficking

The federal government has prioritized human trafficking prosecutions and expects local law enforcement to become the "eyes and ears for recognizing, uncovering and responding to circumstances that might appear to be a routine street crime, but might ultimately turn out to be a human trafficking case" (U.S. Department of Justice, 2004a: 5). Since the passage of the TVPA in 2000, the U.S. Department of Justice has spent more than $64 million to support law-enforcement responses to human trafficking through the funding of multiagency task forces and police training.[9] Yet we know little about how well suited local law-enforcement agencies are to respond to this new mandate. Because the enforcement of the law in the United States is carried out predominately by the approximately 16,000 local, county, and state agencies representing diverse environments, organizational structures, and experiences with crime problems, we should anticipate variation in their willingness and ability to address trafficking. Despite confidence from federal officials about the important role the police play in identifying human trafficking cases (DeBaca and Tisi, 2002), local agencies might face challenges prioritizing the problem of human trafficking and learning how to identify and respond to these cases.

Prioritization

Although local police might be more likely to encounter human trafficking victims in the course of regular activities, they may not actually be looking for these crimes. The demands of the local populous traditionally drive local law-enforcement priorities. If federal officials prioritize new crimes that are not of concern to residents or leaders in a community, it is often difficult for local police leaders to justify the devotion of resources to tackle these new problems. Federal mandates for local agencies to identify human trafficking incidents also come at a time when local law enforcement is faced with increasing pressure to implement other federal initiatives, such as Homeland Security, (Thacher, 2005) and must cope with significant reductions in budgetary resources (International Association of Chiefs of Police, 2008). These pressures make it more difficult for police managers to justify a new focus on human trafficking.

9. We calculated the allocation of resources based on data reported in the 2002–2007 U.S. Attorney General's Report to Congress and Assessment of U.S. Activities to Combat Trafficking in Persons, which is released annually by the U.S. Attorney General's Office.

Identification

Even when local agencies agree with and give priority to federal mandates, officers might have difficulty putting these priorities into practice on the street. Identifying human trafficking cases is difficult. Because human trafficking is a clandestine activity, victims are generally isolated from the public. Even if victims of human trafficking have the ability to flee from their situation of exploitation, they commonly have experienced extreme trauma that makes them unwilling and, in some cases, unable to seek assistance (Aron, Zweig, and Newmark, 2006; Strategic Information Response Network, 2008). Victims fear retaliation by traffickers and, in many cases, equally fear government authorities—particularly foreign national victims who fear they will be deported. Service providers working with trafficking victims also might not be willing to alert law enforcement about victims they are assisting out of fear that victims will be harmed (Women's Commission for Refugee Women and Children, 2007).

Even when victims come to the attention of police, it is possible that they will be misclassified. Because officers on the street tend to solve problems based on routines that help them navigate circumstances in which legal definitions might be ambiguous (Bittner, 1967; Skolnick, 1966), crimes like trafficking could be easily misclassified. Unlike the hurdles associated with identifying other new crimes in which officers must learn the elements and indicators of new types of criminal activity (Carter and Katz, 1996), human trafficking cases require police to recategorize behavior that has long existed as its own crime type. For example, law enforcement is familiar with and is likely to have established routines for investigating prostitution. As a result, the police automatically might view a woman engaged in prostitution as a perpetrator of a crime rather than a potential crime victim.

Police face several additional complications when dealing with foreign victims. Human trafficking is easily confused with other forms of illicit people movement, such as migrant smuggling. Smuggling involves the transport of a consenting person for illegal entry into a country for profit. Trafficking victims do not consent to their movement. In cases in which individuals initially consent to being smuggled, abuse, coercion, or deception can transform the situation into trafficking, so it is easy to see how police officers might misclassify foreign trafficking victims as illegal migrants.

The local enforcement of federal immigration laws also might impede victim identification (International Association for Chiefs of Police, 2007). Federal agencies encourage, and sometimes mandate, local law enforcement agencies to provide information about immigrants residing illegally in local communities. This has led immigrant groups to express reluctance to contact the police or participate in police–community partnerships based on their fear of deportation (Menjivar and Bejarano, 2004). Many local law-enforcement agencies do not think it is their responsibility to enforce federal immigration laws and have made both, formal and informal decisions not to inquire about citizen status during routine policing activities as a way to build trust between them and the immigrant communities (Decker, Lewis, Provine, and Varsanyi, 2008; Harris, 2006). In some communities, the law enforcement operates under state or city mandates for government officials, including the police, not to ask questions about the

immigration status of an individual (Ridgley, 2008). In these situations, officers often do not ask foreign victims questions about their immigration status even when these questions might help identify signs of human trafficking. Finally, police agencies have limited foreign-language skills and access to interpreters, which makes communication with potential foreign victims difficult if not impossible.[10]

Response

Even when police agencies prioritize human trafficking, and their officers are properly equipped to identify the crime, it is difficult to ensure that trafficking investigations will result in arrests and prosecutions of offenders. The U.S. Department of State (2004) ranks human trafficking cases as "the most labor and time-intensive matters undertaken by the Department of Justice" (2004: 24) because of the complexity of these cases and the challenges police face working with highly traumatized victims.

The police interview processes necessary to secure information for the arrest or prosecution of offenders can retraumatize trafficking victims, exacerbating their anxiety and reducing their ability to remember and recount events clearly. These interviews can replicate features of the human trafficking experience, particularly if victims feel coerced to provide information or believe their safety and security is dependent on their successful cooperation with the police (Women's Commission for Refugee Women and Children, 2007). In these cases, victims might have difficulty providing credible testimony about their experiences. Police can become frustrated when victims are confused and change their testimony (a normal reaction to trauma) or have other problems that make their testimony less credible, such as a history of substance abuse or illegal immigration. Interviews with local and federal officials experienced in investigating trafficking cases confirm that human trafficking investigations fall outside the normal "comfort zone" of most police officers, which underscores the need for specialized training and strong partnerships with victim service providers (Clawson et al., 2006).

The difficulties police face prioritizing, identifying, and responding to trafficking cases are similar to the challenges encountered in other new crimes such as domestic violence, stalking, and hate crimes (Ferraro, 1989; McDevitt, Balboni, Bennett, Weiss, Orchowsky, and Walbot, 2000; Purcell, Pathé, and Mullen, 2004). Police identification of hate crimes remained challenging long after the passage of federal and state legislation that made bias-motivated crimes separate crimes or enhanced the penalties for such crimes. Despite the enactment of new laws, officers had trouble defining what constituted a bias-motivated crime as opposed to a regular crime without bias motivation (Nolan, McDevitt, Cronin, and Farrell, 2004). These ambiguities led to misclassifications, poor investigations, and errors in reporting (Bell, 2002; Jenness and Grattet, 2001; McDevitt et al., 2000). Officers were also reluctant to redefine previously low-priority crimes, such as vandalism or simple assault, as bias crimes, which was perceived to

10. According to the 2003 Law Enforcement Management and Administrative Statistics, only 1.2% of agencies require officers to undergo second-language testing as part of the hiring process (Bureau of Justice Statistics, 2003).

give them special meaning (Nolan and Akiyama, 1999). Studying the varied responses of police agencies to the state and federal prioritization of hate crimes, researchers found that agency adoption of training, the enactment of formal policies, and the development of accountability measures predicted the identification and the reporting of bias-motivated crimes (McDevitt, Cronin, Balboni, Farrell, and Weiss, 2003). Even hate crime laws perceived only to be symbolic were "rendered instrumental" in communities where the police agencies adopted organizational responses that promoted identification and investigation (Grattet and Jenness, 2008). We anticipate a similar variation in police responses to new mandates around human trafficking.

Our current understanding of police responses to human trafficking is limited to a few narrowly focused surveys of police officials in major metropolitan areas (Shively et al., 2007; Wilson et al., 2006). These surveys suggest that police leaders are concerned about transnational crime but do not believe human trafficking is a problem in their communities. Interviews with federal, state, and local law enforcement officials with experience investigating human trafficking cases (Clawson et al., 2006) helped illuminate the complexity of these investigations. However, they were narrowly focused on the experiences of a few officials and did not represent police agencies more broadly. This study provides much needed information about why police in the United States have identified so few human trafficking victims. By understanding how often and under what conditions local law enforcement agencies find, investigate, and prosecute cases of human trafficking, we will be in a better position to identify barriers to police responses to trafficking and to understand the limitations of official statistics about human trafficking cases identified.

Data and Methodology

National Law-Enforcement Human Trafficking Survey

To study the experiences and challenges agencies face identifying and investigating human trafficking, we surveyed 3,189 U.S. municipal, county, and state law-enforcement agencies about their perceptions of human trafficking and their experiences investigating such cases. The sample for the national survey was developed in two stages. First, we took a random sample of 2,891 municipal, county, and state law enforcement agencies drawn from the 16,004 agencies in the National Directory of Criminal Justice Data (National Directory of Law Enforcement Administrators, 2006).[11] We then supplemented the original random sample with the additional 298 agencies serving medium-to-large cities (populations greater than 75,000) that were not included in the original random sample draw (for more information about the sampling process,

11. According to the National Directory of Law Enforcement Administrators (2006), 16,004 local, county, and state law-enforcement agencies had valid population sizes from which we could draw the random sample. This population included 12,647 municipal law enforcement agencies, 50 state highway patrol or state police agencies, and 3,307 county law enforcement agencies. The original sample size was 3,000, but 109 agencies were dropped from the sample because of incorrect mailing addresses, duplicated entries of agencies serving a single jurisdiction in the original database, or incorrect listing of agencies that no longer perform law enforcement functions.

see Farrell, McDevitt, and Fahly, 2008).[12]

Agencies selected for participation in the national survey were sent a personal letter addressed to the senior manager of the department (chief, superintendent, commissioner, sheriff, or colonel), which explained the study and requested their participation. After a series of follow-up contacts with agencies, which included reminder postcards, additional surveys, and telephone calls, 1,912 (60%) agencies responded to the survey. Several diagnostic tests were completed to ensure the response population did not differ significantly from the original sample population.[13]

To supplement the findings of the national survey, a team of researchers conducted interviews and observations with law enforcement officers participating on federally funded human trafficking task forces. The analyses presented here primarily rely on the findings from the national survey data. Additionally, the current analyses examined only the surveys returned from municipal law enforcement agencies (N = 1,515), which excluded county sheriffs, state police, and highway patrol agencies. We excluded county and state police agencies because their organizational structure and law enforcement missions generally differed from that of municipal law enforcement agencies and, in many cases, differed substantially from each other. For example, some county agencies have primary law enforcement authority in a community, whereas others have only limited authority. These differences impeded our effort to understand the community and organizational factors that predict human trafficking identification and response. Thus, we limited our analyses to only municipal police agencies.

12. We purposefully drew a large sample because we anticipated the investigation of human trafficking to be a rare event for most agencies, and we hoped to gather detailed information about the nature and characteristics of those cases identified by local law enforcement. The final sample size provided for a margin of error of roughly 2% at a 99% confidence level.

13. Although we found some minor differences among agencies by population size category, the differences between response and nonresponse surveys were not statistically significant (t = 9.44, sig. = .901). Such a difference in response is common for law-enforcement surveys. Larger agencies are generally more accustomed to completing surveys on operational issues, have policies in place to monitor survey compliance, and might be expected to have more exposure to human trafficking—a strong predictor of high survey response rates (Fox, Crask, and Kim, 1988).

Data and Measures

The survey, completed by the chief or highest ranking officer within the agency or their designee, gathered information on the experiences of the agency with human trafficking investigations between 2000 and 2006.[14] We provided a definition of human trafficking corresponding with the language in the federal TVPA to all respondents to guide their responses.

Variables of interest in this study included the perceptions of agency leaders about the prevalence of human trafficking in their community, agency preparation to identify and respond to trafficking cases, actual identification and investigation of cases, as well as several community-level characteristics that we anticipated might predict the identification of human trafficking cases.

Agency leader perception. Police leaders were asked to identify the prevalence of the following four types of human trafficking in their local community:

1. Labor trafficking of victims residing inside the United States.
2. Labor trafficking of victims residing outside the United States.
3. Sex trafficking of victims residing inside the United States.
4. Sex trafficking of victims residing outside the United States.

Respondents were asked to indicate the prevalence of each type of human trafficking on a scale from nonexistent (1) to widespread (4) or could indicate that they were unsure of the prevalence of human trafficking in their community (5). Contrary to some suggestions that police perceive sex trafficking as opposed to labor trafficking as a problem (Clawson et al., 2006), we found that agency leaders identified similar levels of prevalence for all types of human trafficking. Statistical procedures used to reduce several variables into fewer factors—known as principal components factor analysis with Varimax rotation—indicated the four measures represented a single component (factor loadings > .79). As a result, we averaged the perceptions of human trafficking of agency leaders across all four types of human trafficking, with lower scores indicating that trafficking was perceived as nonexistent and higher scores indicating that trafficking was perceived as more widespread.

Agency preparation. Agency leaders were asked to identify the steps their agency had taken to prepare officers to identify and respond to trafficking crimes. These steps included whether they conducted any training on human trafficking, developed a protocol or policy to identify and respond to trafficking cases, or assigned specialized personnel or units within the agency

14. Of the survey respondents, 63% were completed by agency chiefs or deputy chiefs, 10% were competed by captains, 13% by lieutenants, 8% by sergeants, heads, or detectives, 2% by senior administrators, 3% by crime analysts, and 1% by patrol officers. Not surprisingly, in small agencies (less than 25,000 population) surveys were completed disproportionately by police chiefs or deputy chiefs (81%), in medium-sized agencies (25,000–75,000 population) roughly half of the surveys were completed by chiefs, and half were completed by captains or lieutenants. In agencies serving populations greater than 75,000, 28% of surveys were completed by a chief, 44% were completed by captains or lieutenants, 16% were completed by sergeants or detectives, and 8% were completed by crime analysts. These distributions likely reflect the fact that knowledge about street-level information, such as the identification of rare crimes, is centralized with the chief in small agencies and is distributed among various levels of authority within larger agencies.

to respond to cases identified as human trafficking. The three preparation variables were each dummy coded to indicate whether the agency had taken the identified step.

Identification of human trafficking cases. Finally, we asked agency leaders to identify whether officers within their agency investigated any cases of human trafficking between 2000 and 2006. All police agencies that indicated they investigated cases of human trafficking during the study period were sent a follow-up survey, which was completed by the individual most familiar with the case or cases, to gather detailed information about the nature of the cases and results of the investigations.

Community characteristics. We supplemented the information from the survey with data about the demographic and social characteristics of the communities served by the agencies responding to the survey. Some communities might be more susceptible to different forms of human trafficking than others, but we know little about the specific characteristics or risk factors that distinguish communities who identify trafficking from those who do not. Most existing research on human trafficking routes and patterns has been conducted at the country or continent level rather than at a city or county level (United Nations Office of Drugs and Crime, 2006). However, several community-level factors are believed to contribute to the likelihood of both labor and sex trafficking in communities, including high levels of undocumented immigrant residents and a close proximity to foreign borders (Andrees and van der Linden, 2005). Characteristics of communities that increase social disorganization, such as residential instability and poverty, increase the opportunity for economic exploitation and human trafficking victimization (Ebbe and Das, 2007). To control for these community factors, we gathered data from the 2000 U.S. Census to measure the size of the population served (measured as the logged population), the percentage of the population that was foreign born, the percentage of the population residing in owner-occupied dwellings, and the percentage of the population living in poverty. We also created a dummy variable to measure whether the agency was in a state directly bordering Canada or Mexico.

Community-level demographics, information about agency preparation, the perception of human trafficking prevalence, and agency experiences with human trafficking investigations for the 1,515 municipal police agencies that responded to the national survey are summarized in Table 1. Because policing largely is carried out by agencies serving small-to-medium communities in the United States, it was not surprising that 55.2% of the national survey responses came from municipal law-enforcement agencies serving small communities (less than 10,000 residents). Of the responding agencies, 36.7% served communities in states bordering Mexico or Canada. On average, 6.9% of the residents of responding-agency cities were foreign born, but the range between communities was vast—from a low of 0 to a high of 72.1%. On average, 9.9% of households in the responding communities were in poverty.

Sanctuary city policies that prohibit officers from inquiring about immigration status during police contacts also might affect police responses to trafficking. Sanctuary cities might increase the likelihood of human trafficking identification because victims in these communities might be more willing to come forward to report victimization if they know that they will not be

asked questions about their immigration status. However, officers serving in these communities might be hesitant to ask for information about how the victim got to the United States or who controls their travel documents, thereby reducing the likelihood of victim identification. To control for these possibilities, we created a dummy variable coded 0 to indicate that the agency did not have a sanctuary city policy according to the National Immigration Law Center listing of laws, resolutions, and policies that limit immigration enforcement (2008) and coded 1 where a sanctuary city policy was in place. A little more than 8% of the responding agencies worked in communities with sanctuary city policies that limited local enforcement of immigration laws.

Although any law enforcement agency could identify cases of human trafficking and charge those cases under the federal trafficking laws (TVPA, 2000), agencies in states with state-level human trafficking legislation that might have additional incentives to identify such crimes.

TABLE 1

Descriptive Statistics of Dependent and Independent Measures

Dependent Variables		**Mean**	***SD***	**Minimum**	**Maximum**
Identification of trafficking	*N* = 1,515	9.7%	29.7%	—	—
Number of trafficking investigations	*N* = 118	1.1	15.29	0.0	468.0
Independent Variables	***N***	**Mean**	***SD***	**Minimum**	**Minimum**
Community context					
Agency size	1,515				
Less than 4,999	617	40.7%	49.1%	—	—
5,000–9,999	219	14.5%	35.2%	—	—
10,000–24,999	234	15.4%	26.1%	—	—
25,000–49,999	102	6.7%	25.1%	—	—
50,000–74,999	41	2.7%	16.2%	—	—
75,000–99,999	104	6.9%	25.3%	—	—
100,000–249,999 [a]	134	8.8%	28.2%	—	—
250,000+	64	4.2%	20.1%	—	—
State statute	1,515	35.4%	47.8%	—	—
Border state	1,515	36.7%	48.2%	—	—
Sanctuary city	1,514	8.4%	27.7%	—	—
Owner occupied	1,513	67.2%	13.9%	.3%	97.7%
Foreign born	1,515	6.9%	9.3%	.0%	72.1%
Poverty	1,515	9.9%	7.2%	.0%	35.5%
Crime rate	556	5.77	10.13	0.0	139.5
Perception of prevalence	1,182	1.50	.67	1.00	4.00
Agency preparation					
Training	1,488	19.7%	40.0%	—	—
Protocols	1,314	9.4%	29.2%	—	—
Specialized personnel	1,481	5.9%	23.5%	—	—

[a] Responses ranged from nonexistent (1) to prevalent (4) for each of the four types of trafficking listed on the survey (international labor trafficking, domestic labor trafficking, international sex trafficking, and domestic sex trafficking). We recoded responses of "don't know," which were originally recorded as "5" on the scale, as missing for the purposes of this analysis.

At the time of the study, 11 states passed anti-trafficking legislation that was in effect during the study period.[15] State statutes provided support for training, public awareness, and research about human trafficking. To control for the impact of state legislation, we created a dummy variable to measure whether the agency was in a state with human trafficking legislation. A little more than one third of the responding agencies served communities in states with legislation enacted that criminalizes human trafficking.

It is also possible that human trafficking is more prevalent in communities with high rates of other forms of crime. Some research identified connections between individuals associated with the human trafficking process and existing criminal networks and enterprises (O'Neill-Richard, 1999), including a study that categorized trafficking groups into different business models or criminal enterprises (Shelley, 2003). Police authorities also posited that local criminals increasingly were kidnapping, coercing, or duping women into prostitution for profits to replace or supplement other criminal activity, such as drug distribution and selling weapons (Bacque, 2006; Cramer, 2006). We anticipated that agencies would be more likely to identify human trafficking victimization in communities with higher crime rates. Unfortunately, violent crime data were not available for all communities that responded to the national survey. The Federal Bureau of Investigation's (FBI) Uniform Crime Reporting (UCR) Program only provided information on crimes reported by agencies that served populations greater than 10,000, and not all agencies in communities greater than 10,000 inhabitants participated in the UCR Program. As a result, we included a measure of the violent crime rate from the 2000 UCRs for 556 of the 1,551 municipal agencies that responded to the national survey in a separate set of models for this subset of agencies (see Appendix A).

Analytic Strategy

We first conducted descriptive analyses to illustrate patterns of police identification of human trafficking cases as well as the characteristics of the cases identified. We then estimated a series of logistic regression models to test the direct and the indirect effects of community- and agency-level characteristics on whether agencies identified human trafficking cases. For the logistic regression analyses, our dependent variable (human trafficking identification) was a dichotomous measure of police investigation of human trafficking cases in which 0 indicated that the agency did not identify and investigate any human trafficking cases between 2000 and 2006, and 1 indicated that the agency identified and investigated at least one human trafficking case during the study period. [16]

15. States with early human trafficking legislation include Arkansas, Arizona, California, Connecticut, Illinois, Kansas, Louisiana, Missouri, New Jersey, Texas, and Washington (Center for Women Policy Studies, 2010).

16. Count models also could have been estimated to measure the affect of community and agency level variables on the total number of cases identified by each agency. Unfortunately, only 118 of the 144 agencies that indicated they had identified a case of human trafficking during the study period provided detailed information about the number or characteristics of cases identified, which limited our ability to measure the ranges of cases identified by various types of agencies.

Findings

Descriptive Analyses

Significant variation existed among the responding agencies about their perceptions of the human trafficking problem and the types of steps they have taken to prepare their officers to respond. As indicated, agency leaders identified their perception of the prevalence of four different types of human trafficking in their local community. Survey results indicated that most leaders of U.S. law enforcement agencies, on average, did not perceive human trafficking to be a problem in their communities. On average, police leaders thought all types of human trafficking were nonexistent to rare, with an average perceived prevalence score of 1.50 on a scale from nonexistent (1) to widespread (4) in their jurisdictions.

The perceptions of the prevalence of human trafficking reported in the national survey varied significantly among agencies that served different-sized communities. Table 2 illustrates that perceptions of the problem ranged from close to nonexistent for agencies serving the smallest communities (less than 5,000, average score of 1.33) to rare or occasional among the largest agencies (more than 250,000, average score of 2.44). Although few communities thought the problem of human trafficking was widespread in their community, the large agencies were more likely to report that the problem did exist in their communities.

TABLE 2

Distribution of Agency Perception, Preparation, and Investigation of Human Trafficking across Agency Size

Agency Type/Population Size	Perception of HT Problem (Scale: 1, nonexistent, to 4, widespread)	Have Training	Have a Protocol	Have Specialized Unit/Personnel	Investigated an HT Case (2000–2006)	Total *N*
4,999 and below	1.33	12.4%	8.9%	2.7%	3.2%	617
5,000–9,999	1.41	17.1%	7.4%	4.2%	6.1%	219
10,000–24,999	1.39	19.5%	9.3%	2.6%	5.6%	234
25,000–49,999	1.59	19.8%	5.7%	5.0%	9.9%	102
50,000–74,999	1.50	17.1%	7.5%	4.9%	14.6%	41
75,000–99,999	1.76	37.4%	7.4%	8.2%	18.2%	104
100,000–249,999	1.89	27.1%	8.1%	6.8%	24.8%	134
250,000 and above	2.44	65.1%	33.9%	50.0%	50.0%	64
Total	1.50	19.7%	9.4%	5.9%	9.7%	1,515

Note. HT = human trafficking.

Training was the most common step agencies have taken to prepare their officers to identify and respond to cases of human trafficking. On average, one fifth (19.7%) of agencies had officers participate in some type of human trafficking training. Agencies less commonly developed protocols or assigned specialized personnel to the issue. Only 9.4% had a protocol or policy on human trafficking and 5.9% assigned any specialized personnel to investigate such cases.

Considering the differences in perceptions about the prevalence of human trafficking across local communities, it was not surprising that police agencies serving larger populations generally have taken more steps to prepare their officers to address trafficking. Police agencies in larger communities were more likely to conduct training on human trafficking. Less than 20% of small-to-medium-sized agencies (serving populations less than 75,000) have conducted human trafficking training, whereas one third of large-sized agencies (serving populations between 75,000 and 250,000) and 65% of the agencies serving the largest population (more than 250,000) have conducted training. Although protocols and specialized personnel were rare (less than 10%) for virtually all agencies, those agencies that served the largest populations (cities more than 250,000) were much more likely to have specialized personnel (50%) or a written protocol (33.9%) to guide officer responses to trafficking than any other agencies (see Table 2).

Less than 10% (9.7%) of all police agencies surveyed (144 agencies) reported investigating cases of human trafficking between 2000 and 2006. Of the 144 agencies that identified a human trafficking incident in their local community, 118 provided detailed information about the nature of these cases through the follow-up survey. As illustrated in Table 3, for the 118 responding agencies, the average number of human trafficking cases identified per year was between 3 and 8 cases (depending on the year), and annually, the total cases investigated ranged from a low of 1 case to a high of 200 cases. In total, between 2000 and 2006, agencies in our sample reported investigating more than 2,397 potential cases of human trafficking. Of those cases, agencies reported that 876 (36.5%) resulted in an arrest.

TABLE 3

Total Number of Human Trafficking Investigations, 2000–2006

Year	Number of Investigations	Agencies Indicating at Least One Investigation in Specified Year	Average Number of Investigations per Agency	SD	Minimum	Maximum	Number of HT HT Arrests
2000	175	54	3	11.77	1	70	113
2001	272	54	5	18.68	1	122	54
2002	271	53	5	18.46	1	119	59
2003	212	58	4	10.69	1	50	53
2004	263	67	4	10.91	1	53	83
2005	454	80	6	13.22	1	76	176
2006	750	97	8	23.21	1	200	338
Total	2,397	117[a]	5				876

Note. HT = human trafficking.

[a] Of the agencies surveyed, 118 reported investigating at least one case of human trafficking between 2000 and 2006. However, one agency did not break out the individual years in which they investigated the cases. Additionally, not all agencies investigated a case each year. As a result, the total reported here does not represent the sum of agencies that conducted investigations in each year.

To determine what kinds of cases the agencies identified, respondents were provided with a list of different possible types of human trafficking, which were divided into two groups, labor trafficking and sex trafficking.[17] Two thirds of the agencies that indicated they had investigated at least one case of human trafficking during the study period reported identifying multiple cases. For agencies that investigated multiple cases, we divided the types of cases into three mutually exclusive categories:

1. Agencies that only investigated sex trafficking cases (36%)
2. Agencies that only investigated labor trafficking cases (34%)
3. Agencies that investigated both labor trafficking and sex trafficking cases (30%)

The proportion of agencies that investigated only one type of human trafficking (either sex or labor) was nearly equivalent. Only one third of all agencies that reported multiple trafficking cases investigated both labor and sex trafficking offenses.

In addition to specifying information about the frequency of different types of investigations, agencies provided information about the outcomes of their investigations. Although detailed information was not collected on the specific outcome of each case (beyond knowing how many cases resulted in an arrest), agencies could provide general information about the success of their investigations.

TABLE 4

Outcome of Human Trafficking Investigations (*N* = 118)

	Investigation Resulted in Charges Filed	Investigation Resulted in Federal HT Charges Filed	Investigation Resulted in Conviction	Victim Granted T-Visa	Victim Deported
Yes	52.7%	19.8%			
No	47.3%	80.2%			
Frequency			42.6%	16.6%	20.2%
Occasionally			20.5%	27.0%	15.9%
Rarely			11.7%	10.4%	23.1%
Never			25.0%	45.8%	40.5%

Note. HT = human trafficking.

Of the agencies that investigated cases of human trafficking, 52.7% indicated that at least one of the investigations resulted in the filing of criminal charges (either state or federal), and 19.8% of agencies indicated filing federal human trafficking charges because of their investigations (see Table 4). Agencies also indicated the prevalence of different types of case outcomes. In cases in which the prosecution filed formal charges, 42.6% of the agencies indicated the charges

17. The labor trafficking category included bonded labor, restaurant work, domestic servitude, commercial agricultural, construction, factory work, food processing, forced begging, custodial work, and other types. The sex trafficking category included forced prostitution, prostitution of a child, forced escort services, forced stripping, sex tourism, forced pornography, and other. Agencies were asked to report how many times each type of case had been identified since 2000. Respondents could choose "never,""1 case,""2 cases," or "3 or more cases."

ended in a conviction. Regarding the outcome for the victim, 16.6% of agencies reported that victims frequently were granted a T-visa, but a higher proportion of agencies (20.2%) reported that victims frequently were deported, which confirmed concerns raised by victim groups that participation in law enforcement investigations could lead to negative outcomes for the victims (Olson, 2008).

Multivariate Analysis

Police agencies in our sample came from different types of communities that faced varying risks for human trafficking victimization. Agencies also varied in the perceptions of their leadership, about the prevalence of the problem in the local community, and the types of steps the agency had taken to prepare officers to identify and respond to trafficking. The following analyses examined whether particular community- or agency-level factors increased the likelihood that police agencies will identify cases of human trafficking while controlling for other factors.

Table 5 presents a series of logistic regression models that predict law enforcement identification of human trafficking cases between 2000 and 2006. Model 1 examines the relationship among community, demographic, and contextual factors as well as police identification of human trafficking. Agencies serving larger sized communities, in border states, and in communities with a higher foreign-born population were significantly more likely to identify cases of human trafficking. However, as indicated by the odds ratios, the percentage of foreign-born residents in a community had only a minor predictive effect on the identification of human trafficking cases (odds ratio of 1.04). Population size was associated with a 67% increase in the odds of an agency identifying human trafficking cases, and serving in a community in a border state was associated with a 57% increase in identifying cases. The legal context variables, which were measured by the existence of a state human trafficking law or a sanctuary city policy, were not significantly related to the identification of human trafficking cases.

Agency leader perceptions about the prevalence of human trafficking were added to the analysis in Model 2. It was predicted that, because agency leaders reported perceiving the human trafficking problem to be more prevalent (measured on a scale from 1 nonexistent to 4 widespread), the likelihood that they would identify human trafficking cases would increase. It also was predicted that agency leader perceptions about the prevalence of human trafficking would mediate the effect of community-level factors. Regardless of the type of community, if agency leaders perceived the existence of a potential problem, then they were more likely to emphasize the importance of such investigations and take proactive steps to increase identification. We recognized that the cross-sectional nature of our research design precluded us from knowing whether the belief that human trafficking was more prevalent in a community preceded the identification of human trafficking cases. However, the data reported in Table 3 indicate that both the average and the overall number of cases identified by agencies rose most sharply in the last 2 years of the study period, which suggests that many cases identified in the first few years of the study period likely were not driving agency perceptions.

TABLE 5

Logistic Regression Models Predicting Law-Enforcement Identification of Human Trafficking Cases (*N* = 1,515)

	Model 1 (Adjusted r^2 = .23) 95% CI				Model 2 (Adjusted r^2 = .38) 95% CI				Model 3 (Adjusted r^2 = .45) 95% CI			
	B *(SE)*	ExpB	Lower	Upper	B *(SE)*	ExpB	Lower	Upper	B *(SE)*	ExpB	Lower	Upper
Population size	.514** (.066)	1.67	1.47	1.90	.398** (.074)	1.48	1.28	1.72	.349** (.078)	1.42	1.22	1.65
Border	.455* (.217)	1.57	1.03	2.41	.592* (.248)	1.82	1.12	2.91	.599* (.264)	1.82	1.08	3.06
Owner occupied	.000 (.009)	.99	.98	1.02	.004 (.010)	1.00	.98	1.02	.001 (.011)	1.00	.98	1.02
Foreign born	.020* (.010)	1.04	.97	1.04	.002 (.012)	1.00	.98	1.02	−.003 (.013)	.99	.97	1.02
Poverty	.073 (.117)	1.07	.85	1.35	.063 (.134)	1.07	.82	1.38	.073 (.146)	1.07	.81	1.43
Sanctuary city	.114 (.295)	1.15	.65	2.05	−.020 (.360)	.98	.48	1.98	−.064 (.393)	.94	.43	2.03
Legislation	.246 (.213)	1.28	.84	1.94	.077 (.249)	1.08	.66	1.75	.111 (.266)	1.12	.66	1.88
Perception					1.512** (.158)	4.51	3.31	6.14	1.274** (.172)	3.57	2.54	5.01
Training									.845** (.265)	2.32	1.37	3.93
Protocols									1.355** (.312)	3.88	2.10	7.15
Specialized units									.701* (.310)	1.98	1.09	4.26
Constant	−7.853** (.993)				−9.401** (1.203)				−8.829** (1.211)			

Note. CI = confidence interval.
*$p < .05$. **$p < .01$.

As expected, the perceptions of agency leaders about the prevalence of human trafficking in their communities was related strongly to the identification of human trafficking cases. Police leaders who perceived human trafficking to be more prevalent in their community were associated with a more than 351% increase in the odds of identifying human trafficking cases. Controlling for agency leader perceptions about the prevalence of human trafficking also mediated community-level variables, which decreased the effects of community size (odds ratios decreased from 1.67 to 1.48), increased the effect of being in a border state (odds ratios increased from 1.57 to 1.82), and rendered measures of the proportion of the foreign-born population as nonsignificant. Importantly, including agency leader perceptions about the human trafficking problem into the multivariate model increased the coefficients of determination, which measured the strength of association in the models, from .23 to .38 (a 65% increase in the *r*-squared term).

Agency leader perceptions about the prevalence of human trafficking were associated with the identification of more cases. Problems that are more prevalent are expected to come to the attention of law enforcement more often than rare problems. Their perceptions about human trafficking also might serve as symbolic and instrumental functions within the agency that increase the identification of such cases. As agency leaders perceive problems to be more prevalent, they are likely to devote more resources to training and personnel and to support the development of policies or protocols to assist officers in identifying and responding to the problem—an association we measure directly in Model 3.

As agencies take proactive steps to increase the identification of human trafficking, such as training officers, developing protocols, and assigning specialized personnel, the likelihood of identifying and investigating trafficking cases is likely to increase. Measuring the effect of the specific steps agencies have taken to identify trafficking cases provides a more precise test of what Grattet and Jenness (2008) describe as making symbolic laws instrumental. Departmental policies, the assignment of specialized personnel, and training are expected to transform symbolic statements about the importance of a problem by legislators (measured here in the passage of legislation) or agency leaders (measured here as perceptions of prevalence of the problem) into concrete action aimed at increasing the identification of human trafficking crimes.

Model 3 adds measures of the concrete steps agencies have taken to prepare officers to identify and respond to human trafficking. Although the perception of the agency leader of the trafficking problem increases the likelihood that the agency will adopt instrumental measures, such as training, protocols, or personnel (see the correlation matrix in Appendix B), these measures have strong independent effects on the likelihood of identifying trafficking cases, despite the beliefs of agency leadership. The likelihood of identifying cases remains relatively low overall, controlling for community context variables and agency leader perceptions, but when departments provide training on human trafficking, the odds of identifying cases increases 132%. Likewise, enacting protocols to guide officer identification and response to trafficking increases the odds of identification by 288%, and specialized personnel increases the odds of

identification by 98%. Adding measures of the proactive steps agencies have taken to identify cases of human trafficking also moderates the direct effects of agency size and leader perceptions of the problem. Including the steps agencies have taken to prepare to investigate cases of human trafficking in the final multivariate model increased the measures of the strength of the association (from .38 in Model 2 to .45 in Model 3, an 18% increase). Indicating that training, the dedication of specialized officers, and the development of protocols has an effect on the identification of cases, the characteristics of local communities that might put them at risk for trafficking, and agency leaders perceiving human trafficking to be a problem.

Discussion of Findings

The identification and investigation of human trafficking cases is a complex undertaking for local law enforcement. The federal government has provided leadership in the fight against human trafficking, but responses from local law enforcement remain essential to the successful identification and investigation of these crimes. Local police are familiar with their local communities and are involved in routine activities that are likely to bring them into contact with human trafficking victims and offenders. Although municipal police agencies might be well positioned to encounter cases of human trafficking, the complex nature of these cases and the limited experience most agencies have in dealing with the crime make identifying and responding to human trafficking more challenging. Between 2000 and 2006, 9.7% of police agencies in the United States reported investigating at least one case of human trafficking. Agencies serving larger populations were more likely to investigate such cases, although the police in communities of all sizes identified trafficking cases.

Agencies that identify and investigate multiple cases of human trafficking primarily reported investigating a single type of human trafficking—70% identified only labor trafficking or only sex trafficking cases. At least two potential explanations are available for this trend. First, it is possible that individual jurisdictions have only one type of human trafficking occurring in their jurisdiction; in that case, it would not be surprising that law enforcement officials only identified one major type of human trafficking. It is also possible that agencies develop a specialization as they investigate human trafficking cases. For example, agencies that identify and investigate sex trafficking cases might learn about the elements of the crime and potential indicators, which make them more likely to identify similar types of human trafficking in the future. Similarly, agencies might only train officers in particular units about trafficking. For example, if an agency only trained officers in a special vice unit about human trafficking, and these officers would be most likely to come into contact with sex trafficking victims by nature of their routine operations, then it is more likely that their agency primarily would identify sex trafficking victims.

The lower proportion of agencies that identified any cases of human trafficking was not surprising because police leaders, on average, thought human trafficking did not occur or only occurred rarely in their community. These findings diverged from the limited existing research on police responses to trafficking that primarily examined the experiences of federal, state, and

local law-enforcement officials with experience investigating trafficking. More than one third of law-enforcement respondents in the Clawson et al. (2006) study indicated that human trafficking was a serious to very serious problem in their community, and approximately half reported that human trafficking was a high to a very high priority in their agency. A sample design likely explains the differences between the two sets of findings. The findings presented here come from a nationally representative random sample of all police agencies in the United States, whereas previous research has been limited to targeted studies of officials experienced in the investigation of human trafficking cases or police leaders in the largest agencies.

When agency leaders perceived trafficking as a problem in their community, the national survey data indicated that officers in their agency were more likely to identify and investigate human trafficking cases. Identification was even more likely when agencies were prepared to investigate human trafficking cases, which included training for some or all of their officers, protocols that guided officer responses, and specialized personnel. These steps helped sensitize officers to the risk factors and special needs of human trafficking victims. Specialized personnel familiar with the nuances of human trafficking helped bridge traditionally difficult relationships between the police and victim service providers—an important step to improve the likelihood of arrest and prosecution in trafficking cases (Braun, 2003). Therefore, although police agencies do not control the size or location of their community or other risk factors that could increase the existence and potential for human trafficking identification, they do control the degree to which agency leaders perceive a problem in the local community and the steps they take to prepare officers to investigate cases of human trafficking.

A few important limitations of the data should guide the interpretation of these findings. To provide detailed information about the number and nature of human trafficking cases within their agency, police leaders had to be knowledgeable about any potential case of human trafficking identified by officers under their command. It is possible that agency leaders did not know that their officers identified and investigated cases of human trafficking. This possibility is most likely in large agencies where the leadership of the department has more distance from the day-to-day operations of their officers. Even when agency leaders accurately report information about the cases identified by their officers, we do not know how often officers encountered cases of human trafficking that they did not recognize. It is possible that police perceive certain types of human trafficking cases and victims to be of a higher priority and are less aware of other types of cases that exist in the community. As a result, the data reported here are specific to those cases identified by the police and are not a measure of the actual incidences of human trafficking in communities throughout the United States.

Although this study advances our knowledge about police experiences with human trafficking, it raises several important questions for future research. First, it is important to know more about the factors that lead agencies to prepare their officers to identify cases of human trafficking. Agency leader perception about the prevalence of human trafficking is highly correlated with training, the adoption of protocols, and the assignment of specialized personnel, but the link between external forces, such as state human trafficking legislation and agency adoption

of proactive steps, is much weaker (see Appendix B). Knowing more about how agencies put state-level human trafficking laws into operation in their agency, as well as the community contexts that shape this process, will help us understand why some agencies identify human trafficking cases, whereas others do not.

Additionally, we need to know more about the nature and characteristics of the different types of human trafficking victimization. Our understanding of human trafficking comes mainly from journalistic accounts (for a review, see Albanese, Schrock, Donnelly, and Kelegian, 2004) and limited qualitative research with trafficking victims and service providers (Brunovskis and Tyldum, 2004; Clawson, Small, Go, and Myles, 2003; Raymond, Hughes, and Gomez, 2001). We know much less about the networks in which human trafficking perpetrators and victims exist and operate. For example, we lack basic information about how victims are recruited and what roles offenders play in human trafficking operations. Some researchers suggest human trafficking operations are complex and vary greatly across different stages of the trafficking process, which include recruitment, transportation, types of criminal exploitation, and methods of force, fraud, or coercion (Repetskaia, 2004). It is presumed, but with little reliable evidence to support it, that human trafficking networks overlap with other existing criminal networks. Our data suggest that city-level violent crime rates do not predict the identification of human trafficking cases, but more research is needed to understand whether specific criminal operations, such as smuggling and gang activity, are connected to exploitive labor networks, which fuel human trafficking.[18] This information can advance our general understanding of the phenomenon and is critical to improving law enforcement training to improve the ability of officers to identify and respond to cases of human trafficking.

Recommendations for Policy

This study supports several specific recommendations to improve law-enforcement identification of human trafficking. We discuss four main recommendations in some detail.

Train More Officers to Identify and Respond to Human Trafficking

Less than one fifth of the agencies responding to the national survey had conducted any type of human trafficking training. Descriptive information from survey respondents indicated that of those agencies that conducted human trafficking training, most (47%) used brief, in-service training sessions or only offered specialized regional training for a few investigators (43%). Additional research is needed beyond this study to evaluate what training types and training content are most effective. Increased outreach and training to law-enforcement agencies of all sizes to enhance their ability to identify and investigate human trafficking cases would be a first

18. Crime rates were not included in the main models presented here because UCR data were not available for most of the smaller agencies. We did conduct analyses, including crimes rates, for those agencies in which data were available and no identifiable differences were found in the effect of the variables of interest for this study. Models predicting law-enforcement identification of human trafficking cases, which include crime-rate data ($n = 556$), can be found in Appendix A.

step to improve law-enforcement responses to human trafficking.

Other national training programs have been employed to increase the identification and reporting of rare crimes. In the 1990s, when local law-enforcement agencies began to identify and investigate hate crimes, the FBI developed and provided training on what crime characteristics might indicate that a crime was motivated by hate. Because of the national training program, the local law-enforcement identification and reporting of hate crime improved dramatically (Anti-Defamation League, 2004; McDevitt et al., 2000; Nolan and Akiyama, 1999). A similar federally initiated national training program on human trafficking would help officers understand the hidden nature of human trafficking, learn to recognize indicators of the crime, and provide tools to deal with the challenging and ambiguous process of victim identification and response. Any training program should address the perception held by many police leaders, and presumably by their officers, that human trafficking cannot or does not exist in the communities they serve.

Develop Protocols to Guide Human Trafficking Identification and Response

Human trafficking cases are often complex and involve a new area of law in which rules and routines are not well established. Working with human trafficking victims and offenders also can involve activities that might be out of the normal range of experiences for line officers (e.g., language barriers, severe trauma, and immigration issues). In addition, the complexity of human trafficking cases often requires local law enforcement to partner with other groups (e.g., federal law enforcement, inspectional services or regulatory agencies, and nongovernmental organizations) to identify, investigate, and prosecute a case successfully. Yet few agencies have taken steps to prepare their officers adequately to navigate complex human trafficking investigations. According to the national survey, less than 10% of agencies have protocols or policies on human trafficking, and less than 6% have designated specialized personnel to investigate these cases. The lack of guidance not only hinders the identification of human trafficking cases but also decreases the likely success of these investigations. According to the detailed data provided by those agencies that have identified human trafficking cases, only 36% of human trafficking investigations result in an arrest, and relatively few cases are prosecuted federally. Additionally, potential victims are as likely to be deported as they are to receive services through a special visa program.

To remedy these problems, we recommend that policing organizations that support law enforcement, such as the U.S. Department of Justice or the International Association of Chiefs of Police, convene to develop model protocols to guide law-enforcement agencies and their potential partners on human trafficking identification and response. Model protocols might differ by agency size or structure, but they would inform officers of characteristics that might indicate a situation involving human trafficking and provide a set of instructions on how to proceed if they believe that they have encountered human trafficking. Information about how other police agencies have worked with external partners to identify and investigate these cases

and provide the most appropriate victim services also could improve the usage of the model protocols.

Collect and Report Data on Human Trafficking Investigations

Research on problem-oriented policing generally (Goldstein, 1990) supports the idea that law enforcement most effectively deals with specific criminal issues once they begin to measure the extent and characteristics of the problems. Tactical responses driven by data demand (among other things) the development of an accurate and reliable system to record and track data. Once in place, this information can be used to develop strategies to deal with the problem. Until reliable information is available, however, officers are left to respond on a case-by-case basis, or worse, to not respond at all.

To date, no reliable system records information about human trafficking investigations investigated by the police in the United States. The 2005 reauthorization of the TVPA included an amendment to the original TVPA 2000 for "[a]n effective mechanism for quantifying the number of victims of trafficking on a national, regional and international basis" (Trafficking Victims Protection Reauthorization Act of 2005: Section 104, c1C). The most recent reauthorization of the TVPA (William Wilberforce Trafficking Victims Protection Reauthorization Act, 2008) called on the FBI to include human trafficking as a Part 1 crime category in its annual report, *Crime in the United States*. Although many details would need to be worked out before such a change could be implemented, this enactment offers an opportunity for the FBI to take a leadership role in developing model training curricula and policies to assist local agencies in indentifying and investigating cases of human trafficking in their jurisdiction. Although this study can serve as a preliminary baseline, against which we can assess changes in police identification of human trafficking, more systematic data collection and reporting is needed to improve our understanding of the prevalence and distribution of these crimes and more effectively evaluate efforts to combat human trafficking.

Integrate Human Trafficking Response into Local Crime-Control Activities

In 2006, the International Association of Chiefs of Police released a short guide on human trafficking that provided law-enforcement officials basic information about the problem of human trafficking and suggested several national resources for assistance. Additionally, several regional community policing institutes have provided training to raise awareness about human trafficking in the law-enforcement community. Although police agencies increasingly are hearing about the problem of human trafficking, it is unclear how the information regarding trafficking translates into local crime-fighting priorities. The regulation and prevention of exploitive labor, even if those situations involved force, fraud, or coercion, traditionally had not been part of the local police role. Police officials might perceive exploitation of workers, particularly immigrant workers as deplorable, but still not identify the problem as a criminal justice concern. Police adaption to respond in situations in which they traditionally have not assumed authority is not new. Law enforcement has often had to adapt to changing legal and social environments

in which dangerous conditions in a community are redefined as criminal justice priorities. For example, until recently, domestic violence widely was viewed by the police as a personal problem or as a private family issue. We now know that part of this resistance was because officers did not feel that they had the proper tools and training to address such complex problems. Now domestic violence is a crime that police have tools to address.

Agency leaders also might not perceive a need to train their officers about human trafficking based on a presumption that it is unlikely to occur in their community. Despite the fact that human trafficking might be a rare event in many communities, it is a serious crime, which results in the loss of fundamental liberties for its victims. Virtually all police agencies train their officers to identify and respond to other serious, but rare, crimes. For example, although only 17% of law-enforcement agencies report investigating a homicide annually,[19] virtually all agencies provide training on homicide response. Increased dialogue among police leaders about the effect of human trafficking on victims and local communities might motivate agencies to prepare their officers better to identify and respond to these problems. Additionally, researchers and analysts can do more to improve our understanding of the relationships between human trafficking and other transnational crimes that pose threats to local communities and transfer this information to police leaders.

The national survey data provides a much needed measure of police perceptions, preparation, and identification of human trafficking cases. The findings suggest that the low number of human trafficking cases identified by the police in the United States might be attributable, in part, to agency leaders who do not perceive trafficking as a problem in their community as well as to a lack of training and guidance to prepare officers to identify and investigate these cases. Our ability to understand the nature and characteristics of human trafficking in the United States and to measure the extent of the problem ultimately depends on the abilities of law enforcement personnel to improve their capacities to identify and respond to this new crime.

References

Agustin, Laura Maria. 2007. *Sex at the Margins: Labour Markets and the Rescue Industry*. London, U.K.: Zed Books.

Albanese, Jay, Jennifer Schrock Donnelly, and Talene Kelegian. 2004. Cases of human trafficking in the United States: A content analysis of a calendar year in 18 cities. *International Journal of Comparative Criminology*, 4: 96–111.

Anti-Defamation League. 2004. *Policy Brief: ADL Urges FBI to Expand Hate Crime Training Initiatives and Reform Reporting Process*. Retrieved December 2, 2008 from adl.org/combating_hate/letter_CJIS.asp.

Andrees, Beate and Mariska N. J. van der Linden. 2005. Designing trafficking research from a labour market perspective: The ILO experience. *International Migration*, 43: 55–73.

19. Calculated from UCR, Supplemental Homicide Report data, 2000–2006.

Aron, Lauden, Janine Zweig, and Lisa Newmark. 2006. *Comprehensive Services for Survivors of Human Trafficking: Findings from Clients in Three Communities*. Washington, DC: Urban Institute.

Azmy, Baher. 2001. Unshackling the Thirteenth Amendment: Modern slavery and a reconstructed civil rights agenda. *Fordham Law Review*, 71: 982–1061.

Bacque, Peter. 2006. Central American gangs a threat. *Richmond Times Dispatch*, September 20: B8.

Bales, Kevin. 2008. *Ending Slavery: How We Free Today's Slaves*. Los Angeles: University of California Press.

Batstone, David. 2007. *Note for Sale: The Return of the Global Slave Trade—and How We Can Fight It*. New York: HarperOne.

Bell, Jeannine. 2002. *Policing Hatred: Law Enforcement, Civil Rights and Hate Crime*. New York: New York University Press.

Bittner, Egon. 1967. The police on skid row: A study of peace keeping. *American Sociological Review*, 32: 699–715.

Braun, Joy. 2003. Collaborations: The key to combating human trafficking. *Police Chief*: 68, 70, 72–74.

Brunovskis, Anetta and Guri Tyldum. 2004. *Crossing Borders: An Empirical Study of Transnational Prostitution and Trafficking in Human Beings*. Report 426. Oslo: Norway: Fafo Institute.

Bureau of Justice Statistics. 2003. *Law Enforcement Management and Administration Survey*. Washington, DC: Bureau of Justice Statistics, U.S. Department of Justice.

Carter, David and Andra J. Katz. 1995. Computer crime: An emerging challenge for law enforcement. *FBI Law Enforcement Bulletin*, 65: 1–8.

Center for Women Policy Studies. 2010. U.S. Policy Advocacy to Combat Trafficking, State Laws. Retrieved January 15, 2010 from centerwomenpolicy.org/programs/trafficking/map/default/flash.asp.

Clawson, Heather, Nicole Dutch, and Mary Cummings. 2006. *Law Enforcement Response to Human Trafficking and the Implications for Victims: Current Practices and Lessons Learned*. Washington, DC: ICF International.

Clawson, Heather, Kevonne Small, Ellen Go, and Bradley Myles. 2003. *Needs Assessment for Service Providers and Trafficking Victims*. Washington, DC: ICF International.

Cramer, Maria. 2006. Police seek to stop surge in prostitution; advocates fearful for women, most are immigrants. *Boston Globe*, January 28: B12.

De Baca, Lou and Andrea Tisi. 2002. Working together to stop modern-day slavery. *The Police Chief*, August: 78–80.

Decker, Scott H., Paul G. Lewis, Doris Marie Provine, and Monica Varsanyi. 2008. *Immigration and Local Policing: Results from a National Survey of Law Enforcement Executives*. Tempe: Arizona State University.

Ebbe, Obi and Dilip Das. 2007. *Global Trafficking of Women and Children*. Boca Raton, FL: CRC Press.

Farrell, Amy and Stephanie Fahy. 2009. The problem of human trafficking in the U.S.: Public frames and policy responses. *Journal of Criminal Justice*, 37: 617–626.

Farrell, Amy, Jack McDevitt, and Stephanie Fahy. 2008. *Understanding and Improving Law Enforcement Responses to Human Trafficking*. Washington, DC: National Institute of Justice, U.S. Department of Justice.

Ferraro, Kathleen. 1989. Policing women battering. *Social Problems*, 36: 61–74.

Fox, Richard, Melvin Crask, and Jonghoon Kim. 1988. Mail survey response rate: A meta-analysis of selected techniques for inducing response. *The Public Opinion Quarterly*, 52: 467–491.

Goldstein, Herman. 1990. *Problem Oriented Policing*. Columbus, OH: McGraw Hill.

Government Accounting Office. 2006. *Human Trafficking: Better Data, Strategy, and Reporting Needed to Enhance U.S. Anti-Trafficking Efforts Abroad*. Washington, DC: Author.

Government Accounting Office. 2007. *Human Trafficking: Monitoring and Evaluation of International Projects Are Limited, but Experts Suggest Improvements*. Washington, DC: Author.

Grattet, Ryken and Valarie Jenness. 2008. Transforming symbolic law into organizational action: Hate crime police and law enforcement practices. *Social Forces*, 87: 1–28.

Harris, David. 2006. The war on terror, local police and immigration enforcement: A curious tale of police power in post 9-11 America. *Rutgers Law Journal*, 38: 1–61.

International Association of Chiefs of Police. 2007. *Police Chief's Guide to Immigration Issues*. Alexandria, VA: Author.

International Association of Chiefs of Police. 2008. *The Impact of the Proposed FY 2009 Budget on State, Tribal, and Local Law Enforcement*. Alexandria, VA: Author.

International Labour Office. 2005. *A Global Alliance Against Forced Labour*. Geneva, Switzerland: Author.

Jenness, Valarie and Ryken Grattet. 2001. *Making Hate a Crime: From Social Movement to Law Enforcement*. New York: Russell Sage Foundation.

Kristof, Nicholas. 2007. The 21st century slave trade. *New York Times*, April 21.

Kyckelhahn, Tracey, Allen Beck, and Thomas Cohen. 2008. *Characteristics of Suspected Human Trafficking Incidents, 2007–08*. Washington, DC: Bureau of Justice Statistics, U.S. Department of Justice.

Laczko, Frank and Marco Gramengna. 2003. Developing better indicators of human trafficking. *Brown Journal of World Affairs*, 10: 179.

Landesman, Peter. 2004. The girls next door. *New York Times Magazine*, January 25.

Markon, Jerry. 2007. Human trafficking evokes outrage, little evidence: U.S. estimates thousands of victims but efforts to find them fall short. *Washington Post*, September 23.

McDevitt, Jack, Jennifer Balboni, Susan Bennett, Joan Weiss, Stan Orchowsky, and Lisa Walbot. 2000. *Improving the Quality and Accuracy of Bias Crime Statistics Nationally*. Washington, DC: Bureau of Justice Statistics, U.S. Department of Justice.

McDevitt, Jack, Shea Cronin, Jennifer Balboni, Amy Farrell, and Joan Weiss. 2003. *Bridging the Information Disconnect in Bias Crime Reporting*. Washington, DC: Bureau of Justice Statistics, U.S. Department of Justice.

McDonald, William. 2004. Trafficking counts, symbols and agendas: A critique of the campaign against trafficking in human beings. *International Review of Victimology*, 11: 143–176.

Menjivar, Cecilia and Cynthia Bejarano. 2004. Latino immigrants' perceptions of crime and police authorities. *Ethnic and Racial Studies*, 27: 123.

Miko, Francis, T. 2004. *Trafficking in Persons: The U.S. and International Response*. Washington, DC: Congressional Research Service for Congress.

Morse, Jane. 2007. Resources, better coordination needed to fight human trafficking: Mobilization just beginning to tackle the problem, U.N. official says. *USINFO*, April 25.

National Directory of Law Enforcement Administrators. 2006. National Public Safety Information Bureau.

Nolan, James and Yoshio Akiyama. 1999. An analysis of factors that affect law enforcement participation in hate crime reporting. *Journal of Contemporary Criminal Justice*, 15: 111–127.

Nolan, James, John McDevitt, Shea Cronin, and Amy Farrell. 2004. Learning to see hate crimes: A framework for understanding and clarifying ambiguities in bias crime classification. *Criminal Justice Studies*, 17: 91–105.

Olson, Lise. 2008. Sex trafficking victims' live in visa limbo. Only half of the rescued women have gotten papers needed to make a fresh start in the U.S. *Houston Chronicle*, November 24: A1.

O'Neill-Richard, Amy. 1999. *International Trafficking of Women to the United States: A Contemporary Manifestation of Slavery and Organized Crime*. Washington, DC: Center for the Study of Intelligence.

Polaris Project. 2008. *U.S. Policy Alert on Human Trafficking, Summary of U.S. Policy Activities*. Retrieved December 29, 2009 from polarisproject.org/content/view/157.

Purcell, Rosemary, Michele Pathé, and Paul Mullen. 2004. Stalking: Defining and prosecuting a new category of offending. *International Journal of Law and Psychiatry*, 27: 157–169.

Raymond, Janice, Donna Hughes, and Carole Gomez. 2001. *Sex Trafficking of Women in the United States: International and Domestic Trends*. Washington, DCV: National Institute of Justice, U.S. Department of Justice.

Repetskaia, Anna. 2004. Classifying the elements of human trafficking crimes. In (Sally Stoecker and Louise Shelley, eds.), *Human Trafficking and Transnational Crime: Eurasian and American Perspectives*. Lanham, MD: Rowman & Littlefield Publishers, Inc.

Ridgley, Jennifer. 2008. Immigration enforcement, police and the insurgent genealogies of citizenship in U.S. sanctuary cities. *Urban Geography*, 29: 53–77.

Shelley, Louise. 2003. Trafficking in women: The business model approach. *The Brown Journal of World Affairs*, 10: 119–131.

Shively, Michael, Dana Hunt, Sarah Kuck, and Jazmin Kellis. 2007. *Survey of Practitioners to Assess the Local Impact of Transnational Crime, Task Order Final Report*. Washington, DC: National Institute of Justice, U.S. Department of Justice.

Skolnick, Jerome H. 1966. *Justice without Trial: Law Enforcement in Democratic Society*. New York: John Wiley and Sons.

Strategic Information Response Network (SIREN). 2008. *Why Victims of Human Trafficking Decline Assistance*? Bangkok, Thailand: Strategic Information Response Network.

Thatcher, David. 2005. The local role in homeland security. *Law & Society Review*, 39: 635–676.

Tyldum, Gauri and Anette Brunovskis. 2005. Describing the unobserved: Methodological challenges in empirical studies on human trafficking. *International Migration Review*, 43: 17–34.

United Nations. 2000. *U.N. Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children 2000*. Retrieved September 30, 2008 from unodc.org/unodc/en/trafficking_protocol.html.

United Nations Office of Drugs and Crime. 2006. *Trafficking in Persons: Global Patterns*. Vienna, Austria: Author.

U.S. Department of Immigration and Customs Services. 2008, December. USCIS publishes new rule for nonimmigrant victims of human trafficking and specified criminal activity. *U.S. Citizenship and Immigration Services Fact Sheet*.

U.S. Department of Justice. 2004a. *Anti-Trafficking News Bulletin*. Washington, DC: U.S. Department of Justice, Civil Rights Division.

U.S. Department of Justice. 2004b. *U.S. Attorney General's Report to Congress and Assessment of U.S. Activities to Combat Trafficking in Persons*. Washington, DC: U.S. Department of Justice, Attorney General's Office.

U.S. Department of Justice. 2005. *U.S. Attorney General's Report to Congress and Assessment of U.S. Activities to Combat Trafficking in Persons*. Washington, DC: U.S. Department of Justice, Attorney General's Office.

U.S. Department of Justice. 2009. *U.S. Attorney General's Report to Congress and Assessment of U.S. Activities to Combat Trafficking in Persons*. Washington, DC: U.S. Department of Justice, Attorney General's Office.

U.S. Department of State. 2004. *Trafficking in Persons Report*. Washington, DC: Author.

U.S. Department of State. 2009. *Trafficking in Persons Report*. Washington, DC: Author.

Weitzer, Ronald. 2007. The social construction of sex trafficking: Ideology and Institutionalization of a moral crusade. *Politics & Society*, 35: 447–475.

Wilson, Deborah, William Walsh, and Sherilyn Kleuber. 2006. Trafficking in human beings: Training and services among U.S. law enforcement agencies. *Police Practices and Research*, 7: 149–160.

Women's Commission for Refugee Women and Children. 2007. *The U.S. Response to Human Trafficking: An Unbalanced Approach*. New York: Women's Commission on Refugee Women and Children.

Zeitlin, Janine. 2006. Groups push state to fight human trafficking. *Naples Daily News*, February 26.

Statutes Cited

Victims of Trafficking and Violence Prevention Act of 2000, P.L. 106-386 Stat. 114 (2000): 1464.

Trafficking Victims Protection Reauthorization Act of 2003, P.L. 108–193, Stat. 117 (2003): 2875.

Trafficking Victims Protection Reauthorization Act of 2005, P.L. 109-164 Stat. 119 (2006): 3558.

William Wilberforce Trafficking Victims Protection Reauthorization Act of 2008, P.L. 110-457 Stat. (2008).

Amy Farrell, Ph.D., is an assistant professor in the College of Criminal Justice and the Associate Director of the Institute on Race and Justice at Northeastern University. Her research focuses on the administration of justice with an emphasis on measuring the effect of race and gender in police, prosecution, and sentencing practices. Recent publications have appeared in *Crime & Delinquency*, *Law & Social Inquiry*, and *Law & Society Review*. She authored *Understanding Law Enforcement Response and Identification of Human Trafficking*—a study for the National Institute of Justice examining law-enforcement responses to human trafficking—and she is leading a national human trafficking data collection program for the Bureau of Justice Statistics. She has testified about police identification of human trafficking before the U.S. House of Representatives Judiciary Committee. Farrell is a corecipient of the National Institute of Justice's W.E.B. DuBois Fellowship on crime justice and culture.

Jack McDevitt, Ph.D., is the Associate Dean for research and graduate studies at the College of Criminal Justice at Northeastern University. He also directs the Institute on Race and Justice and the Center for Criminal Justice Policy Research. He is the coauthor of three books—*Hate Crimes: The Rising Tide of Bigotry and Bloodshed, Hate Crime Revisited: American War on Those Who Are Different* (both with Jack Levin), and *Victimology* (with Judy Sgarzy). He has coauthored numerous reports on hate crime, racial profiling, and human trafficking, which include a monograph for the U.S. Department of Justice on local law-enforcement experiences with human trafficking cases. He has published numerous articles on a wide range of topics

in criminal justice; has spoken on hate crime, racial profiling, human trafficking, and security, both nationally and internationally; and has testified as an expert witness before the Judiciary Committees of both the U.S. Senate and the U.S. House of Representatives as well as an invited expert at the White House.

Stephanie Fahy, M.S., is a senior research associate and a doctoral student within the College of Criminal Justice at Northeastern University. Fahy recently coauthored the National Institute of Justice-funded study, *Understanding Law Enforcement Response and Identification of Human Trafficking*. She has assisted in the development and implementation of a national human trafficking data collection and reporting process known at the Human Trafficking Reporting System, which collects incident-level information on all human trafficking investigations initiated by federally funded human trafficking task forces in the United States.

APPENDIX A

Logistic Regression Models Predicting Law-Enforcement Identification of Human Trafficking Cases, Including Crime Rate ($N = 556$)

	Model 1 (Adjusted $r^2 = .25$) 95% CI				Model 2 (Adjusted $r^2 = .47$) 95% CI				Model 3 (Adjusted $r^2 = .45$) 95% CI			
	B (SE)	ExpB	Lower	Upper	B (SE)	ExpB	Lower	Upper	B (SE)	ExpB	Lower	Upper
Population size	.865** (.133)	2.37	1.83	3.08	.626** (.200)	1.86	1.26	2.76	.528** (.205)	1.69	1.13	2.53
Border	.332 (.301)	1.39	.77	2.51	.678 (.444)	1.97	.82	4.70	.653 (.276)	1.92	.76	4.80
Owner occupied	-.005 (.013)	.99	.97	1.02	.002 (.018)	1.00	.96	1.04	.003 (.018)	1.00	.96	1.04
Foreign born	.015 (.013)	1.01	.99	1.04	−.009 (.019)	.99	.96	1.03	−.010 (.020)	.99	.95	1.02
Poverty	−.012 (.174)	.98	.70	1.39	.329 (.263)	1.38	.83	2.32	.424 (.269)	1.52	.90	2.58
Sanctuary city	−.463 (.377)	.69	.30	1.37	−.1.043* (.566)	.35	.12	1.06	−.991* (.591)	.37	.12	1.18
Legislation	.229 (.283)	1.25	.72	2.19	.268 (.422)	1.31	.57	2.98	.431 (.444)	1.53	.64	3.67
Crime rate	.017 (.017)	1.02	.98	1.05	−.021 (.053)	.98	.88	1.08	−.030 (.055)	.97	.87	1.08
Perception					2.041** (.324)	7.70	4.081	14.526	1.864** (.360)	6.45	3.18	13.05
Training									.824* (.444)	2.28	.95	5.44
Protocols									1.085* (.556)	2.95	.99	8.80
Specialized units									−.073 (.628)	.93	.27	3.18
Constant	−11.603** (1.799)				−11.701** (2.103)				−11.818** (2.783)			

Note. CI = confidence interval.
*$p < .05$. **$p < .01$.

APPENDIX B

Correlation Matrix

		x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}	x_{11}
Population size	x_1	—										
Border	x_2	.17**	—									
Owner occupied	x_3	−.37**	−.05*	—								
Foreign born	x_4	.46	.31**	−.34**	—							
Poverty	x_5	.05	−.03	−.23**	.05*	—						
Sanctuary city	x_6	.25**	.03	−.21**	.17**	.06*	—					
Legislation	x_7	.17**	.17**	−.07**	.30**	.06*	−.06*	—				
Perception	x_8	.34**	.12**	−.20**	.29**	.06*	.15**	.16**	—			
Training	x_9	.24**	.01	−.12**	.18**	.02	.16**	.11**	.32**	—		
Protocol	x_{10}	.07**	.06*	−.00	.09**	.01	.06**	.07*	.24**	.25**	—	
Special unit	x_{11}	.25**	.08**	−.16**	.20**	.05*	.16**	.08*	.30**	.41**	.30**	—

Building the infrastructure of anti-trafficking: Information, funding, responses[1]

Fiona David
Research Expert, Trafficking in Persons
Consultant to the Australian Institute of Criminology

Reliable estimates of the incidence of "trafficking in persons" in individual communities and countries do not exist yet. In my view, even with the best efforts of truly gifted statisticians (e.g., U.S. Government Accountability Office [GAO], 2007: Appendix III), it is inevitable that, as a relatively new crime type, our knowledge of the nature and extent of this crime will continue to grow only as our responses to this crime evolve and improve. As Farrell, McDevitt, and Fahy (2010, this issue) noted in their article, reported incidences of relatively new forms of crime, such as hate crime and domestic violence, increased only after the "symbolic" laws were given operational effect through the removal of the ambiguity of key terms, the introduction of targeted training on new laws, and the development of protocols to aid in the identification of these new forms of crime. The same logic applies to the crime of trafficking in persons. This trend certainly has been my experience as a researcher working on "trafficking in persons" in Australia for approximately 10 years.

In a report prepared in 1999 but published in 2000, I noted the following:

> In Australia, as in other countries of the world, limited evidence is available about the nature and incidence of human trafficking. There is some anecdotal evidence of trafficking activity occurring in various industries, including hospitality, manufacturing, and agriculture. The sector that has received the most media attention,

The opinions expressed in this article are the views of the author alone. They should not be taken to represent the view of the organizations with whom the author is or has been associated with. Direct correspondence to Fiona David, Australian Institute of Criminology, GPO Box 2944, Canberra, ACT 2601, Australia, (e-mail: Fiona.david@aic.gov.au).

1. The title of this essay is derived from a comment by Maggy Lee in Lee, Maggy (ed). 2007. *Human Trafficking*. Willan Publishing.

> however, is the sex industry. It appears from academic reports that most female undocumented workers working in the sex industry have entered that industry voluntarily, having come to Australia for that purpose. These reports suggest that the issue of deception or coercion is most likely to occur in relation to working conditions, including the repayment of debts to organisers, rather than the nature of the work involved (David, 1999: v–vi).

At the time this report was prepared, there was no agreed international definition of "trafficking in persons," as the United Nations Trafficking Protocol was still being negotiated. Few countries, including Australia, had laws that addressed this issue, let alone a dedicated antitrafficking response or community of non-government organizations (NGOs) working actively on these issues. Debates centered on issues such as the difference between people smuggling and people trafficking as well as controversies surrounding issues such as "mail-order brides" and migration for sex work. It was recognized that trafficking in persons was a difficult crime to quantify because it was conduct perpetrated behind closed doors with trafficked persons deliberately restrained from access to the outside world. Few (if any) researchers had the answer for how to overcome this seemingly intractable research difficulty.

In the intervening years, much has changed, but some things remain the same. The antitrafficking response now is guided by a common international definition of the term "trafficking in persons." According to Article 3 of the United Nations Protocol against Trafficking in Persons:

> "Trafficking in persons" shall mean the recruitment, transportation, transfer, harbouring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation. Exploitation shall include, at a minimum, the exploitation of the prostitution of others or other forms of exploitation, forced labour or services, slavery or practices similar to slavery, servitude or the removal of organs;

For ease of reference, this definition frequently is broken down into its constituent elements. That is, trafficking in persons is a process that requires the following three elements:

> 1. An *action* by the trafficker in the form of recruitment, transportation, transfer, harboring, or receipt of persons;
>
> 2. Undertaken by one of the following *means*: force or threat of force, other forms of coercion, abduction, fraud, deception, abuse of power, abuse of a position of vulnerability, giving or receiving payments to achieve the consent of a person having control over another person;

> 3. For the *purpose* of "exploitation," a concept, which includes "at a minimum, the exploitation of the prostitution of others or other forms of sexual exploitation, forced labour or services, slavery or practices similar to slavery, servitude and removal of organs."

As noted in Article 3(c) of the Protocol, where the victim is a child (that is, younger than 18 years of age), only two elements are required: the *action*, which must be for the *purpose* of exploitation. As noted in Article 3(b) of the Protocol, in all cases, the "consent" of a victim of trafficking in persons to the intended exploitation is irrelevant in which deception, fraud, and so on have been used.

The existence of a legal definition of "trafficking in persons" was an important first step toward the development of more considered responses to this issue because advocates, researchers, law enforcement, and other interested parties finally could discuss the issues using a common language. The existence of this definition, however, did not resolve every issue relating to the scope of the "trafficking in persons" concept. Many of the terms used in the definition itself necessarily are open to interpretation. For example, what is the meaning of "coercion," and does it include a situation of limited choice that results from poverty (International Labour Office [ILO], 2009: 5–6)? What is the meaning of "servitude," and does this term have an absolute or relative meaning depending on the cultural context (e.g., Merry, 2006; 109 on the interpretation of cultural practices by national human rights institutions in Papua New Guinea)? What is "forced labor," and how is that different to poor working conditions? Although debates around terminology are mostly of interest to academics and legal scholars, they have practical implications. Should law-enforcement officers focus their efforts only on those "trafficking in persons" cases in which it is actually possible to prove the elements of the crime by reference to objective, *external* factors, such as clear evidence of injuries inflicted by perpetrators on trafficked persons or photographs of bars on windows and locks on doors used to restrain trafficked persons? Although the appeal of such an approach is obvious, it would mean abandoning any focus on the (likely, far larger) number of cases in which "coercion" and control are achieved through subtle means, which are far harder to prove, such as escalating debts, false promises, isolation, and manipulation of a tenuous migration situation (David, 2008: 31–32, 39; ILO, 2009: 5–6).

As in 1999, in 2010, politicians continue to inquire (with little success) about the availability of robust statistics on the incidence of trafficking in persons in the community. However, in 2010, Australia has a dedicated antitrafficking response, underpinned by specific antitrafficking laws and implemented by a range of Federal Government agencies (e.g., Australian Government, 2009) and an active NGO sector (e.g., Anti-Slavery Project, 2009; Project Respect, 2009). With this ever-growing response comes ever-improving information about the nature and the extent of trafficking in persons in the Australian community. In a report published in 2008, it was possible to note the number of investigations and assessments undertaken by the Australian Federal Police since 2004 (more than 150), the number of people who had been

provided support by the federally funded victim support program (88), and the number of briefs of evidence referred to the Commonwealth prosecution service (29 briefs of evidence concerning 29 defendants; David, 2008: 6). Since that time, information has been updated on a regular basis in a variety of publications (e.g., Anti-Slavery Project, 2009: 7; Australian Government, 2009; 10, 22, 28, 30–31).

As the response to trafficking in persons generates new information about the size and nature of the problem, the Australian Government has had to abandon its own (early) estimates of the size of the trafficking problem in Australia. For example, in late 2003, the Australian Government launched its *Action Plan to Eradicate Trafficking in Persons* in an environment of intense lobbying by NGOs and media interest (e.g., Parliamentary Joint Committee of the Australian Crime Commission, 2004: 1; Project Respect, 2003). The action plan included the statement that "[t]he number of people trafficked into Australia is estimated to be well below 100" (Australian Government, 2004: 2). Five years later, the Australian Government issued the first report of activities of the "whole of government" response to trafficking in persons. This report no longer includes the (often-quoted) statistic of "less than 100 victims." The report notes, among other things, that since its inception in 2004, 131 people have received assistance through the government's own support program for trafficked persons (Australian Government, 2009: 30). This number does not include other trafficked persons who either simply might be surviving in the Australian community on their own resources or who might be receiving support from nongovernment organizations such as the Anti-Slavery Project, the Salvation Army, Project Respect, or through other community networks.

As the capacity of the NGO sector working on antitrafficking issues in Australia grows, it is likely that information will continue to improve on instances of trafficking in persons that are "detected" in some way but not necessarily are reported to, or are pursued by, law enforcement. For example, in June 2009, the Salvation Army reported that in a little more than 18 months of operating a dedicated shelter for victims of slavery/human trafficking in one major city (Sydney), it had provided services to 37 individuals. Out of this client base, only 11 of these individuals also were being supported by the federally funded victim-support program referred to earlier (Stanger, 2009: slides 4 and 5). This statistic confirms what was already self-evident to practitioners working in the community—that the number of (identified) trafficked persons is greater than the number of individuals receiving support from the federally funded support program.

The Creation of Policy in an Information Vacuum?

To a certain extent, policy makers have to contend with the reality that although they need "evidence" of trafficking in persons to justify expenditure on anti-trafficking programs, improved evidence about the nature and extent of trafficking in persons will only emerge if funding is provided for appropriately targeted programs and responses. What should policy makers do in this situation? First, it is important for policy makers to recognize the value of different forms of "evidence." Research agencies do not have the numbers and percentages that policy makers

are used to being able to access for other, more established, crime types such as homicide and burglary. In particular, statistics on *incidence* of "trafficking in persons" within our community simply are not available. This problem is significant because it limits our capacity to make truly informed decisions about the proportionality of responses and the impact and effectiveness of anti-trafficking efforts. However, research agencies, NGOs, and others involved in the anti-trafficking response have sought to document (primarily qualitative) data about known cases, which can be mined for valuable information about the nature of this crime in our communities, the offenders, and to a certain extent, the outcomes for trafficked persons. Although policy makers tend to value statistics over case studies, qualitative methods can make an important contribution to the evidence base. For example, a detailed case study has the capacity to give a human face to an otherwise foreign, or perhaps even unbelievable, experience while truly reflecting the complexity of the trafficking experience (e.g., Anti-Slavery Project, 2009; David, 2008, 44-47).

Policy makers also can choose to draw respectably on the voices of experience. The antitrafficking response, in its current form, is now 10 years old. This age is young in policy terms, but it is a response that has had immense resources dedicated to it globally. A wealth of experience can be found within the antitrafficking response, which includes experienced law-enforcement practitioners, who have seen "what works" to increase detection first hand; sex-worker advocates, who have seen how poorly targeted antitrafficking interventions can harm the women they are supposed to protect; and social workers, who can describe to a person the value of telling their story and being believed. Ultimately, it is vital to have independent, robust, high-quality research to test and to validate the opinions of experts. The research of Farrell et al. (2010) is an excellent example of how research can validate experience. Experienced law-enforcement practitioners long have claimed that if we properly train and resource law-enforcement personnel to identify and investigate trafficking in persons cases, then the number of detections will increase significantly (e.g., Gallagher and Holmes, 2008, drawing on 10 years of experience with this issue). Prior to the research of Farrell et al., these claims were perhaps too easily dismissed as individual opinion. However, with the benefit of the careful research of Farrell et al., these practitioner "opinions" now can be shown as being supported by empirical evidence.

Policy Implications

The policy implications of Farrell et al.'s (2010) research are clear. If policy makers want to give a practical effect to otherwise "symbolic" antitrafficking laws, then they need to move beyond mere law reform and focus on *funding* law enforcement to undertake the following steps:

1. Raising the awareness of senior law enforcement about trafficking in persons both as an issue and as a crime type in the local community. For maximum impact, this training likely needs to include the presentation of real case studies, either from within the local area or from areas with similar characteristics to with the local area. Perhaps in time this instruction even can include presentations by

trafficked persons, who have first-hand experience of this crime type and have stepped forward as advocates.

2. Engagement between law enforcement and local communities, so law enforcement can inform local networks about the criminality of "trafficking" conduct and increase their own prospects of accessing high-quality intelligence on this issue (Holmes, 2002).

3. Training in the detection and the appropriate response (referring or investigating) to trafficking in persons not only for federal law enforcement and central agencies but also for what Gallagher and Holmes (2008: 326–327) have called "front-line" law enforcement.

4. The development of protocols/standard operating procedures to guide law enforcement in the often complex and sensitive tasks of victim identification, interviews with trafficked persons, and interactions with external agencies including the NGO sector (David, 2008, 67-68).

Although the implications of the research conducted by Farrell et al. (2010) for law-enforcement agencies are clear, the implications for other agencies—namely labor inspectorates, occupational health and safety inspectorates, industrial relations tribunals, unions, and even employer groups—are perhaps less obvious. Trafficking in persons is a crime, so it is reasonable to focus on developing the capacity of the agencies most commonly tasked with responding to crime, including law enforcement agencies. However, the reality is that trafficking in persons crimes occur in a context, and that context is generally a workplace. As Farrell et al. noted, law-enforcement officers traditionally have left the regulation of work environments to a range of different agencies. Conduct in workplaces traditionally is "policed" by a range of organizations, which include labor and occupational health and safety (OHS) inspection agencies but also include a range of nongovernment organizations, particularly the unions. Of course, in the real world, instances of "trafficking in persons" do not appear only to law-enforcement officials. As a result of their activities in the community and in workplaces, labor inspectors, OHS inspectors, and union delegates, potentially might (and, indeed, have) come into contact with people in trafficking situations. When an individual officer from any of these agencies encounters a potential situation of trafficking in persons, it is vital that they both "recognize" what it is they are seeing and that they know what to do next.

Given this crossover between "crime" and "work" in the antitrafficking context, it follows that Farrell et al.'s (2010) research findings are potentially equally applicable not only to law-enforcement agencies but also to labor inspectorates, OHS inspectorates, industrial relations tribunals, unions, and potentially even employer groups. For example, just as the perception of senior law-enforcement officials of the seriousness of the local "trafficking in persons" problem correlates to an increased detection of incidences, it is likely that increasing the awareness of senior leaders in labor inspection agencies similarly would increase levels of detections by officers from

within their ranks. Just as front-line law-enforcement officers are well placed to detect instances of trafficking in persons, so too are labor inspectors, OHS inspectors, and union organizers.

To date, the variety of agencies operating in the world of work seems to have received relatively little attention from policy makers with a focus on trafficking in persons. In Australia, $58 million AUD (approximately $56 million USD) has been allocated by the federal budget to anti-trafficking activities since October 2003. Previous budget statements on funding for the national anti-trafficking response have made no mention of specific funding allocations for either the department responsible for oversight of labor issues, the national labor inspection agency, or the various industrial commissions. Various community groups and advocates have lobbied for a greater focus on instances of trafficking in persons that occur in contexts other than the sex industry (e.g., Anti-Slavery Project, 2009; Cullen and McSherry, 2009; Global Alliance against Traffic in Women [GAATW], 2007; Segrave, 2009), and indications suggest that this focus is occurring. In 2009, the Australian Government indicated that "trafficking for labour exploitation" would be a priority in the year ahead, and foreshadowed enhanced engagement with peak employer and industry organizations and unions (Australian Government, 2009: 47). Ideally, this shift in focus will also result in the provision of funding support for the development of awareness-raising materials, training, and protocols for the various agencies involved in monitoring and regulating labor conditions in Australia.

Various organizations, including the International Labour Organisation and the International Confederation of Trade Unions, have developed materials for labor inspection agencies, unions, and employers on the key elements of a response to labor trafficking (e.g., Andrees, 2008; ILO, 2007, 2008; International Trade Unions Confederation, 2008). With regard to the role of labor inspectors, the ILO notes the importance of ensuring training and the development of operational guidelines for labor inspectors, the development of processes to ensure that cross-referrals can be made between law enforcement and labor inspectors, and ensuring a level of clarity around roles and responsibilities, which include where the work of labor inspectors ends and the work of police and other authorities begins (Andrees, 2008: 18). These elements are vital to any antitrafficking response that claims to treat "labor" trafficking as an issue of equal seriousness to "sex" trafficking.

Conclusion

Farrell et al. (2010) made an important contribution to the research on responses to trafficking in persons by providing empirical evidence of the importance of awareness of trafficking in persons as an issue among senior law-enforcement personnel, training for front-line law-enforcement officers, the development of protocols to assist crime identification, and specialization of individual officers. The relevance of these findings should not be lost on those responsible for providing funding for law-enforcement agencies at both the state and national levels. The relevance of these findings also should be noted by those responsible for funding and managing agencies working in the world of work—labor inspectorates, OHS inspectorates, industrial relations tribunals, unions, and employer organizations. If the changes recommended by Farrell

et al. are implemented not only in law-enforcement agencies but also in the broader sector that regulates and monitors labor conditions, then it will lead to an increase in levels of detection of "trafficking in persons" cases along with an increased capacity to understand better the true size and nature of this problem within our communities.

References

Andrees, Beate. 2008. *Forced Labour and Human Trafficking: A Handbook for Labour Inspectors*. Geneva, Switzerland: International Labour Office.

Anti-Slavery Project. 2009. Submission to the National Consultation on Human Rights. Retrieved January 19, 2010 from antislavery.org.au/pdf/asp_submission.pdf.

Australian Government. 2004. *Action Plan to Eradicate Trafficking in Persons.* Canberra, Australia: Author.

Australian Government. 2009. *Trafficking in Persons: The Australian Government Response January 2004–April 2009, Inaugural Report of the Anti-People Trafficking Interdepartmental Committee*. Canberra, Australia: Author.

Cullen, Miriam and Bernadette McSherry. 2009. Without sex: Slavery, trafficking in persons and the exploitation of labour in Australia. *Alternative Law Journal*, 34: 1.

David, Fiona. 2000. *Human Smuggling and Trafficking: An Overview of the Response at the Federal Level*. Australian Institute of Criminology Research and Public Policy Series No. 24. Canberra: Australian Institute of Criminology.

David, Fiona. 2008. *Trafficking of Women for Sexual Purposes*. Australian Institute of Criminology Research and Public Policy Series No. 95. Canberra: Australian Institute of Criminology.

Farrell, Amy, Jack McDevitt, and Stephanie Fahy. 2010. Where are all the victims? Understanding the determinants of official identification of human trafficking incidents. *Criminology & Public Policy*. This issue.

Gallagher, Anne and Paul Holmes. 2008. Developing an effective criminal justice response to human trafficking: Lessons from the front line. *International Criminal Justice Review*, 18: 318–343.

Global Alliance against Traffic in Women (GAATW). 2007. *Collateral Damage: The Impact of Anti-Trafficking Measures on Human Rights around the World*. Bangkok, Thailand: Author.

Holmes, Paul. 2002. *Law enforcement cooperation with non-government organisations, with reference to protection of victims and victims as witnesses*. Paper presented at Prevention of and Fighting against Trafficking in Human Beings with a Particular Focus on Enhancing Cooperation in the Process of European Union Enlargement, Brussels, Belgium.

International Labour Office (ILO). 2007. *Guide to Private Employment Agencies: Regulation, Monitoring and Enforcement*. Geneva, Switzerland: Author.

International Labour Office (ILO). 2008. *Combating Forced Labour: A Handbook for Employers and Business*. Geneva, Switzerland: Author.

International Labour Office (ILO). 2009. *Forced Labour and Human Trafficking: Casebook of Court Decisions: A Training Manual for Judges, Prosecutors and Legal Practitioners*. Geneva Switzerland: Author. Retrieved January 19, 2010 froilo.org/sapfl/Informationresources/ILOPublications/lang--en/docName--WCMS_106143/index.htm.

International Trade Unions Confederation. 2008. *Mini-Action Guide: Forced Labour*. Brussels, Belgium: Author.

Merry, Sally Engle. 2006. Anthropology and international law. *Annual Review of Anthropology*, 35: 99–116.

Parliamentary Joint Committee of the Australian Crime Commission. 2004. *Inquiry into the Trafficking of Women for Sexual Servitude*. Canberra: Parliament of the Commonwealth of Australia.

Project Respect. 2003. *Inquiry into Trafficking in Women for Sexual Servitude*. Submission from Project Respect. Retrieved January 19, 2010 from projectrespect.org.au/files/submission.pdf.

Project Respect. 2009. *Recommendations to the Australian Government for Reform of Support for Victims of Trafficking in Australia*. Retrieved January 19, 2010 from projectrespect.org.au/sites/projectrespect.org.au/files/PR-recomm-traff-200903.pdf.

Segrave, Maria. 2009. Human trafficking and human rights. *Australian Journal of Human Rights*, 14: 71–94.

Stanger, Jenny. 2009. Human trafficking and slavery in Australia. *(Non-Sex Industry) Labour Trafficking: A Forum to Discuss Trafficking in Persons in Contexts Other than the Commercial Sex industry*. Canberra: Australian Institute of Criminology. Retrieved January 19, 2010 from aic.gov.au/events/aic%20upcoming%20events/2009/~/media/conferences/2009-labourtrafficking/stanger.ashx.

United Nations. 2000. *Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, supplementing the United Nations Convention against Transnational Organized Crime*, General Assembly resolution 55/25 of 15 November 2000, Annex II.

U.S. Government Accountability Office (GAO). 2007. *Report to Congressional Requestors, Human Trafficking: Monitoring and Evaluation of International Projects are Limited, but Experts Suggest Improvements*. Retrieved January 19, 2010 from gao.gov/new.items/d071034.pdf.

Fiona David is a lawyer and researcher, specializing in trafficking in persons and the smuggling of migrants. David is currently working for the Australian Institute of Criminology in the capacity of Research Expert, Trafficking in Persons. David is also the Research Coordinator for the Asia Regional Trafficking in Persons Project, an AusAID project working to improve the criminal justice response to trafficking in persons in South East Asia; and a consultant on various projects with the United Nations Office of Drugs and Crime in Vienna with a focus on smuggling of migrants.

Identifying child victims of trafficking

Toward solutions and resolutions

Elżbieta M. Goździak
Georgetown University

Human trafficking for forced labor and sexual exploitation continues to be a major cause of concern to the international community. With the passage of the Trafficking Victims Protection Act (TVPA) of 2000, the United States took a lead role in combating human trafficking and set standards for other countries with respect to the prevention of human trafficking, prosecution of traffickers, protection of victims, and promotion of partnerships. However, despite tremendous efforts by the federal as well as by local governments, nongovernmental organizations (NGOs), and the research community working together to fight trafficking in persons, solutions remain elusive. Most victims of severe forms of trafficking are women and children. In the United States, most trafficking victims, but particularly child victims, go unidentified, and even fewer gain access to the services developed to help them break free from their traffickers and reintegrate into the wider society.

Since the passage of TVPA 2000 through September 30, 2009, 212 children (individuals younger than age 18) have been identified as victims of trafficking and have been "determined eligible" for services by the Office of Refugee Resettlement (ORR) in the U.S. Department of Health and Human Services, which is responsible for their care. This figure represents approximately 11% of the total number of victims—adults and minors—who have gained access to services under the TVPA provisions. The small number of trafficked children identified so far could be as much a result of the clandestine nature of the phenomenon as the inadequate and misplaced strategies used to identify trafficked children or the fact that the estimates far exceed the reality and gravity of the situation.

Amy Farrell, Jack McDevitt, and Stephanie Fahy (2010, this issue) in "Where are all the victims? Understanding the determinants of official identification of human trafficking incidents," which has stimulated the present series of policy essays, asserted that "by understanding

Direct correspondenc to Elżbieta M. Goździak, Institute for the Study of International Migration, Georgetown University, Harris Building, 3300 Whitehaven Street, Third Floor, Washington, DC 20007 (e-mail: emg27@georgetown.edu).

how often and under what conditions police find, investigate, and prosecute cases of human trafficking, we will be in a better position to identify and overcome barriers to police responses to trafficking and understand the limitations of official statistics about human trafficking" and provided several specific recommendations to improve law-enforcement identification of human trafficking. Although the involvement of law enforcement is crucial in enhancing the identification of trafficked victims, the problems and solutions involve many other players.

The Case Study

The case of Analis both illustrates the inadequacies of the current system to identify trafficked children properly and points out the many gaps that still exist in the system of care established for trafficked children.[1]

Analis was born in 1986 in a small town in Honduras. She comes from a large family with ten siblings. When she was an infant, her parents separated; her father remarried and moved to a different town. Her mother fell ill and could not care for Analis. Baby Analis was sent to her maternal grandmother. Analis spent the next 12 years in her grandmother's care. She reported having a warm and loving relationship with her grandmother. The same, however, could not be said about her relationship with her uncles, who reportedly forced Analis to work on the family farm since she was 6 years old. Child labor is common in Honduras. According to a report prepared for the National Statistics Institute of Honduras, 15.4% of children between the ages of 7 and 17 worked in 2002 (Ayes Cerna, 2003). Most of the working children lived in rural areas (69.2%), and 30.8% were urban dwellers (Ayes Cerna, 2003). Despite needing to work since an early age, Analis attended school for 5 years. She is literate in Spanish.

When Analis turned 12 years of age, her grandmother fell ill and decided to send her to live with her biological father and his wife. Her stepmother was not happy to have to care for Analis. When her adult daughter from a previous marriage, Carmen, came to visit from the United States and offered to take Analis back with her, the stepmother readily agreed. Analis reported wanting to take advantage of the opportunities Carmen presented.

In the fall of 1998, Analis traveled with Carmen to a large metropolis on the West Coast. They crossed the border using fraudulent papers. It became apparent later that Carmen had many aliases, which she used both to cross the U.S.–Mexican border and to get work. *This is the first point at which the system failed Analis.* If adequate protocols were in place at the U.S. borders to identify trafficking cases among the population of minors crossing the frontier in the company of adults who are not their legal guardians, then Analis might have been identified as a child victim of trafficking at the time of border crossing. Although it might not have been possible at this early stage to identify the situation Analis was headed for, the circumstances of her entry certainly warranted a closer look. With U.S. immigration officials annually apprehending approximately 100,000 unaccompanied children at U.S. borders, it is likely that a significant number of potential victims are being overlooked.

1. Analis was part of a larger study, supported by the National Institute of Justice (NIJ), to examine patterns of abuse of child victims of trafficking, analyze the challenges service providers face in providing services to trafficked children, and assess prospects for the integration of child survivors into a wider society.

Carmen had two children of her own by two different fathers—a boy named Mauricio and a girl named Sofia. Carmen worked as a manager of a cleaning service to support her family. She forced Analis to help her clean apartments. Instead of attending school, Analis worked for her stepsister. A neighbor noticed that Analis was at home at the time when all other neighborhood children were at school and reported this information to the police. The police ordered Carmen to enroll Analis in school, and she attended the local school for a few days.

This is the second point where the system failed Analis. The police did not seem to do much more beyond ordering Carmen to enroll Analis in school. They did not inquire why Analis was being taken care of by a stepsister. They did not seem to be interested whether Carmen had legal guardianship of Analis and did not inquire about her parents. Analis's case worker believes the school asked for her immunization records and her birth certificate to finalize her school enrollment. Needless to say, Carmen did not have any of the required documentation, and Analis did not return to school.

If the system worked properly, then Analis would have been interviewed by the police or by a school counselor separately from her stepsister. Someone would have talked to her about why she was not in school, how she was spending her days, and how long she had been in the United States working and not attending school. In short, someone would have tried to figure out why such a young girl was working full time instead of going to school. Her answers certainly would have raised red flags and might have warranted a call to Child Protective Services (CPS) to initiate an investigation of the stepsister and a possible removal from the home. Additionally, questions about whether she was being paid and how she had ended up cleaning apartments would have revealed that she was not just working but was trafficked. This line of questioning could have led to a report of trafficking to federal law enforcement, a federal investigation, and, ideally, a referral for benefits. According to her case worker, Analis never mentioned speaking with the police or with a school counselor.

Case file notes indicate that Analis attended school only for a few days. She disappeared from the school shortly after enrollment. Neither the school administration nor the teachers reported her absence to the police. *The system failed Analis for the third time*. If the system worked correctly, then the school likely would have attempted to contact Carmen and, after a certain number of absences, likely would have had to contact juvenile court, a truancy officer, or other designated party.

Shortly after being forced by the police to enroll Analis in school, Carmen, fearing discovery, decided to leave the West Coast and moved the family, including Analis, to a large Southern city. They lived there for approximately 2 years. Again, Carmen found work managing a crew of workers cleaning local motels. Analis again was forced to work for her. While living in the South, the 14-year-old Analis met her boyfriend, Jorge. According to Analis, both Jorge and his mother were kind to her.

In the summer of 2002, Carmen was fired from her job and arrested for writing fraudulent checks. Carmen's children and Analis were placed in the custody of CPS. Carmen's children were released to the custody of their respective fathers. Mauricio's father came from California to

claim his son, and Sofia's father came from the upper Northwest to claim his daughter. Mauricio's father volunteered to take Analis with him as well, and she was released into his custody. *The system failed Analis again*. Analis' placement in CPS should have been a good setting in which to learn her history and identify her as a trafficking victim. If CPS was well versed in issues related to child trafficking, then they might have been more vigilant; not only would they not have released her to a stranger, they could have reported her case as trafficking to Federal or local authorities and begun Analis on the path to appropriate benefits and services.

Analis did not like living in California and ran away to be reunited with Jorge. She did not succeed. Analis was apprehended by immigration officials when the bus she was traveling on was stopped at a random checkpoint. *Here is another point where the system failed Analis*. The authorities at the checkpoint failed to identify Analis as a victim of trafficking. Although it might be somewhat unreasonable to expect the Border Patrol to identify trafficking victims at this point, it could be argued that they could be conducting more thorough interviews. They could have asked Analis how long she had been in the United States, how she had supported herself during that time, and whether she had gone to school. Were Analis willing to tell them the truth, they could have recognized that she might have been trafficked and reported it to Immigration and Customs Enforcement (ICE) agents to follow up with an investigation and a referral for benefits.

Analis stayed in a detention center—a large institution ill-equipped to provide child-centered services—for approximately 8 months; during that time, the administration of the center was undergoing a transition from the former Immigration and Naturalization Service (INS) to Office of Refugee Resettlement (ORR), which complicated things even more. An inquiry from the police to the Regional Juvenile Coordinator at the local immigration office revealed that Analis was in deportation proceedings and would be deported within 45 days. *Yet again, the system did not work for Analis.* Despite having been at the detention center for months, it seems that the staff of the center did not recognize her as a trafficking victim and did not report the trafficking to federal law enforcement.

Analis did have legal representation with a *pro bono* attorney working for a nonprofit legal aid organization. He interviewed her to file an asylum claim and suspected that she was a victim of human trafficking. *This time was the first that the system actually worked.* The attorney notified immigration authorities that a trafficking allegation was pending. He also contacted the Civil Rights Division in the Department of Justice. The Federal Bureau of Investigation (FBI) became involved. An FBI agent interviewed Analis while she was in the detention center. Despite the fact that the Department of Justice policy is to interview child victims of trafficking in the presence of an attorney who would be their advocate, Analis was interviewed by the FBI without an attorney present. It is surprising that the FBI interviewed Analis alone, especially because Analis had a *pro bono* attorney, who could have been summoned. *After a promising turn of events, the system did not work as it should have.*

Analis's *pro bono* attorney worked hard to convince immigration officials to terminate their case against her. He succeeded as evidenced by a T-visa application found in her case files. The

INS released Analis, and new living arrangements were made for her with a group of religious women. Although Analis felt secure in her new surroundings, not all was well. At this point, Analis still had no access to benefits available to child victims of trafficking and had to rely on the generosity of the religious women. *The system was failing her or working extremely slow at best.* The FBI contacted the religious women to interview Analis, and they agreed. However, Analis again was interviewed without an attorney present**.** *This point is yet another instance in which the system did not work.*

Identification Challenges

Analis is an example of a child who could have been identified as a victim of human trafficking much earlier in the course of her journey to the United States if the authorities she came into contact with were equipped to identify child victims. Unfortunately, the fact that Analis traveled to the United States on fraudulent papers in the company of a young woman who was neither her mother nor her legal guardian did not cause any suspicion on the part of immigration officials at the U.S.–Mexico border. Later on, representatives of local police also did not seem to be overly concerned that a 12-year-old child did not attend school nor did they inquire as to who were her legal guardians. They simply ordered Carmen to enroll Analis in school and thought the matter resolved. When she stopped attending school, officials apparently did not follow up. Still later, authorities at a checkpoint on the road leading from California to a neighboring state also failed to identify Analis as a victim of trafficking. Again, a minor traveling alone without any documentation was thought of as a child violating immigration laws, not as a possible victim of trafficking. Additionally, she spent time in the custody of state CPS without being identified as a victim and was released to a stranger connected to her trafficker.

Analis also could have been identified as a child victim of human trafficking while in the detention facility. She spent 8 months in the facility. This length of time should have given the staff ample opportunity to identify her as a trafficked child and not as a mere violator of immigration law. As a child detainee, she must have been interviewed by social-service personnel about her family and her migration experiences. The staff seemed to have been ill-equipped to ask appropriate questions that could have led to proper identification of her trafficking circumstances. The detention center's personnel not only had more time but also had more responsibility than Border Patrol to assess her situation. It seems, from this case study, that they missed the problem entirely.

Toward Solutions and Resolutions

Experts suggest that first contact with unidentified child victims most likely would be made by one of the following groups: (a) immigration officials at or between ports of entry and at detention facility, (b) local law enforcement, or (c) service providers (educational, social-service, and medical providers) (Bump and Duncan, 2003).

Improvements at the border have the most potential for increasing the identification of child victims of trafficking. Each year, immigration officials apprehend approximately 100,000

unaccompanied children at U.S. borders. Some return voluntarily, and some are returned because of bilateral agreements. Mexican children, for example, routinely are returned because of existing agreements between Mexico and the United States. Little is known about the children who return to their countries of origin. Additionally, many children remain undetected within the United States, and their well-being is largely unknown. Numerous service providers suggest that these children are at risk for continued victimization and retrafficking.

Approximately 8,000 children remain annually in the custody of the U.S. Federal Government. Approximately 900 children are in the custody at any given time (USDHHS, 2006). Experts stress that a good possibility exists that both the larger population of children returned to their countries of origin as well as the smaller group of children in federal custody include many unidentified trafficked children (Bump and Duncan, 2003). To date, nobody has studied any of these children. Lack of research on these children impedes our ability to identify child victims of trafficking.

The heightened sense of security post-9/11 has channeled governmental resources overwhelmingly toward combating terrorism. As a result, border patrol agents are not receiving enough training on trafficking issues. This issue is complicated by the fact that identification of children, especially female children, at the border is difficult because often they present themselves and are classified as adults. Analysis of fingerprint records at the border shows an unusually high number of female entrants that are 21 years old (Bump and Duncan, 2003). Trafficked girls also are coached to say that they are the spouses or relatives of the trafficker. Analis was instructed to refer to Carmen as her sister, despite the fact that they are not related biologically. Carmen is Analis's stepmother's daughter from a previous marriage, and they had never lived in the same household.

Furthermore, at the time of border crossing or at apprehension at the border, trafficked children might not have suffered through the most terrible exploitation or even known that they are being trafficked. Analis is a case in point. She was told by her stepmother to go to the United States with Carmen to ease the burden her presence was exerting on the family's situation. Analis seemed to have been eager to avail herself of the opportunities a journey to the United States was supposed to provide. She had no way of knowing that Carmen would exploit her, force her to work, and not send her to school.

However, by the time she was apprehended at a checkpoint on the way from California back to the South, she certainly had been trafficked by Carmen. It seems, though, that Border Patrol did not identify the trafficking. Even if Border Patrol had suspected trafficking, comprehensive procedures did not—and still do not—exist to ensure that information is always passed on to ORR when the child is placed in federal custody. Border Patrol or ICE might have reason to believe that a child was trafficked, but it is possible, even likely, that such information will not be conveyed to the federal facility that will be caring for the child. Awareness of such information is crucial to prevent deportation or release back to traffickers.

At the local level, training of law enforcement is essential to improving the identification of child victims of human trafficking. At present, most local law-enforcement contacts with

trafficking victims happen in an ad hoc manner; police officers usually encounter child victims during the course of their daily routines. Analis was one of the early cases of child victims identified in the United States, and her contact with local law enforcement as well as with CPS predated the *Rescue and Restore Campaign* and associated training programs for law-enforcement personnel, service providers, and the general public. The police, the child welfare workers, and the school administrators were ill-equipped to make a proper assessment of her circumstances, which might have resulted in an early identification.

The low number of trafficked children identified and receiving services vis-à-vis the number of estimated victims continues to plague the antitrafficking community. The governments, both federal and local, and the NGOs that must work together frequently are starting from scratch to design collaboration. Many actors in the current system are not used to working with each other. For instance, although foster-care providers might be familiar with working with courts and mental health-care providers, they might not be used to working with federal law enforcement, and vice versa. Thus, the complexity of the system sometimes defeats the goal of finding and serving trafficked children; the more pieces to a system, the more possible cracks for children to fall through.

Although some NGOs claim they are providing services to trafficked victims, both minors and adults, they keep these data confidential and, in many cases, do not refer their clients to ORR 151 for determination of service eligibility. One only can speculate about the reasons for not wanting these victims to have access to federally funded services—perhaps service providers fear that some survivors in their care would not meet the criteria of the trafficking definition and deem them too traumatized to share their trafficking story with federal officials.

A significant number of child victims of trafficking had been referred to the U.S. Federal Government but were determined ineligible for federally funded services. Between 2004 and 2007, the U.S. Conference of Catholic Bishops (USCCB) and the Lutheran Immigration and Refugee Services (LIRS) had referred to 151 cases, which included an estimated 808 to 2,308 child victims. Only 23 children (accounting for 14 of the 151 cases) received benefits. The remaining children, estimated at 787 to 2,287 victims, did not receive benefits. Based on the information the USCCB and the LIRS had at the time of the referrals, both agencies considered the children to be victims of child trafficking (Go dziak and Bump, 2008).

The reasons why so many children did not receive benefits are numerous. In some cases, federal law-enforcement agents or U.S. attorneys were not sympathetic to the children's plight and deemed them victims of smuggling rather than of trafficking. In at least one case, underage victims of arranged marriages were considered to have been kidnapped rather than trafficked. In other cases, the children were reluctant to disclose detailed information about their experiences, which led to insufficient evidence of the crime of trafficking. In yet another case, a group of choir boys was brought to the United States by a convicted sex offender who promised to pay them for their singing. Because he did not pay, they went back to Zambia before the case could be investigated thoroughly. In several instances, the child's original story changed and federal law enforcement chose not to endorse benefits. In some cases, a lack of

sufficient evidence to support the endorsement of trafficking benefits led to the children being placed in removal proceedings and receiving deportation orders. Little systematic data exist on these children. Field coordinators and case managers do keep notes, but no central database of these children is available.

Trafficking in persons often is portrayed as the world's fastest growing criminal enterprise with profits that rival the illegal drugs and arms trade. Reports repeatedly quote the number of $7 billion in profit to indicate the magnitude of the phenomenon (Denisova, 2001; Roby, 2005; Scarpa, 2006; Spangenberg, 2002). Reports also talk about networks of international organized crime, which are attracted to the trade in human beings because of low risk and because the criminal penalties for human trafficking are light in most countries (Pochagina, 2007; Sheldon, Chin, and Miller, 2007; Tiefenbrun, 2002). Different Trafficking in Persons reports produced by the U.S. Department of State reiterate this assertion, which describe how traffickers enjoy virtually no risk of prosecution by using sophisticated modes of transportation and communication and avoid punishment by operating in places where little rule of law is present as well as a lack of antitrafficking laws, poor enforcement of such laws, and widespread corruption (DOS, 2003–2007). Media and international organizations also talk about the fact that the crime of trafficking in persons offers international organized crime syndicates a low-risk opportunity to make billions of profits by taking advantage of unlimited supply and unending demand for trafficked persons (Burke, Ducci, and Maddaluno, 2005; Claramunt, 2002; ILO, 2002).

Given the lack of research findings and statistical data, it is difficult to assess accurately the scope of organized crime's involvement in human trafficking (Bruckert and Parent, 2002: 13). The distinction between trafficking and smuggling is not always easy to make. According to John Salt (2000: 43), the notion that human trafficking and organized crime are closely related is widespread, despite a lack of evidence-based data to support this assertion. This alleged connection is based on the fact that people of different nationalities are part of the same group of trafficked victims, that trips across a long distance require a well-oiled organization, that substantial amounts of money are involved, that itineraries change quickly, that legal services are available quickly, and that a strong reaction occurs to counteroffensives by law-enforcement agencies (Bruckert and Parent, 2002). These arguments developed by Europol (Salt, 2000) also are shared by others (e.g., Juhasz, 2000; Taibly, 2001). Some researchers point to a close connection between organized crime and trafficking for sexual exploitation, which indicates that the magnitude and geographic scope of the sex industry are phenomenal and that organized crime is involved at various levels (Caldwell and Pieris, 1999; Shannon, 1999).

Although many reports indicate the involvement of large criminal networks in human trafficking, family involvement in trafficking, particularly child trafficking, should not be underestimated. These smaller operations based on kinship or friendship ties, of course, might be part of larger criminal networks. Analis certainly was not trafficked by a criminal network, and neither were most of the 146 trafficked children we studied. Moreover, the trafficked children did not speak of criminal networks but focused on the close relationships between themselves

and those who helped them cross the U.S. border. Some were upset when law enforcement or service providers referred to their family members as traffickers; even the children who felt wronged by their loved ones had difficulty conceptualizing their actions as criminal.

Recommendations

Anti-trafficking resources need to increase for law enforcement, especially at the border and at other ports of entry

Analis is not the only child not identified as a victim of human trafficking or as at risk for trafficking. Children are not being identified in adequate numbers. The inherently clandestine nature of trafficking requires that significant time and resources be allocated to the agencies mandated to combat trafficking. Particular attention needs to be paid to children crossing borders in the company of adults who are not their legal guardians.

A need exists for ongoing, comprehensive training programs for immigration officials and local law enforcement

Analis encountered immigration officials at least twice—at the border and at a random checkpoint—but they failed to identify her as a trafficked child. To date, only a couple of child survivors of trafficking have been identified at the border; most identifications occurred at a much later point in the trafficking journey. Although evidence suggests that local law enforcement was instrumental in identifying several child victims of trafficking, local law enforcement also failed Analis. Carmen was ordered by representatives of local law enforcement to enroll Analis in school, but they did not seem to be knowledgeable enough about human trafficking to make an appropriate assessment and identify Analis as a victim of trafficking. The ability of local law enforcement to identify victims of trafficking needs to be more consistent.

ORR facilities for undocumented children need to be alerted to trafficking issues, and the children in their care need to be screened appropriately for trafficking

Analis was not asked trafficking-related questions at intake to the immigration detention center. It was her *pro bono* attorney, in trying to assess whether she had an asylum claim, who identified her as a victim of trafficking. The ORR recently has implemented screening protocols designed to help their facilities identify trafficked children. These intake protocols need to be implemented consistently and trafficking training promulgated widely throughout the ORR-funded facilities.

Identification of child victims of trafficking needs to be made a priority by the government

Reportedly, children might not be given the benefit of the doubt when questions come up about their eligibility for benefits (Bump and Duncan, 2003), and a fear might persist that many undocumented children will try to take advantage of the immigration relief (T-visa) stipulated by the TVPA. This case seems to indicate that this fear is unfounded. Nevertheless, such fears might be a factor in the low number of children identified and appropriately served to date.

Information flow needs to improve about potentially trafficked children apprehended by immigration officials (at the border or at any point afterward) and between and among appropriate governmental and nongovernmental entities

Immigration officials apprehended Analis at a random checkpoint but apparently did not ask any questions that might have enabled them to identify her as a trafficked child. However, had they asked pertinent questions and made a proper identification, this information should have been forwarded to the detention center where Analis was placed or provided to the ORR or to DOJ trafficking officials to facilitate a determination of eligibility for federal benefits and a more rapid move into an appropriate care setting. At the moment, information about children crossing U.S. borders with persons who are not their legal guardians is not forwarded routinely to the ORR by the ICE or by Border Patrol. As indicated, only a couple of child victims have been identified at the border.

References

Ayes Cerna, Maria. 2003. *In-Depth Analysis of Child Labor and Poverty in Honduras*. Tegucigalpa, Honduras: National Institute for Statistics in Honduras. Retrieved February 10, 2010 from oit.org.pe/ipec/documentos/hon_in_depth.pdf.

Bruckert, Christine and Collette Parent. 2002. *Trafficking in Human Beings and Organized Crime: A Literature Review*. Research and Evaluation Branch. Ottawa, Canada: Royal Canadian Mounted Police.

Bump, Micah N. and Julianne Duncan. 2003. Conference on identifying and serving child victims of trafficking. *International Migration*, 41: 201–218.

Burke, Alicia, Stafania Ducci, and Giuseppina Maddaluno. 2005. *Trafficking in Minors for Commercial Sexual Exploitation: Costa Rica*. Torino, Italy: UNICRI.

Caldwell, Bruce K. and Pieris Indrani. 1999. Sexual regimes and sexual networking: The risk of an HIV/AIDS epidemic in Bangladesh. *Social Science and Medicine*, 48: 1103–1116.

Claramunt, Maria Cecilia. 2002. *Commercial Sexual Exploitation of Minors: Costa Rica*. Geneva, Switzerland: International Labour Organization.

Denisova, Tatyana A. 2001. Trafficking in women and children for purposes of sexual exploitation: The criminological aspect. *Trends in Organized Crime, 6:* 30.

Farrell, Amy, Jack McDevitt, and Stephanie Fahy. 2010. Where are all the victims? Understanding the determinants of official identification of human trafficking incidents. Criminology & Public Policy. This issue.

Goździak, Elżbieta M. and Micah N. Bump. 2008. *Victims No Longer: Research on Child Survivors of Trafficking for Sexual and Labor Exploitation in the United States*. NIJ Grant No 2005-IJ-CX-0051. Final Report. Washington, DC: National Institute of Justice.

International Labour Organization (ILO). 2002. *Unbearable to the Human Heart: Child Trafficking and Actions to Eliminate It*. Geneva, Switzerland: Author.

Juhasz, Judith. 2000. Migrant trafficking and human smuggling in Hungary. *In* (Frank Laczko and David Thompson, eds.), *Migrant Trafficking and Human Smuggling in Europe: A Review of Evidence with Case Studies from Hungary, Poland, and Ukraine*. Geneva, Switzerland: International Organization for Migration.

Pochagina, Olga. 2007. Trafficking in women and children in present-day China. *Far Eastern Affairs*, 35: 82.

Roby, Jini L. 2005. Women and children in the global sex trade: Toward more effective policy. *International Social Work, 48*: 136.

Salt, John. 2000. Trafficking and human smuggling: A European perspective. *International Migration*, 38: 31–56.

Scarpa, Silvia. 2005. Child trafficking: The worst face of the world. *Global Migration Perspectives,* 40: 8.

Shannon, Sarah. 1999. Prostitution and the mafia: The involvement of organized crime in the global economy. *In (*Phil Williams, ed.), *Illegal Migration and Commercial Sex. The New Slave Trade*. London, U.K.: Frank Cass.

Sheldon, Zhang X., Ko-Lin Chin, and Jody Miller. 2007. Women's participation in Chinese transnational human smuggling. A gendered market perspective. *Criminology*, 54: 699.

Spangenberg, Mira. 2002. International Trafficking of Children to New York City for Sexual Purposes. ECPAT-USA. Retrieved February 10, 2010 from ecpatusa.org/trafficking.asp.

Taibly, Rebecca. 2001. Organized crime and people smuggling/Trafficking in Australia. *Australian Institute of Criminology,* 1–6.

Tiefenbrun, Susan W. 2002. Sex sells but drugs don't talk: Trafficking of women sex workers and an economic solution. *Thomas Jefferson Law Review, 24*: 161–189.

U.S. Department of Health and Human Services (USHHS)/Office of Refugee Resettlement. 2006. *Unaccompanied Alien Minor Program Overview*. Retrieved February 10, 2010 from acf.dhhs.gov/programs/orr/programs/uac.htm.

U.S. Department of State. 2003–2007. *Trafficking in Persons Report*. Washington DC: Author.

Elżbieta M. Goździak is the Director of Research at the Institute for the Study of International Migration at Georgetown University and the Editor of *International Migration*, a peer-reviewed, scholarly journal devoted to research and policy analysis of contemporary issues affecting international migration. Goździak has directed several projects on trafficking in persons, including research on child victims of trafficking. Currently, she is evaluating international initiatives to combat child labor through education, public awareness, and other incentive programs supported by the U.S. Department of Labor. Goździak has published several articles on research on human trafficking and on child victims of trafficking for labor and sexual exploitation.

Measuring the immeasurable

Can the severity of human trafficking be ranked?

Kristiina Kangaspunta
United Nations Interregional Crime and Justice Research Institute (UNICRI)

In recent years, several national, regional, and international policies have been formulated to prevent and combat trafficking in persons. At the same time, a boom has occurred in the information available on trafficking in persons. The research article by Farrell, McDevitt, and Fahy (2010, this issue) is one example of recent empirical work on human trafficking. However, the availability of comparative measures to assess the severity of human trafficking or the responses to it still are lagging severely behind. This information gap has lead to a situation in which the success of the implementation of anti-trafficking policies and the impact of anti-trafficking measures are difficult to evaluate. This essay will assess whether a method exists to support anti-trafficking policy making by measuring and comparing the severity of human trafficking in different countries. Furthermore, the country comparison based on responses to trafficking will be analyzed as a way to guide the human trafficking policies better.

Global Data

Although a broad agreement has not been reached regarding which methodology or standardized instruments should be used to assess the severity of human trafficking and the responses to counter this phenomenon, nonetheless, some international efforts have been made to measure both the severity and the responses at regional and global levels. Currently, four organizations have established five global databases on trafficking in persons, which are summarized in Table 1.

Two of these databases measure the severity of trafficking. The United Nations Office on Drugs and Crime (UNODC) database on global trafficking patterns compares the severity of the problem at the national level by analyzing whether the country ranks high or low in terms of the severity of the issue of trafficking in persons as either a country of origin, transit, or destination (UNODC, 2006). This effort has been the first to compare countries according to

Direct correspondence to Kristiina Kangaspunta, UNICRI, Viale Maestri del Lavoro, 10, 10127 Turin, Italy (e-mail: kangaspunta@unicri.it).

TABLE 1

Global Databases on Trafficking in Persons: UNODC, ILO, U.S. Government, and IOM

	Severity		Responses		Victims' Experiences
	UNODC (2006)	ILO (2005)	U.S. State Department (2009)	UNODC (2009)	IOM (2009)
What is measured	Patterns of trafficking by country and by region, based on identified cases	Global and regional estimates of the number of victims and of profits made	Global, regional and national responses	Global, regional and national responses	Experiences of actual victims assisted by IOM
Comparative assessment	161 countries arranged in categories ranging from low to high according to the magnitude of their problem as countries of origin, transit or destination	Global estimate and 6 regional estimates of the number of victims in any given time and the profits made	173 countries organized in 4 tiers according to their responses; global and regional numbers from 6 regions on criminal justice responses; global estimate of victims of cross border trafficking (U.S. State Department, 2007)	Country information from 155 countries and from 21,400 identified victims in 111 countries; global and regional comparisons	Comprehensive information received from 13,523 victims assisted from 1999 to July 2009; the victims trafficked to 103 destination countries; the nationality of victims representing 83 countries
Definition of trafficking used	UN Protocol	UN Protocol	TVPA 2000	UN Protocol	UN Protocol
Coverage	Transnational trafficking	Internal and transnational trafficking	Transnational trafficking	Internal and transnational trafficking	Internal and transnational trafficking

Note. TVPA = Trafficking Victims Protection Act of 2000.
Source. GAO, 2006: 44–45.

the magnitude of their trafficking problems at a global level. Because the analysis is based on open source information, the database might lack data from some countries, particularly those that do not publish information concerning their trafficking situation. Moreover, horizontal trafficking routes, where people move between countries within the same economic and development level, tend to be overlooked when collecting information because very little material seems to be published on these movements.

The second database measuring severity is the data set produced by the International Labour Organization (ILO) evaluating the problem at global and regional levels, which estimates the number of people in forced labor as a result of trafficking at any given time. The ILO also has estimated the annual profits made from the exploitation of trafficked persons at global and regional levels as depicted in Table 2 (ILO, 2005). Because the ILO's data only provide information at global and regional levels, country comparisons are not possible using these kinds of figures.

TABLE 2

Regional Distribution of Trafficked Forced Laborers and Annual Profits Made from the Exploitation of All Trafficked Forced Laborers

	Number of People in Forced Labor as a Result of Trafficking at Any Given Time	Annual Profits Made from Exploitation (U.S. $ Billions)
Industrialized economies	270,000	15.5
Transition economies	200,000	3.4
Asia and the Pacific	1,360,000	9.7
Latin America and the Caribbean	250,000	1.3
Sub-Saharan Africa	130,000	1.6
Middle East and North America	230,000	1.5
Global level	2,450,000	31.7

Source. ILO (2005: 14, 55).

Two databases measure responses to human trafficking on a national level. In the first one, the information published by the U.S. Government in its yearly reports (TIP Reports) rates countries along four different categories reflecting their actions taken against trafficking in persons. In addition, global and regional figures on these criminal justice responses also are published as an estimation of the number of victims crossing international borders (U.S. State Department, 2009). The U.S. State Department's TIP Reports provide a plethora of information on different countries. Some governments, however, have noted that the analysis is based on U.S. legislation and not on the universal definition of trafficking in persons, which therefore, makes the legislation of one country become the baseline for comparison.

The second database is the one made by the UNODC, which compiles information on criminal justice responses, assistance to victims, and institutional responses to human trafficking. The comparisons are carried out at a global level by comparing, for example, whether a country

has convictions on trafficking in persons, or at a regional level by comparing whether countries have legislation or action plans against trafficking. The database is structured on a systematic data collection carried out in 155 countries, which provides a wealth of information on national actions against trafficking (UNODC, 2009a). Even though the report based on this data analysis presents comparisons at global and regional levels, an analysis is missing of the data comparing the various countries and their actions against human trafficking. One reason for this missing analysis might be the sensitive nature of issues related to human trafficking and to its correlated policies, particularly in the area of migration and prostitution. Some countries might feel that it is not the task of the United Nations to make comparisons among its member states.

The International Organization for Migration (IOM) collects detailed data on victims who have been assisted by their projects in different countries. This extensive database has collected information from 13,523 victims who have been trafficked to 103 countries and who represent 83 different nationalities. The IOM database gives detailed and useful information on victims and their experiences. However, the data currently are collected only in those countries where the IOM is running victim protection programs, and it only gathers information from those victims who decide to enter the protection and support scheme. Currently, 65% of the victims included in the database are from countries of the former Soviet Union, and more than 50% of the total number of victims come from Ukraine, Moldova, and Belarus (IOM, 2009). In this respect, the database would provide an excellent basis for regional and sub-regional comparative analyses.

Regional Data

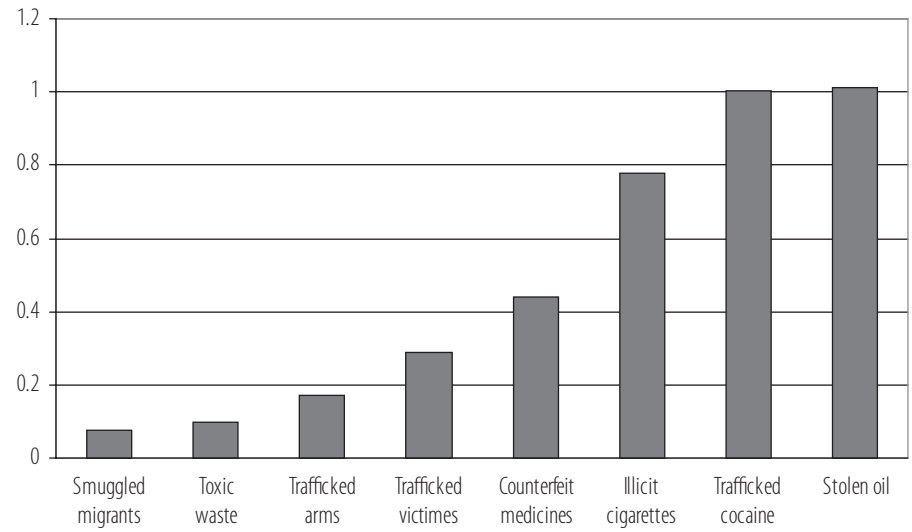
At the regional level, as of today, data on the severity of the phenomenon of trafficking in persons can be found only from a few regions, even though some initiates have been started to improve this situation. For instance, an effort has been made to measure systematically the severity of trafficking in Southeast Europe from 2000 to 2004, when the total number of assisted victims residing in the region was found to reach approximately 5,800 persons. More recent numbers, however, have not been published; furthermore, the research methodology only considers those victims who were assisted because that was the only verifiable information available on trafficking. This issue is why the numbers resulting from this study might have been an underestimation because it is well demonstrated that the assisted victims represent only a portion of all trafficking victims, many of whom are never identified or assisted (Surtees 2005: 31–32). One innovative regional initiative to collect information on the severity of human trafficking is being carried out in Southeast Asia, where the United Nations Inter-Agency Project on Human Trafficking (UNIAP) has launched a competition on the statistical methods for estimating numbers of trafficking victims (UNIAP, 2009).

Another interesting initiative involves the use of existing estimates on the volume of trafficking from West Africa to Western Europe. Based on this estimation, it is calculated that, out of 33 trafficking victims, only 1 is identified and reported in official statistics (Di Nicola 2004:

79–80; UNODC, 2009b: 45–47). Following this methodology, and based on the figures collected from destination countries in Western Europe, it is estimated that approximately 5,700 victims of sexual exploitation are trafficked annually from West Africa to Western Europe (UNODC, 2009b: 47). In the same region, an attempt also has been made to compare the monetary value of human trafficking with other illicit markets. The study includes the estimated values of cocaine trafficked through West Africa, stolen oil from Nigeria, illicit cigarettes to West and North Africa, counterfeit medicines to West Africa, victims of trafficking for sexual exploitation from West Africa, small arms to West Africa, toxic waste to West Africa, and smuggled migrants from West Africa. As shown in Figure 1, the values generated from human trafficking are estimated to be higher than those of smuggled migrants, toxic waste, and arms trafficking but are lower than profits made from counterfeit medicines, illicit cigarettes, trafficking in cocaine, and stolen oil (UNODC, 2009b: 75).

FIGURE 1

Values of Selected Trafficking Flows in West Africa (U.S. $ Billions)



Source. UNODC (2009: 75).

Some initiatives also are being undertaken at the regional level collecting information on responses to trafficking in persons. In Europe, comparative information has been collected on prosecution and conviction rates (de Jonge, 2005: 19), and in the countries belonging to the European Union, some data collection initiatives have been started. Sub-regional studies on criminal justice responses also have been initiated (ICMPD, 2007). The OSCE has published a report on multi-sectoral coordination and reporting mechanisms covering 67 countries in Western and Eastern Europe, North America, Central Asia, and North Africa (OSCE, 2008).

National Data

At the country level, some efforts to assess the severity of human trafficking also have been carried out; however, the aforementioned problems in measuring the number of victims or responses to trafficking also persist in the national studies. The following are some examples of these initiatives.

In Nigeria, the analysis indicated that around 400 victims were rescued by the national anti-trafficking agency in 2004–2005. The number of rescued victims increased nearly to 1,300 in 2006–2007 (NAPTIP, 2009). However, these data probably provide more information on the successful rescue operations than on the severity of the problem in Nigeria. In the Netherlands, data on trafficking cases collected since 2002 show that the number of known trafficking victims has been growing annually. In 2004, a total of 403 victims were registered; in 2005, the number increased to 424, and in 2006, it rose further to 579. It should be noted, however, that not all victims were identified and, of those who were, not all were reported to any authorities (Dettmeijer-Vermeulen, Boot-Matthijssen, van Dijk, van Ellemeet, and Smit, 2008: 7). And in the United States, the data on alleged human trafficking incidents show that nearly 1,230 incidents have occurred involving 1,442 victims between 2007 and 2008. However, the data include incidents from selected areas covering only 25% of the nation's resident population (Kyckelhahn, Beck, and Cohen, 2009: 8).

Toward the Composite Human Trafficking Index

Problems exist that are common to all efforts to collect comparative crime data, such as imprecise definitions or differences in classifications and units of measurement (Joutsen, 1998: 3–5; Kangaspunta 2007: 27). This issue is also the case with human trafficking data. As the examples shown earlier demonstrate, although some efforts are being made to measure the severity of trafficking, the real comparison between different countries is still missing. Data are available, but they are often fragmented and difficult to compare. If comparative analyses exist, then they remain at a regional level without addressing the national severity or actions taken against trafficking. Based on the lack of comparative figures, an initiative has been launched by the academic community together with some international organizations to construct a composite human trafficking severity index.[1] The initiative is interdisciplinary and combines the perspectives from the fields of economics, criminology, political science, and development studies. The index will be built using the already existing information—mainly from the global databases. Similar initiatives addressing serious crime (Van Dijk, 1998), organized crime (Van Dijk, 2008), as well as governance and rule of law (Kaufman, Kraay, and Mastruzzi, 2009) previously have been carried out to respond to the need to have systematic quantitative data on crime and rule of law. Similar indices also have been constructed to respond to the policy needs in other fields, such as human rights (Cingranelli and Richards, 2007) and globalization

1. Partners in the initiative are the University of Goettingen, Tilburg University, London School of Economics, State University of New York, UNICRI, and IOM, in consultation with the ILO and the UNODC.

(Dreher, Gaston, and Martens, 2008). The composite severity index also is based on the need to focus the antihuman trafficking policies and resources better.

The composite human trafficking severity index will cover approximately 120 countries across a time span ranging from 1990 to 2008. It will follow the process of trafficking, starting from the vulnerabilities in the origin country and ending with the exploitation in the destination country. The objective is to quantify the severity of trafficking in persons in different countries using raw data collected by different agencies such as the UNODC, IOM, ILO, and the U.S. State Department. To use the data to measure the severity of human trafficking in different countries, the raw data of these data sets will be made comparable by constructing the composite human trafficking severity index. This index will overcome the limitations of the information as well as balance out the available data and minimize the criticism on the fragmented information provided by the existing data sets. To control for differences in legislations, reporting and recording practices, counting rules, procedural differences, as well as other issues that complicate the comparison of crime-related data (Kangaspunta, 2004), various statistical methods will be tested; in particular, econometric approaches and economic analysis will be applied. The severity index also will allow for the correlation between severity and other possible causes and determinants of human trafficking such as poverty, labor, migration and prostitution policies, equality of women, political instability, the extent of organized crime, corruption, and rule of law. These correlations can be used to formulate future antihuman trafficking policies to focus on relevant issues in responding to human trafficking.

Based on the composed human trafficking severity index, the trafficking situation in different countries can be assessed. However, to evaluate whether actions were taken to address that situation, a tool to measure the responses also would be needed. Based on the existing information, such a tool could be constructed using the model of the severity index. At least in some regions, particularly in Europe, adequate data could be found to construct a composite human trafficking response index comparing criminal justice, victim protection, and institutional responses in different countries.

Concluding Remarks

The hidden nature of trafficking in persons makes the assessment of its severity difficult. We all know that the existing data are incomplete and reflect the human trafficking situation only partly. However, a wealth of information exists on different aspects of trafficking that can be used in an innovative way to measure the severity and the responses to trafficking in persons. By bringing together the academia and the international actors and by combining the research areas from political science, law, criminology, development studies, and economics, the interdisciplinary nature of human trafficking can be addressed. The composite human trafficking severity index will make it possible to evaluate the vulnerabilities; the social, economic, and cultural causes; as well as the impacts related to human trafficking, providing policy makers with valuable tools to direct the action where it is needed.

References

Cingranelli, David L. and David L. Richards. 2007. Measuring government effort to respect economic human rights: A peer benchmark. In (Alanson Minkler and Shareen Hertel, eds.), *Economic Rights: Conceptual, Measurement, and Policy Issues*. Cambridge, U.K.: Cambridge University Press.

de Jonge, Boudewijn. 2005. *Eurojust and Human Trafficking—The State of Affairs*. Den Haag, the Netherlands: Eurojust and the University of Amsterdam.

Dettmeijer-Vermeulen, Corinne E., Machteld Boot-Matthijssen, Essy van Dijk, Heleen de Jonge van Ellemeet, and Monika Smit. 2008. *Trafficking in Human Beings, Supplementary Figures*. Den Haag, the Netherlands: Bureau of the Dutch National Rapporteur on THB.

Di Nicola, Andrea. 2004. *MON-EU-TRAF II. A Study for Monitoring the International Trafficking of Human Beings for the Purpose of Sexual Exploitation in the EU Member States*. Milan, Italy: Transcrime.

Dreher, Axel, Noel Gaston, and Pim Martens. 2008. *Measuring Globalisation—Gauging its Consequences*. New York: Springer.

Farrell, Amy, Jack McDevitt, and Stephanie Fahy. (2010). Where are all the victims? Understanding the determinants of official identification of human trafficking incidents. *Criminology & Public Policy*. This issue.

General Accounting Office, (GAO). 2006. *Human Trafficking: Better Data, Strategy, and Reporting Needed to Enhance U.S. Antitrafficking Efforts Abroad*. Washington, DC: Author.

International Centre for Migration Policy Development (ICMPD). 2007. *Handbook on Anti-Trafficking Data Collection in South East Europe: Developing Regional Criteria*. Vienna, Austria: Author.

International Labour Organization (ILO). 2005. A global alliance against forced labour. *International Labour Conference 93rd Session 2005*. Geneva, Switzerland: Author.

International Organization for Migration (IOM). 2009. *IOM Counter Trafficking Database*. Counter trafficking (CTM)—Return and assistance. Unpublished material.

Joutsen, Matti. 1998. The fifth United Nations survey. In (Kristiina Kangaspunta, Matti Joutsen, and Natalia Ollus, eds.), *Crime and Criminal Justice Systems in Europe and North America 1990–1994*. Helsinki, Finland: HEUNI.

Kangaspunta, Kristiina. 2004. Mapping the inhuman trade: Preliminary findings of the database on trafficking in human beings. In *Forum on Crime and Society,* Vol. 3. New York: United Nations.

Kangaspunta, Kristiina. 2007. Collecting data on human trafficking: Availability, reliability and comparability of trafficking data. In (Ernesto U. Savona and Sonia Stefanizzi, eds.), *Measuring Human Trafficking. Complexities and Pitfalls*. New York: Springer.

Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi. 2009. *Governance Matters VIII: Aggregate and Individual Governance Indicators, 1996–2008*. World Bank Policy Research Working Paper No. 4978. Retrieved January 18, 2010 from ssrn.com/abstract=1424591.

Kyckelhahn, Tracy, Allen J. Beck, and Thomas H. Cohen. 2009. *Characteristics of Suspected Human Trafficking Incidents, 2007–08*. Bureau of Justice Statistics, Special Report. Washington, DC: U.S. Department of Justice, Office of Justice Programs. Retrieved January 18, 2010 from ojp.usdoj.gov/bjs/pub/pdf/cshti08.pdf.

National Agency for the Prohibition of Traffic in Persons (NAPTIP). 2009. *Database Analysis*. Abuja, Nigeria: Author. Retrieved January 18, 2010 from naptip.gov.ng/index.php?option=com_frontpage&Itemid=1.

Organization for Security and Cooperation in Europe (OSCE). 2008. *Efforts to Combat Trafficking in Human Beings in The OSCE Area: Co-Ordination and Reporting Mechanisms*. Paper presented at the Permanent Council Meeting, Vienna, Austria.

Surtees, Rebecca. 2005. *Second Annual Report on Victims of Trafficking in South-Eastern Europe 2005*. Geneva, Switzerland: International Organization for Migration.

United Nations Inter-Agency Project (UNIAP). 2009. *SIREN Report*. Retrieved January 18, 2010 from no-trafficking.org/siren.html.

United Nations Office on Drugs and Crime (UNODC). 2006. *Trafficking in Persons, Global Patterns*. Vienna, Austria: Author.

United Nations Office on Drugs and Crime (UNODC). 2009a. *Global Report on Trafficking in Persons*. Vienna, Austria: Author.

United Nations Office on Drugs and Crime (UNODC). 2009b. *Transnational Trafficking and the Rule of Law in West Africa: A Threat Assessment*. Vienna, Austria: Author.

U.S. State Department. 2007. *Trafficking in Persons Report*. Washington, DC: Author.

U.S. State Department. 2009. *Trafficking in Persons Report*. Washington, DC: Author.

Van Dijk, Jan J.M. 1998. Determinants of crime. In (Kristiina Kangaspunta, Matti Joutsen, and Natalia Ollus, eds.), *Crime and Criminal Justice Systems in Europe and North America 1990–1994*. Helsinki, Finland: HEUNI.

Van Dijk, Jan J.M. 2008. *The World of Crime. Breaking the Silence on Problems of Security, Justice, and Development Across the World*. Thousand Oaks, CA: Sage.

Kristiina Kangaspunta is the Executive Officer heading the Applied Research Programme at the United Nations Interregional Crime and Justice Research Institute (UNICRI). Before assuming that position, she was the Chief of the Anti-Human Trafficking Unit at the United Nations Office on Drugs and Crime. She has published in the fields of crime trends, trafficking in persons, and environmental crime.

Human trafficking

Policy

Barbara Ann Stolz
U.S. Government Accountability Office

Responding to the national and international recognition of trafficking in persons as criminal behavior, the U.S. Congress passed, and President Clinton signed into law, the Trafficking Victims Protection Act of 2000 (TVPA).[1] Responsibility for pursing trafficking crimes under the act fell to federal investigative agencies, which included Immigration and Customs Enforcement, the Federal Bureau of Investigation, and prosecutors in the Department of Justice's (DOJ) Civil Rights Division, Criminal Section, and U.S. Attorney Offices. In carrying out their responsibilities, federal investigators and prosecutors confronted a variety of challenges. Some of these challenges were rooted in the nature of trafficking crime, especially its hidden victims. Other challenges resulted from the decentralization of the U.S. criminal justice system. Recognizing the need for assistance from state and local law enforcement—with eyes and ears closer to the ground to find victims—to support the investigation and prosecution of trafficking crimes, the DOJ initiated a program to fund state and local human trafficking law-enforcement task forces (U.S. Government Accountability Office, 2007).

Although the importance of the role that state and local law enforcement plays in combating human trafficking generally is recognized, information is lacking about the readiness of these agencies to investigate trafficking crimes. Farrell, McDevitt, and Fahy (2010, this issue) attempted to fill this gap by surveying municipal, county, and state law-enforcement agencies to study systematically the experiences and challenges that these agencies face in identifying and investigating human trafficking. Based on their findings, Farrell et al. proposed specific recommendations to improve law-enforcement identification of human trafficking. This policy

The views expressed in this essay are soley those of the author and do not reflect those of the U.S. Government Accountability Office. Direct correspondence to Barbara Ann Stolz, 2800 Quebec Street NW, Apt 953, Washington, DC 20548 (e-mail: barbstolz@aol.com).

1. The act was reauthorized in 2003, 2005, and 2008.

essay begins by highlighting federal human trafficking policy efforts to engage state and local law enforcement and then considers the findings and policy recommendations of Farrell et al.

Responding to Human Trafficking Laws: Federally Sponsored State and Local Human Trafficking Law-Enforcement Task Forces

The Challenge: Changing the Law-Enforcement Paradigm to Identify Human Trafficking Victims

A recurring theme in the human trafficking literature is the challenge to law enforcement posed by the need to identify trafficking victims to determine the crime. This challenge involves two interrelated challenges—the challenge posed by the victims themselves and the need to think differently about certain aspects of the traditional law-enforcement paradigm.

Victims of trafficking do not self-identify for a variety of reasons. Among these reasons are denial of the situation (not perceiving themselves to be victims), fear of law enforcement (based on past experiences or what they had been told by traffickers), fear of retaliation by the traffickers against the victim or his or her family members, shame, love of the trafficker, cultural norms, language barriers, difficulty in expressing complex emotions or psychological trauma, or a lack of knowledge as to whom to identify oneself as a victim. Consequently, identification of victims falls to law enforcement.

To meet this challenge, law-enforcement officers have to be able to recognize what trafficking is when they come across it in the course of their regular activities. To do so, however, requires them to not only learn the legal definition of the crime but also view certain aspects of traditional law enforcement differently. For example, identifying victims of trafficking might involve looking beyond illegal behaviors such as prostitution, smuggled entry into the United States, or juvenile delinquency to see individuals who have been trafficked as victims rather than as offenders or coconspirators. Officers might need to overcome such myths about victimization, such as the victim is not a victim because he or she was paid, had the freedom to move, lived in a regular house, was married to the trafficker, was a U.S. citizen, or knew the type of employment in which he or she would be engaged (e.g., prostitution). Additionally, although traditional law enforcement usually responds reactively to an identified crime, determining a human trafficking crime might involve proactive investigations—surveillance, raids, and searches to locate "potential victims" to identify the criminal behavior. Because human trafficking might involve violations of immigration or labor law, state and local law enforcement might have to overcome the view that human trafficking is the responsibility of the federal government or another state or local agency. Finally, successfully identifying victims is likely to necessitate state and local law enforcement working with new partners, which include nongovernmental organizations that provide services to populations that might be victimized by traffickers as well as with federal investigative and prosecutorial agencies.

Policy Response: Federally Funded State and Local Law-Enforcement Task Forces

Under the TVPA, the Justice Department's Civil Rights Division, Criminal Section, has the primary responsibility for prosecuting trafficking cases (except cases involving the trafficking of children for sex). Recognizing the challenges posed by the need for support from state and local law enforcement to identify trafficking victims, federal prosecutors designed, developed, and instituted a task force approach to leverage resources. To implement the approach, the Justice Department sponsored a conference in Tampa, Florida, in 2004. Communities were identified where federal officials believed such task forces should be developed. The conference brought together approximately 500 participants, which included 21 teams, each consisting of about 20 state, local, and federal officials. After the conference, the teams were expected to work together on human trafficking in their respective communities (U.S. Department of Justice, 2006: 35–40; U.S. Government Accountability Office, 2007: 7, 11, 28).

To advance the task force initiative, the Bureau of Justice Assistance (BJA)—the Justice Department component responsible for supporting local, state, and tribal efforts to achieve safer communities—developed and implemented a human trafficking competitive grants program. The grants were to be awarded to state or local police agencies to work with the local U.S. Attorney's Office, federal law-enforcement entities, and nongovernmental organizations that might come into contact with victims of trafficking. By 2006, the BJA had awarded grants up to $450,000 for a 3-year period to each of the 42 task forces in communities across the country (U.S. Department of Justice, 2006: 35–40; U.S. Government Accountability Office, 2007: 11, 28–29). The BJA provided supplemental funding to the task forces due to expire in 2007, which enabled them to continue through 2008 as well as to 11 of the 14 whose grant awards were due to expire in September 2008.[2] The Justice Department reported funding 41 task forces in the 2008 fiscal year (U.S. Department of Justice, 2009: 23).

Under the grants program, each task force was to develop a strategy to raise public awareness, identify more victims, and establish protocols among government agencies and service providers. The strategy was to include (a) a memorandum of agreement outlining the respective roles and responsibilities of the participating agencies and ensuring coordination and involvement of the local U.S. Attorney; (b) training materials for first responding officers and investigators, which included written protocols and resource manuals to enhance coordination and information/resource sharing among law enforcement and victim service providers to identify and assist human trafficking victims; (c) distinct protocols for resource referral and service provision for U.S. versus alien victims of human trafficking; and (d) a definition of the role of law enforcement and service-provider partners in training others in the community (U.S. Government Accountability Office, 2007: 29).

These task forces are viewed by federal investigators and prosecutors as a key component of U.S. anti-trafficking efforts. The Justice Department has held four annual conferences on human trafficking. The conferences were to provide the opportunity for task force members

2. Three did not reapply nor did they provide any official reason for declining additional funding.

from across the country to meet and exchange ideas and best practices, and they included workshops and discussions led by practitioners, task force members, and federal government officials. As of 2010, conferences are to be held biennially. The Justice Department also has set out annual policy recommendations. For example, for the 2009 fiscal year, it recommended, among other things, (a) increasing the efficacy and coordination of all task forces and offices dealing with aspects of human trafficking to ensure victims do not go unidentified because of jurisdictional issues or "turf" considerations and (b) continuing to expand trafficking research and data collection (U.S. Department of Justice, 2009: 8, 49).

Beyond the Task Forces: Assessing the Readiness of State and Local Law Enforcement to Investigate Human Trafficking Crimes

Although the findings presented by Farrell et al. (2010) are consistent with the key assumptions underlying the establishment of the federally supported task forces, the study moves research on state and local law-enforcement investigation of human trafficking beyond the experiences of a few agencies to a larger universe, which includes agencies serving small- and medium-size communities. By surveying municipal, county, and state law-enforcement agencies, the study attempts to identify factors that predict the identification and investigation of human trafficking. The findings provide information on the perceptions of law-enforcement agencies of the problems of trafficking and the steps being taken to address the problem in different-size communities.

Specifically, among the responding agencies, the study found significant variation in the perception of human trafficking and the steps being taken to prepare officers to respond to the problem. Although few agencies thought the problem of trafficking was widespread in their communities, large agencies were more likely to report that the problem did exist in their communities. Training, which was the most common step taken to prepare officers to identify and respond to cases of human trafficking, was more likely to be conducted in police agencies in larger communities. Agencies less commonly developed protocols or assigned specialized personnel to the issue. Perhaps most important to the development and implementation of policies to improve the identification of victims and trafficking crimes is the finding that agency-leader perception about the prevalence of human trafficking in their community is highly related to the identification of trafficking cases. Although the study concludes that agency-leader perception of the problem of trafficking increases the likelihood that the agency will adopt such measures as training or protocols, these measures have strong independent effects on the likelihood of identifying trafficking cases despite the beliefs of agency leadership.

Policy Response: Recommendations to Improve Law-Enforcement Identification of Human Trafficking

Based on their findings, Farrell et al. (2010) proposed the following four recommendations to improve law-enforcement identification of human trafficking:

1. Train more officers to identify and respond to human trafficking.
2. Develop protocols to guide human trafficking identification and response.
3. Collect and report data on human trafficking investigations.
4. Integrate human trafficking response into local crime activities.

Three of these recommendations are consistent with steps taken to support and enhance the efforts of the federally funded task forces. Accordingly, the task force experience would seem to confirm the need to implement these recommendations as well as provide information on what has worked and challenges that might be confronted in implementing the recommendations.

Training, Protocols, Data Collection, and Integration

Training. Farrell et al. (2010) recommended increased outreach and training to law-enforcement agencies of all sizes to enhance their ability to identify and investigate human trafficking cases. Their findings, in conjunction with the experiences of federal human trafficking law-enforcement task force program, point to the need for any policy on human trafficking law-enforcement training to address the needs of three different audiences—agency leadership, officers on the job, and new recruits—with somewhat different training to be delivered in different venues.

Although awareness of the existence of human trafficking has been raised, as noted by Farrell et al. (2010), the training of agency leaders needs to address the perception of some that human trafficking cannot or does not exist in the communities they serve. Law-enforcement leadership organizations' meetings and publications, participation in the Justice Department human trafficking conferences, exchanges between agencies in task force communities with other police agencies in their state, as well as required law-enforcement leadership training courses offer venues for raising awareness and increasing knowledge of state and local law-enforcement leadership.

Police officers working in the community most likely are to confront the challenges to identifying victims laid out in Farrell et al. (2010). In-service training and professional organizations can provide venues for such training for officers already on the job. Training for new recruits might be incorporated into academy programs. Training initiatives conducted by the tasks forces might provide a starting point for determining the content of training initiatives as well as identifying what type of training worked in different communities, at least anecdotally. For example, the task force programs might offer information on how to identify trafficking victims in all its complexities, evidentiary needs particular to trafficking prosecutions, using investigative tools to conduct these investigations, and how to work with nongovernmental organizations and with federal partners. Modifications could be made to address varying community needs. The training experiences of the task forces also might provide information on evolving law-enforcement training needs to combat human trafficking. Although the need for basic training on human trafficking will continue as law-enforcement agencies become involved in trafficking investigations, advanced training might be needed (e.g., on how to seize and forfeit

the assets of traffickers or on how to enhance working relationships with nongovernmental organizations).

Paramount to developing successful training initiatives is evaluation. Farrell et al. (2010) noted the need for additional research to evaluate what types and content of training are most effective. Accordingly, any training initiative should include a well-designed evaluation component. Information on what works then needs to be disseminated so that agencies are not continually reinventing the wheel.

Protocols. Farrell et al., (2010) also recommended that organizations that support law enforcement, such as the U.S. Department of Justice or the International Association of Chiefs of Police, convene to develop model protocols to guide law-enforcement agencies and their potential partners on human trafficking identification and response. Because each federal human trafficking law-enforcement task force was required to develop protocols, model protocols might be available from the task forces. The task forces also might be a source of information on challenges confronted in developing protocols. For example, some task forces reported taking 2 years to work out protocols covering roles and responsibilities (U.S. Government Accountability Office, 2007: 34).

Collect data. Pointing to the lack of a reliable system to record information about human trafficking investigations investigated by police in the United States, Farrell et al. (2010) recommended more systematic data collection and reporting to improve our understanding of the prevalence of these crimes and the effectiveness of efforts to combat the problem. Implementing this recommendation, however, might require different data systems with different types of access and controls under the auspices of different agencies—most likely various Justice Department components. Sharing information on investigations could enable law-enforcement agencies to identify related investigations and improve the understanding of the structure and operation of human trafficking organizations and networks. Because of the sensitivity of this information (e.g., what it might reveal about law-enforcement sources and methods), these data would need to be maintained securely and access to them would need to be kept limited, or law-enforcement agencies will be reluctant to provide information. Other information on human trafficking could be integrated into existing data systems (e.g., including human trafficking as a crime category in the Federal Bureau of Investigation's annual crime report). Still other information, such as research and evaluation findings, could be made available publicly without jeopardizing law-enforcement operations.

Integrate human trafficking response into local crime-control activities. Finally, recognizing that some situations involved in human trafficking, such as labor exploitation, have not been part of the local law-enforcement role, Farrell et al. (2010) identified the need to integrate the human trafficking response into local crime-control activities. Because enforcing human trafficking laws necessitates viewing certain aspects of traditional law enforcement differently, such integration would seem to be essential to the successful enforcement of human trafficking laws. Integration also would seem to be essential to the inclusion of human trafficking as part

of the law-enforcement mission to ensure sustained law enforcement. The implementation of the training recommendation, especially with new recruits, supports this recommendation as well. Achieving integration, however, will be a challenge, but here again, the experience of the task forces might provide insight.

Additional recommendations. The four recommendations by Farrell et al. (2010) point to two additional recommendations. First, law-enforcement training programs and protocols for human trafficking need to be evaluated systemically to determine what works in what type of law-enforcement system and in what type of community. Second, information on what works needs to be consolidated and made readily available to law-enforcement agencies. The experiences of the federal task forces and other state and local enforcement agencies involved in trafficking investigations, providing training, and developing protocols can be used to inform such initiatives in other agencies and eliminate the need for each agency to reinvent the wheel. Because of the decentralization of U.S. law enforcement, the federal government would seem to be the logical agent for implementing these recommendations. Specifically, components of the Office of Justice Programs would seem to be the most likely agencies for carrying out these recommendations because the BJA oversees the task force initiative, and other components perform a clearinghouse function. Well-designed evaluations and the dissemination of their results should help to ensure the effective and efficient use of limited resources and enhance efforts to identify trafficking victims and crimes.

Conclusions

By identifying the challenges to readiness, the findings reported by Farrell et al. (2010) advance our knowledge of the perception of human trafficking among law-enforcement agencies across the country. The study identifies the challenges confronted by law-enforcement agencies of different sizes and recommends steps—training, protocols, data collection, and integrating human trafficking responses into local crime-control activities—to improve the enforcement of human trafficking laws. Implementing the additional recommendations to evaluate state and local human trafficking training and protocols and disseminate information on what works, proposed in this essay, should help leverage existing knowledge and reduce the need for law-enforcement agencies to spend time originating programs and initiatives. Furthermore, because the U.S. response to human trafficking is neither the first, nor will it be the last, crime initiative for which state and local law-enforcement has had to take on responsibilities originating at the federal level, the proposed policy recommendations might provide guidance for similar federal crime initiatives.

References

Farrell, Amy, Jack McDevitt, and Stephanie Fahy. 2010. Where are all the victims? Understanding the determinants of official identification of human trafficking incidents. *Criminology & Public Policy*. This issue.

U.S. Department of Justice. 2006. *Report on Activities to Combat Trafficking in Persons Fiscal Years 2001–2005*. Washington, DC: U.S. Department of Justice, Attorney General's Office.

U.S. Department of Justice. 2009. *U.S. Attorney General's Report to Congress and Assessment of U.S. Activities to Combat Trafficking in Persons Fiscal Year 2008*. Washington, DC: U.S. Department of Justice, Attorney General's Office.

U.S. Government Accountability Office. 2007. *Human Trafficking: A Strategic Framework Could Help Enhance the Interagency Collaboration Needed to Effectively Combat Trafficking Crimes*. Washington, DC: U.S. Government Accountability Office.

Barbara Ann Stolz, senior analyst at the U.S. Government Accountability Office, is a political scientist and criminologist who has worked in academia and government. She has published a book and several articles on the making of criminal justice policy, which focus on such issues as capital punishment, juvenile delinquency, corrections, drug control, domestic violence, intelligence surveillance, and human trafficking. A second book focuses on the concerns of low-income working women and policies to address these concerns. Her current area of research is the development and implementation of U.S. and international human trafficking policy.

EDITORIAL INTRODUCTION

CRIME COSTS ACROSS OFFENDER TRAJECTORIES

Finding the path to optimal deterrence by tracking the path that leads to crime

An introduction to "Studying the costs of crime across offender trajectories"

David A. Anderson, *Senior Editor*
Centre College

The enormity of crime's levy warrants efforts to fine-tune public policies that work against it. Even before the meteoric post-9/11 rise in security measures, crime and its repercussions exacted an annual toll that, in the United States on an annual basis, amounted to $519 billion for crime-induced production, $170 billion in opportunity costs, $751 billion in lost health and life, and $788 billion in transfers from victim to criminal (Anderson, 1999). The existing literature calls into question the effectiveness of severe punishment schemes as a deterrent (e.g., Anderson, 2002; Donohue and Wolfers, 2005) and motivates continued analysis of alternative approaches. The research described herein attacks the problem with the tactic of identifying those offender groups with the proclivity to cause the most harm for early policy intervention.

The previous longitudinal studies of crime are largely descriptive. Among recent contributions, van der Geest, Blokland, and Bijleveld (2009) studied the trajectories of male offenders in a Dutch juvenile justice institution and found that late-emerging and high-frequency chronic offenders were the most prone to serious malfeasance after release. Sampson and Laub (2003) used data on men from central Boston to conclude that the trajectories of all types of offenders have a general downward trend and that childhood characteristics as well as family background are poor predictors of long-term trajectories of offending.

The featured work of Cohen, Piquero, and Jennings (2010, this issue) is unique in its combination of offender-trajectory research with crime cost estimates. The results suggest, among other things, how best to target preventative measures to minimize the cost burden of crime. It

Direct correspondence to David A. Anderson, Centre College, 600 West Walnut Street, Danville, KY 40422 (e-mail: David@Centre.edu).

is appropriate to go beyond crime counts and include cost information because a single high-cost crime can outweigh many low-cost crimes. When competing policy options offer choices among reductions in different types of crimes committed by different groups of offenders, it becomes critical to link trajectory-group behavior with the costs imposed on victims, the justice system, and society at large.

Cohen et al. (2010) have divided juveniles from the Second Philadelphia Birth Cohort into the following four categories: nonoffenders, low-rate chronic offenders, adolescence-peaked offenders, and high-rate chronic (but declining) offenders. They have found that, in general, low-rate chronic offenders remain relatively benign as adults, whereas high-rate chronic offenders follow a path to more serious offenses and more costly repercussions, even as their crime count decreases. The mean cost per offender in the high-rate group exceeded $1 million, and the total cost imposed by that group—made up of only 3.1% of the individuals in the sample—exceeded the total cost of the low-rate chronic offenders, which made up 18.6% of the sample.

The new research points to policies that affect high-rate chronic offenders as the key to lowering crime costs. With this information, policy makers can weigh the advisability of person-specific remedies, such as counseling and anger-management training, as alternatives to broad-brush solutions, such as harsher punishments for all. The new findings inform decisions to target potential offenders both by trajectory group and by age. For youth, it is the frequency of crime more so than its severity that accounts for the bulk of its burden. For adults, it is the severity of crimes more so than the volume that drives the cost.

With crime so painful and dollars so dear, research that sharpens the focus of deterrence is always welcome. The plethora of options in the battle against crime begs the question of prioritization. This research has provided guidance, which suggests special attention to individuals who commit offenses early and often because the dwindling number of crimes they commit as they age is coupled with a disproportionate increase in severity. Several recommended solutions can be administered early in the life course of potential offenders. These often-neglected options include self-control improvement, family-parent training, and cognitive behavior therapies that teach individuals better ways to interpret and react to difficult situations and peaked emotions.

I commend Cohen et al. (2010) for their thoughtful approach and policy relevance. Also not to be missed are the policy essays by Robert M. O'Brien (2010, this issue) and Jens Ludwig (2010, this issue), whose insights illuminate the central topics of crime-cost estimates and offender trajectories. O'Brien's essay has provided a useful overview of the pros and cons of various methods of estimating the cost of crime, which include the use of markets, the "bottom-up" approach, and the willingness-to-pay approach. He has noted that, despite imperfections, methods that systematically underestimate the cost of crime by the same proportion nonetheless will provide valid comparisons among trajectory groups. O'Brien also has discussed the confounding effects of age and time period on crimes committed by the studied cohort.

Ludwig (2010) has advocated the "top-down" or "*ex ante*" approach of assessing the cost of crime based on what citizens would be willing to pay to avoid crime. The inherent measurement challenges have been compared with those of the "bottom-up" or "*ex post*" approach of assessing the cost of crime that already has occurred. Ludwig has stressed the importance of reliance on the *ratio* of benefits to costs—not just on the benefits—for guidance in allocating crime-prevention resources. He has suggested that, in practice, the benefit–cost ratio of most crime-prevention efforts is exceedingly large, which means that more would be better—except in regard to mass incarceration.

May we, as a society, not be so numb to the frequent tragedies of crime that we lose focus on deterrence as a chief priority.

References

Anderson, David A. 1999. The aggregate burden of crime. *Journal of Law and Economics*, 42: 611–642.

Anderson, David A. 2002. The deterrence hypothesis and picking pockets at the pickpocket's hanging. *American Law and Economics Review*, 4: 295–313.

Cohen, Mark A., Alex R. Piquero, and Wesley G. Jennings. 2010. Studying the costs of crime across offender trajectories. *Criminology & Public Policy*. This issue.

Donohue, John J. and Wolfers, Justin. 2005. Uses and abuses of empirical evidence in the death penalty debate. *Stanford Law Review*, 58: 791–846.

Ludwig, Jens. 2010. The costs of crime. *Criminology & Public Policy*. This issue.

O'Brien, Robert M. 2010. Offender trajectories, crime trends, and costs. *Criminology & Public Policy*. This issue.

Sampson, Robert J. and John H. Laub. 2003. Life-course desisters? Trajectories of crime among delinquent boys followed to age 70. *Criminology*, 41: 319–339.

van der Geest, Victor, Arjan Blokland, and Catrien Bijleveld. 2009. Delinquent development in a sample of high-risk youth, shape, content, and predictors of delinquent trajectories from age 12 to 32. *Journal of Research in Crime and Delinquency*, 46: 111–143.

David A. Anderson is the Paul G. Blazer Professor of Economics at Centre College. He received his B.A. from the University of Michigan and his M.A. and Ph.D. from Duke University. Anderson has authored many scholarly articles and nine books, including *Economics by Example*, *Environmental Economics and Natural Resource Management*, *Contemporary Economics for Managers*, *Treading Lightly*, and (in an effort to reduce crime) *Sometimes I Get So Angry! Anger Management for Everyone*. He lives in Danville, Kentucky, with his wife and two children.

RESEARCH ARTICLE

CRIME COSTS ACROSS OFFENDER TRAJECTORIES

Studying the costs of crime across offender trajectories

Mark A. Cohen
Vanderbilt University
University of York

Alex R. Piquero
Florida State University

Wesley G. Jennings
University of Louisville

Research Summary

Longitudinal studies of delinquency and crime have generated an important source of descriptive information regarding patterns of offending across the life course, and have helped inform and spur theoretical and methodological contributions. One particular method that has received considerable attention is based on offending trajectories, but applications of this method have not extended much beyond descriptive accounts of offending. This study links offender trajectories to monetary costs associated with criminal offending by members of the Second Philadelphia Birth Cohort. Results indicate that chronic offenders who frequently commit crimes when they are young turn to more serious crimes when they are adults and impose far greater costs than low-frequency chronic offenders and those whose offending peaks during adolescence.

Direct correspondence to Mark A. Cohen, Resouces for the Future and Owen Graduate School of Management, Vanderbilt University, 1616 P Street NW, Suite 600, Washington, DC 20036 (e-mail: cohen@rff.org or mark.cohen @vanderbilt.edu); Alex R. Piquero, Florida State University, College of Criminology and Criminal Justice, Hecht House, 634 W. Call Street, Tallahassee, FL 32306 (e-mail: apiquero@fsu.edu); Wesley G. Jennings, University of Louisville, Administration of Justice, Brigman Hall Rm. 215, Louisville, KY 40292 (e-mail: wgjenn01@louisville.edu).

Policy Implications

Preventing individuals from becoming high-rate chronic offenders would yield significant cost savings of more than $200 million. In terms of overall costs, offending frequency accounts for the bulk of costs in the juvenile years, whereas the seriousness of individual crimes drives total costs in the adult years. Moreover, because some trajectory groups impose higher costs in their juvenile years, whereas others impose higher costs in their adult years, policies that target particular (high-rate chronic) trajectory groups as opposed to all at-risk youth, for example, have the potential to provide significantly greater benefits at lower costs. These findings suggest that the allocation of prevention and intervention efforts should be targeted differentially across the offender population, with those individuals exhibiting early, frequent, and chronic offending deserving the most attention. Promising programs aimed at such individuals include early childhood prevention programs, such as those based on family–parent training, self-control improvement, and cognitive therapies.

Keywords

costs of crime, offending trajectories, birth cohort, longitudinal

The collection and use of longitudinal data on criminal careers has generated an important amount of descriptive information regarding offending across the life course (Piquero, Farrington, and Blumstein, 2003). Additionally, these descriptive accounts have informed and spurred several theoretical and methodological contributions.

Much of the early descriptive work on criminal careers (Blumstein, Cohen, Roth, and Visher, 1986; Wolfgang, Figlio, and Sellin, 1972) initiated a rigorous theoretical debate with respect to the variation that exists across the population of offenders regarding the longitudinal progression of criminal activity, which includes differences across demographic characteristics and estimates for the criminal-career parameters of prevalence, frequency, onset, specialization, seriousness, escalation, career duration, and desistance (Blumstein, Cohen, and Farrington, 1988; Gottfredson and Hirschi, 1986). These studies generated several theories that attempted to unpack the aggregate age–crime curve, such as parsimonious general theories that stress continuity with little prospects for change (Gottfredson and Hirschi, 1990), to less restrictive general theories that allow for both continuity and change (Sampson and Laub, 1993), to complex typological theories that hypothesize the existence of distinct groups of offenders who evince distinct age–crime profiles, distinct etiologies, as well as distinct prospects for continuity and change (Loeber, Stouthamer-Loeber, Huizinga, and Thornberry, 1999; Moffitt, 1993). Across these various frameworks, a strong contention exists regarding the nature, course, and life outcomes of these offenders, with most studies assessing etiological and offending differences to the neglect of noncrime life-course outcomes, such as offender costs on victims and society.

With respect to methodological advances, the empirical knowledge base on criminal careers has generated several novel techniques for unpacking the aggregate age–crime curve. One of

these techniques—the semiparametric group-based model (Nagin, 2005; Nagin and Land, 1993)—identifies unique offending trajectories that can inform important debates, such as the debate between general and developmental theories of crime. The application of the group-based model has yielded some findings consistent with Moffitt's (1993) developmental taxonomy with respect to the number of trajectory groups identified and the life-course behavioral patterns of her hypothesized groups (e.g., nonoffenders, adolescent-limited offenders, and life-course persistent offenders). However, a few inconsistencies also have been found (e.g., the identification of low-level chronic offenders, late-onset offenders, desistance among life-course-persistent offenders, etc.; Laub and Sampson, 2003; see Piquero, 2008, for a review).

These studies have illuminated how trajectories are affected by key covariates and which risk and protective factors distinguish one particular trajectory from another. For instance, some trajectory studies have highlighted the importance of sex (Cote, Tremblay, Nagin, Zoccolillo, and Vitaro, 2002; Cote, Zoccolillo, Tremblay, Nagin, and Vitaro, 2001; D'Unger, Land, and McCall, 2002; Fergusson and Horwood, 2002; Piquero, Brame, and Moffitt, 2005), race (White, Nagin, Replogle, and Stouthamer-Loeber, 2004), and socioeconomic status differences (D'Unger, Land, McCall, and Nagin 1998; McDermott and Nagin, 1998). Others have emphasized the importance of contextual differences in peer, school, neighborhood, and cultural influences (Chung, Hill, Hawkins, Gilchrist, and Nagin, 2002; Maldonado-Molina, Piquero, Jennings, Bird, and Canino, 2009), as well as local life circumstances (Laub, Nagin, and Sampson, 1998; Piquero, Brame, Mazerolle, and Haapanen, 2002).

Although the trajectory method has provided much information on longitudinal patterns of crime (Piquero, 2008), few attempts have been made to link group-based offending trajectories with associated life outcomes (see Nagin, Farrington, and Moffitt, 1995; Odgers et al., 2007; Piquero, Farrington, Nagin, and Moffitt, 2010). In particular, one key question remains unexplored: Do trajectory groups differ regarding the costs they impose on victims, the criminal justice system, and the larger society? Several theoretical models outlined earlier—specifically, the characterization of the life-course-persistent offender from Moffitt's (1993) taxonomy—draw specific attention to not only the detrimental effects high-rate offenders have on their own lives, but also on the disproportionate costs they inflict on both victims and society.

The Importance of Monetary Costs

Although research demonstrating the disproportionate amount of crime and delinquency that chronic offenders account for is well known (Piquero et al., 2003, 2007), only a handful of studies have addressed the issue of the monetary costs of chronic offending. Cohen (1998) estimated that the criminal career of one high-risk (chronic) youth costs as much as $1.3 to $1.5 million in 1997. The most serious and frequent offenders, furthermore, could accumulate costs ranging as high as $36 million. Comparable estimates for career offenders have been demonstrated in other studies. Using data on 500 habitual offenders sampled from a large urban jail in the western United States, DeLisi and Gatling (2003) estimated the lifetime costs of a career criminal to be $1.14 million in 2002, but this figure underestimates the true cost of

an entire criminal career because the authors based their cost estimates on the offenders' prior offenses to date. Assuming that their offending pattern continued, it is likely that their costs would be greater if estimated across the entire lifetime of the offender. In a similarly designed study, Welsh, Loeber, Stevens, Stouthamer-Loeber, Cohen, and Farrington (2008) demonstrated that costs of chronic offenders in the Pittsburgh Youth Study ranged from $793,000 to $861,000 in 2000. Furthermore, these chronic offenders—who represented 10% of the sample—committed an average of 142 offenses through age 17 (more than 50% of offenses in the sample). In a more recent study exploring costs imposed by chronic offenders, Cohen and Piquero (2009) employed more comprehensive cost estimates and determined that the current value of saving a 14-year-old, high-risk juvenile from a life of crime is roughly between $3 and $5 million. Finally, DeLisi, Kosloski, Sween, Hachmeister, Moore, and Drury (2010) calculated the monetary costs for five crimes (murder, rape, armed robbery, aggravated assault, and burglary) imposed by a sample of homicide offenders from eight states and found that the average cost per murder exceeded $17.25 million and the average murderer in the current sample inflicted costs approaching $24 million.

Considering the evidence regarding the monetary costs of saving one high-risk youth (Cohen, 1998, 2005; Cohen and Piquero, 2009), saving a group of high-risk (chronic) youth should result in substantial cost-savings for the would-be offender, the potential victim(s), the criminal justice system, and for society as a whole. Operating under this hypothesis, the current study presents an initial, unique exploration into the variability in monetary costs associated with group-based offending trajectories among a large birth cohort of individuals from an urban city followed from birth into their mid-20s.

Policy Relevance of Attaching Monetary Costs to Offending Trajectories

Estimating the costs of crime provides an important source of information for policy makers (Anderson, 1999; Cohen, 2005). For example, suppose two programs each cost $1 million, and only one could fit into the current budget. If the first program is expected to reduce 20 home burglaries and the other to reduce 10 armed robberies, then which would provide the most benefit for this $1 million? Only by placing dollar values on home burglaries and armed robberies can policy makers compare these two programs. Similarly, suppose one policy focuses on the worst juvenile offenders, whereas the other focuses on minor delinquents. To compare the relative benefits and costs of these programs, one would need to know not only the costs of the programs and their effectiveness in reducing long-term offending behavior (Greenwood, 2006), but also the costs imposed by the two different offender groups across time.

Information on the monetary costs imposed by different offending trajectories could help ensure that policy decisions are informed and grounded in research rather than in partisan politics. Consequently, costs-of-crime information should guide the allocation of scarce resources when considering the appropriate mixture of prevention, punishment, and treatment. This influence is no small matter because decisions about crime policy largely have been politically charged (Beckett and Sasson, 2003)—often focusing on either justifying more punitive crime

policies *or* justifying investments in early intervention and prevention methods instead of using a more measured and balanced response that deals with individuals who already have broken the law or those individuals who are at risk of doing so in the future (Scott and Steinberg, 2006). As Welsh et al. (2008: 18) observed, "Any response to the high costs of crime needs to be driven by what society is (and is not) doing, how the public views the problem alongside other competing priorities, and what the government can afford relative to current expenditures in other areas."

Current Focus

In light of the development of the trajectory modeling technique along with the handful of studies demonstrating the substantial costs imposed on society by high-risk offenders, the current study takes the unique step of attaching dollar amounts to (chronic) offending trajectories. This study, then, provides the first combination of the trajectory method and the costs-of-crime literature in an effort to examine how the monetary costs of crime are distributed differentially across offender trajectories.

Data and Methods

The current study uses data on the offending of members of the Second Philadelphia Birth Cohort (Tracy and Kempf-Leonard, 1996; Tracy, Wolfgang, and Figlio, 1990)—a replication of an earlier Philadelphia Birth Cohort study (Wolfgang, Figlio, and Sellin, 1972). Cohort members were part of a longitudinal study for which data was collected on the criminal careers of 27,160 individuals born in 1958 and residing within Philadelphia from their 10th to their 18th birthday. These data are well suited for trajectory analysis particularly considering the length of follow-up (ages 8–26),[1] the sex (13,160 males and 14,000 females), and race distribution (12,853 Whites, 13,529 African Americans, 725 Hispanics, 42 Asians, and 11 American Indians). Another important feature of the data is that any comparisons made regarding offending trajectories

1. Because offending information was recorded through December 1984, the Cohort was on average only 26.5 years old. In the text, we refer to age 26 even though the data do not include the entire age 26 year. Thus, our estimates of total costs through age 26 are an underestimate. Although this truncation might affect projections of future costs (because it implies an exaggerated level of desistance), it does not substantially alter our findings about the time path of offending by subgroup. Although it is unlikely that this underestimation will have a sizeable effect on the prevalence of desistance or persistence, it might underestimate the frequency of the offenders' police contacts, which also would underestimate the associated group-based costs. Nevertheless, the prevalence of offending at age 26 for the entire Cohort was approximately 1%, and only a handful of these individuals accumulated more than one police contact, and no Cohort member accumulated more than four police contacts. If we assumed that the offending frequency of these individuals for the first half of age 26 is an accurate portrayal of their offending frequency for the second half of age 26, then the number of police contacts would not be greater than two for nearly all offenders. In other words, the group-based mean costs at age 26 would not likely be substantially inflated if we had police-contact information for the remainder of age 26. Most of the Cohort are not active offenders at age 26, and for those that are, their frequency is considerably low.

and monetary costs associated with offending can be discussed with the understanding that the effect of the historical period and the geographical context is held constant.[2]

Variables

Police contacts. The main source of offending data is official police record data.[3] Official police contact data is provided for all juvenile police contacts with the Philadelphia Police Department and its Juvenile Aid Division prior to age 18. Subsequent adult offenses during the first 8 years after age 18 (through age 26) were recorded from standard police forms. According to Tracy and Kempf-Leonard (1996: 65), "The Municipal and Court of Common Pleas of Philadelphia served as data sources for offenses committed by the Cohort after reaching the legislatively imposed adult status of age 18. Court files included police reports, so data on adult crime are comparable to that for delinquency. The exception, of course, is that no official 'remedial' report exists for adults who encountered police, but who were not arrested." Thus, the measure of offending in these data is official police contacts for the juvenile careers (age 8–17) and official police arrests for the adult careers (age 18–26). Yet, considering the comparability of the measures (as described earlier), we use the term "police contact" when discussing the results. We also restricted our analysis to felony and misdemeanor contacts.[4]

2. Because of extremely small sample sizes, Asians and American Indians were removed prior to estimating the trajectories and related monetary costs. Despite numerous attempts with a varying number of groups and polynomial orders, we could not estimate a trajectory solution for the entire Cohort ($N = 27{,}160$). D'Unger et al. (1998, 2002) also noted the difficulty of inverting the Hessian matrix with a sample this large and with the Philadelphia data in particular. Consistent with D'Unger et al.'s research using these data in trajectory-based analyses, we drew a random sample of Cohort members; however, our random sample was based on 25% of the Cohort members ($n = 6{,}750$). We subsequently drew several additional random samples of 6,750 Cohort members, and the trajectory results were all substantively similar to those presented in the text.

3. The advantages and disadvantages of official (Thornberry and Krohn, 2003) and self-report (Lauritsen, 1998; Piquero et al., 2002) records have been noted elsewhere. Both methods are limited, and the inclusion of both for the same subject is the rare exception in longitudinal data sources.

4. We recognize that the two outcome measures are different and present an important limitation. Yet, we do rely on several studies that have explored the linkages between various measures of official records, all of which suggest that modest-to-strong positive correlations are present among police contact, arrest, court, and conviction records, generally, and the closer they are linked to one another in time (police contacts and arrests compared with police contacts and convictions), the stronger their correlation. Using birth cohort data from New Zealand, Moffitt, Caspi, Rutter, and Silva (2001) investigated sex differences in two official measures of offending, youth-aid police contact records, and conviction records and found substantially similar conclusions regarding the relationship between sex and the two offending measures (i.e., no differences across the two official measures). Tracy and Kempf-Leonard's (1996: 66–67) investigation of continuity and discontinuity in offending, which used the same juvenile and adult offending measures as used in the current study, found moderate relationships between the two measures (juvenile police contacts and adult arrests), and although the authors similarly recognized the different offending measures across time periods, they concluded that the measure of adult crime "is comparable to the police-based indicator of delinquency that [was] used for the juvenile period." Finally, Brame, Bushway, Paternoster, and Thornberry (2005) examined the association between past and future offending across data sources (including self-reports, police contacts, and arrests) and found that the substantive conclusions regarding the association did not differ across the three data sources. In short, although we treat the juvenile and adult data as seamless, it is important to bear in mind that they are not identical indicators across time.

Costs of individual crimes. A variety of methods have been used to estimate the costs of crime. Miller, Cohen, and Wiersema (1996; Cohen, 1998) have used a "bottom-up" approach to estimate crime costs that takes into account the victim-related costs (lost productivity, pain and suffering, lost quality of life, etc.), the criminal justice-related costs (police, courts, and prisons), and the loss of productivity for the offenders incarcerated as a result of their offending. Despite the multiple components of these "bottom-up" cost estimates, Nagin (2001) argued that this approach neglects other important elements of the crime costs such as "fear of crime," the use of constrained behaviors taken by the public to avoid the risk of crime in the future, and any residual costs to the surrounding community (e.g., loss of social cohesion, community development, etc.). Cohen, Rust, Steen, and Tidd (2004) employed what has been referred to as a "top-down" approach to estimating the costs of crime based on the public's willingness to pay (WTP) for crime reductions—therefore incorporating the fear of crime and loss of social cohesion into the cost estimates.[5] Other studies also have elaborated on the WTP costs (Cohen, 2005, 2009; Nagin, Piquero, Scott, and Steinberg, 2006) and have indicated that the WTP cost estimates are more appropriate and comprehensive (Cohen and Piquero, 2009).[6]

The WTP approach is well accepted in the economics literature as being more appropriate to estimate external or social costs and is used widely in the environmental, health, and safety fields. It also has gained considerable acceptance in the economics of crime literature. The "bottom-up" approach is mostly appropriate for those interested in the components of costs (e.g., the cost to the criminal-justice or health-care systems). Although we believe the WTP estimates are more comprehensive, we also provide estimates based on the "bottom-up" approach so readers can compare. Table 1 provides the WTP cost estimates of individual crimes as estimated from figures provided by Cohen and Piquero (2009: Table 6) along with presenting the "bottom-up" cost estimates for comparison purposes. All cost estimates in this article are expressed in 2007 dollars.

5. Although the WTP methodology has both strengths and weaknesses that should be considered, it is a well-established methodology in environmental and health economics and has been subject to considerable replication and testing (Cohen, 2009).

6. Following one of the recommendations made by both Nagin (2005) and Piquero (2008), which noted that researchers examined consequences and outcomes across distinct trajectory groups, the current study builds off the recent Cohen and Piquero (2009) study by specifically linking the trajectory groups to the costs of their crimes. This method allows for a richer investigation of the monetary value of saving a high-risk youth, for example, by distinguishing between the costs imposed by high-rate adolescent offenders who do not become chronic adult offenders and those who persist into adulthood. Adding costs to the equation provides some important insights. For example, although a frequency-based trajectory path is smooth and peaks at a certain age, once costs are added to the data, our results show different patterns of importance. This pattern highlights the fact that it is not just the frequency but also the severity of offenses that helps drive the costs. More importantly, this analysis begins to raise important policy questions about appropriate interventions for different trajectory groups.

TABLE 1

Estimated Bottom-Up and WTP Costs for Crimes (2007 Dollars)

	Bottom-Up Total Estimate	WTP Total Estimate
Murder	$5.0 million	$11.8 million
Rape	$150,000	$290,000
Armed robbery	$50,000	$280,000
Robbery	$23,000	$39,000
Aggravated assaults	$55,000	$85,000
Simple assaults	$11,000	$19,000
Burglary	$5,000	$35,000
Motor vehicle theft	$9,000	$17,000
Larceny	$2,800	$4,000
Drunk driving crash	$30,000	$60,000
Arson	$60,000	$115,000
Vandalism	$1,000	$2,000
Fraud	$3,500	$5,500
Other contacts (e.g., prostitution)	$500	$1,000

Analytic Strategy

The analysis proceeded in three stages. First, the group-based trajectories for the random sample of 6,750 Cohort members (25% of the total Cohort) were estimated in SAS (SAS Institute, Inc., Cary, NC) using PROC TRAJ (Jones, Nagin, and Roeder, 2001). Second, information on the WTP and "bottom-up" costs associated with the particular offenses committed (by age) were estimated and linked to each Cohort member. On merging these data, a series of descriptive analyses were performed to characterize the variability in the costs associated with the offending frequency of one trajectory group across time compared with the costs of the offending frequency of another trajectory group. Ultimately, the analysis concluded with a series of group mean difference comparison tests to explore whether the WTP and "bottom-up" cost estimates significantly distinguished trajectory group membership.

Results

Estimating Group-Based Trajectories

Mixture or group-based trajectory methods were employed in the current study (Nagin, 2005; Piquero, 2008). These models recognize that meaningful subgroups might be present within an (offending) population that follow distinct developmental trajectories and often are used to model unobserved heterogeneity in a population. Unlike other techniques, the trajectory method assumes that the distribution of unobserved heterogeneity is discrete rather than continuous, and thus, the mixing distribution is viewed as multinomial (i.e., a categorical variable). Each category within the multinomial mixture can be viewed as a point of support, or grouping, for the distribution of individual heterogeneity. The model then estimates a separate point of support (or grouping) for as many distinct groups as can be identified in the data, and a higher

number of groups closely approximates what might be a true continuous distribution (Nagin and Tremblay, 2005). The trajectory method is a useful approach to study crime across the life course and is especially well suited for research problems whose aim is to examine distinct developmental trajectories, to understand what factors account for their distinctiveness, and to test whether individuals following different trajectories also respond differently to an intervention (Nagin and Tremblay, 2005).[7]

In general, trajectory analysis assumes that distinct clusters of individuals might exist who exhibit different longitudinal patterns of behavior and perhaps unique etiological processes. The methodology attempts to approximate this distribution by identifying unique points of support (e.g., distinct groups or trajectories; Nagin, 2005). These models also are based on a maximum likelihood (ML) function—a feature that enables the qualities of ML parameter estimates (e.g., consistent and asymptotically normally distributed) to be applied to these models. Operating under this assumption and recognizing these statistical properties, this method also assumes that individual differences in trajectories can be described as polynomial functions of age or time. Furthermore, this polynomial can be expressed with regard to its appropriate parametric (e.g., logit, censored normal, Poisson, or zero-inflated Poisson) and functional form (e.g., constant, linear, quadratic, or cubic; Nagin, 2005).

Considering our use of counts of police contacts to measure offense frequency, the Poisson model potentially was appropriate for the initial trajectory analysis.[8] However, the excess

7. The trajectory method does have some limitations. First, because the model assumes that unobserved heterogeneity is drawn from a discrete probability distribution, model misspecification bias will be present if heterogeneity actually is drawn from a continuous distribution. Second, classification of individuals to distinct groups will never be perfect. Third, the number of groups extracted is variable and partly a function of sample size—more individuals tend to equate with more groups. Fourth, concerns have been raised regarding the assessment of model fit, including the selection of the appropriate number of groups and whether the trajectory method provides a better model fit than other methods that assume that heterogeneity is distributed continuously. Fifth, a risk of misinterpreting the trajectory classifications exists, especially regarding the reification of groups that might or might not exist in the population.

8. The Poisson distribution assumes that the distribution of event arrival times follows an exponential distribution that implies a constant hazard function and also assumes that the mean and variance of the variable of interest are equal. It is flexible, often applied in analyzing criminal careers (Blumstein et al., 1986), and serves as a useful starting point to analyze crime-count data with the trajectory methodology. More specifically, Land and Nagin (1996: 170) argued that the Poisson approach "has several advantages compared to [alternative] models, such as the negative binomial, that make a specific assumption about the parametric distribution. First, criminological theory does not provide specific guidance on the choice. Second, such a choice may impose restrictions that are inconsistent with the data. For example, while negative binomial regression provides more flexibility than simple Poisson regression, the former still imposes a restrictive functional form on the relationship of the sample mean and variance of the observed count data—namely, that the variance is a quadratic function of the mean."

of zero counts led us to use the zero-inflated version of the Poisson model (ZIP).[9] Following Nagin (1999, 2005) and extant trajectory-based research (Piquero, 2008), the trajectory group solutions were determined by examining the Bayesian Information Criteria (BIC) in an effort to maximize model fit.[10] The BIC values are estimated based on the following equation, where L is the maximum likelihood, n is the sample size, and k is the number of parameters (Nagin, 2005: 64): BIC = $-2\log(L) + \log(n) \times k$. The trajectory solutions were determined through an iterative model selection procedure, wherein models were first estimated with a one-group solution and then estimation continued until the BIC was maximized (i.e., two-group, three-group, etc.). Models also were estimated for different polynomial forms including intercept only, linear, quadratic, and cubic with attention to the ability of the model to find a relative convergence using all available information and by the use of the groups to indicate distinct and homogenous trajectories (Brame, Nagin, and Tremblay, 2001; Bushway, Thornberry, and Krohn, 2003).

The quadratic ZIP model provided the best fit to the data using the BIC rule. The posterior probabilities of group membership (which can be considered a measure of model precision) for the trajectory solution were consistently high (Table A1, see page 304) and were well above the standard criteria cutoff (>0.70; Nagin, 2005). In other words, the individual Cohort members were assigned to the group to which they had the highest probability of belonging to and were surrounded in that group with individuals whose offending behavior resembled theirs.[11] Because of our focus on the costs of crime imposed on society by trajectory groups, we provide details of our offender trajectory solutions in the Appendix. We note here that the random-sample, four-group model (Figure A1, see page 305) conforms to much of the extant research on group-

9. The ZIP model is not a simple post hoc response to a partial failure of the Poisson model but is instead employed as a method to deal with an over-preponderance of zeros and often provides a better fit to offending data than the Poisson. Furthermore, the ZIP model allows for the assumption of a dual-state-system. A dual-state-system signifies the following two situations: one in a zero-contact state in which the assumption is that a group of individuals exists that can be regarded as police-contact free, and the second state, or nonzero contact state, in which the expected incidences of police contacts are assumed to follow some known distribution, such as the Poisson (Lambert, 1992; Long, 1997). Many studies have demonstrated the use of the ZIP model when using count data with excess zeros (King, 1989; Land, McCall, and Nagin, 1996; Zorn, 1998).

10. An anonymous reviewer commented that issues of model fit and model selection using the trajectory method are in debate and, thus, are worthy of discussion. Trajectory modeling is an application of finite mixture modeling. No established statistic or method is available to determine the number of components or trajectory groups to include in the model. Indeed, considerable disagreement on this point is present, and the comments of the anonymous reviewer are reflective of the unsettled state of affairs. BIC, however, is the most commonly used statistic to assess model fit in the trajectory literature in criminology. Furthermore, in several simulation studies, BIC has performed well in detecting the correct number of groups. And most importantly, in our study, the selected model performed well according to model-fit diagnostics outlined in Nagin (2005), which included BIC and posterior probability assignments.

11. Of course, the trajectory model does not guarantee perfect assignment, but high-posterior probabilities are indicative of good assignments.

FIGURE 1

WTP Costs by Age by Trajectory Group: Random Sample (*N*=6,750)

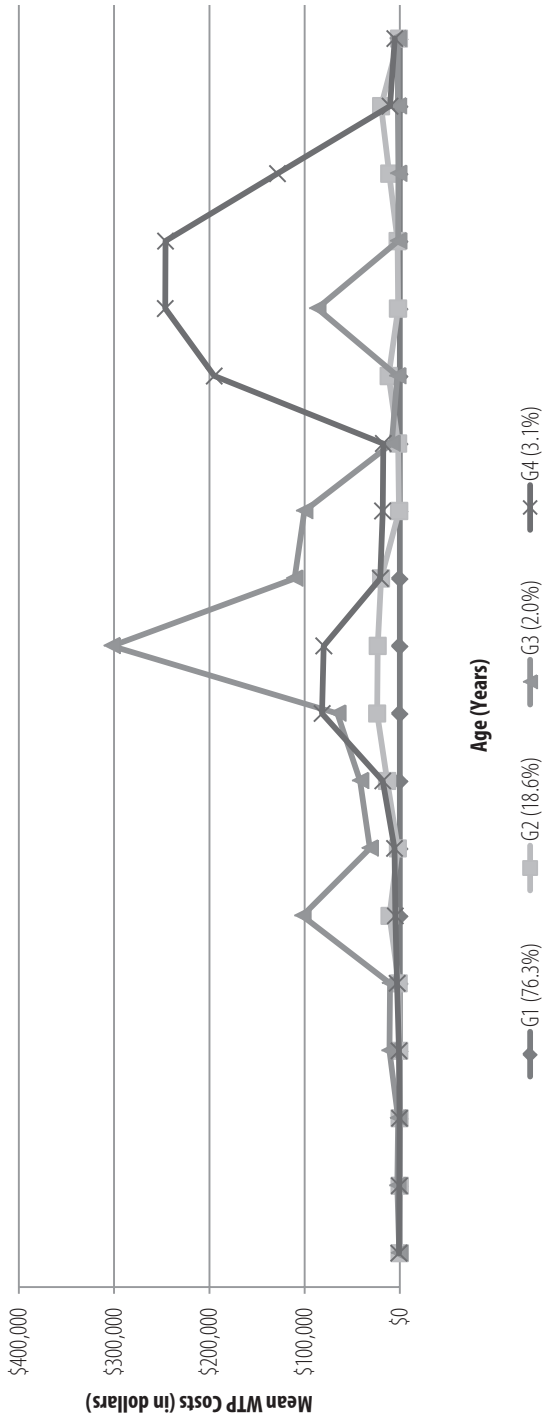


TABLE 2

WTP Costs by Trajectory Group

Trajectory Group	Juvenile Contacts Mean Dollar Amount	Adult Contacts Mean Dollar Amount	Total Contacts Mean Dollar Amount	Total Group Costs	% of Total Costs
Random sample ($N = 6,750$)					
G1 (76.3%)	—	—	—	—	—
G2 (18.6%)	$75,402 ($72,916)	$69,593 ($52,408)	$144,996 ($125,324)	$181,824,984 ($157,156,296)	34% (34%)
G3 (2.0%)	$569,189 ($548,736)	$315,861 ($242,300)	$885,050 ($791,036)	$121,251,850 ($108,371,932)	23% (24%)
G4 (3.1%)	$194,519 ($186,513)	$887,040 ($745,840)	$1,081,559 ($932,353)	$226,045,831 ($194,861,777)	43% (42%)

Notes. Cost estimates have been rounded to the nearest dollar amount. 2% discounted rates are in parentheses.

TABLE 3

Bottom-Up Costs by Trajectory Group

Trajectory Group	Juvenile Contacts Mean Dollar Amount	Adult Contacts Mean Dollar Amount	Total Contacts Mean Dollar Amount	Total Group Costs	% of Total Costs
Random sample ($N = 6,750$)					
G1 (76.3%)	—	—	—	—	
G2 (18.6%)	$41,095 ($31,559)	$37,030 ($30,974)	$78,125 ($62,533)	$97,968,750 ($78,416,382)	37% (35%)
G3 (2.0%)	$291,159 ($233,768)	$138,197 ($108,816)	$429,356 ($342,584)	$58,821,772 ($46,934,008)	22% (21%)
G4 (3.1%)	$94,240 ($80,073)	$421,142 ($391,723)	$515,382 ($471,796)	$107,714,838 ($98,605,364)	41% (44%)

Notes. Cost estimates have been rounded to the nearest dollar amount. 2% discounted rates are in parentheses.

based trajectories of offending with a nonoffender group (G1), a low-rate chronic group (G2), an adolescence-peaked group (G3), and a high-rate chronic (but declining) group (G4).[12]

Estimating Costs Associated with Group-Based Trajectories

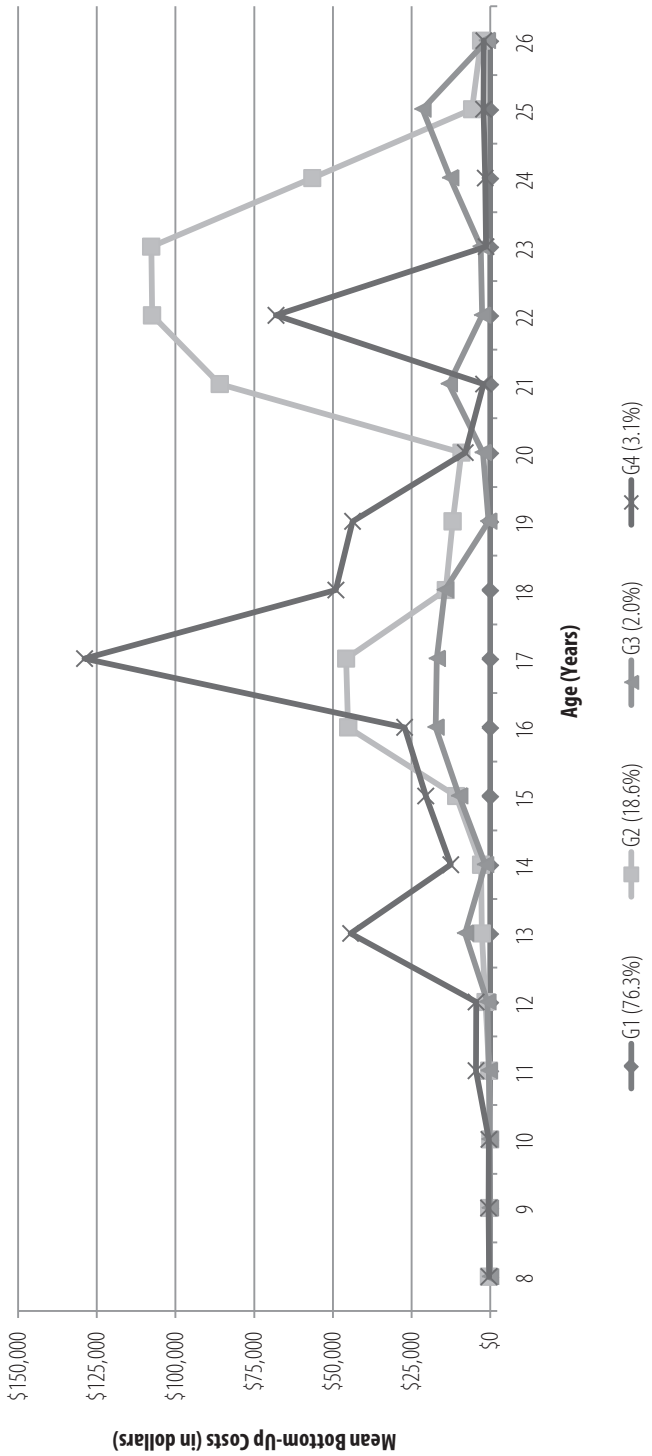
Tables 2 and 3 present the WTP and "bottom-up" cost estimates, respectively, of the juvenile offending, adult offending, and total offending by trajectory group as well as the total aggregate costs of the group's accumulated number of offenses by group and the total aggregate group costs. Turning toward WTP costs associated with group-based offending for the random sample, overall calculations indicated that the total costs of the offending trajectories among our random sample of the Second Philadelphia Birth Cohort was $529,122,665. Comparatively, the "bottom-up" cost estimate totals, which were noticeably lower, indicated that costs associated with group-based offending were $264,505,360. However, more interesting is the strong variation in total costs across trajectories. The total costs of the very-low chronic offending group (G2) were nearly $182 million, which was somewhat higher than the total costs of the adolescent-peaked offending group (G3) and was primarily because of the relatively large size of the G2 group.[13] However, the (total group) costs of the high-rate chronic offender group (G4, 3.1% of the sample) were greater than those of G2 and nearly two times greater than G3. In fact, as displayed in the total contacts-mean dollar amount column, the mean costs per offender in this

12. It is important to recognize that the current study builds cost estimates into a latent trajectory analysis of the Second Philadelphia Birth Cohort similar to the trajectory analyses reported in D'Unger et al. (1998). First, the previous study was the first of the latent trajectory studies to introduce and use BIC as a statistical criterion for decisions on the optimal number of classes in the finite mixture of trajectories. Second, the latent groups identified in the current study are similar to those of D'Unger et al.'s, except that our groups seem to combine a couple of those that were decomposed more and treated separately by D'Unger et al. Of course, if one does separately identify a subset of high-rate adolescent-peaked offenders, for example, with a peak number of police contacts of more than 3 per year—as estimated by D'Unger et al., rather than the 1.25 per year we estimated for the larger peaked group—then the cost estimates that follow for this subset would be substantially higher. Additionally, our G2 low-rate chronic group had a trajectory and properties much like the low-rate chronic offender group identified in D'Unger et al. Second, using somewhat different criteria to identify latent groups (including a different sampling procedure), our G3 adolescent-peaked group was decomposed into high-rate adolescent-peaked and low-rate adolescent-peaked groups by D'Unger et al. Nevertheless, the characteristics of their combined groups are much like our G2 group. Incidentally, it was D'Unger et al. who argued that "adolescent peaked" was a better label for this trajectory group than "adolescent limited," because although it is true that the peak of the offending trajectory for this group is concentrated in the adolescent-teen years, the trajectory actually extends into the early 20s. Relatedly, our G4 high-rate chronic offender group has an offending trajectory also much like a combination of the high-rate chronic and low-rate chronic groups identified in D'Unger et al. We would like to thank an anonymous reviewer for making this general observation and for suggesting the appropriate text.

13. In particular, the costs exerted by G2 were higher because more individuals were in this trajectory (18.6% of 6,750 individuals ~ 1,255 individuals). If each of these offenders cost $144,996 on average, then a summation would show that they would cost more as a group than the G3 trajectory (2% of 6,750 individuals ~ 135 individuals), who each cost $885,050 on average.

FIGURE 2

"Bottom-Up" Costs by Age by Trajectory Group: Random Sample (*N* = 6,750)



high-rate group were more than $1 million.[14] Furthermore, the costs of the high-rate chronic offender group (G4) were higher in their adult years (ages 18–26) than the costs of their juvenile offending career (ages 8–17). The other offending groups have lower adult costs than juvenile costs.[15] The results and interpretations were also substantively similar when estimating the costs of group-based offending using the "bottom-up" method to calculate costs (see Table 3). Finally, the total costs of the high-rate chronic trajectory group were estimated to be approximately $226 million (WTP estimate) or $108 million ("bottom-up" estimate).

Tables 2 and 3 indicate the current value of costs discounted to age 14 at the 2% rate used by Cohen and Piquero (2009), as shown in parentheses. Although the current-value calculations reduce the impact of adult offending relative to juvenile offending, the basic findings hold. In particular, the current value of lifetime costs through age 26 were estimated to be $157 million for G2, $108 million for G3, and $195 million for G4 using the WTP method, and they were $78 million for G2, $47 million for G3, and $99 million for G4 using the "bottom-up" approach. Note also that these estimates were based on a 25% random sample of the Cohort. Thus, the costs imposed by the entire Cohort were estimated to be four times this amount or nearly $2 billion. This burden is spread out across approximately 15 years (from age 11 through age 26).

As another point of comparison, Figure 1 displays the WTP monetary costs, and Figure 2 displays the "bottom-up" monetary costs associated with offending by year by trajectory group. Here, it seems that the monetary costs of offending peaked in late adolescence at approximately age 17 for all offender trajectories (G2, G3, and G4) and again in early adulthood (~age 22). In contrast, when comparing the year-by-year mean offending *frequency* by trajectory group

14. It is interesting to compare this high-rate chronic offending group and the "high risk youth" group in Cohen and Piquero (2009), which was defined as youth with six or more police contacts. (Note that we compared police contacts only; Cohen and Piquero (2009) also reported costs using a multiple.) Our high-rate chronic offending group, G4, imposed average discounted costs of $932,353 using the WTP approach and $471,796 using the "bottom-up" approach. This estimate compared to $978,193 in estimated present value WTP costs and $412,579 in "bottom-up" costs for the "high risk youth" group in Cohen and Piquero (2009: Table 6). Thus, the costs imposed by the high-rate chronic offender (G4) group were slightly less than the average "high risk youth" who had six or more police contacts using the WTP approach, but the costs were slightly more using the "bottom-up" approach. Note that the "high risk youth" group in Cohen and Piquero represented 4% of the population, whereas the high-rate chronic offending group in our article represented 3.1% of the population. This representation illustrates the value of identifying trajectories—because some of these "high risk youth" ultimately fall into G3, the adolescence-peaked group.

15. In Tables 2 and 3, the Total Group Costs (% of total costs) value in column 4 was determined by summing each offender's costs in each group to arrive at a group total. Then, the percentage was determined by summing the total costs for all offending groups (G2 Total + G3 Total + G4 Total) and dividing each group's cost by the Total. For example, in Table 2, Total WTP Costs of group-based offending = $181,824,984 + $121,251,850 + 226,045,831 = $529,122,665. G2's percentage of Total WTP Costs = $181,824,984 / $529,122,665 = 34%.

(Figure A1) against the year-by-year mean *costs* (Figures 1 and 2), it seems that G3 peaked at age 15, whereas G4 peaked at age 19. Thus, not only do costs lag the peak in offending frequency, but also they show different patterns.[16]

An interesting finding here is that for two offender groups (G2 and G3), their mean-offending seriousness using the Sellin–Wolfgang seriousness score was comparable in their juvenile career (G2 = 3.58; G3 = 6.19) to their mean-offending seriousness in their adult career (G2 = 3.99; G3 = 6.35). In contrast, the mean seriousness of offending for the high-rate chronics (G4) was significantly and *substantively* greater in their adult career (G4 = 9.68) compared with their mean-offending seriousness during their juvenile career (G4 = 4.74). Thus, although a pattern suggests an increase in seriousness into adulthood for all offender groups, especially for the high-rate chronic group, it seems that the *frequency* of offending in the juvenile careers is driving the costs and the *seriousness* of offending in the influence of the adulthood years of these associated costs. Stated differently, for G2 and G3, the high costs in the juvenile years is a frequency effect; a higher frequency (as a juvenile) equals more costs (as a juvenile) but with more serious offending, which peaks and occurs later in the life course (as an adult) and is always of lower frequency; this pattern might be why costs in general are not as high in adulthood. Still, the costs of offending in adulthood remain substantial in consideration of the low frequency and the greater seriousness for the offenses committed.[17]

Tables 4 and 5 provide the results of a series of mean-difference tests that examined whether the total mean-police contacts and the total mean-WTP costs and "bottom-up" costs associated with these police contacts significantly differ among trajectories. Not surprisingly, all group-mean differences in the number of police contacts were significantly different across all trajectories (see Table A2, see page 304). This finding was to be expected because the frequency of offending was the measure used when estimating the group-based trajectories. The findings also suggest that the mean costs incurred by the high-rate chronic group were significantly greater than the costs of a low-rate group or the adolescent-limited offender group. Ultimately, the costs of high-rate chronic offending were substantial, and this small group of offenders (~3%

16. Note that Welsh et al. (2008) estimated peak costs at age 17 when comparing costs imposed by an entire group of juvenile offenders from ages 11 to 17.

17. Note that one possible explanation for the low frequency of adult offenses could be that these offenders were incarcerated during their adult years. Although we do not know which offenders were incarcerated, we have incorporated the "expected costs" of prison into our cost calculations based on the percentage of arrests that result in prison by type of crime.

of the sample) was responsible for nearly half of the total costs of offending. The findings are even more robust when looking at the "bottom-up" cost estimates, in which each trajectory group incurred significantly different costs and again the high-rate chronic offending group was responsible for nearly half the total costs of offending.

TABLE 4

Significant Group Mean Differences by Total Contacts and Total WTP Costs

Trajectory Group	Total Mean Contacts	Total Mean Costs
Random Sample ($N = 6,750$)		
G1 (76.3%)	—	—
G2 (18.6%)	<G3; <G4	<G3; <G4
G3 (2.0%)	>G2; >G4	>G2
G4 (3.1%)	>G2; <G3	>G2

Note. Only significant group differences are reported. *P* values are less than 0.05.

TABLE 5

Significant Group Mean Differences by Total Contacts and "Bottom-Up" Costs

Trajectory Group	Total Mean Contacts	Total Mean Costs
Random Sample ($N = 6,750$)		
G1 (76.3%)	—	—
G2 (18.6%)	<G3; <G4	<G3; <G4
G3 (2.0%)	>G2; >G4	>G2; <G4
G4 (3.1%)	>G2; <G3	>G2; >G3

Note. Only significant group differences are reported. *P* values are less than 0.05.

Before we close our investigation, we would like to highlight the costs associated with the Cohort's most *frequent* offender. This offender, who was an African American male, was responsible for 53 crimes across the course of his criminal career, of which the bulk (>80%) was committed as a juvenile. Furthermore, his individual Sellin–Wolfgang mean-seriousness score was 10.8 during his juvenile career and 9.8 in his adult career, which placed his seriousness of offending in the top 5% of the entire Cohort for juvenile *and* adult offending seriousness. Not surprisingly, this offender was in the high-rate chronic trajectory. This one chronic, serious, and most frequent offender imposed a cost of $1,696,000 on society in less than 20 years.

It is also interesting to contrast the most frequent offender with the Cohort's most *costly* offender. This offender, who was also an African American male and in the high-rate chronic trajectory, was responsible for nine crimes during the course of his criminal career. The Sellin–Wolfgang mean-seriousness score of this offender was only 1.3 during his juvenile career (where he committed only one offense); yet his Sellin–Wolfgang mean-seriousness score was 20.6 in

his adult career. This latter figure placed his seriousness of offending in the top 5% of the entire Cohort for adult-offending seriousness. This one chronic, serious, and most costly offender imposed a cost of $35,406,000 on society.

Discussion

Using data from the Second Philadelphia Birth Cohort, this study presented a unique linkage of group-based offending trajectories to the total monetary costs of crime, the results of which indicated important differences across trajectory groups with respect to the monetary costs imposed on society, with the most high-rate chronic offenders exerting the highest total monetary costs. A general pattern resulted in which the low offending group imposed roughly equal costs in both their juvenile and their adult years; the medium offending group imposed higher costs in their juvenile years; and the high-rate chronic offending group imposed significantly higher costs in their adult years. Furthermore, these results were largely consistent across methods to calculate offending costs (e.g., WTP costs and "bottom-up" costs).

Although these findings bear relevance for the extant life-course literature, the addition of dollar amounts to the offending trajectories might be more effective in attracting the attention of policy makers. This possibility exists because information on the monetary costs of crime focusing on a real-life cohort covering more than 20 years of offending offers some guidance with respect to allocating scarce resources across the spectrum of punishment, prevention, and treatment. In this regard, it is important to focus the discussion on these monetary costs in terms of how they compare with the actual numbers of crimes committed.

Consider the frequency of offending and the monetary costs of the high-rate chronic group (G4). If early childhood prevention programs could be implemented that would prevent the prevalence of high-rate chronic offending, then this program would result in the prevention of nearly 2,000 crimes or 34% of all crimes committed by the Cohort members by the time these "would-be" high-rate chronic offenders reached age 27. Comparatively, preventing individuals within this trajectory from their high-rate chronic offending would save more than $200 million dollars (WTP costs) or more than $100 million ("bottom-up" costs) in terms of costs imposed by their criminal behavior—or nearly 50% of the total costs of any offending committed by the entire Cohort.[18] Ultimately, preventing individuals from following a high-rate chronic offending pathway would considerably reduce the frequency of crime, in general, and its associated monetary costs, in particular.

Because policy makers make difficult decisions regarding the allocation of resources to crime prevention and intervention programs, knowledge regarding the success of such efforts as well as an assessment of their costs and benefits is essential (Drake, Aos, and Miller, 2009). With this

18. To be sure, the estimated $200 million figure is a high-end estimate and might be significantly lower. Presumably, even if the implemented policies were effective, many (if not most) of the offenders in the G4 trajectory would become part of the low-rate or adolescent-peaked groups instead of moving to the "no offenses" cohort. Because the costs incurred by these groups were still about $181 and $112 million, respectively, the cost savings are likely to be considerably lower than we indicated.

backdrop, what do these cost-of-crime analyses imply for policy and the prevention of juvenile and (especially high-rate) chronic offending? To begin, one (among several) policy option would involve the diversion of resources toward identifying and treating would-be high-rate chronic offenders.[19] Under this scenario, certain (especially ineffective) juvenile delinquency prevention programs (e.g., DARE, Scared Straight, Juvenile Mentoring, and Juvenile Boot Camps) would be eliminated, and the requisite resources shifted toward successful, evidence-based prevention efforts early in the life course. For example, early family–parenting training programs (Piquero, Farrington, Welsh, Tremblay, and Jennings, 2009), self-control modification efforts (Piquero, Jennings, Farrington, 2010), and cognitive-based therapies (Landenberger and Lipsey, 2005) all have been found to improve cognitive abilities and decision making among exposed youth, which in turn have resulted in lower delinquency and antisocial behavior (Greenwood, 2005).[20] In sum, this policy option would entail shifting and applying evidence-based prevention resources and programs to children who display serious antisocial behavior early in the life course (Farrington and Welsh, 2006), and although it is possible that some children who receive these resources might not actually be or become high-rate chronic offenders, improving both parental socialization as well as the self-control and the decision-making styles among as many children as possible does not seem to be a counterproductive strategy, in any event.

Although the policy prescriptions described generally are applicable to high-risk youth and high-rate chronic offenders, our analysis of offending trajectories suggests that more benefits could accrue if we began to distinguish potential trajectory membership in advance. In terms of overall costs, it seems that the frequency of offending accounts for the bulk of costs in the juvenile years, whereas the seriousness of individual crimes drives the total costs in the adult years. Moreover, because some trajectory groups impose higher costs in their juvenile years, and others impose higher costs in their adult years, policies that target certain trajectory groups as opposed to all at-risk youth, for example, have the potential to provide significantly greater benefits at lower costs. More research on predicting the future offending behavior and distinguishing trajectory group membership could prove fruitful.

Although our study presented an initial effort to link offending trajectories to the monetary costs of crime, several limitations should be noted. First, the offending information came from official records, and although all data sources have their strengths and weaknesses, official records only cover the types of offending that come to the attention of the criminal-justice

19. To be sure, this shift might consequently divert resources from the low-rate and adolescent-peaked groups, which potentially allows some of them to move subsequently into the high-rate chronic group, who otherwise might have remained low-rate or adolescent-peaked. This possibility is mitigated by the findings that most adolescent-limited-type offenders do not continue offending into adulthood, and among those who do continue, they tend to engage in little serious and costly crimes (Nagin et al., 1995).

20. This theory presumes that awareness exists about the correlates of early, high-rate, and chronic offenders and that these offenders can be identified early, before it is too late. Although this policy has been disputed (Gottfredson and Hirschi, 1990; Laub and Sampson, 2003), evidence supports some of the more important correlates of high-rate chronic offending (Loeber and Farrington, 1998; Farrington and Welsh, 2006), and two in particular surround parental socialization and self-control, decision-making strategies (Patterson, 1982).

system. And although police contacts are closest in terms of all official records to the criminal act (Hindelang, Hirschi, and Weis, 1981), they do not capture all criminal events and are less likely to include more minor offenses, especially those that go undocumented. Furthermore, whether any findings would change depends on whether the ratio of police contacts to actual offending is constant across time (Brame, Fagan, Piquero, Schubert, and Steinberg, 2004). For example, if all juvenile offenses resulted in police contacts, whereas only a small fraction of adult offenses resulted in an arrest, then adolescent age peaks might be dwarfed by subsequent peaks in adulthood. Second, the data do not contain information on exposure time; thus, to the extent that some offenders were incapacitated for a period of unknown time, it would influence their opportunity to offend and, therefore, incur costs—bearing in mind that the WTP costs are broad and potentially include the criminal-justice costs associated with offending.[21] Third, several methods are available to calculate the many types of offending costs. Replication using other methods and costs is important. Fourth, although we used the label "chronic" for two trajectories (G2 and G4) to characterize their offending frequency, we qualify our use of this term and acknowledge the more general difficulty associated with providing labels to groups at the risk of reifying them. Finally, the extent to which the nature of offending has changed across time (especially the drug crime wave that occurred in the United States in the mid-1980s) might produce different sets of estimates, and it would be useful to examine these specific costs. And although the trajectory analysis yielded single-peaked curves that displayed a pattern of increasing and then decreasing rates of offending by age, this outline weighs all crimes equally—despite the fact that the severity of crime changes across the career of an offender (LeBlanc and Frechette, 1989). By applying cost estimates to each crime committed by the offender, we can discern different patterns with each trajectory group.

In sum, this study investigated whether different offender trajectories varied in the monetary costs imposed on society. The key findings that emerged from this research are robust. For instance, the results illustrated that the high-rate chronic trajectory group imposed significant and substantively large monetary costs on society, and the consistency of the higher costs of this trajectory in relation to the other more prevalent, but less frequent, costs of the trajectories suggests the need to shift attention and resources to early prevention and intervention programs, which also provide monetary benefits beyond reduced crime and victim costs (Welsh and Farrington, 2000), to prevent and reduce the escalating costs of frequent and serious offending across the

21. Like most longitudinal data in criminology, the Second Philadelphia Birth Cohort data do not contain information on exposure time; thus, the trajectory classifications and longitudinal offending patterns documented in this study (and many others) might have some undue and unknown consequences for our linking of cost-of-crime estimates to offending trajectories. For example, an anonymous reviewer noted that some individuals in G2 could perhaps be potential G3 or G4 offenders who might have gone on to commit additional offenses in adulthood, but their careers simply were truncated by incarceration. In effect, it is possible that the only factors that differentiate the adolescent-peaked and the steady chronic groups are arrest and incarceration—both of which have their own costs. Unfortunately, it is not known how many offenders were incarcerated. However, the cost of incarceration is implicitly considered in the cost of crime based on the likelihood that an offender will be apprehended and punished with a prison sentence.

life course. Should policy makers support effective programs that target children early in the life course (e.g., family and parent training programs; Piquero et al., 2009), then individuals on a high-rate chronic offending trajectory might have an opportunity to move to a trajectory with lower (or no) offending, both of which exert significantly lower monetary costs. Because offending is costly and reaches far beyond the costs to the criminal justice system and rapidly accumulates across time, the economic evaluation research carried out herein might help guide decisions and policies at a time when resources for the prevention, punishment, and treatment of offenders are scarce.

References

Anderson, David A. 1999. The aggregate burden of crime. *Journal of Law and Economics*, 42: 611–642.

Beckett, Katherine and Theodore Sasson. 2003. *The Politics of Injustice: Crime and Punishment in America*. Newbury Park, CA: Sage.

Blumstein, Alfred, Jacqueline Cohen, and David P. Farrington. 1988. Criminal career research: Its value for criminology. *Criminology*, 26: 1–35.

Blumstein, Alfred, Jacqueline Cohen, Jeffrey A. Roth, and Christy A. Visher. 1986. *Criminal Careers and Career Criminals*. Report of the Panel on Criminal Careers. Washington, DC: National Academy of Sciences.

Brame, Robert, Shawn D. Bushway, Raymond Paternoster, and Terence P. Thornberry. 2005. Temporal linkages in violent and nonviolent criminal activity. *Journal of Quantitative Criminology*, 21: 149–174.

Brame, Robert, Jeffrey Fagan, Alex R. Piquero, Carol A. Schubert, and Laurence Steinberg. 2004. Criminal careers of serious delinquents in two cities. *Youth Violence & Juvenile Justice*, 2: 256–272.

Brame, Robert, Daniel S. Nagin, and Richard Tremblay. 2001. Developmental trajectories of physical aggression from school entry to late adolescence. *Journal of Child Psychology and Psychiatry*, 42: 503–513.

Bushway, Shawn D., Terence P. Thornberry, and Marvin D. Krohn. 2003. Desistance as a developmental process: A comparison of static and dynamic approaches. *Journal of Quantitative Criminology*, 19: 129–153.

Chung, Ick-Joong, Karl G. Hill, J. David Hawkins, Lewayne D. Gilchrist, and Daniel S. Nagin. 2002. Childhood predictors of offense trajectories. *Journal of Research in Crime and Delinquency,* 39: 60–90.

Cohen, Mark A. 1998. The monetary value of saving a high risk youth. *Journal of Quantitative Criminology,* 14: 5–33.

Cohen, Mark A. 2005. *The Costs of Crime and Justice.* New York: Routledge.

Cohen, Mark A. 2009. Valuing crime control benefits using stated preference approaches. In (Terence Dunworth, ed.), *Costs and Benefits of Crime.* Washington, DC: Urban Institute Press.

Cohen, Mark A. and Alex R. Piquero. 2009. New evidence on the monetary value of saving a high-risk youth. *Journal of Quantitative Criminology*, 25: 25–49.

Cohen, Mark A., Roland T. Rust, Sara S. Steen, and Simon T. Tidd. 2004. Willingness-to-pay for crime control programs. *Criminology*, 42: 86–106.

Cote, Sylvana, Richard E. Tremblay, Daniel S. Nagin, Mark Zoccolillo, and Frank Vitaro. 2002. The development of impulsivity, fearfulness, and helpfulness during childhood: Patterns of consistency and change in the trajectories of boys and girls. *Journal of Child Psychology & Psychiatry & Allied Disciplines*, 43: 609–618.

Cote, Sylvana, Mark Zoccolillo, Richard E. Tremblay, Daniel S. Nagin, and Frank Vitaro. 2001. Predicting girls' conduct disorder in adolescence from childhood trajectories of disruptive behaviors. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40: 678–684.

DeLisi, Matt and Jewel M. Gatling. 2003. Who pays for a life of crime? An empirical assessment of the assorted victimization costs posed by career criminals. *Criminal Justice Studies: A Critical Journal of Crime, Law and Society*, 16: 283–293.

DeLisi, Matt A., Anna E. Kosloski, Molly Sween, Emily Hachmeister, Matt Moore, and Allan J. Drury. 2010. Murder by numbers: Monetary costs imposed by a sample of homicide offenders. *Journal of Forensic Psychiatry and Psychology*. In press.

Drake, Elizabeth K., Steve Aos, and Marna G. Miller. (2009). Evidence-based public policy outcomes to reduce crime and criminal justice costs: Implications in Washington state. *Victims and Offenders*, 4: 170–196.

D'Unger, Amy V., Kenneth C. Land, and Patricia L. McCall. 2002. Sex differences in age patterns of delinquent/criminal careers: Results from Poisson latent class analyses of the Philadelphia Cohort Study. *Journal of Quantitative Criminology*, 18: 349–375.

D'Unger, Amy V., Kenneth C. Land, Patricia L. McCall, and Daniel S. Nagin. 1998. How many latent classes of delinquent/criminal careers? Results from mixed Poisson regression analyses. *American Journal of Sociology*, 103: 1593–1630.

Farrington, David P. and Brandon C. Welsh. 2006. *Saving Children from a Life of Crime: Early Risk Factors and Effective Interventions*. New York: Oxford University Press.

Fergusson, David M. and L. John Horwood. 2002. Male and female offending trajectories. *Development and Psychopathology*, 14: 159–177.

Gottfredson, Michael R. and Travis Hirschi. 1986. The true value of lambda would appear to be zero: An essay on career criminals, criminal careers, selective incapacitation, cohort studies, and related topics. *Criminology*, 24: 213–233.

Gottfredson, Michael R. and Travis Hirschi. 1990. *A General Theory of Crime*. Palo Alto, CA: Stanford University Press.

Greenwood, Peter W. 2006. *Changing Lives: Delinquency Prevention as Crime Control Policy*. Chicago, IL: University of Chicago Press.

Hindelang, Michael J., Travis Hirschi, and Joseph G. Weis. 1981. *Measuring Delinquency*. Beverly Hills, CA: Sage.

Jones, Bobby L., Daniel S. Nagin, and Kathryn Roeder. 2001. A SAS procedure based on mixture models for estimating developmental trajectories. *Sociological Methods and Research*, 29: 374–393.

King, Gary. 1989. Event count models for international relations: Generalizations and applications. *International Studies Quarterly*, 33: 123–147.

Lambert, Diane. 1992. Zero-inflated Poisson regression, with an application to defects in manufacturing. *Technometrics*, 34: 1–14.

Land, Kenneth C., Patricia L. McCall, and Daniel S. Nagin. 1996. A comparison of Poisson, negative binomial, and semiparametric mixed Poisson regression models with empirical applications to criminal careers research. *Sociological Methods and Research*, 24: 387–442.

Land, Kenneth C. and Daniel S. Nagin. 1996. Micro-level models of criminal careers: A synthesis of the criminal careers and life course approaches via semiparametric mixed Poisson regression models, with empirical models. *Journal of Quantitative Criminology*, 12: 163–191.

Landenberger, Nana A. and Mark Lipsey. 2005. The positive effects of cognitive-behavioral programs for offenders: A meta-analysis of factors associated with effective treatment. *Journal of Experimental Criminology*, 1: 451–476.

Laub, John H., Daniel S. Nagin, and Robert J. Sampson. 1998. Trajectories of change in criminal offending: Good marriages and the desistance process. *American Sociological Review*, 63: 225–238.

Laub, John H. and Robert J. Sampson. 2003. *Shared Beginnings, Divergent Lives: Delinquent Boys to Age 70.* Cambridge, MA: Harvard University Press.

Lauritsen, Janet L. 1998. The age–crime debate: Assessing the limits of longitudinal self-report data. *Social Forces*, 77: 127–155

LeBlanc, Matt and Marcel Frechette. 1989. *Male Criminal Activity from Childhood through Youth: Multilevel and Developmental Perspectives*. New York: Springer.

Loeber, Rolf and David P. Farrington. 1998. *Serious and Violent Juvenile Offenders*. Newbury Park, CA: Sage.

Loeber, Rolf, Evelyn Wei, Magda Stouthamer-Loeber, David Huizinga, and Terence P. Thornberry. 1999. Behavioral antecedents to serious and violent juvenile offending: Joint analyses from the Denver Youth Survey, Pittsburgh Youth Study, and the Rochester Youth Development Study. *Studies in Crime and Crime Prevention*, 8: 245–263.

Long, J. Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables.* Thousand Oaks, CA: Sage.

Maldonado-Molina, Mildred, Alex R. Piquero, Wesley G. Jennings, Hector Bird, and Glorisa Canino. 2009. Trajectories of delinquency among Puerto Rican children and adolescents at two sites. *Journal of Research in Crime and Delinquency*, 46: 144–181.

McDermott, Scott and Daniel S. Nagin. 1998. Same or different over time? In (Susan O. White, ed.), *Handbook of Law and Social Science: Youth and Justice*. New York: Plenum Press.

Miller, Ted R., Mark A. Cohen, and Brian Wiersema. 1996. *Victim Costs and Consequences: A New Look*. Washington, DC: National Institute of Justice.

Moffitt, Terrie E. 1993. Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, 100: 674–701.

Moffitt, Terrie E., Avshalom Caspi, Michael Rutter, and Phil A. Silva. 2001. *Sex Differences in Antisocial Behaviour: Conduct Disorder, Delinquency, and Violence in the Dunedin Longitudinal Study*. Cambridge, UK: Cambridge University Press.

Nagin, Daniel S. 1999. Analyzing developmental trajectories: A semiparametric, group-based approach. *Psychological Methods*, 4: 139–157.

Nagin, Daniel S. 2001. Measuring economic benefits of developmental prevention programs. In (Brandon C. Welsh, David P. Farrington, and Lawrence Sherman, eds.), *Costs and Benefits of Preventing Crime*. Boulder, CO: Westview Press.

Nagin, Daniel S. 2005. *Group-Based Modeling of Development*. Cambridge, MA: University of Harvard Press.

Nagin, Daniel S. and Richard E. Tremblay. 2005. Developmental Trajectory Groups: Fact or a Useful Statistical Fiction? *Criminology*, 43: 873-904.

Nagin, Daniel S., David P. Farrington, and Terrie E. Moffitt. 1995. Life-course trajectories of different types of offenders. *Criminology*, 33: 111–140.

Nagin, Daniel S. and Kenneth C. Land. 1993. Age, criminal careers, and population heterogeneity: Specification and estimation of a nonparametric, mixed Poisson model. *Criminology*, 31: 327–362.

Nagin, Daniel, Alex R. Piquero, Elizabeth S. Scott, and Laurence Steinberg. 2006. Public preferences for rehabilitation versus incarceration of juvenile offenders: Evidence from a contingent valuation survey. *Criminology & Public Policy*, 5: 301–326.

Odgers, Candice L., Avshalom Caspi, Jonathan M. Broadbent, Nigel Dickson, Robert J. Hancox, Honalee Harrington, et al. 2007. Prediction of adult health burden by conduct problem subtypes in males. *Archives of General Psychiatry*, 64: 476–484.

Patterson, Gerald R. 1982. *Coercive Family Process*. Eugene, OR: Castalia.

Piquero, Alex R. 2008. Taking stock of developmental trajectories of criminal activity over the life course. In (Akiva Liberman, ed.), *The Long View of Crime: A Synthesis of Longitudinal Research*. New York: Springer.

Piquero, Alex R., Randall MacIntosh, and Mathew Hickman. 2000. The Validity of a Self-Reported Delinquency Scale. *Sociological Methods Research*, 30: 492-529.

Piquero, Alex R., Robert Brame, Paul Mazerolle, and Rudy Haapanen. 2002. Crime in emerging adulthood. *Criminology*, 40: 137–169.

Piquero, Alex R., Robert Brame, and Terrie E. Moffitt. 2005. Extending the study of continuity and change: Gender differences in the linkage between adolescent and adult offending. *Journal of Quantitative Criminology*, 21: 219–243.

Piquero, Alex R., David P. Farrington, and Alfred Blumstein. 2003. The criminal career paradigm. In (Michael H. Tonry, ed.), *Crime and Justice: A Review of Research*, Vol. 30. Chicago, IL: University of Chicago Press.

Piquero, Alex R., David P. Farrington, and Alfred Blumstein. 2007. *Key Issues in Criminal Career Research: New Analyses of the Cambridge Study in Delinquent Development*. Cambridge University Press.

Piquero, Alex R., David P. Farrington, Daniel S. Nagin, and Terrie E. Moffitt. 2010. Trajectories of offending and their relation to life failure in late middle age: Findings from the Cambridge Study in Delinquent Development. *Journal of Research in Crime and Delinquency.* In press.

Piquero, Alex R., David P. Farrington, Brandon C. Welsh, Richard E. Tremblay, and Wesley G. Jennings. 2009. Effects of early family/parent training programs on antisocial behavior and delinquency. *Journal of Experimental Criminology*, 5: 83–120.

Piquero, Alex R., Wesley G. Jennings, and David P. Farrington. 2010. On the malleability of self-control: Theoretical and policy implications regarding a general theory of crime. *Justice Quarterly*. In press.

Sampson, Robert J. and John H. Laub. 1993. *Crime in the Making: Pathways and Turning Points Through Life.* Cambridge, MA: Harvard University Press.

Scott, Elizabeth and Laurence D. Steinberg. 2006. *Rethinking Juvenile Justice*. Cambridge, MA: Harvard University Press.

Thornberry, Terence P. and Marvin D. Krohn. 2003. Comparison of self-report and official data for measuring crime. In (National Research Council, ed.), *Measurement Issues in Criminal Justice Research: Workshop Summary*. Washington, DC: National Academy Press.

Tracy, Paul E. and Kimberly Kempf-Leonard. 1996. *Continuity and Discontinuity in Criminal Careers*. New York: Plenum.

Tracy, Paul E., Marvin E. Wolfgang, and Robert M. Figlio. 1990. *Delinquency Careers in Two Birth Cohorts*. Chicago, IL: University of Chicago Press.

Welsh, Brandon C. and David P. Farrington. 2000. Monetary costs and benefits of crime prevention programs. In (Michael H. Tonry, ed.), *Crime and Justice: A Review of Research*, Vol. 27. Chicago, IL: University of Chicago Press.

Welsh, Brandon C., Rolf Loeber, Bradley Stevens, Magda Stouthamer-Loeber, Mark A. Cohen, and David P. Farrington. 2008. Costs of juvenile crime in urban areas: A longitudinal perspective. *Youth Violence and Juvenile Justice*, 6: 3–27.

White, Helene R., Daniel Nagin, Elaine Replogle, and Magda Stouthamer-Loeber. 2004. Racial differences in trajectories of cigarette use. *Drug and Alcohol Dependence*, 76: 219–227.

Wolfgang, Marvin E., Robert M. Figlio, and Thorsten Sellin. 1972. *Delinquency in a Birth Cohort.* Chicago, IL: University of Chicago Press.

Zorn, Christopher J. 1998. An analytic and empirical assessment of zero-inflated and hurdle Poisson specifications. *Sociological Methods and Research*, 26: 368–400.

Mark A. Cohen is Vice President for Research and Senior Fellow at Resources for the Future. He also serves as the Justin Potter Professor of American Competitive Enterprise and Professor of Law at the Owen Graduate School of Management, Vanderbilt University and as Honorary Visiting Professor in the Department of Economics at the University of York (U.K.). Previously, he served as a staff economist at the U.S. Environmental Protection Agency, the U.S. Federal Trade Commission and the U.S. Sentencing Commission.

Alex R. Piquero is a Professor in the College of Criminology and Criminal Justice at Florida State University and Co-Editor of the *Journal of Quantitative Criminology*. His research interests include criminal careers, criminological theory, and quantitative research methods. He has served as Executive Counselor with the American Society of Criminology and has received several research, teaching, and mentoring awards.

Wesley G. Jennings is an Assistant Professor in the Department of Justice Administration at the University of Louisville. He received his doctorate degree in Criminology from the University of Florida in 2007. His major research interests include longitudinal data analysis, semi-parametric group-based modeling, sex offending, gender, and race/ethnicity. In addition, he is currently a Co-Investigator on a National Institute of Justice funded project examining sex offender recidivism and collateral consequences.

TABLE A1

Mean Posterior Probabilities of Group Assignment

Trajectory Group	G1	G2	G3	G4	25th percentile	75th percentile
Random sample ($N = 6{,}750$)						
G1 (76.3%)	**0.89**	0.11	0.00	0.00	0.89	0.89
G2 (18.6%)	0.00	**0.96**	0.02	0.02	0.99	0.99
G3 (2.0%)	0.00	0.04	**0.89**	0.07	0.84	0.99
G4 (3.1%)	0.00	0.03	0.07	**0.90**	0.84	0.99

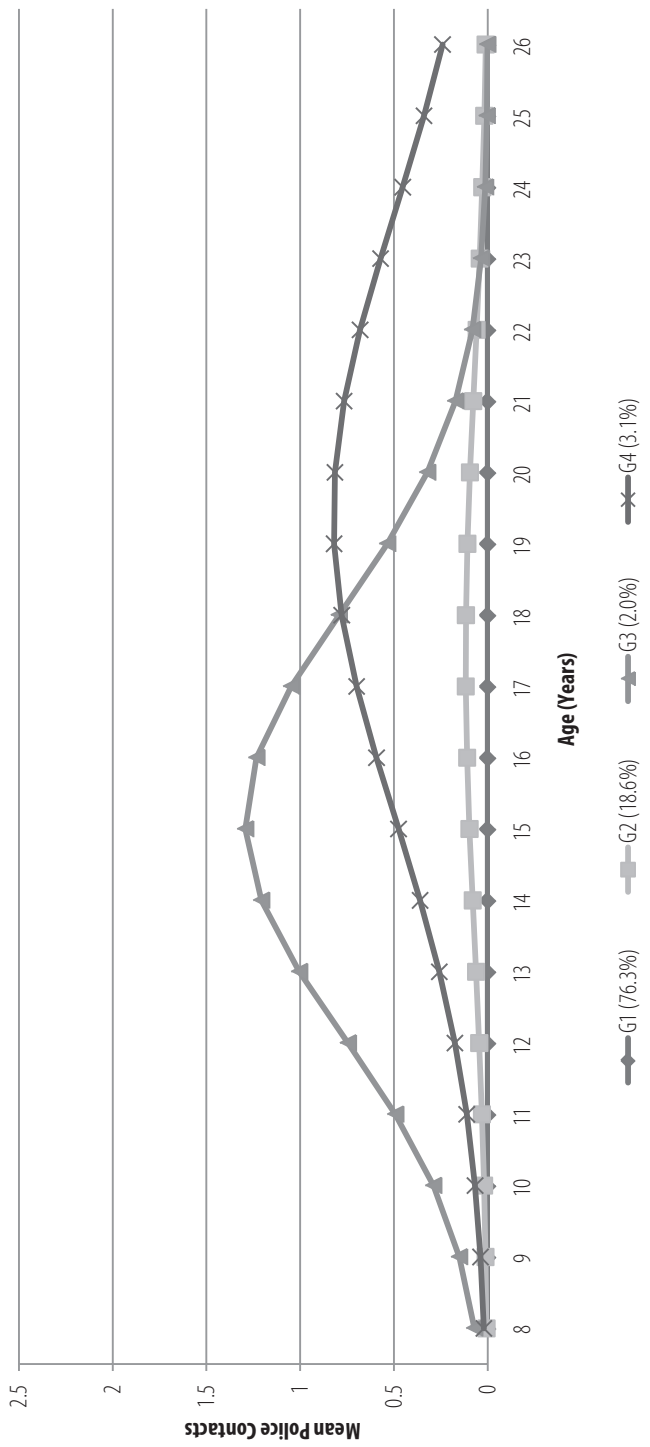
TABLE A2

Frequency of Offending by Trajectory Group

Trajectory Group	Juvenile Contacts (Mean Contacts)	Adult Contacts (Mean Contacts)	Total Contacts (Mean Contacts)	Total Group Contact Frequency (% of Total Contact Frequency)
Random sample (N=6,750)				
G1 (76.3%)	—	—	—	—
G2 (18.6%)	1.05	0.64	1.69	2,125 (40%)
G3 (2.0%)	8.58	1.45	10.02	1,373 (26%)
G4 (3.1%)	3.16	5.41	8.56	1,790 (34%)

FIGURE A1

Trajectories of Police Contacts by Age: Random Sample (*N* = 6,750)



The costs of crime

Jens Ludwig
University of Chicago
National Bureau of Economic Research

What economist would not be delighted to see more work in criminology devoted to benefit–cost analysis (BCA)? In my policy essay, I would like to make three points.

First, the application of BCA to crime policy raises several difficult (or at least subtle) conceptual and practical issues, which include the question of whether to use "bottom-up" versus "top-down" estimates for the costs of crime—an important decision because the two procedures yield figures that differ by a factor of two. Philip Cook and I argued that the "top-down" approach is the conceptually correct framework (Cook and Ludwig, 2000), although this approach raises several measurement challenges that I will discuss here that are in desperate need of intensive study.

Second, it is worth making explicit a point that has been raised implicitly in Cohen, Piquero, and Jenning's article (2010, this issue); the costs (as well as the benefits) of crime prevention might vary across offending trajectories, and so decisions about how to target resources across offending trajectories need to focus on the *ratio* of benefits to costs and not just focus on the benefit side of the ledger.

Finally, the practical policy implications of combining BCA and trajectory analysis are limited, as Cohen et al. (2010) have noted, by the difficulty of identifying the offending groups of people prospectively. One suggestion I have is to consider using information about the criminal involvement of parents, because of previous evidence about strong intergenerational correlations in offending behavior. But even if we cannot target interventions as well as we would like, the social costs of crime are so large that American society seems likely to be underinvesting right now in most forms of crime prevention, with the possible exception of mass incarceration.

Direct correspondence to Jens Ludwig, University of Chicago, 1155 E 60th Street, Chicago, IL 60637 (e-mail: jludwig@uchicago.edu).

Estimating the Benefits of Crime Prevention

The conceptually appropriate way to think about the costs of crime is what Cohen et al. (2010) have called the "top-down" approach, but which Philip Cook and I preferred to term the "ex ante" perspective (to be contrasted with the "bottom-up" or "ex post" perspective). The ex ante perspective corresponds to the resource allocation problem facing policy makers; the mayor of some large, cold Midwestern city must decide how much of the budget for next year should go to crime prevention versus other pressing uses, such as schools, roads, public transportation, snow removal, garbage collection, and homeless shelters. The public good that citizens receive in exchange for devoting extra resources to crime prevention instead of alternative uses is a reduction in the risk that they, or that people they care about, will be victimized in the future. To compare the value of this benefit to the costs, we need to convert these benefits to dollar terms, and the appropriate way to do that is to measure the sum of what people in the community are willing to pay (WTP) for changes in crime victimization risk.

The problem with the "bottom-up" or "ex post" perspective is that it either does not make any sense, is not useful for policy purposes, or both. This alternative perspective focuses on trying to value the "cost" of crime that has already occurred to identifiable victims. The valuations of some costs are easy to imagine (the stolen wallet, television, or broken window). But how does one assign dollar values to nonmarket (intangible) costs such as the pain and suffering associated with trauma, injury, or death? The ex post method often turns to jury awards, but that just pushes the conceptual problem back a step; how do juries derive cost figures? One possibility would be to try to identify the dollar amounts required to make victims whole, or what economists call the "willingness to accept." But anyone who has lost a parent, child, or spouse to crime would say that no amount of money would ever compensate for their loss, which for BCA purposes, in turn, would imply that we should be devoting every dollar of the gross domestic product (GDP) to crime prevention (because the benefits measured in this way would be infinite). When I teach BCA in my crime policy class at the University of Chicago Law School and ask how juries come up with victim payments to compensate for intangible crime costs, most law students respond with "the juries just make it up," which I suspect comes close to the truth.

But even after we have settled on the ex ante perspective as the conceptually appropriate way to define what we mean by the costs of crime, several difficult measurement challenges remain. Many studies have tried to estimate WTP for changes in crime risks by looking at data from housing markets and, specifically, looking at what people are willing to pay for houses in safer neighborhoods. But isolating the effects on house prices of safety versus other hard-to-measure home and neighborhood attributes is extremely difficult in practice. Moreover, what I am willing to pay to live in a 10% safer location understates what I would be willing to pay for a new police program that reduced crime citywide by 10% because I put some value on the improved safety of other city residents as well. So estimates for the safety/price gradient in the housing market likely will understate societal WTP for crime control even if we were not concerned about the possibility of omitted variable bias in our hedonic home-price regressions.

The most common alternative to looking at actual housing market data is to use survey methods to ask people to respond to hypothetical market scenarios, which is known as the contingent valuation (CV) approach. But this approach assumes that people have well-formed preferences for safety and are capable of thinking about marginal changes in crime victimization risks. It is possible that these assumptions are met because most people do have some first-hand experience thinking, in at least a general way, about crime probabilities in deciding where to buy or rent a place to live, but at the end of the day, who really knows? Environmental economists have developed a large literature trying to learn more about whether CV "works" in that application by, for example, seeing how WTP responses vary by how the questions are phrased, sequenced, or preceded by the provision of different amounts or types of background information and by trying to construct scenarios in which WTP survey responses can be benchmarked against actual behavior. As far as I know, no similar research program is underway in the area of crime, even though, in my view, it would have tremendous social value.

Counting Costs as well as Benefits

Cohen et al. (2010) have sought to disaggregate the costs of crime across offending trajectories with the idea of helping policy makers better target crime prevention resources. The authors briefly have alluded to the fact that for targeting resources, we also need to know something about how the effectiveness of candidate interventions varies across offending groups. Put differently, we need to know how the benefits *and* the costs (and the ratio of benefits to costs) of interventions vary across offending trajectories. This seems to me to be a fundamentally important point worthy of elaboration.

For example, Table 2 in Cohen et al. (2010) shows that the average lifetime costs of crime by people in the lowest offending group (G2) is $144,996 (or put differently, the benefits of preventing criminal behavior by people in this trajectory), compared with a figure of $1,081,559 for those in the most socially costly group (G4). At one point in the article, Cohen et al. argue that we should be trying to concentrate resources on the most socially costly offending groups, but this outcome need not be the case. Suppose, for example, that we have a policy intervention that is 20 times as effective in changing the behavior for teenagers in the G2 group compared with those in the G4 group. In that case, it would be more cost effective to devote some incremental increase in crime-prevention funding to people in the lower offending (G2) group.

Just to be clear, I am not arguing that Cohen et al. (2010) are necessarily wrong in arguing for the targeting of additional resources to the highest offending trajectories. My only point is that it is not self-evident. It is true that in the area of education research, many studies have shown that more disadvantaged children seem to be more responsive to educational interventions (see Currie and Thomas, 1995; Krueger, 1999). At least in principle, this trend need not be true for crime prevention, or at least it need not be true for all types of crime prevention, if one considers, for example, selective incapacitation as a possible policy lever or the fact that criminal behavior by some people might be caused by underlying factors, such as organic brain pathologies or mental health problems that are difficult to remediate. My main point is that

we need to be attentive to the empirical possibility that some offending groups might be more responsive than others to policy interventions, and so, we should be guiding resource allocation decisions based on the ratio of benefits to costs for different uses of crime-prevention resources rather than focusing just on the benefits.

Policy Implications

As Cohen et al. (2010) have noted, one practical difficulty in translating trajectory thinking into concrete policy recommendations is the difficulty of identifying prospectively who falls into which offending trajectories. Although I do not know the trajectory literature well myself, I wonder if one potentially useful marker would be parental involvement in crime because of the substantial intergenerational transmission of criminal behavior (for example, Hjalmarsson and Lindquist, 2007).

For me, the main implication for crime prevention of the cost of crime literature is that we should be doing a lot more of it. Previous studies have suggested that the costs of crime in developed countries might be 10% of the GDP or more (Entorf and Spengler, 2002: 91), which is consistent with estimates that the costs of crime in the United States might be around $1 to $2 trillion per year (Anderson, 1999; Ludwig, 2006). These costs are so substantial that even "low-tech" crime-prevention strategies, such as putting more police on the street, seem to have benefit–cost ratios from 4:1 up to 8.5:1 (Donohue and Ludwig, 2007). The benefit–cost ratio for the intensive Perry Preschool early childhood intervention might be as high as 12.5:1 (Belfield, Nores, Barnett, and Schweinhart, 2006), with up to 70% of the dollar value of the Perry benefits coming from reductions in criminal behavior. Even the large-scale Head Start program seems like it passes a benefit–cost test (Ludwig and Phillips, 2007).

Mass incarceration seems to me to be the one exception. As is well known to readers of this journal, the United States has increased its incarceration rate seven-fold since 1970. Although I believe that expanding the size of the prison population reduces crime, I also think it is likely that we must experience diminishing returns to most things, including mass incarceration. Whether keeping the marginal person imprisoned passes a benefit–cost test at the present levels of incarceration seems to be a close call (Donohue, 2009). But with that said, our current scale of incarceration seems like an unambiguously bad idea when we recognize that the opportunity cost of mass imprisonment is foregone spending on more productive uses, such as more policing or early childhood interventions.

Being able to use trajectory methods to target crime-prevention resources more efficiently would be of potentially great value to public policy makers, assuming that the field one day becomes better able to identify prospectively the offending trajectories of people. In the meantime, I think Cohen et al. (2010) have added a stimulating discussion of the value of benefit–cost analysis to develop crime policy, and in particular, to improve on our current status quo.

References

Anderson, David A. 1999. The aggregate burden of crime. *Journal of Law and Economics*, 42: 611–642.

Belfield, Clive R., Milagros Nores, Steve Barnett, and Lawrence Schweinhart. 2006. The High/Scope Perry Preschool Program: Cost–benefit analysis using data from the age 40 follow up. *Journal of Human Resources*, 41: 162–190.

Cohen, Mark A., Alex R. Piquero, and Wesley G. Jennings. 2010. Studying the costs of crime across offender trajectories. *Criminology & Public Policy*. This issue.

Cook, Philip and Jens Ludwig. 2000. *Gun Violence: The Real Costs*. New York: Oxford University Press.

Currie, Janet and Duncan Thomas. 1995. Does Head Start make a difference? *American Economic Review*, 85: 341–364.

Donohue, John J. 2009. Assessing the relative benefits of incarceration: The overall change over the previous decades and the benefits on the margin. *Do Prisons Make Us Safer? The Benefits and Costs of the Prison Boom*. Retrieved September 27, 2009 from works.bepress.com/john_donohue/65.

Donohue, John J. and Jens Ludwig. 2007. *More COPS*. Brookings Institution Policy Brief 158. Washington, DC: Brookings Institution.

Entorf, Horst and Hannes Spengler. 2002. *Crime in Europe: Causes and Consequences*. New York: Springer.

Hjalmarrson, Randi and Matthew Lindquist. 2007. *Like Godfather, Like Son*. Working Paper. College Park: University of Maryland, School of Public Policy.

Krueger, Alan B. 1999. Experimental estimates of education production functions. *Quarterly Journal of Economics*, 114: 497–532.

Ludwig, Jens. 2006. *Testimony to the U.S. Senate Judiciary Committee*, September 19, 2006. Retrieved September 27, 2009 from judiciary.senate.gov/hearings/testimony.cfm?id=2068&wit_id=5749.

Ludwig, Jens and Deborah A. Phillips. 2007. *The Benefits and Costs of Head Start*. NBER Working Paper 12973. Cambridge, MA: National Bureau of Economic Research.

Jens Ludwig is McCormick Foundation Professor of Social Service Administration, Law, and Public Policy at the University of Chicago; the Director of the University of Chicago Crime Lab; the Co-Director of the National Bureau of Economic Research Working Group on the Economics of Crime; and the Nonresident Senior Fellow in Economic Studies at the Brookings Institution. His research interests involve urban problems, including crime, education, housing, and concentrated poverty. In 2006, he was awarded the Association for Public Policy Analysis and Management's David Kershaw Prize for distinguished contributions to public policy by age 40.

Offender trajectories, crime trends, and costs

An invited policy essay on studying the costs of crime across offender trajectories

Robert M. O'Brien
University of Oregon

The cost of crime in the United States is staggering with some estimates in the range of $1 to $2 trillion a year (Anderson, 1999).[1] Such sums are not surprising considering that with less than 5% of the world's population, the United States incarcerates nearly a quarter of the world's prisoners (Liptak, 2008). This $1 to $2 trillion figure (like most studies of the costs of crime) does not address perhaps the largest crime burden—the intergenerational transmission of crime-proneness to the next generation by those who engage in crime. Those incarcerated cannot provide appropriate parenting for their children. Even those who engage in crime, who are not incarcerated and are at home, often will not serve as good role models for their children. Those who have been incarcerated are more likely to be unemployed, have greater difficulty in the job market (Pager, 2003), and be unable to financially support their children. Single-parent families are much more likely to have children growing up in poverty than intact two-parent families (McLanahan and Sandefur, 1994). Additionally, the social impact is not only on the families of those who commit crimes but also on the communities with many incarcerated adults or who include many individuals who have committed crime or are prone to commit crimes.

The issues addressed Cohen, Piquero, and Jennings (2010, this issue) are crucial for considering the policies needed to address crime interventions. We live in a society where costs are seen as *the bottom line*. This priority makes the translation of diverse criminological findings into financial costs important if we hope that they will be used in making policy decisions. Cohen et al. have used trajectory analysis to isolate four types of crime trajectories for young people.

Direct correspondence to Robert M. O'Brien, Department of Sociology, University of Oregon, 1291 University of Oregon, Eugene, OR 97403 (e-mail: bobrien@uoregon.edu).

1. Using a different methodology, Cohen et al. (2004) estimated a total social burden of $625 billion for just five crimes: burglary, armed robbery, serious assaults, rape and sexual assaults, and murder.

They have then estimated the costs imposed by each of these trajectories in an attempt to allow policy makers to target their interventions better. It is a reasonable hope that such analyses can be useful to policy makers.

Estimating the Costs of Crime

Estimating the costs of crime is a complex and inexact enterprise, and Cohen et al. (2010) clearly are aware of the problems, but it is important for the reader to take these problems seriously. Unfortunately, most estimates of the costs of crime are likely to be underestimates because it is difficult to measure all costs of a person committing (for example) an armed robbery. Cohen et al. prefer a willingness-to-pay measure rather than a bottom-up measure, and it results in a higher estimate of the costs of crimes and one that is arguably more accurate (see Cohen, Rust, Steen, and Tidd, 2004).

When Markets Exist

In some instances, it might seem that a realistic way to establish the cost of something is to let the market set its value. For example, for a particular sports utility vehicle (SUV), we could see how much people pay for the car on the open market. This analysis is what insurance companies do when they decide a car they insured is "totaled." They evaluate the average price the particular SUV is selling for in the local market and offer this amount to the policy holder as the cost of buying a replacement vehicle. This market-based method is not feasible for placing a value on the prevention of (for example) an armed robbery. The cost of an armed robbery is not analogous to the "cost of the SUV" as outlined in our market approach. It is more analogous to the cost of an SUV measured by the gasoline it consumes, the pollution caused by the burning of that fuel, the environmental costs in manufacturing the SUV, the road maintenance costs associated with the vehicle, and so on. A reasonable method to estimate the "cost of an average SUV" using this conception would be to generate a complete list of these types of costs and then estimate their dollar value. Then we could calculate the national costs by multiplying the number of SUVs by the average cost per SUV. This process is a much more difficult task than estimating the market cost of an SUV and involves a different question than the one asked by the insurance company.

Bottom-Up Approach

In the "bottom-up" approach used in the article, Cohen et al. (2010) have included in the cost estimates for several different crimes the "victim-related costs (lost productivity, pain and suffering, and lost quality of life, etc.), the criminal justice-related costs (police, courts, and prisons), and the loss of productivity for the offenders incarcerated as a result of their offending." They have noted that this measure does not include the constraints on the behavior of the public because of "fear of crime" and residual costs to the surrounding community. One of the most important costs left out is the effect of the criminal-activity–crime-proneness of one generation

on the next generation (Clear, 2009; O'Brien and Stockard, 2006). With some categories left out, this method almost certainly underestimates the cost of crime.

Willingness-to-Pay Approach

Because crime prevention has no market,[2] and the bottom-up approach is likely to leave out costs that are difficult to measure, the willingness-to-pay measure used in the Cohen et al. (2010) article was based on asking how much a respondent would be willing to pay for the prevention of specific crimes. More specifically, Cohen et al.'s (2010) willingness-to-pay measure is based on asking respondents what they would be willing to have their *household* pay for a 10% reduction in a particular crime. They then calculate how many crimes a 10% reduction in the crime rate translates into nationally. They divide the total estimated amount that people are willing to pay (the number of households times the average amount respondents are willing to pay) to reduce that percentage of crimes by the number of crimes. This formula produces estimates of what people are willing to pay, on average, to prevent an armed robbery, a murder, or one of the other crimes on their list.

It is likely that the respondent answering such a question does not consider the full range of costs associated with a particular crime. Do they think of its value in reducing the fear of crime, the criminal justice system costs, the loss of productivity for the victim and the offender, and the costs to communities and future generations? People do not have perfect or even good knowledge of the value of a 10% reduction in crime, either for themselves or for society as a whole. These costs are (or should be) of interest to policy makers. We try, however, to muddle through, and in this case, we should be willing to muddle through. Cohen et al. (2010) know this, and we, as readers, need to keep these estimation problems in mind.

Absolute and Relative Costs of Crime for Trajectory Groups

The problem of estimating the absolute cost of crime highlighted earlier is ameliorated in this study because its primary focus is on the comparative costs of crime for groups with different offending trajectories. If we systematically underestimate the costs by two thirds, then it should not affect the ratio of the costs of crimes for different trajectories. In this context, statements about relative costs associated with particular trajectory groups are likely to be more accurate than statements involving the absolute costs of crimes. Both are important for policy, and in my judgment, Cohen et al. (2010) have a reasonable estimate of one of them—relative costs.

A statement such as "[r]esults indicate that chronic offenders who frequently commit crimes when they are young turn to more serious crimes when they are adults and impose far greater costs than low-frequency chronic offenders and those whose offending peaks during adolescence" is supported reasonably well, by both cost-measurement methods used in the Cohen et al. (2010) article and is a statement about the relative costs for different trajectory groups. However, a statement such as "the total costs of the offending trajectories among our random

2. One can, of course, see how much people pay for alarms, deadbolts, security guards, and so on.

sample of the Second Philadelphia Birth Cohort was $529,122,665" probably is substantially off the mark. Cohen et al. (2010) are aware of this issue because the bottom-up estimate of the same total cost was only $264,505,360 (a cost half of their willingness-to-pay estimated cost), and the willingness-to-pay cost is unlikely to be an overestimate.

Evidence in the data from Cohen et al.'s (2010) study supports the conjecture that absolute costs are more "measurement dependent" than the relative costs. Although the absolute total costs based on the willingness-to-pay measure and the bottom-up measure vary by a factor of 2 ($529,122,665 / $264,505,360 = 2.00), when we compare the ratios of the total costs for the high-rate chronic group with the low-rate chronic group (from Tables 2 and 3), the ratios are 1.099 = ($107,714,838 / $97,968,750) for the bottom-up measure and 1.243 (= $226,045,831 / $181,824,984) for the willingness-to-pay measure. These ratios differ by a factor of 1.13 (= 1.243 / 1.099). The relative cost measures based on the ratio using the willingness-to-pay measure are just 13% greater than that using the bottom-up measure. If we calculate the ratios of total costs for the adolescent-peaked group to the low-rate chronic offenders using both the willingness-to-pay and bottom-up measures, then the two ratios differ by a factor of 1.11. When we perform the same operation comparing the high-rate chronic offender group and the adolescent-peaked group, the two measures differ by a factor of 1.02. This process is not a definitive test of the claim that the relative costs typically are measured more accurately than the absolute costs, but these comparisons certainly support that assertion.[3] We might say that measures of the absolute costs of crime are highly *method dependent*, whereas measures of the relative costs of crime are less *method dependent* (O'Brien, 1985).

Age or Period Effects? Certainly Not Cohort Effects

Cohort Effects

The data used in Cohen et al.'s (2010) study ensure that we cannot evaluate the potential effects of cohorts on the costs of crimes. After all, the study involved only a single cohort that was born in the year 1958 and resided in Philadelphia from their 10th to 18th birthdays (data on them are available from ages 8 to 26). This issue might seem to be an advantage because we do not have to worry about the confounding effects of cohorts on the age trajectories estimated in the article (the downside is we cannot assess the effects of cohorts on the costs of crime). Different cohorts *are* associated with substantial differences in both homicide (and suicide) rates throughout their life spans (O'Brien and Stockard, 2006) even after controlling for age and period effects. Furthermore, in the United States, these cohort effects are associated highly with the family structures in which the children in the cohort grew up as well as with the relative size of the cohorts (baby-boom–baby-bust cohorts). For suicides, in countries with more generous state support of families ("women-friendly institutions"), the relationship of family structure and cohort size to suicide is diminished greatly (Stockard and O'Brien, 2002). A similar reduction

3. Note that the percentage differences between the ratios of measures will differ depending on which measure is used as the numerator and which is used for the denominator. One can eliminate this problem by taking the log of the ratio as an indicator of the discrepancy between the measures.

in the effects of family structure and cohort size on the rates of homicides for cohorts in societies with strong women-friendly institutions should be expected.[4] It is likely that with better support of families, the costs of homicides and suicides for these disadvantaged cohorts in the United States could be reduced substantially. The cost of a suicide is higher than any crimes cited by Cohen et al., with the exception of homicide (Yang and Lester, 2007).

The Age–Period Confound

Although Cohen et al.'s (2010) research design ensures that the age–offending trajectories are not confounded with cohorts (although they might be different for a different cohort), it is beset by a different problem. It does not allow the separation of age effects from period effects because with the passage of 1 year, both the age of the individuals and the period are increased by 1 year. The age effects are confounded with yearly trends in crime. This issue would not be serious if the offending rates had remained stable across the period covered in this research, but that is not the case.

The study follows the cohort members from ages 8 to 26 across the years of 1966–1984. These years had (at least nationally) substantial shifts in the rates of crime reported by the police to the Federal Bureau of Investigation (FBI) (1967, 1985). For example, at the national level, the rape rate based on crimes known to the police increased from 13.2 to 35.7 per 100,000 from 1966 to 1984; for robbery, the increase was from 80.8 to 205.7 per 100,000; and for aggravated assaults, it increased from 120.3 to 290.6 per 100,000. For property crimes, the increases were more modest with an increase for burglary from 721 to 1265.5 per 100,000; for larceny, an increase from 1442.9 to 2795.2 per 100,000; and for motor vehicle theft, an increase from 286.9 to 437.7 per 100,000. Similar shifts in the crime rates occurred in Philadelphia during this time (FBI, 1967, 1985). Whether similar proportionate rate increases caused by period crime rate shifts held for the age groups in this study is not easily determined, but if they did, then these period-effects strongly influenced the age-offending trajectories reported in this research. It is certainly plausible that such period-effects occurred in the neighborhoods from which this cohort came and that they are confounded with the reported trajectories. The "age-trajectories" in the analysis might be labeled better as "age-period trajectories." Although one can argue that these age-period trajectories are the trajectories in these samples, the confounding makes it difficult to generalize the findings to other time periods or cohorts. This issue is a general problem with trajectory analysis when data from a single cohort across time are analyzed, but it also affects the results when more than a single cohort is followed across time.

4. In the United States, correspondence is strong between cohorts with higher than expected homicide rates and higher than expected suicide rates (O'Brien and Stockard, 2006).

Offender Generated or Officially Recorded Crimes

The confound suggested in the previous section does not imply that the actual rates of these crimes (offender-generated rates) climbed this steadily in the U.S. population during this period (O'Brien, 2003). We have good reason to believe that, during this particular period (1966–1984), the national rates were affected by both increased recording efficiency and offender behavior. But in either case, the offense trajectories reported here likely have been influenced not just by age but also by both age and period. This result might help explain some of the "inconsistencies" across studies mentioned by the authors. It is also an issue central in the attempt to "unpack the aggregate age–crime curve."

Interestingly, Cohen et al. (2010) have noted that a potential problem for their findings would be created by the ratio of police contacts to actual offending not being constant across time, but they focused on only one aspect of this problem—the shift between how juvenile crimes are reported and how crimes are reported for adults. "Furthermore, whether any findings would change depends on whether the ratio of police contacts to actual offending is constant across time . . . [f]or example, if all juvenile offenses resulted in police contacts, whereas only a small fraction of adult offenses resulted in an arrest, then adolescent age peaks might be dwarfed by subsequent peaks in adulthood." They have argued that this issue is not likely a major problem (citing several studies in their footnote 4). They have not addressed the substantial increase in recorded crimes across the period covered in this study and its potential impact on these age trajectories, which is likely a more serious problem. These shifts affect the measures of the cost of crime provided in the article and affect estimates of when the groups are likely to "age-out" of criminal activity.

Conclusions

This study is thought-provoking and especially important for those who must prioritize resources for intervention with young offenders. Cohen et al. (2010) have thought carefully about how to measure the costs of crime and include two measures in their article. I greatly appreciate the obvious care with which the research has been conducted and that Cohen et al. have mentioned several limitations in their final section. They concluded their article by stating: "Because offending is costly and reaches far beyond the costs to the criminal justice system and rapidly accumulate across time, the economic evaluation research carried out herein might help guide decisions and policies at a time when resources for the prevention, punishment, and treatment of offenders are scarce." Amen.

References

Anderson, David A. 1999. The aggregate burden of crime. *Journal of Law and Economics*, 42: 611–642.

Clear, Todd R. 2009. *Imprisonment Communities: How Mass Incarceration Makes Disadvantaged Neighborhoods Worse*. New York: Oxford University Press.

Cohen, Mark A., Alex R. Piquero, and Wesley G. Jennings. 2010. Studying the costs of crime across offender trajectories. *Criminology & Public Policy*. This issue.

Cohen, Mark A., Roland T. Rust, Sara S. Steen, and Simon T. Tidd. 2004. Willingness-to-pay for crime control programs. *Criminology*, 42: 86–106.

Federal Bureau of Investigation (FBI). 1967. *Crime in the United States—1966*. Washington, DC: Government Printing Office.

Federal Bureau of Investigation (FBI). 1985. *Crime in the United States—1984*. Washington, DC: Government Printing Office.

Liptak, Adam. 2008, April 28. Inmate count in US dwarfs other nations. *New York Times*.

McLanahan, Sara and Gary Sandefur. 1994. *Growing up with a Single Parent*. Cambridge, MA: Harvard University Press.

O'Brien, Robert M. 1985. *Crime and Victimization Data*. Beverly Hills, CA: Sage.

O'Brien, Robert M. 2003. UCR violent crime rates, 1958–2000: Recorded and offender-generated trends. *Social Science Research*, 32: 499–518.

O'Brien, Robert M. and Jean Stockard. 2006. A common explanation for the changing age distribution of suicide and homicide in the United States, 1930 to 2000. *Social Forces*, 84: 1539–1557.

Pager, Devah. 2003. The mark of a crime record. *American Journal of Sociology*, 108: 937–975.

Stockard, Jean and Robert M. O'Brien. 2002. Cohort effects on suicide rates: International variations. *American Sociological Review*, 67: 854–872.

Yang, Bijou and David Lester. 2007. Recalculating the economic cost of suicide. *Death Studies*, 31: 351–361.

Robert M. O'Brien is a professor of sociology at the University of Oregon. He has published extensively in the areas of criminology and quantitative methods, which include areas as diverse as methods of measuring crime rates, inter- and intra-racial crime, crime rate trends, identification in structural equation models, methodological approaches to age-period-cohort models, and measuring aggregate-level reliability. Recent publications in the area of criminology include "Still separate and unequal? A city-level analysis of the black–white gap in homicide arrests since 1960" (*American Sociological Review*) co-authored with Gary LaFree and Eric P. Baumer, "Can cohort replacement explain changes in the relationship between age and homicide offending?" (*Journal of Quantitative Criminology*) co-authored with Jean Stockard, and "A common explanation for the changing age distribution of suicide and homicide in the United States: 1930 to 2000" (*Social Forces*) co-authored with Jean Stockard.

EDITORIAL INTRODUCTION

JUVENILES' RIGHT TO COUNSEL

Juvenile law reform

Ensuring the right to counsel

Donna M. Bishop, *Senior Editor*
Northeastern University

Forty-three years ago, in a decision seemingly destined to bring about sweeping improvements in the administration of juvenile justice, the U.S. Supreme Court ruled that youth in delinquency proceedings are entitled to several procedural safeguards, including the right to counsel (*In re Gault*, 1967). Juvenile proceedings at that time were closed, informal, nonadversarial, and dominated by judges who, under the prevailing doctrine of *parens patriae*, had expansive and unregulated authority to act in the "best interests" of the child. In Gerald Gault's case, the judge exercised that authority in the following ways: He failed to apprise the boy (or his parents) of the charges against him, interrogated the boy at length, proceeded to adjudicate the boy delinquent based on a modicum of evidence and without testimony from the complainant, and committed the boy to a state training school for up to 5.5 years for an offense for which an adult could have received a maximum sentence of 60 days. When questioned about his decision in a later proceeding, the judge could not even identify with certainty which provision of the legal code the boy had violated. The Supreme Court observed:

> A proceeding where the issue is whether the child will be found to be "delinquent" and subjected to the loss of his liberty for years is comparable in seriousness to a felony prosecution. The juvenile needs the assistance of counsel to cope with problems of law, to make skilled inquiry into the facts, to insist upon regularity of the proceedings, and to

ascertain whether he has a defense and to prepare and submit it. The child "requires the guiding hand of counsel at every step in the proceedings against him." (*Gault,* 1967: 36)

In the immediate aftermath of *Gault* (1967), all states revised their juvenile codes to provide the right to counsel. One might assume that, by now, all juveniles charged with delinquent acts would be represented by attorneys. That is not the case; research in several states shows that

Direct correspondence to Donna Bishop, 400B Churchill Hall, 360 Huntington Ave, Northeastern University, Boston, MA 02115 (e-mail: d.bishop@neu.edu).

substantial proportions—sometimes a majority—of delinquent youths remain unrepresented, even when dispositions result in incarceration (Puritz, Burrell, Schwartz, Soler, and Warboys, 1995). In most jurisdictions, indigent defense systems are underfunded and attorney caseloads are far too high. Youths frequently feel pressured by judges and by parents to waive the right to counsel and enter a guilty plea, although many are manifestly incompetent to do so. This is the state of affairs at a time when the need for effective legal advocacy is greater than ever before. Today, youth face dispositions in the juvenile court that are explicitly punitive, and the collateral consequences of a delinquency adjudication can be horrific. Delinquency adjudications can be used to enhance adult sentences (e.g., under "three strikes" laws); youths adjudicated for sexual offenses can face lifelong registration requirements and restrictions on housing, employment, and freedom of movement; and juvenile convictions for drug and weapons offenses can disqualify youth and the parents with whom they reside for welfare assistance and public housing.

It is in this context that the bold step of the Minnesota Legislature to mandate the appointment of counsel (or standby counsel) for all juveniles charged with felonies or serious misdemeanors or facing out-of-home placement takes on great significance. The Legislature facilitated the full implementation of this legislation by replacing uneven, county-run legal services with a statewide public defender system. After the Governor signed the legislation but vetoed the appropriations necessary to implement it, the Legislature tried to lift the burden from the overwhelmed public defender system by reducing nonserious misdemeanors to status offenses and by prohibiting out-of-home placement of status offenders, thereby eliminating their right to counsel. Feld and Schaefer (2010, this issue) explained the history of these legal changes and then conducted a pre-post assessment of their impact. They addressed the following three primary questions:

1. How did mandating counsel for felonies and gross misdemeanors and relabeling many misdemeanors as status offenses affect the delivery of legal services?
2. Did the law reduce the prevalence of justice by geography, especially for youths in rural counties?
3. Did judges comply with restrictions on appointment of counsel for status offenders?

They found that four years after the reforms were implemented, the legislative strategy to reduce the numbers of youths eligible for appointment of defense counsel had clearly succeeded. In 1994, two thirds of youths in juvenile court were eligible for representation. By 1999, the number of misdemeanors had plummeted, status offenders had increased three-fold, and the proportion of youths for whom counsel was mandated had been reduced to less than one quarter. Although Feld and Schaefer (2010) did not address the prosecutorial response to the law reforms, the findings suggest that prosecutors were accommodating. They could have subverted the Minnesota Legislature's objectives by up-charging misdemeanors to maintain their eligibility for placement. They did not.

Surprisingly, though, felony offenders did not benefit from the law reforms. Although they should have been the chief beneficiaries of the changes in law, their rates of representation remained unchanged. More than one third remained unrepresented, just as before. For serious

misdemeanants, rates of representation did increase, so much so that by the end of the study period, they were *more likely* to have counsel than were youths charged with felonies. Rates of representation for status offenders were low to begin with but remained unchanged. Although the law prohibited appointment of counsel for this group, judges continued to appoint counsel, just as they had done before.

The legal reforms had a beneficial effect on justice by geography. Before the change in law, representation was much lower in rural counties than in urban and suburban ones. By the study's end, the representation of felons and serious misdemeanants in rural areas increased substantially, which narrowed the gap across counties. However, the closing of the gap was also in no small part a result of a decline in felony representation in urban and suburban areas.

The most disappointing finding was that judges continued to allow one third of felons and misdemeanants to waive the right to counsel, even after appointment of counsel was mandated and legal services were expanded to meet the need. Feld and Schaefer (2010) suggested that these findings reflect judges' resistance to procedural reforms were designed to limit their traditionally expansive autonomy and discretion.

The policy essay by Schwartz and Levick (2010, this issue) is a superb companion to Feld and Schaefer's (2010) research article. Schwartz and Levick—cofounders of the Juvenile Law Center and leading national advocates for juvenile's rights—took Feld and Schaefer's research as a point of departure and used their own investigation of the juvenile court scandal in Luzerne County, PA, to draw lessons about the causes and consequences of the systematic denial of counsel to children.

The Juvenile Law Center undertook an investigation of violations in Luzerne County at the behest of a mother whose 15-year-old daughter unknowingly waived her right to counsel, was adjudicated delinquent for a first-time minor offense, and committed to a juvenile facility—all within the space of a few minutes. The investigation uncovered a massive violation of the right to counsel (nearly 60% of dispositions that resulted in out-of-home placement occurred without counsel) that had been going on for several years. The Juvenile Law Center petitioned the Pennsylvania Supreme Court, which granted relief and eventually vacated more than 6,500 cases.

The conduct of the judges in Luzerne County was especially egregious; for more than 5 years, they systematically denied youths the right to counsel in furtherance of a scheme to commit youth to for-profit facilities in exchange for kickbacks. Although Luzerne County easily might be dismissed as an aberration, Schwartz and Levick (2010) argued that it reflects systemic failures that are not at all unique to that jurisdiction. Pennsylvania is a strong right-to-counsel state; youth are entitled to representation at all stages of any delinquency proceeding; the law requires that the judge conduct a lengthy colloquy to ensure that every waiver is knowing, intelligent, and voluntary; and the law provides for the appointment of standby counsel for juveniles who waive the right to counsel. Yet despite these protections, youth in Luzerne County routinely were pressured to waive their constitutional rights, judges failed to conduct the requisite colloquy, and perhaps worst of all, other court professionals—prosecutors, defense attorneys, probation

officers, and court onlookers—stood silently by and failed to report what they saw, despite having witnessed repeated and egregious violations of youths' constitutional rights.

With Feld and Schaefer's (2010) documentation of the failure to provide youth with counsel in Minnesota as a backdrop, Schwartz and Levick (2010) asked why, despite increasing mandates to provide counsel, so many youth lack counsel, and why judges in so many cases seem reluctant to enforce the mandate. They considered why, despite obvious and egregious violations, court professionals take no action to stop them. They concluded their essay by recommending several mechanisms of transparency and accountability to ensure that the right to counsel is fulfilled. The essay is thoughtful, troubling, and provocative. It is a potent reminder that mandates alone are insufficient to ensure that youth are treated fairly and that judges follow the rule of law.

The second policy essay, written by Kempf-Leonard (2010, this issue), used Feld and Schaefer's (2010) research article as the starting point from which to address a different set of questions. Although acknowledging that children need advocates in juvenile court, she challenged the assumption on which Feld and Schaefer's and others' recommendations to require attorneys rest—that attorneys are effective. She asked us to consider whether the current practice of juvenile defense benefits youth in delinquency proceedings. Before endorsing attorneys as advocates for children, she cautioned that we need assurances that they are skilled in juvenile law and in delinquency proceedings. She pointed out that most law schools offer only a single course in juvenile law and provide "no training in adolescent development or the range and relative effectiveness of various dispositions and treatments." Moreover, research has shown that, net of controls for other relevant factors, juveniles who are represented by attorneys are more likely to receive harsh and restrictive dispositions than youths who are not represented. The reasons are unclear. It might be a matter of attorney incompetence, of assignment too late in the process to be effective, or of assignment in cases in which the judge already has made the decision to impose a harsh and punitive disposition.

Kempf-Leonard (2010) challenged us to think of the multiple goals that juvenile justice systems are trying to achieve. In that regard, it seems that safeguarding due process and fairness are goals of advocacy during the adjudicatory phase of juvenile proceedings, whereas a different set of goals—meeting the child's needs while protecting public safety—dominate at disposition. Consistent with these observations, it is likely that well-trained attorneys are the best advocates for youth during the adjudicatory phase, whereas at disposition, psychologists and other persons knowledgeable about assessment and treatment might be most effective. Well-funded legal defense services for children include staff social workers and psychologists who can prepare treatment plans that are most likely to be beneficial.

In sum, the research article and the policy essays in this section include a combination of excellent academic scholarship and thoughtful observations from leading academicians and legal practitioners. Much work remains to be done to ensure that juvenile courts treat children fairly, protect them from their own immaturity, and deliver sanctions and services that are effective in promoting healthy adolescent development. The authors of each of these articles have identified

systemic weaknesses that hamper the achievement of these objectives and have pointed to issues that must be addressed if these weaknesses are to be overcome.

References

Feld, Barry C. and Shelly Schaefer. 2010. Law reform to deliver services and reduce justice by geography. *Criminology & Public Policy*. This issue.

Kempf-Leonard, Kimberly. 2010. Does having an attorney provide a better outcome? The right to counsel doesn't mean attorneys always help. *Criminology & Public Policy*. This issue.

Puritz, Patricia, Sue Burrell, Robert Schwartz, Mark Soler, and Lauren Warboys. 1995. *A Call for Justice: An Assessment of Access to Counsel and Quality of Representation in Delinquency Proceedings.* Washington, DC: American Bar Association.

Schwartz, Robert G. and Marcia Levick. 2010. When a "right" is not enough: Implementation of the right to counsel in an age of ambivalence. *Criminology & Public Policy*. This issue.

Cases Cited

In re Gault, 387 U.S.1 (1967).

Donna M. Bishop is a professor in the College of Criminal Justice at Northeastern University. For more than two decades, her research and scholarship have focused primarily on juvenile justice and youth policy. She is the author of one book, more than 60 articles, and numerous monographs, which include works on racial and gender disparities in juvenile court processing, juvenile detention reform, and juvenile transfer policy and practice. Her current work focuses on the implications of incarceration for adolescent development, the role of organizational factors in justice decision making, the connections between features of juvenile correctional institutions and inmate misconduct, and racial stereotyping in the juvenile justice system.

RESEARCH ARTICLE

JUVENILES' RIGHT TO COUNSEL

The right to counsel in juvenile court

Law reform to deliver legal services and reduce justice by geography

Barry C. Feld
Shelly Schaefer
University of Minnesota

Research Summary

The U.S. Supreme Court in In re Gault *granted delinquents the right to counsel in juvenile courts. Decades after* Gault, *efforts to provide adequate defense representation in juvenile courts have failed in most states. Moreover, juvenile justice administration varies with structural context and produces justice-by-geography. In 1995, Minnesota enacted juvenile law reforms, which include mandatory appointment of counsel. This pre- and post-reform legal impact study compares how juvenile courts processed youths before and after the statutory changes. We assess how legal changes affected the delivery of defense services and how implementation varied with urban, suburban, and rural context.*

Policy Implications

We report inconsistent judicial compliance with the mandate to appoint counsel. Despite unambiguous legislative intent, rates of representation improved for only one category of offenders. However, we find a positive reduction in justice by geography, especially in rural courts. Given judicial resistance to procedural reforms, states must find additional strategies to provide counsel in juvenile courts.

The National Juvenile Court Data Archive at the National Center for Juvenile Justice (Pittsburgh, PA) provided the data used in the study. The Office of Juvenile Justice and Delinquency Prevention, U.S. Department of Justice, supported the construction of the data files. I recieved exceptional cooperation and assistance in assembling and organizing the data files from Dr. Howard Snyder, NCJJ Director, Dr. Anne Stahl, and Mr. Terry Finnegan, NCJJ Computer Programmer. I am very grateful to the following colleagues who generaously provdied constructive critiques of an earlier draft of this article: Donna M. Bishop, Eugene Borgida, Elizabeth H. Boyle, George Burrus, Julia Feld, Kimberly Kempf-Leonard, Joachim Savelsberg, Anne Stahl, Christopher Uggen, and Mike Vuolo.
Direct correspondence to Barry C. Feld, 340 Mondale Hall, 229—19th Avenue South, University of Minnesota, Minneapolis, MN 55455 (e-mail: feldx001@umn.edu), or Shelly Schaefer, Department of Sociology, 909 Social Sciences Tower, 267 19th Avenue South, Minneapolis, MN (e-mail: whal10038@umn.edu).

Keywords
juvenile justice, right to counsel, justice by geography

Progressive reformers who created the juvenile court used informal procedures to adjudicate delinquents and to impose rehabilitative dispositions in children's "best interests" (Rothman, 1980; Schlossman, 1977). The U.S. Supreme Court in *In re Gault* (1967; hereafter referred to as *Gault*) granted delinquents procedural safeguards, which included the right to counsel, because of the gap between juvenile courts' rehabilitative rhetoric and punitive reality. *Gault*'s increased procedural formality legitimated punishment, contributed to greater severity in juvenile sentencing practices, and made providing adequate safeguards all the more imperative (Feld, 1988a, 2003b).

Since *Gault* (1967), juvenile courts increasingly have converged with criminal courts. But most states do not provide delinquents with important adult criminal procedural safeguards, such as the right to a jury trial (Feld, 2003a). By contrast, states treat juveniles procedurally just like adults when formal equality places them at a practical disadvantage. Most states use the adult standard— "knowing, intelligent, and voluntary" under the "totality of the circumstances"—to gauge juveniles' waivers of Miranda rights and their right to counsel at trial (*Fare v. Michael C.*, 1979). Most states do not use any special measures to protect youths from their own immaturity, such as a mandatory appointment of counsel (Feld, 1984, 2006). Juveniles differ from adults in their adjudicative competence as well as in their understanding of and their ability to exercise legal rights (Grisso, 1980, 1981; Grisso et al., 2003). As a result, formal equality results in practical inequality, and lawyers represent delinquents at much lower rates than they do criminal defendants (Burrus and Kempf-Leonard, 2002; Feld, 1988b, 1991; Harlow, 2000; Jones, 2004).

Although statutes, procedural rules, and court decisions apply equally throughout a state, juvenile justice administration varies with urban, suburban, and rural context and produces justice by geography (Bray, Sample, and Kempf-Leonard, 2005; Burrus and Kempf-Leonard, 2002; Feld, 1991, 1993; Guevara, Spohn, and Herz, 2008). Lawyers appear more often in urban courts, which tend to be more formal, bureaucratized, and due-process-oriented (Burrus and Kempf-Leonard, 2002; Feld, 1991, 1993). In turn, more formal courts place more youths in pretrial detention and sentence them more severely. Rural courts tend to be procedurally less formal and to sentence youths more leniently (Burrus and Kempf-Leonard, 2002; Feld, 1991).

This article assesses law reforms in Minnesota to improve the delivery of legal services in juvenile courts. First, we examine the procedural assumptions of juvenile courts and the struggle to implement *Gault*'s (1967) mandate to provide counsel. It describes judicial resistance to the provision of legal services and geographic variability in the presence of lawyers. Then we examine the process of law reform in Minnesota. As part of a nationwide trend to "get tough" on youth crime, in 1995, Minnesota adopted substantive juvenile justice reforms—offense-based waiver and blended sentencing laws as well as an expanded use of delinquency convictions to enhance

criminal sentences (Feld, 1995; Podkopacz and Feld, 2001). To complement these substantive changes, the new law provided greater procedural safeguards such as a mandatory appointment of counsel for youths charged with felonies and a consultation with a lawyer by youths charged with misdemeanors. Within months after the law took effect, and as a cost-saving strategy to avoid providing counsel, Minnesota decriminalized many misdemeanors, converted them into status offenses for which judges could not impose out-of-home placements, and eliminated juveniles' right to counsel (Weldon, 1996). The next section describes the data used to conduct this pre- and postreform legal impact study. Then we compare how juvenile courts in Minnesota processed 30,270 youths in 1994—the year before the statutory changes—with how they processed 39,369 youths in 1999 after they implemented the statutory changes. We assess changes in the delivery of legal services and how implementation varied by urban, suburban, and rural context. We analyze the legislative experiment with judicious nonintervention, which converts misdemeanors into petty offenses and restricts judges' sentencing authority to deny youth counsel. We assess the effects of law reform and the broader policy implications.

Right to Counsel in Juvenile Court

Juvenile courts melded a new ideology of childhood with new theories of social control, introduced a judicial-welfare alternative to the criminal justice system, and enabled the state, as *parens patriae*, to monitor ineffective child-rearing (Feld, 1999, 2003b). Progressive child-savers described juvenile courts as benign, nonpunitive, and therapeutic agencies (Platt, 1977; Schlossman, 1977; Sutton, 1988). The *parens patriae* doctrine legitimated state intervention to supervise children and supported claims that proceedings were civil rather than criminal. The status jurisdiction of juvenile courts enabled them to control noncriminal misbehavior such as sexual activity, truancy, or immorality (Platt, 1977; Schlossman, 1977; Sutton, 1988). Juvenile courts rejected criminal procedural safeguards and used informal procedures, denied juries, excluded lawyers, and conducted confidential hearings (Rothman, 1980; Tanenhaus, 2004).

The U.S. Supreme Court in *Gault* (1967) rejected progressives' rehabilitative rhetoric and candidly appraised claims of juvenile courts' proponents against high recidivism rates, the stigma of a delinquency label, and the arbitrariness of the process. The Court concluded that juvenile courts must provide fundamentally fair procedures that include notice of charges, a hearing, assistance of counsel, an opportunity to confront and cross-examine witnesses, and the privilege against self-incrimination (Feld, 1984). Although *Gault* likened the seriousness of a delinquency proceeding to a felony prosecution, the Court relied on the Fourteenth Amendment Due Process Clause rather than the Sixth Amendment, which protects adult defendants' right to counsel (*Gideon v. Wainwright*, 1961). The Court did not mandate the appointment of counsel and only required a judge to advise the child and parent of the right to counsel and, if indigent, to have counsel appointed (*Gault,* 1967).

Presence of Counsel in Juvenile Courts

When the Court decided *Gault* (1967), lawyers seldom appeared in juvenile courts (Note, 1966). Although states amended their juvenile codes to comply with *Gault*, they failed actually to deliver legal services. Evaluations of initial compliance with *Gault* found that most judges did not advise juveniles of their rights and that most did not appoint counsel (Canon and Kolson, 1971; Duffee and Siegel, 1971; Ferster, 1971; Lefstein, Stapleton, and Teitelbaum, 1969; Stapleton and Teitelbaum, 1972). Studies in several jurisdictions in the 1970s and early 1980s reported that juvenile courts failed to appoint counsel for most juveniles (Aday, 1986; Bortner, 1982; Clarke and Koch, 1980; Flicker, 1983; Kempf-Leonard, Pope, and Feyerherm, 1995). Research in Minnesota in the mid-1980s reported that most youths appeared without counsel; the rates of representation varied widely in urban, suburban, and rural counties; and judges removed from their homes and confined many unrepresented youths (Feld, 1988b, 1989, 1991, 1993). Feld's (1988b) comparative study of the delivery of legal services in six states reported that only three of them appointed counsel for most juveniles. Studies in the 1990s described the continuing failure of judges to appoint lawyers for many youths who appeared before them (Burrus and Kempf-Leonard, 2002; Guervara, Spohn, and Herz, 2004; U.S. General Accounting Office [GAO], 1995). In 1995, the GAO (1995) found that rates of representation varied widely among and within states and that juvenile courts tried and sentenced many unrepresented youths.

In the mid-1990s, the American Bar Association (ABA) published two reports on juveniles' legal needs. *America's Children at Risk* (ABA, 1993) reported that many youths in the juvenile justice system lacked counsel and that many lawyers who represented them lacked adequate training and failed to provide competent representation. *A Call for Justice* (ABA, 1995) focused on the quality of juvenile defense lawyers, reported that many youths appeared without an attorney, and concluded that many attorneys failed to appreciate the complexities of representing juvenile defendants. Since the late 1990s, the ABA and the National Juvenile Defender Center have conducted a series of state-by-state assessments and report that many, if not most, juveniles appear without counsel and that lawyers who do represent youth often provide substandard representation because of structural impediments to effective advocacy, such as inadequate support services, heavy caseloads, and a lack of investigators or dispositional advisors (e.g., Bookser, 2004; Brooks and Kamine, 2004; Celese and Puritz, 2001; Puritz and Brooks, 2002; Puritz, Scali, and Picou, 2002). Moreover, regardless of how inadequately lawyers perform, juvenile courts seem incapable of correcting their own errors (Berkheiser, 2002). Defense attorneys rarely, if ever, appeal adverse decisions and often lack a record with which to challenge an invalid waiver of counsel (Berkheiser, 2002; Bookser, 2004; Crippen, 2000; Harris, 1998; Puritz and Shang, 2000).

Waivers of Counsel in Juvenile Court

Several reasons are available as to why so many juveniles appear without counsel. Public-defender legal services might be inadequate or absent in nonurban areas (ABA, 1995). Judges might give cursory advisories of the right to counsel, imply that a rights colloquy and waiver are just legal technicalities, and readily find waivers of counsel to ease the administrative burdens of courts (ABA, 1995; Berkheiser, 2002; Bookser, 2004; Cooper, Puritz, and Shang, 1998). In other instances, judges might not appoint counsel if they expect to impose a noncustodial sentence (Burrus and Kempf-Leonard, 2002; Feld, 1984, 1989; Lefstein et al., 1969).

A waiver of counsel is the most likely reason that so many juveniles are unrepresented (ABA, 1995; Berkheiser, 2002; Cooper et al., 1998; Feld, 1989). In most states, judges gauge juveniles' waivers of rights by assessing whether they were "knowing, intelligent, and voluntary" under the "totality of the circumstances" (Berkheiser, 2002; *Fare v. Michael C.*, 1979; *Johnson v. Zerbst*, 1938). *Fare v. Michael C.* (1979) rejected special procedures for youths and endorsed the adult standard to evaluate juveniles' waivers of Miranda rights (Rosenberg, 1980). Judges use the same standard to evaluate juveniles' waivers of counsel at trial (Berkheiser, 2002; Feld, 1989, 1993). Judges consider characteristics such as age, education, I.Q., and prior contact with law enforcement while enjoying broad discretion to decide whether a youth understood and waived his or her rights (Feld, 1984, 1989, 2006). In most states, juveniles might waive counsel without consulting with either a parent or an attorney (Berkheiser, 2002; Feld, 2006). However, judges frequently failed to give any counsel advisory, often neglected to create any record of a waiver colloquy, and readily accepted waivers from manifestly incompetent children (Berkheiser, 2002).

Research on juveniles' adjudicative competence and ability to exercise Miranda rights strongly questions whether they can make knowing, intelligent, and voluntary waivers. Many juveniles do not understand a Miranda warning or counsel advisory well enough to make a valid waiver (Grisso, 1980, 1981; Grisso et al., 2003). Although older juveniles understood Miranda warnings about as well as adults, substantial minorities of both groups failed to grasp at least some elements of the warning (Grisso, 1997). Even youths who understand the abstract words of a Miranda warning or advisory of counsel might not appreciate the function or importance of rights as well as adults (ABA, 1995; Grisso, 1980, 1997; Grisso et al., 2003).

Research on adolescents' adjudicative competence raises more questions about their capacity to exercise legal rights (Bonnie and Grisso, 2000; Grisso et al., 2003). To be competent to stand trial, a defendant must be able to understand proceedings, make rational decisions, and share information with counsel (*Drope v. Missouri*, 1975; *Dusky v. United States*, 1960). Although mental illness or retardation produce disabilities that impair the competence of defendants, the developmental limitations of youths compromise their ability to understand proceedings, make decisions, and assist counsel (Grisso et al., 2003; Scott and Grisso, 2005). Research reports significant age-related differences between adolescents' and adults' adjudicative competence, legal understanding, and quality of judgment, which affects their ability to exercise rights or waive counsel (Grisso et al., 2003; Redding and Frost, 2001).

Justice by Geography in Juvenile Courts

Although the same statutes, court decisions, and procedural rules apply throughout a state, most states administer juvenile courts at the county or judicial district level, and justice administration varies with locale (Bray et al., 2005; Burrus and Kempf-Leonard, 2002; Feld, 1991; GAO, 1995; Guervara et al., 2004; Guevara et al., 2008). For example, urban juvenile courts tend to be more formal, bureaucratized, and due-process-oriented; they place more youths in pretrial detention; and they sentence offenders more severely than do suburban or rural courts (Feld, 1991). No reasons exist to believe that rural youths are more competent than urban juveniles to waive legal rights, but rural judges appoint attorneys far less often than do their more formal, urban counterparts (Burrus and Kempf-Leonard, 2002; Feld, 1991). Attorneys in Minnesota appeared with 63% of urban youths compared with 55% of suburban juveniles and only 25% of rural youths (Feld, 1991). In Missouri, attorneys appeared with 73% of youths in urban courts as contrasted with only 25% in suburban courts and 18% in rural settings (Burruss and Kempf-Leonard, 2002). The GAO (1995) reported that rural youths were four times more likely to appear without counsel as their urban counterparts.

From Substantive Irrationality to Formal Rationality

Weber's (1967) sociology of law distinguished between substantive and formal irrationality and rationality, depending on the processes, criteria, and sources of the authority employed. Law making and law finding are "substantively irrational" to the "extent that [the] decision is influenced by concrete factors of the particular case as evaluated upon an ethical, emotional, or political basis rather than by general norms" (Weber, 1967: 63). Weber (1967: 213) used the term "Khadi justice" to describe Islamic judges in the marketplace deciding disputes on a case-by-case basis without reference to explicit rules or general legal principles. The progressive juvenile court provides a premier example of "Khadi justice" (Matza, 1964). Judges have used informal procedures and have based their decisions in each case on the child's "best interests" (Matza, 1964). By contrast, law making and law finding are formally rational to the "extent that in both substantive and procedural matters, only unambiguous general characteristics of the facts of the case are taken into account" (Weber, 1967: 63). Formal rationality in law uses formal procedures and applies abstract, universal rules to decide the case. The U.S. Supreme Court's decision in *Gault* (1967) to extend procedural safeguards to delinquents reflected an effort to impose formal legal rationality on a substantively irrational institution. Despite *Gault*'s mandate, efforts to provide counsel and formalize procedures have failed much more often than they have succeeded.

Courts, as complex organizations, develop informal practices to manage and dispose of caseloads expeditiously (Feeley, 1983). Informal relationships among nominally adversarial courtroom actors—judges, prosecutors, and defense counsel—enables the workgroup to process cases efficiently and cooperate to reduce organizational conflict and creates incentives to modify or resist reforms (Eisenstein and Jacob, 1977). Analyses of externally imposed juvenile court

reforms report that they do not alter administrative routines dramatically (Hagan, Hewitt, and Alwin, 1979). Juvenile court workgroups might be even more resistant to change than criminal justice actors because of their collaborative ideology and shared substantive commitment to the "best interests" of the child (Gebo, Stracuzzi, and Hurst, 2006). Juvenile court judges might have internalized the substantive "best interests" framework and likely would resist *Gault*'s (1967) imposition of lawyers and adversarial procedures, which constrain their discretion and autonomy. Some of the observed differences in justice by geography might reflect differences in the ideological orientation of courtroom workgroups (e.g., due process or "best interests"; Stapleton, Aday, and Ito, 1982).

This study enables us to assess judicial compliance with or judicial resistance to formal procedural reforms. Because judges have to implement these changes, this study enables us to identify conformity with or deviations from the legislature's intent. We would expect judges to resist procedural formalization if it adversely affects their caseload management or constrains their autonomy and discretion.

Law Reform to Provide Counsel and Reduce Justice by Geography

Although a few states require juveniles to consult with a lawyer (e.g., *D.R. v. Commonwealth*, 2001), most allow youths to waive counsel unaided (Berkheiser, 2002). Like most states, Minnesota has struggled to provide representation for delinquents. Studies in the mid-1980s reported that most youths appeared without counsel and found significant intrastate variations in rates of representation, ranging from 90% in some counties to less than 10% in others (Feld, 1989, 1991). Judges removed from home or confined in institutions a substantial minority of unrepresented youths (Feld, 1989, 1993).

In 1990, the Minnesota Supreme Court appointed the Juvenile Representation Study Committee (JRSC) to examine access to counsel and to recommend policy changes. The Study Committee found that most juveniles appeared without counsel and reported geographic disparities in the delivery of legal services (Feld, 1995; JRSC, 1991). It recommended mandatory, nonwaivable appointment of counsel for juveniles charged with felony or gross misdemeanor offenses and in proceedings that lead to out-of-home placements (JRSC, 1991). It recommended that juveniles charged with misdemeanors consult with counsel prior to any waiver. Because counties used different methods to provide and pay for juvenile defense services, the JRSC could not estimate either current expenditures or predict the fiscal impact of its recommendations, and the Minnesota Legislature did not enact its proposals (Feld, 1995).

Mandating Representation and Vetoing Funding

In 1992, the Minnesota Supreme Court, Governor, and Legislature created the Juvenile Justice Task Force (hereafter referred to as the "Task Force") to recommend policies on transfer to criminal court, juvenile court sentencing practices, use of delinquency convictions to enhance criminal sentences, and increased procedural safeguards (Feld, 1995). A Minnesota Supreme Court Justice chaired the Task Force, which included urban, suburban, and rural juvenile judges;

prosecutors, public defenders, and legislators; as well as court services personnel and a juvenile justice legal scholar (Feld, 1995). The Minnesota Legislature unanimously enacted changes in waiver criteria and procedures, created a new form of blended sentencing—extended jurisdiction juvenile prosecutions—that combined juvenile and criminal court sentencing options, and expanded the use of delinquency convictions to enhance criminal sentences (Feld, 1995, 2003a; Podkopacz and Feld, 2002).

The increased punitive sanctions prompted the Minnesota Legislature to expand the procedural safeguards of juvenile courts. The Task Force confirmed an inadequate delivery of legal services and recommended that judges appoint counsel for juveniles facing felony charges or out-of-home placement (Feld, 1995). Although youths charged with a misdemeanor could waive counsel, the Task Force recommended that he or she consult with counsel prior to any waiver. Because the Juvenile Representation Committee (1991) could not estimate its proposal's costs, the Task Force calculated the additional costs of representation at about $5.5 million (Feld, 1995).

The 1994 Minnesota Legislature enacted the Task Force's procedural recommendations without change and provided, in part, that:

> Before a child who is charged by delinquency petition with a misdemeanor offense waives the right to counsel or enters a plea, the child *shall consult* in person with counsel who shall provide a full and intelligible explanation of the child's rights. The court *shall appoint* counsel, or stand-by counsel if the child waives the right to counsel for a child who is:
> (1) charged by delinquency petition with a gross misdemeanor or felony offense; or
> (2) the subject of a delinquency proceeding in which out-of-home placement has been proposed (Minnesota Statute § 260.155(2) (1995) (emphasis added).

The newly drafted Rules of Procedure made appointment of counsel or stand-by counsel mandatory in cases involving felony charges or out-of-home placement (Minnesota Rules of Juvenile Proceedings 3.02 [1995]). The law required any delinquent charged with a misdemeanor to meet with a lawyer prior to any waiver (Feld, 1995). Even if a child charged with a misdemeanor waived counsel, then a judge still "*may appoint* stand-by counsel to be available to assist and consult with the child at all stages of the proceedings" (Minnesota Rules of Juvenile Proceedings 3.02(2) [1995]). As another incentive to appoint counsel, court rules prohibited judges from considering prior misdemeanor convictions obtained without counsel in subsequent probation, contempt, or home-removal proceedings (Feld, 1995; Minnesota Rules of Juvenile Proceedings 3.02 Subd. 3 [1995]). The Minnesota Legislature replaced the county-by-county patchwork method of delivering legal services with a statewide public defender system authorized to represent youths in delinquency and extended jurisdiction proceedings (Minnesota Statute § 611.15 (1995)).

Importantly, the Minnesota Legislature appropriated funds to implement the new law. The Task Force estimated that a full-representation defender system would cost an additional $5.5 million. The Minnesota Legislature appropriated $2.65 million for the initial 6-month period with annual appropriations thereafter (Feld, 1995). On May 5, 1994, Minnesota Governor, Arne Carlson, signed the Juvenile Crime Bill into law and simultaneously *line-item vetoed* the appropriations necessary to implement it (Feld, 1995). He mandated appointment of counsel, vetoed funds to meet that obligation, and imposed enormous financial and administrative burdens on public defenders, whose caseloads increased by 150% or more (Feld, 1995; Weldon, 1996).

Decriminalizing Misdemeanors and Judicious Nonintervention

The law took effect on January 1, 1995, and within months, caseload increases overwhelmed public defenders. The same number of legal staff tried to represent substantially more clients without additional resources (Weldon, 1996). In light of the Governor's veto, legislators sought to reduce public defender caseloads rather than to appropriate more funds (Weldon, 1996). In March 1995, legislators enacted a creative solution and decriminalized many common misdemeanors, such as shoplifting, vandalism, larceny, and so on. The law retained delinquency jurisdiction and out-of-home placement sanctions for serious misdemeanors but relabeled most misdemeanors as petty offenses, that is, status offenses (Minnesota Statute § 260.015 Subd. 21(b) (1995). The law prohibited out-of-home placement sentences for status offenders (Minnesota Statute § 260.195(3) (1995) West, 1995). Judges could impose fines, community service, probation, restitution, or out-patient drug or alcohol treatment, but they could not remove status offenders from their home. By decriminalizing misdemeanors and barring custodial sanctions, the Minnesota Legislature sought to eliminate status offenders' right to counsel (Weldon, 1996).

United States Supreme Court decisions bolstered the strategy to decriminalize misdemeanors, to bar out-of-home placement of status offenders, and thereby to eliminate their right to counsel. *Gideon v. Wainwright* (1963) applied the Sixth Amendment's guarantee of counsel to state felony proceedings. Although *Gault* (1967) relied on the rationale of *Gideon*, the Court based delinquents' right to counsel on the Fourteenth Amendment's Due Process Clause rather than on the Sixth Amendment. In *Argersinger v. Hamlin* (1972), the Court held that a state must appoint counsel for an indigent adult defendant charged with *and* imprisoned for a misdemeanor. *Argersinger* left unclear whether the right to counsel was attached because of the penalty authorized or the actual sentence imposed. *Scott v. Illinois* (1979) held that the sentence the judge actually imposed rather than the one authorized by the statute determined whether the state must appoint counsel. Justice Brennan dissented in *Scott* and argued that the right to counsel hinged on the sentence authorized. However, Brennan (*Scott*, 1979: 388–389) noted that *Scott*'s actual imprisonment rationale would encourage states to decriminalize offenses to avoid providing counsel:

> It may well be that adoption by this Court of an "authorized imprisonment" standard would lead state and local governments to re-examine their criminal statutes. A state legislature or local government might determine that it no longer desired to authorize incarceration for certain minor offenses in light of the expense of meeting the requirements of the Constitution. In my view this re-examination is long overdue. In any event, the Court's "actual imprisonment" standard must inevitably lead the courts to make this re-examination, which plainly should more properly be a legislative responsibility.

Because *Scott* prohibited incarceration without representation, judges could deny counsel to adults in misdemeanor proceedings as long as they did not order confinement. Based on *Scott*'s rationale, the Minnesota Legislature could bar out-of-home placement of status offenders and thereby withhold the right to counsel (Weldon, 1996).

Although fiscal constraints drove Minnesota's decriminalization strategy, they produced policy innovations long advocated by juvenile justice reformers. Contemporaneously with *Gault* (1967), the President's Commission on Law Enforcement and Administration of Justice (1967a, 1967b) proposed a two-track juvenile justice system in which states formally adjudicated youths charged with serious crimes and handled informally minor and status offenders (President's Crime Commission, 1967b). The Crime Commission and other analysts recommended policies of judicious nonintervention (1967b), diversion (Lemert, 1971), and even radical nonintervention (Schur, 1973) to avoid stigmatizing youths. These recommendations reflected concerns of labeling theorists about the stigmatic consequences of delinquency adjudications and trepidation about the iatrogenic effects of juvenile court intervention in minor cases (Sanborn and Salerno, 2005). By the mid-1970s, these rationales led to reforms like the federal Juvenile Justice and Delinquency Prevention Act (1974) to divert and deinstitutionalize status offenders (Feld, 1999).

We examine the impact of these complementary legal changes. How did mandating counsel for youths charged with felonies and relabeling many misdemeanors as status offenses affect the delivery of legal services? Did rates of representation of those youths eligible for appointed counsel increase? Did the law reduce the prevalence of justice by geography, especially for youths in rural counties? Did judges comply with restrictions on the appointment of counsel for youths charged with status offenses? We answer these questions in the Findings and Analysis section.

Data

We use data based on all delinquency and status offense petitions filed in 1994 (the year before the law changed) and in 1999 (after the statutory change) to allow a period for the juvenile courts to implement the reforms. The Minnesota Legislature did not enact any other significant changes in the juvenile code between the 1995 Juvenile Crime Law and decriminalization amendment and 1999.[1] Before and after the enactment of the 1995 law, members of the

1. See Minnesota Statutes, amended, 1996 c. 408 Art. 6 § 2 and 5; 1997 c. 239 art 6 § 19; 1998 c 367 art 10 § 5.

Juvenile Justice Task Force and the Minnesota Supreme Court undertook efforts to educate the judiciary, prosecutors and defense lawyers, as well as the public about the proposed substantive changes. During the 1994 legislative process, Task Force members—which included judges, prosecutors and public defenders, as well as legislators—met regularly with law makers and juvenile justice stakeholders and garnered editorial support for the proposals (Feld, 1995). A 6-month gap extended between the enactment of the law (May 5, 1994) and its effective date (January 1, 1995) (Feld, 1995). During this period, the Minnesota Supreme Court empanelled a Juvenile Court Rules Advisory Committee chaired by the Supreme Court Justice who headed the Task Force to draft rules of procedure to implement the statutory changes. During this interim period, the Justice made several presentations to the state judiciary and continuing judicial education programs that described the impending changes. The President of the Minnesota County Attorneys Association and the State Public Defender, both of whom served on the Task Force, conducted several educational programs for their members. On August 29, 1994, the legal-scholar member of the Task Force, who subsequently served as coreporter for the Supreme Court Rules Committee, gave the plenary address at the annual meeting of the Criminal Justice Institute—Minnesota's continuing legal education program for prosecutors, defense counsel, and judges—and conducted several workshops to inform practitioners of the impending changes (Feld, 1995). Thus, juvenile court judges and practitioners were well aware of the changes mandated by the new law. These data provide a unique opportunity to conduct a natural, pre- and postreform impact study (Campbell and Ross, 1968).

Although prosecutors or court personnel close many referrals with dismissal, diversion, or informal probation, after a county attorney files a petition to initiate the process formally, county court administrators enter data on petitioned delinquency and status offense cases into the Minnesota Court Information System (MnCIS). MnCIS case-specific data include the youth identification number, age, sex, and race; date and source of the referral; offense(s); representation by counsel; and court processing information each time a court activity or disposition occurs. Courts use this information to schedule hearings, maintain calendars, and monitor cases, which are reliable, business-record data.

Minnesota provides annual MnCIS data files to the National Juvenile Court Data Archive (NJCDA) at the National Center for Juvenile Justice (NJCDA, 2007). The NJCDA receives data annually from the juvenile justice systems of 38 states, it cleans and verifies the submitted data, and it generates standardized case-level data files. The NJCDA developed a 78-offense coding protocol to convert different states' delinquency and status offense data into a uniform format. This standard format permits cross-state comparisons and national aggregation of states' juvenile court data. We recoded the NJCDA 78 offenses to correspond with Minnesota's classifications of felonies, gross misdemeanors, misdemeanors, and status offenses.

The MnCIS–NJCDA unit of count ordinarily is *case disposed*.[2] For our analyses, the NJCDA converted annual MnCIS case-based petition data into individual youth-based data files for 1994 and 1999. Each youth receives a unique identifying number that juvenile courts use for subsequent appearances. The NJCDA merged a youth's most recent petition in the current year (1994 and 1999) with the annual data files of two previous calendar years (1992 with 1993 and 1997 with 1998). Matching youths' identification numbers across years enabled us to reconstruct the prior records of petitions, adjudications, and dispositions of juveniles. We classified youths based on the most serious charge petitioned. Data reflect youths' most serious current referral and prior petitions, adjudications, and dispositions for two or more preceding years.

Scott (1979) and the statute require judges to appoint counsel for youths whose sentence will affect their residential or custody status. We used out-of-home placement to measure the severity of disposition. Out-of-home placement includes dispositions that remove a child from his or her home and place him or her in a group home, foster care, in-patient psychiatric or chemical dependent treatment facility, or a secure institution such as a county home school or state training school. Although placements in a foster or group home and a training school are qualitatively difference experiences, the law requires judges to appoint counsel for any disposition that affects a youth's out-of-home residential status. We used census definitions of Standard Metropolitan Statistical Area (SMSA) and youth-population density to classify counties as urban, suburban and small urban, or rural.[3,4,5]

2. Each case represents a petition filed for a new delinquency or status offense, regardless of the number of violations alleged. A case is disposed when the juvenile court takes some definite action on the petition (e.g., dismisses a case, sets a hearing date, adjudicates a youth, refers him or her to a treatment program, etc.). Disposed does not mean that the court closed or terminated contact with a youth but only that it took some action. A youth might be referred to juvenile court several different times during a calendar year, and each petition comprises a separate case. As a result, juvenile courts might file several petitions against youths for different referrals, and each petition might allege one or more offenses. Multiple referrals of a juvenile might overstate the number of youths against whom courts file petitions, whereas multiple charges in a single petition might understate the volume of delinquency in a county. The case disposed unit of count does not reflect either the total number of individual youths whom courts process or the number of separate offenses juveniles commit.

3. Urban counties were located within an SMSA, had one or more cities of 100,000 inhabitants, and had a juvenile population of at least 50,000 youths aged 10–17 years. By these criteria, Hennepin County (Minneapolis) and Ramsey County (St. Paul) are urban counties.

4. We classified counties as suburban or small urban if they were located within a metropolitan SMSA (suburban) or if they were located within their own SMSA (small urban), they had one or more cities of 25,000 to 100,000, and a juvenile population aged 10–17 years of more than 7,500 but less than 50,000 youths. Eight counties met these criteria. The Twin Cities suburban counties include the following: Anoka, Dakota, Scott, Washington, and Wright counties. The small urban counties and their principle cities include the following: Olmsted (Rochester), St. Louis (Duluth), and Stearns (St. Cloud).

5. We classified Minnesota's remaining 77 counties as rural because they were located outside of an SMSA, had no principal city of 25,000 or greater, and had fewer than 7,500 juveniles aged 10–17.

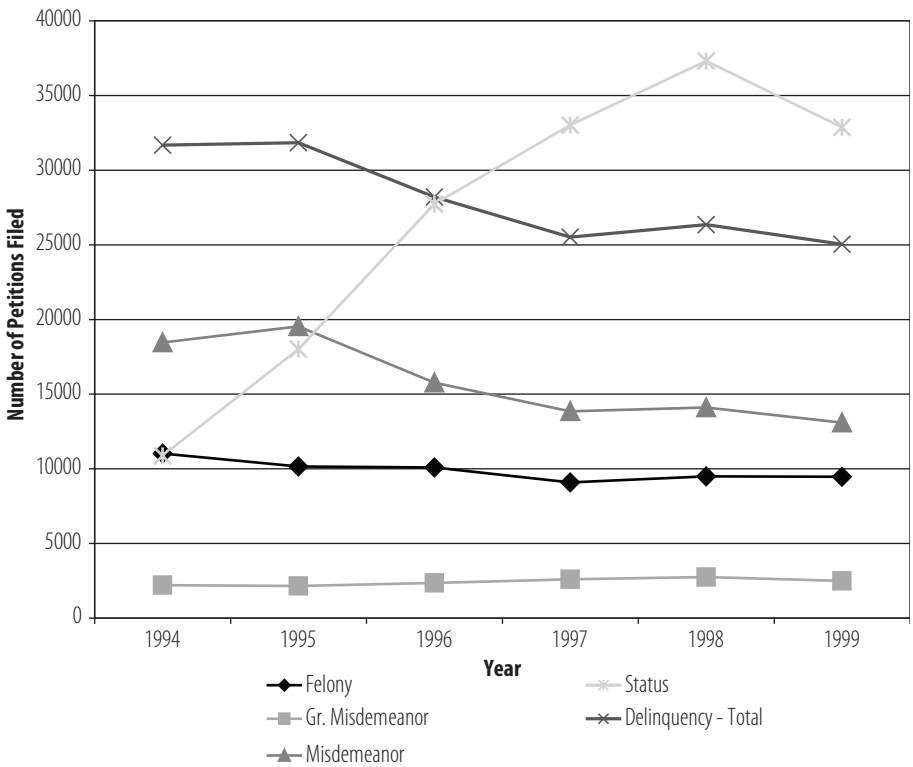
Findings and Analyses

Petitions Filed in Juvenile Courts

We first examined how decriminalizing many misdemeanors and converting them into status offenses affected the number of delinquency and status offense petitions filed. Figure 1 uses annual statistical workload reports generated by the Minnesota Supreme Court. These reports use the original MnCIS case-based data and reflect the total number of petitions filed rather than the number of individual youths against whom courts filed petitions. Figure 1 shows the number of delinquency and status offense petitions filed between 1994 and 1999. In 1994, the state filed 42,545 petitions—31,674 delinquency petitions and 10,871 status offense petitions. Delinquency filings included 11,019 felony petitions, 2,201 gross misdemeanor petitions, and 18,454 misdemeanor petitions (Minnesota Supreme Court Research and Planning, 1995). Misdemeanor petitions accounted for more than half (58%) of all delinquency filings. Status offense petitions comprised approximately 26% of all charges filed.

FIGURE 1

Minnesota Juvenile Delinquency & Status Offense Filings, 1994–1999



Source. Minnesota Supreme Court, Research and Planning Office, State Court Administration, Statistical Highlights Minnesota State Courts, 1994–1999.

TABLE 1

Descriptives Statistics by Urban, Suburban, and Rural

Variable	Statewide				Urban				Suburban				Rural			
	1994		1999		1994		1999		1994		1999		1994		1999	
	N	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Gender																
Male	21,637	71.8	26,807	68.5	4,892	70.5	7,259	67.8	6,179	73.0	7,737	68.4	10,566	71.7	11,811	69.0
Female	8,502	28.1	12,341	31.5	2,048	29.5	3,449	32.2	2,284	27.0	3,580	31.6	4,170	28.3	5,312	31.0
Total	30,139		39,148		6,940		10,708		8,463		11,317		14,736		17,123	
Age																
13 and younger	4,853	16.0	4,962	12.6	1,173	16.9	1,464	13.7	1,238	14.5	1,279	11.3	2,442	16.5	2,219	12.8
14	4,423	14.6	4,874	12.4	1,143	16.5	1,375	12.8	1,266	14.8	1,447	12.7	2,014	13.6	2,052	11.9
15	5,800	19.2	6,903	17.5	1,422	20.5	1,948	18.2	1,727	20.2	2,017	17.7	2,651	17.9	2,938	17.0
16	6,351	21.0	9,577	24.3	1,395	20.1	2,588	24.1	1,785	20.9	2,816	24.8	3,171	21.4	4,173	24.1
17	7,595	25.1	11,563	29.4	1,467	21.1	2,954	27.6	2,196	25.7	3,369	29.6	3,932	26.6	5,240	30.3
18 and older	1,248	4.1	1,490	3.8	341	4.9	390	3.6	318	3.7	439	3.9	589	4.0	661	3.8
Total	30,270		39,369		6,941		10,719		8,530		11,367		14,799		17,283	
Offense																
Felony	5,758	19.1	5,657	14.4	1,868	26.9	1,817	17.0	1,510	17.8	1,559	13.8	2,380	16.1	2,281	13.2
Misdemeanor	15,044	49.8	3,522	9.0	3,209	46.3	1,033	9.6	4,322	50.9	1,020	9.0	7,513	50.9	1,469	8.5
Status	9,379	31.1	30,081	76.6	1,858	26.8	7,864	73.4	2,665	31.4	8,744	77.2	4,856	32.9	13,473	78.2
Total	30,181		39,260		6,935		10,714		8,497		11,323		14,749		17,223	
Prior record																
None	17,368	57.4	20,532	52.2	3,079	44.4	5,100	47.6	5,043	59.1	5,956	52.4	9,246	62.5	9,476	54.8
1 or 2	8,576	28.3	11,375	28.9	2,255	32.5	3,259	30.4	2,435	28.5	3,210	28.2	3,886	26.3	4,906	28.4
3 or 4	2,603	8.6	3,925	10.0	914	13.2	1,198	11.2	672	7.9	1,157	10.2	1,017	6.9	1,570	9.1
5 or more	1,723	5.7	3,537	9.0	693	10.0	1,162	10.8	380	4.5	1,044	9.2	650	4.4	1,331	7.7
Total	30,270		39,369		6,941		10,719		8,530		11,367		14,799		17,283	

The 1995 law dramatically altered the filings of delinquency, misdemeanor, and status offense petitions. The total number of petitions filed increased from 42,545 in 1994 to 57,888 in 1999. The number of felony and gross misdemeanors petitions filed remained relatively constant. Consistent with the national crime-drop in serious youth crime between 1994 and 1999, felony petitions decreased from 11,019 to 9,462 filings, whereas the smaller number of gross misdemeanor petitions increased somewhat (Snyder and Sickmund, 2006).[6]

The 1995 law retained delinquency jurisdiction over youths charged with serious misdemeanor offenses but decriminalized most misdemeanors. By relabeling these crimes as status offenses, the number of misdemeanor petitions declined more than 40% (18,454 in 1994 to 13,085 in 1999). Because misdemeanor petitions had comprised more than half (58%) of all delinquency filings in 1994, the total number of delinquency filings declined more than 27% (from 31,674 in 1994 to 25,030 in 1999). By contrast, the number of status offense petitions filed skyrocketed. In 1994, the state filed 10,871 status offense petitions. By 1999, status offense petitions mushroomed to 32,858—a threefold increase—and comprised more than half (57%) of all petitions filed in juvenile courts.

Youths Convicted in Juvenile Courts

Table 1 uses the NJCDA offender-based data to report descriptive statistics on the number of individuals convicted of felony, misdemeanor, and status offenses in 1994 and 1999 for the entire state as well as separately in urban, suburban/small urban, and rural counties. The descriptive statistics include youths' gender and age, the most serious offense at disposition, prior record, attorney representation, and so on.[7]

In both 1994 and 1999, males represented more than two thirds (71.8% in 1994 and 68.5% in 1999) of youths in juvenile courts. In both years, prosecutors charged the largest

6. We used Federal Bureau of Investigation arrest statistics compiled by the Office of Juvenile Justice and Delinquency Prevention to calculate the total number of juvenile arrests and the number of arrests recoded to reflect felony, misdemeanor, and petty/status offenses in 1994 and in 1999. Total arrests increased by 10.6% between 1994 (63,639) and 1999 (70,387). Felony arrests decreased by 6.3% (12,263 in 1994 and 11,495 in 1999) and misdemeanor arrests decreased by 85.9% (37,507 in 1994 and 5,295 in 1999). Conversely, arrests for petty/status offenses increased by 286.4% (13,869 in 1994 and 53,590 in 1999) (Puzzanchera, Adams, Snyder, and Kang, 2007). The arrests patterns mirror the changes in petitions filed between 1994 and 1999.

7. The data-collection instruments and practices of agencies necessarily constrain secondary analyses, and this study reflects those limitations. For example, in 1994, the MnCIS form included petitioned juveniles' pretrial detention status, but it dropped that variable from later data-collection instruments even though youths' detention status affects both the appointment of counsel and the subsequent disposition (Feld, 1989, 1991). In addition, many court administrators do not systematically record data on the race of juveniles.

In 1994, the MnCIS forms included data on representation by attorney at filing as well as at disposition. In 1999, it recorded only data on representation by attorney at disposition. Fortunately, in 1994, the rate of representation for juveniles increased substantially between filing and disposition. The rates of representation for youths charged with a felony increased from 33.7% at filing to 65.7% at disposition. For youths charged with a misdemeanor, the rate increased from 21.8% to 38.8%. For juveniles charged with a status offense, the rate increased from 11.5% at filing to 19.6% at disposition. Thus, the rate of representation at disposition clearly provides the more valid and reliable indicator of the presence of attorneys.

plurality of 17-year-old juveniles, followed by 16-year-old youths, and so on.[8] The number and percentage of juveniles convicted of felony, misdemeanor, and status offenses reflect the legislative changes.[9] In 1994, juvenile courts convicted approximately one fifth (19.1%) of youths of felonies, nearly half (49.8%) of misdemeanors, and roughly one third (31.1%) of status offenses. In 1999, juvenile courts convicted almost the same number of youths of felonies as previously (5,758 in 1994 and 5,657 in 1999). Because the number of youths charged increased substantially (from 30,181 in 1994 to 39,260 in 1999), felonies only accounted for one seventh (14.4%) of all convictions. As a result of decriminalizing most misdemeanors, the number of youths convicted of misdemeanors plummeted (from 15,044 in 1994 to 3,522 in 1999) from approximately half (49.8%) to approximately one tenth (9.0%) of youths convicted. By contrast, juveniles convicted of status offenses increased threefold (from 9,379 in 1994 to 30,081 in 1999) and comprised 76.6% of juvenile courts' dockets. A similar pattern prevailed throughout the state.[10] Thus, the legislative strategy to reduce the number of youths potentially eligible for public defenders clearly succeeded.

In both years, most youths appeared in juvenile courts for the first time (57.4% in 1994 and 52.2% in 1999). An additional quarter (28.3% in 1994 and 28.9% in 1999) had only one or two prior referrals. Offenders with three or more prior referrals comprised less than one fifth of youths (14.3.% in 1994 and 19.0% in 1999). Smaller proportions of youths in urban counties appeared in juvenile courts for the first time (44.4% in 1994 and 47.6% in 1999) than did their suburban (59.1% in 1994 and 52.4% in 1999) or rural (62.5% in 1994 and 54.8% in 1999) counterparts.

Representation by Counsel in Juvenile Courts

The 1995 law mandated the appointment of counsel or stand-by counsel for youths charged with felonies and gross misdemeanors or facing out-of-home placement.[11] To reduce the numbers of youths eligible for representation by the public defender, it decriminalized most misdemeanors and restricted dispositions of status offenders. In 1994, courts convicted more than two thirds

8. A youth's age at the time of offense rather than at the time of adjudication or convictions determines Minnesota juvenile court jurisdiction. A few youths (4.1% in 1994 and 3.8% in 1999) "aged-out" of juvenile court, but the court's dispositional authority over them continues until age 19 or even 21 (Podkopacz and Feld, 2001).

9. Recall that Figure 1 reported the number of separate petitions filed rather than the individual youths charged or convicted. As a result of dismissals, acquittals, continuances, plea bargains, and charge reductions, some attrition occurs between the number and the seriousness of the offenses with which the state initially charges a youth and the offense for which the juvenile court ultimately convicts and sentences a youth.

10. Chi-square tests indicate a significant difference between 1994 and 1999 for offense types by geographical location. Statewide (= 17,117.94, df = 3, $p < .001$), urban (= 4,211.183, df = 3, $p < .001$); suburban (= 4,979.145, df = 3, $p < .001$); and rural (= 7,976.545, df = 3, $p < .001$).

11. Court administrators recorded appointment of counsel and stand-by counsel on MnCIS forms to notify them of appearances, calendar changes, and so on. For clarity of analysis and presentation, we combined felony and gross misdemeanors because the law treats them similarly.

TABLE 2

Urban, Suburban, and Rural Variation in Rates of Representation by Type of Offense, 1994–1999

	Statewide Attorney Presence (%)		Urban Attorney Presence (%)		Suburban Attorney Presence (%)		Rural Attorney Presence (%)	
Type of Offense	**1994**	**1999**	**1994**	**1999**	**1994**	**1999**	**1994**	**1999**
Felony	3,767 (65.7%)	3,589 (63.9%)	1,339 (71.7%)	1,141 (62.8%)	1,233 (82.8%)	1,048 (68.9%)	1,195 (50.2%)	1,400 (61.4%)
Total	5,737	5,618	1,868	1,817	1,489	1,521	2,380	2,280
Misdemeanor	5,809 (38.8%)	2,351 (67.0%)	1,655 (51.6%)	696 (67.4%)	2,422 (57.1%)	761 (75.6%)	1,732 (23.1%)	894 (60.9%)
Total	14,957	3,509	3,209	1,033	4,243	1,007	7,505	1,469
Status	1,826 (19.6%)	6,845 (22.9%)	616 (33.2%)	1,767 (22.5%)	669 (25.5%)	2,345 (27.2%)	541 (11.1%)	2,733 (20.3%)
Total	9,330	29,949	1,858	7,863	2,619	8,617	4,853	13,649
Overall	11,402 (38.0%)	12,785 (32.7%)	3,610 (52.1%)	3,604 (33.6%)	4,324 (51.8%)	4,154 (37.3%)	3,468 (23.5%)	5,027 (29.2%)
Total	30,024	39,076	6,935	10,713	8,351	11,145	14,738	17,218

(20,802 or 68.9%) of all youths of felonies and misdemeanors for which they were entitled to representation. In 1999, juvenile courts convicted less than one quarter (9,179 or 23.4%) of youths of felonies or misdemeanors, and the remaining three quarters (76.6%) of youths were convicted of status offenses for which the law did not require appointment of counsel.

Table 2 reports juveniles' rates of representation by type of offense—felony, misdemeanor, and status—for the state and in urban, suburban, and rural counties. Lawyers historically represented proportionally fewer youths in rural counties, so we examined whether the legislative changes decreased justice by geography. Because the Minnesota Legislature intended to reduce the costs of counsel, we examined the impact of decriminalizing misdemeanors on representation of status offenders. In 1994, attorneys appeared at only 38.0% of the dispositions of delinquents and status offenders. Lawyers accompanied most youths in urban (52.1%) and suburban (51.8%) counties but accompanied less than one quarter (23.5%) of youths in the rural counties—clear evidence of justice by geography. In 1999, the statewide rate of representation declined to 32.7% of all delinquents and status offenders because of the dramatic increase in status petitions filed. The rates of representation decreased significantly in urban and suburban counties but increased in rural counties.[12]

For the entire state, the number of youths convicted of a felony and their rate of representation remained essentially unchanged before and after the law changed (5,737 [65.7%] in 1994 and 5,618 [63.9%] in 1999). Despite the explicit mandate to appoint counsel for *all* youths charged with felonies, juveniles' rate of representation remained unchanged—lower than that for adults charged with felonies or for juveniles in some jurisdictions (Feld, 1988b; Harlow, 2000). For these felony offenders, judges continued to do what they always had done.

Juvenile courts retained delinquency jurisdiction over the more serious misdemeanors (e.g., contempt of court, assault, domestic assault, prostitution, arson, dangerous weapons, etc.) for which out-of-home placement remained a dispositional option. Although the number of youths convicted of misdemeanors declined fourfold (from 14,957 in 1994 to 3,509 in 1999), the rate of representation of those delinquents who remained eligible for appointed counsel nearly doubled (from 38.8% in 1994 to 67.0% in 1999). For serious misdemeanors, we observed a greater, albeit incomplete, judicial compliance with the law. In urban and suburban counties, the rates of representation of youths convicted of serious misdemeanors actually exceeded those of youths convicted of felonies, and in rural counties, they almost matched them. Even though the number of youths convicted of status offenses tripled, their low rate of representation remained essentially unchanged (from 19.6% in 1994 to 22.9% in 1999) and suggests a high degree of organizational maintenance or homeostasis. Thus, before the changes, lawyers represented two thirds (65.7%) of youths convicted of felonies, more than one third (38.8%) of youths convicted of misdemeanors, and almost one fifth (19.6%) of youths convicted of status offenses. After the change, lawyers represented two thirds of youths convicted of felonies

12. Chi-square tests indicate a significant difference between 1994 and 1999 for overall attorney presence by geographical location: statewide (= 206.321, df = 1, $p < .001$); urban (= 591.793, df = 1, $p < .001$); suburban (= 408.750, df = 1, $p < .001$); and rural (= 130.584, df = 1, $p < .001$).

(63.9%) *and* misdemeanors (67.0%) and represented approximately one fifth (22.9%) of status offenders. The only significant change in attorney presence occurred for youths charged with serious misdemeanors.

We next examined the changes in rates of representation for youths convicted of felony, misdemeanor, or status offenses in different parts of the state. Inexplicably, the rates of representation of juveniles convicted of a felony actually declined in urban (–8.9%) and suburban (–13.9%) counties. By contrast, rates of representation for rural youths convicted of felonies increased 11.2% and approached parity with urban and suburban courts. After the law changed, the rates of representation of youths charged with serious misdemeanors increased substantially throughout the state. Although the rate of representation of youths convicted of the serious misdemeanors increased in urban (+15.8%) and suburban (+18.5%) counties, it more than doubled in rural counties from 23.1% to 60.9%. Both of these changes substantially reduced the historic pattern of justice by geography. Giving the public defender the authority to represent delinquency cases and the 1995 law clearly had a positive impact on the delivery of legal services in rural counties.

The Minnesota Legislature barred out-of-home placement of status offenders in an effort to curtail their right to representation at public expense. Attorneys represented about one fifth of status offenders in 1994 (19.6%) and in 1999 (22.9%). The rates of representation decreased in urban counties (–10.7%), remained essentially unchanged in suburban counties (+3.0%), and increased in rural counties (+9.3%). Because the numbers of youths convicted of status offenses more than tripled in the interim, even with their lower rates of representation, the overall demand for legal services increased. Although the 1995 law prohibited judges from appointing public defenders for status offenders, in both 1994 and 1999, public defenders appeared with virtually all status offenders who had counsel (95.1% in 1994 and 95.5% in 1999). Because attorneys represented roughly similar numbers of delinquents and status offenders before and after the changes (from 11,402 in 1994 to 12,785 in 1999), the Minnesota Legislature did not achieve its goal of reducing costs.

Logistic Regression Predicting Attorney Presence

We used logistic regression to estimate which factors influenced the presence of attorneys before and after the law changed. As noted, the original MnCIS petition-based data did not systematically include racial demographic data in all 87 counties, and most counties reported a high rate of "unknown" race data. To overcome this problem, we estimated nested models with and without the race variable. In each year, race was a significant factor that predicted the presence of attorneys. If we excluded race from our models, then the effect of offense type or geographic location could be inflated artificially because the race of a juvenile could contribute to some variation in these variables. Therefore, we controlled for race and included a dummy variable for unknown race data to adjust properly for the effects of the other predictors. Table 3 reports the race categories by year and the number and percent of youths of each race category

represented by an attorney. In 1994, 54% of the cases reported unknown race data as did 40.9% of the cases in 1999.[13] Because of the high number of cases reporting unknown race data, we must interpret effects caused by race cautiously.

TABLE 3

Race Descriptives

	1994		1999	
	N	%	*N*	%
Overall race descriptives				
White	10,910	36.0	16,672	42.3
Black	1,542	5.1	3,791	9.6
Native American	947	3.1	1,157	2.9
Hispanic	142	0.5	1,025	2.6
Asian/South Pacific	376	1.2	624	1.6
Unknown Race	16,353	54.0	16,100	40.9
Total	30,270		39,369	
Attorney presence by race				
White	3,390	29.6	4,802	37.4
Black	770	6.7	1,483	11.6
Native American	364	3.2	438	3.4
Hispanic	64	0.6	435	3.4
Asian/South Pacific	154	1.3	248	1.9
Unknown Race	6,708	58.6	5,431	42.3
Total	11,450		12,837	

Table 4 shows the logistic regression models predicting attorney presence. Models I and II report the factors predicting attorney presence in 1994 and in 1999, whereas Model III examines whether the factors affecting attorney presence at disposition are significantly different depending on the year. We coded the dependent variable (attorney presence) as a dichotomous variable (1 = private/public attorney present, 0 = no attorney present at the disposition).[14] We compared the

13. Cross-tabulations of the race variable by Minnesota's 87 counties revealed that all counties report unknown race data. No apparent pattern emerged for unknown race data across urban, suburban, or rural counties.

14. We combined the two types of representation (private and public defender) because private attorneys represented a low number and similar proportion of youths in each year. Of the 30,270 petitioned cases in 1994, only 633 (2.1%) juveniles retained private attorneys, 10,817 (35.8%) had public defenders, and the remaining 18,663 (61.7%) youths were unrepresented. Of the 39,369 petitioned cases in 1999, only 762 (1.9%) juveniles had private attorneys, 12,075 (30.7%) had public defenders, and the remaining 26,348 (66.9%) juveniles were unrepresented. In 1994, private attorneys represented 4.4% of youths charged with felonies, 1.9% of those charged with misdemeanors, and 1.0% of those charged with status offenses. In 1999, private attorneys represented 5.1% of youths charged with felonies, 4.0% of those charged with misdemeanors, and 1.1% of those charged with status offenses. In short, the numbers and proportions of youths represented by private counsel were small and did not change. We attributed the predominance of public defense representation to the Minnesota Rule of Juvenile Court Procedure 3.02, which bases eligibility for public defender representation on a child's income and assets rather than on that of his or her parents.

effect of youths convicted of misdemeanors or status offense with those convicted of felonies. For prior record, we compared youths with no prior record to those with one or two, three or four, and five or more prior referrals. To assess the impact of geographic locale, we included variables for urban, suburban, and rural counties. Demographic variables include age, gender (male = 1; female = 0), and race (using White youths as the reference category).

Models I and II allow us to examine the factors that predict the presence of attorneys in 1994 and 1999 separately. In both years, the independent variable for offense type is important. In 1994, juveniles charged with misdemeanors were 65.8% *less likely* to be represented by counsel than youths charged with felonies.[15] In 1999, after the Minnesota Legislature retained delinquency jurisdiction only over serious misdemeanors, youths convicted of misdemeanors were 15.6% *more likely* to be represented by an attorney than juveniles charged with a felony. As the Minnesota Legislature intended, youths convicted of a status offense were less likely to have counsel present at disposition than were youths convicted of felony offenses (–87.2% for 1994 and –82.2% for 1999). Not surprisingly, in both years, juveniles with prior referrals were more likely to have an attorney than were those youths making their first appearance, and the likelihood of counsel increased with the number of prior referrals. Youths with five or more prior referrals were twice as likely to have counsel present as youths appearing in juvenile court for the first time.

In light of earlier research reporting justice by geography (Bray et al., 2005; Burrus and Kempf-Leonard, 2002; Feld, 1991), we tested whether trial in urban, suburban, or rural courts affected youths' likelihood of representation. In both 1994 and 1999, juveniles convicted in suburban counties were more likely to be represented than youths processed in urban counties. By contrast, juveniles convicted in rural counties were less likely than those in urban counties to have an attorney present. However, in 1994, juveniles tried in rural counties were 69.3% less likely to be represented by a lawyer than their urban counterparts, whereas in 1999, rural juveniles were only 17.4% less likely to be represented than urban youths.

In both 1994 and 1999, age is negative and significantly related to the presence of counsel—older juveniles are *less* likely than younger youths to have an attorney present at their disposition. In both 1994 and 1999, males were more likely than females to be represented by an attorney. Interpreting the race effects cautiously, in 1994, Black youths were the only racial group that was *less* likely than Whites to have an attorney present; however, in 1999, all youths reporting race data were more likely than White youths to have an attorney present.

To examine whether the effects of attorney presence at disposition are significantly different depending on the year by offense type and county, Model III combines the 1994 and 1999 data sets and controls for year by adding significant interaction terms. The inclusion of interaction terms allows us to analyze whether the difference between the logistic coefficients in 1994 and 1999 is significant. The interactions for year by geographic locale are significant. Between the

15. For ease of interpretation, the exponentiated beta also can be calculated into percent change using the following equation: Expβ – 1 × 100 = percent change (Knoke, Bohrnstedt, and Mee, 2002).

TABLE 4

Predicting Attorney Presence at Disposition

	Model I (1994)		Model II (1999)		Model III (1994 and 1999)	
	B	Exp(B)	B	Exp(B)	B	Exp(B)
Offense characteristics						
Misdemeanor (vs. felony)	−1.073***	.342	.145**	1.156	1.057***	.347
	(.035)		(.046)		(.035)	
Petty/ status (vs. felony)	−2.053***	.128	−1.728	.178	−2.012***	.134
	(.042)		(.032)		(.041)	
Priors						
One to two priors (vs. no priors)	.622***	1.863	.410***	1.506	.504***	1.656
	(.031)		(.028)		(.021)	
Three to four priors (vs. no priors)	.913***	2.493	.781***	2.183	.837***	2.309
	(.048)		(.040)		(.031)	
Five or more priors (vs. no priors)	1.085***	2.96	.939***	2.558	.998***	2.712
	(.058)		(.042)		(.034)	
Geographical location						
Suburban (vs. urban)	.162***	1.176	.297***	1.345	.191***	1.211
	(.037)		(.035)		(.036)	
Rural (vs. urban)	−1.182***	.307	−.192***	.826	−1.150***	.316
	(.036)		(.036)		(.034)	
Demographic characteristics						
Age	−.075***	.307	−.192***	.826	−1.150***	.316
	(.036)		(.036)		(.034)	
Male (vs. female)	.134***	1.144	.287***	1.332	.223***	1.25
	(.031)		(.027)		(.2)	
Black (vs. White)	−.131*	.877	.250***	1.284	.122***	1.13
	(.064)		(.045)		(.037)	
Native American (vs. White)	.122	1.13	.185**	1.203	.158*	1.171
	(.078)		(.071)		(.053)	
Latin American (vs. White)	.239	1.27	.576***	1.778	.517***	1.677
	(.188)		(.075)		(.069)	
Asian (vs. White)	.612***	1.844	.484***	1.622	.528***	1.695
	(.199)		(.093)		(.073)	
Unknown (vs. White)	.451***	1.57	.439***	1.55	.451***	1.569
	(.030)		(.028)		(.020)	
Year (1 = 1999)	—	—	—	—	−.504***	.604
					(.051)	
Year*suburban	—	—	—	—	.065	1.067
					(.048)	
Year*rural	—	—	—	—	.913***	2.492
					(.046)	
Year*misdemeanor	—	—	—	—	1.195***	3.305
					(.058)	
Year*petty/status offense	—	—	—	—	.272***	
					−.052	1.313
Constant	1.582***	4.864	1.725***	5.615	1.198***	6.805
	(.123)		(.119)		(.089)	
Chi-square (df)	6,795.635***		6,942.746***		13,844.002***	
	(14)		(14)		(19)	
−2LL	32,919.600		42,229.947		75,247.427	

*$p < .05$. **$p < .01$. ***$p < .001$.

years 1994 and 1999, the relative ranking stays the same. Suburban counties are most likely to have an attorney at disposition, followed by urban counties, with rural counties having the lowest likelihood of having an attorney at disposition. But comparing the same type of county across years, urban and suburban counties see a drop in the odds for attorney presence between 1994 and 1999, whereas rural counties see an increase. Thus, the interaction terms confirm our argument that the 1995 law significantly reduced justice by geography for rural counties.

The interaction for year by offense type is also significant. Between 1994 and 1999, the relative ranking for offense type predicting attorney presence at disposition remains the same. Youths convicted of status offenses have the lowest odds of having an attorney present at disposition, followed by felony offenders, with misdemeanor offenders having the highest odds of having an attorney present at disposition. The interaction terms allow us to compare offense types across years. Between 1994 and 1999, youths convicted of felony and status offenses show a decrease in odds of representation, whereas youths convicted of misdemeanor offenses show an increase in the odds of having an attorney. The legislative narrowing of misdemeanor offenses had a significantly greater impact on predicting attorney presence in 1999 than in 1994.

Discussion and Conclusion

For several decades, Minnesota has struggled to comply with *Gault*'s (1967) mandate to provide juveniles with assistance of counsel. The 1995 law required judges to appoint counsel for youths charged with felonies and in cases in which judges removed youth from home, but the Governor vetoed the funds necessary to implement the legal mandate. As a cost-saving strategy, the Legislature creatively redefined most misdemeanors as status offenses, barred out-of-home placements, and thereby eliminated juveniles' constitutional right to counsel.

The 1995 law reforms produced a mixed and somewhat disappointing impact on the appointment of counsel. Both in 1994 and 1999, the data presented in Table 4 describe predictable factors associated with appointment of counsel—youths who are younger, male, charged with felonies, and with more extensive prior records are more likely to have lawyers than are youths who do not share those characteristics.

Despite legislative efforts to increase representation of youths charged with felonies, the statewide rate at which counsel appeared remained essentially unchanged. The judicial noncompliance suggests a high level of organizational maintenance and stability in courtroom workgroups as well as an adaptive strategy to handle cases efficiently and limit costs. The changes in law and court rules should have produced a dramatic increase in felony rates of representation comparable with that which occurred with the serious misdemeanants. Rates of felony representation improved only in rural counties, where the presence of counsel long had lagged behind urban and suburban counties. We attributed this increase to changes that gave the state public defender authority to represent delinquents and to the 1995 law, which mandated the appointment of counsel. However, inexplicable declines in rates of felony representation in urban and suburban counties offset the improvements in rural Minnesota. By contrast with the mixed felony results, rates of representation of delinquent youths convicted

of serious misdemeanors increased substantially throughout the state and more than doubled in the rural counties. We attributed this finding to decriminalizing most misdemeanors and to reducing the numbers of youths eligible for court-appointed counsel as well as to improvements in the delivery of legal services.

The findings raise several policy questions that the data cannot answer. Although representation of rural youths improved dramatically, why did the felony rates of representation for urban and suburban youths unexpectedly decline? Despite the clear legislative intent to the contrary, why did judges continue to allow one third of juveniles convicted of felonies and serious misdemeanors to waive counsel? Whether a delinquent pleads guilty or goes to trial, the offense and disposition define the legal requirements for judicial appointment of counsel. Four decades after *Gault* (1967), why does providing lawyers in juvenile courts remain so problematic? These findings suggest a continuing judicial resistance to formal legal rational initiatives in a substantively irrational organization. Do judges resist appointment of counsel to maintain autonomy and preserve discretion? Qualitative observations of juvenile court proceedings or analyses of transcripts of judicial waiver colloquies might provide answers to some of these questions.

Developmental psychologists have argued for decades that juveniles lack competence to exercise or waive legal rights (Grisso, 1980, 1981; Grisso et al., 2003). The 1995 law recognized the developmental limitations of juveniles and mandated the appointment of counsel or stand-by counsel for all juveniles charged with felonies, serious misdemeanors, or who faced out-of-home placement. And yet, judges continued to find waivers of counsel, despite the legislative prohibition. States must adopt policies to prohibit waivers of counsel by juveniles charged with crimes and develop mechanisms to monitor judicial compliance with those requirements.

By contrast, judges continued to appoint counsel for about one fifth of status offenders despite the unambiguous language to the contrary. Because the statute prohibited judges from appointing counsel for youths charged with status offenses, why did the rates of representation for suburban and especially rural youths increase? Although lawyers only represented about one fifth of these youths, why did judges continue to assign, and why did public defenders accept, appointments to represent status offenders? Appointing counsel for even a small proportion of the vastly more numerous status offenders produced a net increase in the number of youths represented. Because the Minnesota Legislature intended to reduce costs by decriminalizing misdemeanors, judicial appointment of counsel for any status offenders only could have a negative impact on the public defenders' budgets.

Although it is salutary that law makers chose to prohibit incarceration of unrepresented youths, it is dispiriting that they also could not ensure lawyers for all eligible young offenders. Juveniles, by virtue of inexperience and immaturity, require assistance of counsel to understand legal proceedings, to prepare and present a defense, to negotiate guilty pleas, and to ensure fair adjudications. Although reducing the likelihood of incarceration is a laudable goal, the legislature and courts should not seek that goal by forcing young people to appear pro se in legal proceedings with which they are unfamiliar and for which they are most assuredly unprepared. Since *Gault* (1967), delinquency proceedings—especially those involving felony charges or custody

status—are serious proceedings with significant direct, collateral, and long-term consequences (Feld, 2003a). For these matters, it is even more true now than it was then that a "proceeding where the issue is whether the child will be found to be 'delinquent' and subjected to the loss of his liberty for years is comparable in seriousness to a felony prosecution" (*Gault*, 1967: 36). In light of the mixed success of law reforms, either the Minnesota Supreme Court or the State Public Defender should create administrative oversight mechanisms to monitor and assure that juvenile court judges comply with the unambiguous legal requirement to appoint lawyers for all eligible youths.

References

Aday, David P., Jr. 1986. Court structure, defense attorney use, and juvenile court decisions. *Sociological Quarterly*, 27: 107–119.

American Bar Association (ABA). 1993. *America's Children at Risk: A National Agenda for Legal Action*. Washington, DC: American Bar Association Presidential Working Group on the Unmet Needs of Children and their Families.

American Bar Association (ABA). 1995. *A Call for Justice: An Assessment of Access to Counsel and Quality of Representation in Delinquency Proceedings*. Washington, DC: American Bar Association Juvenile Justice Center.

Berkheiser, Mary. 2002. The fiction of juvenile right to counsel: Waiver in the juvenile courts. *Florida Law Review*, 54: 577–686.

Bonnie, Richard and Thomas Grisso. 2000. Adjudicative competence and youthful offenders. In (Thomas Grisso and Robert G. Schwartz, eds.), *Youth on Trial: A Developmental Perspective on Juvenile Courts*. Chicago, IL: University of Chicago Press.

Bookser, Susanne M. 2004. Making Gault meaningful: Access to counsel and quality of representation in delinquency proceedings for indigent youth. *Whittier Journal of Child & Family Advocacy*, 3: 297–328.

Bortner, M.A. 1982. *Inside a Juvenile Court: The Tarnished Ideal of Individualized Justice*. New York: New York University Press.

Bray, Timothy, Lisa L. Sample, and Kimberly Kempf-Leonard. 2005. Justice by geography: Racial disparity and juvenile courts. In (Darnell F. Hawkins and Kimberly Kempf-Leonard, eds.), *Our Children, Their Children: Confronting Racial and Ethnic Differences in American Juvenile Justice*. Chicago, IL: University of Chicago Press.

Brooks, Kim and Darlene Kamine. 2003. *Justice Cut Short: An Assessment of Access to Counsel and Quality of Representation in Delinquency Proceedings in Ohio*. Washington, DC: American Bar Association Juvenile Justice Center.

Burrus, George W., Jr. and Kimberly Kempf-Leonard. 2002. The questionable advantage of defense counsel in juvenile court. *Justice Quarterly*, 19: 37–68.

Campbell, Donald T. and H. Laurence Ross. 1968. The Connecticut crackdown on speeding: Time-series data in quasi-experimental analysis. *Law & Society Review*, 3: 33–53.

Canon, Bradley C. and Kenneth Kolson. 1971. Rural compliance with *Gault*: Kentucky, a case study. *Journal of Family Law*, 10: 300–326.

Celeste, Gabriella and Patricia Puritz. 2001. *The Children Left Behind: An Assessment of Access to Counsel and Quality of Legal Presentation in Delinquency Proceedings in Louisiana*. Washington, DC: American Bar Association Juvenile Justice Center.

Clarke, Stevens H. and Gary G. Koch. 1980. Juvenile court: Therapy or crime control, and do lawyers make a difference? *Law & Society Review*, 14: 263–308.

Cooper, N. Lee, Patricia Puritz, and Wendy Shang. 1998. Fulfilling the promise of *In re Gault*: Advancing the role of lawyers for children. *Wake Forest Law Review*, 33: 651–679.

Crippen, Gary L. 2000. Can the courts fairly account for the diminished competence and culpability of juveniles? A judge's perspective. In (Thomas Grisso and Robert Schwartz, eds.), *Youth on Trial: A Developmental Perspective on Juvenile Justice*. Chicago, IL: University of Chicago Press.

Duffee, David and Larry Siegel. 1971. The organization man: Legal counsel in the juvenile court. *Criminal Law Bulletin*, 7: 544–553.

Eisenstein, James and Herbert Jacob. 1977. *Felony Justice: An Organizational Analysis of Criminal Courts*. Boston, MA: Little, Brown.

Feeley, Malcolm M. 1983. *Court Reform on Trial: Why Simple Solutions Fail*. New York: Basic Books.

Feld, Barry C. 1984. Criminalizing juvenile justice: Rules of procedure for the juvenile court. *Minnesota Law Review*, 69: 141–276.

Feld, Barry C. 1988a. The juvenile court meets the principle of offense: punishment, treatment, and the difference it makes. *Boston University Law Review*, 68: 821–915.

Feld, Barry C. 1988b. *In re Gault* revisited: A cross-state comparison of the right to counsel in juvenile court. *Crime & Delinquency*, 34: 393–424.

Feld, Barry C. 1989. The right to counsel in juvenile court: An empirical study of when lawyers appear and the difference they make. *Journal of Criminal Law & Criminology*, 79: 1185–1346.

Feld, Barry C. 1991. Justice by geography: Urban, suburban, and rural variations in juvenile justice administration. *Journal of Criminal Law & Criminology*, 82: 156–210.

Feld, Barry C. 1993. *Justice for Children: The Right to Counsel and the Juvenile Courts*. Boston, MA: Northeastern University Press.

Feld, Barry C. 1995. Violent youth and public policy: A case study of juvenile justice law reform. *Minnesota Law Review*, 79: 965–1128.

Feld, Barry C. 1999. *Bad Kids: Race and the Transformation of the Juvenile Court*. New York: Oxford University Press.

Feld, Barry C. 2003a. The constitutional tension between *Apprendi* and *McKeiver*: Sentence enhancements based on delinquency convictions and the quality of justice in juvenile courts. *Wake Forest Law Review*, 38: 1111–1224.

Feld, Barry C. 2003b. Race, politics, and juvenile justice: The Warren Court and the conservative "backlash." *Minnesota Law Review*, 87: 1447–1577.

Feld, Barry C. 2006. Juveniles' competence to exercise Miranda rights: An empirical study of policy and practice. *Minnesota Law Review*, 91: 26–100.

Ferster, Elyce Zenoff, Thomas Courtless, and Edith Snethen. 1971. The juvenile justice system: In search of the role of counsel. *Fordham Law Review*, 39: 375–412.

Flicker, Barbara. 1983. *Providing Counsel for Accused Juveniles*. New York: Institute of Judicial Administration.

Gebo, Erika, Nena F. Stracuzzi, and Valerie Hurst. 2006. Juvenile justice reform and the courtroom workgroup: Issues of perception and workload. *Journal of Criminal Justice*, 34: 425–433.

Grisso, Thomas. 1980. Juveniles' capacities to waive Miranda rights: An empirical analysis. *California Law Review*, 68: 1134–1166.

Grisso, Thomas. 1981. *Juveniles' Waivers of Rights: Legal and Psychological Competence*. New York: Plenum Press.

Grisso, Thomas. 1997. The competence of adolescents as trial defendants. *Psychology, Public Policy, and Law*, 3: 3–32.

Grisso, Thomas, Laurence Steinberg, Jennifer Woolard, Elizabeth Cauffman, Elizabeth Scott, Sandra Graham, Fran Lexcen, N. Dickon Reppucci, and Robert Schwartz. 2003. Juveniles' competence to stand trial: A comparison of adolescents' and adults' capacities as trial defendants. *Law & Human Behavior*, 27: 333–363.

Guevara, Lori, Cassia Spohn, and Denise Herz. 2004. Race, legal representation, and juvenile justice: issues and concerns. *Crime & Delinquency*, 50: 344–371.

Guevara, Lori, Cassia Spohn, and Denize Herz. 2008. Race, gender, and legal counsel: Differential outcomes in two juvenile courts. *Youth Violence and Juvenile Justice*, 6: 83–104.

Hagan, John, John D. Hewitt, and Duane F. Alwin. 1979. Ceremonial justice: Crime and punishment in a loosely coupled system. *Social Forces*, 58: 506–527.

Harlow, Caroline Wolf. 2000. *Defense Counsel in Criminal Cases*. Washington, DC: Bureau of Justice Statistics, U.S. Department of Justice.

Harris, Donald J. 1994. Due process vs. helping kids in trouble: Implementing the right to appeal from adjudications of delinquency in Pennsylvania. *Dickinson Law Review*, 98: 209–235.

Jones, Judith B. 2004. *Access to Counsel*. Washington, DC: Office of Juvenile Justice and Delinquency Prevention.

Juvenile Representation Study Committee (JRSC). 1991. *Report to the Minnesota Supreme Court*. St. Paul: Minnesota Supreme Court.

Kempf-Leonard, Kimberly, Carl E. Pope, and William Feyerherm. 1995. *Minorities in Juvenile Justice*. Thousand Oaks, CA: Sage.

Knoke, David, George Borhnstedt, and Alisa Potter Mee. 2002. *Statistics for Social Data Analysis*, 4th Edition. Belmont, CA: Wadsworth.

Lefstein, Norman, Vaughn Stapleton, and Lee Teitelbaum. 1969. In search of juvenile justice: *Gault* and its implementation. *Law & Society Review*, 3: 491–562.

Lemert, Edwin M. 1971. *Instead of Court: Diversion in Juvenile Justice*. Washington, DC: U.S. Government Printing Office.

Matza, David. 1964. *Delinquency and Drift*. New York: Wiley.

Minnesota Supreme Court Research and Planning. 1995. *Statistical Highlights 1994 Minnesota State Courts.* St. Paul: State Court Administration.

National Juvenile Court Data Archive. 2007. *National Juvenile Court Data Archive.* Retrieved March 15, 2009 from ojjdp.ncjrs.gov/ojstatbb/njcda/.

Note. 1966. Juvenile delinquents: The police, state courts and individualized justice. *Harvard Law Review*, 79: 775–810.

Platt, Anthony. 1977. *The Child-Savers: The Invention of Delinquency*, 2nd Edition. Chicago, IL: University of Chicago Press.

Podkopacz, Marcy Rasmussen and Barry C. Feld. 2001. The back-door to prison: Waiver reform, "blended sentencing," and the law of unintended consequences. *Journal of Criminal Law and Criminology*, 91: 997–1071.

President's Commission on Law Enforcement and Administration of Justice. 1967a. *The Challenge of Crime in a Free Society.* Washington, DC: U.S. Government Printing Office.

President's Commission on Law Enforcement and Administration of Justice. 1967b. *Task Force Report: Juvenile Delinquency and Youth Crime*. Washington, DC: U.S. Government Printing Office.

Puritz, Patricia and Kim Brooks. 2002. *Kentucky: Advancing Justice: An Assessment of Access to Counsel and Quality of Representation in Delinquency Proceedings*. Washington, DC: American Bar Association Juvenile Justice Center.

Puritz, Patricia, Mary Ann Scali, and Ilona Picou. 2002. *Virginia: An Assessment of Access to Counsel and Quality of Representation in Delinquency Proceedings*. Washington, DC: American Bar Association Juvenile Justice Center.

Puritz, Patricia and Wendy Shang. 2000. Juvenile indigent defense: Crisis and solutions. *Criminal Justice*, 15: 22–28.

Puzzenchara, Chas, Brooke Adams, Howard Snyder, and Wendy Kang. 2007. *Easy Access to FBI Arrest Statistics 1994–2005*. Retrieved March 15, 2009 from ojjdp.ncjrs.gov/ojstatbb/ezaucr/.

Redding, Richard E. and Lynda E. Frost. 2001. Adjudicative competence in the modern juvenile court. *Virginia Journal of Social Policy & the Law*, 9: 353–409.

Rosenberg, Irene Merker. 1980. The constitutional rights of children charged with crime: Proposal for a return to the not so distant past. *University California Los Angeles Law Review*, 27: 656–721.

Rothman, David J. 1980. *Conscience and Convenience: The Asylum and Its Alternative in Progressive America*. Boston, MA: Little, Brown.

Sanborn, Joseph B. Jr. and Anthony W. Salerno. 2005. *The Juvenile Justice System: Law and Process*. Los Angeles, CA: Roxbury.

Schlossman, Steven. 1977. *Love and the American Delinquent: The Theory and Practice of "Progressive" Juvenile Justice*. Chicago, IL: University of Chicago Press.

Schur, Edwin M. 1973. *Radical Non-Intervention: Rethinking the Delinquency Problem*. Englewood Cliffs, NJ: Prentice-Hall.

Scott, Elizabeth S. and Thomas Grisso. 2005. Developmental incompetence, due process, and juvenile justice policy. *North Carolina Law Review*, 83: 793–846.

Stapleton, W. Vaughan, David P. Aday, Jr., and Jeanne A. Ito. 1982. An empirical typology of American Metropolitan Juvenile Courts. *American Journal of Sociology* 88: 549–564.

Stapleton, Vaughan and Lee Teitelbaum. 1972. *In Defense of Youth: A Study of the Role of Counsel in American Juvenile Courts*. New York: Russell Sage Foundation.

Sutton, John R. 1988. *Stubborn Children: Controlling Delinquency in the United States*. Berkeley: University of California Press.

Tanenhaus, David S. 2004. *Juvenile Justice in the Making*. New York: Oxford University Press.

U.S. General Accounting Office. 1995. *Juvenile Justice: Representation Rates Varied as Did Counsel's Impact on Court Outcomes*. Washington, DC: U.S. Government Printing Office.

Weber, Max. 1967. *On Law in Economy and Society*. New York: Clarion Books.

Weldon, Melissa M. 1996. Fiscal restraints trump due process: Children's diminishing right to counsel in Minnesota. *Journal of Law & Inequality*, 14: 647–688.

Cases Cited

Argersinger v. Hamlin, 407 U.S. 25 (1972).

D.R. v. Commonwealth, 64 S.W.3d 292 (Ky. Ct. App. 2001).

Drope v. Missouri, 420 U.S. 162 (1975).

Dusky v. United States, 362 U.S. 402 (1960).

Fare v. Michael C., 442 U.S. 707 (1979).

Gideon v. Wainwright, 372 U.S. 335 (1961).

In re Gault, 387 U.S. 1 (1967).

Johnson v. Zerbst, 304 U.S. 458 (1938).

Scott v. Illinois, 440 U.S. 367 (1979).

Statutes Cited

Minnesota Rule of Juvenile Proceedings, Rule 3.02 (1995).

Minnesota Statute, § 611.15 (1995).

Minnesota Statute, § 260.155(2) (1995).

Minnesota Statute, § 260.015 Subd. 21 (b)(1995).

Minnesota Statute amended, c. 408 Art. 6 § 2 and 5 (1996).

Minnesota Statute amended, c. 239 art. 6 § 19 (1997).

Minnesota Statute amended, c. 367 art. 10 § 5 (1998).

Barry C. Feld is the Centennial Professor of Law at the University of Minnesota Law School where he has taught since 1972. He has written eight books and approximately 80 law reviews, book chapters, and criminology articles on juvenile justice with emphases on race, serious young offenders, procedural justice, and youth sentencing policy. His book, *Bad Kids: Race and the Transformation of the Juvenile Court* (Oxford University Press, 1999), received the outstanding book award from the Academy of Criminal Justice Sciences in 2001 and from the American Society of Criminology in 2002. Between 1992 and 1994, he served on the Minnesota Juvenile Justice Task Force. The Minnesota Legislature enacted the Task Force's proposals in its 1995 revision of the juvenile code. Between 1994 and 1997, Feld served as coreporter for the Minnesota Supreme Court's Juvenile Court Rules of Procedure Advisory Committee.

Shelly Schaefer is a doctoral candidate in the Department of Sociology at the University of Minnesota. Her research interests include juvenile justice, punishment, and the transition to young adulthood. Her dissertation research examines the statewide adoption and implementation of juvenile blended sentencing policy and its individual- and state-level implications.

Does having an attorney provide a better outcome?

The right to counsel does not mean attorneys help youths

Kimberly Kempf-Leonard
Southern Illinois University Carbondale

In considering the role of legal counsel in delinquency proceedings, the long-standing institutionalized view is that attorneys have no place because the hearing is not an adversarial trial but a less formal venue in which court officials reach consensus on a disposition made in the best interests of the specific child. This "best interests" objective, adapted from the doctrine of *parens patriae* found in early English chancery proceedings for orphans, is an explicit directive in state statutes for juvenile courts to intervene with the authority of a good parent or guardian. With all professionals in the public sphere of juvenile and family courts working to provide for the best interests of the child, then a youth should not need his or her own legal advocate. That is the traditional view of delinquency processing, and it actually might benefit some youths.

Due Process and Lawyers

In addition to providing for their best interests, however, since *In re Gault* (1967), it has been important *also* to safeguard the due process rights of juveniles. Moreover, since *Schall v. Martin* (1984), in which the U.S. Supreme Court allowed for preventive detention as a punitive public safety measure, the added threat of incapacitation underscores the need for due process protections. Because juvenile courts are a legal venue, and attorneys have an institutionalized role to protect the rights of defendants in criminal courts, it is reasonable to expect that legal counsel also should serve that role for youths. This point certainly is recommended by Feld and Schaefer (2010, this issue) following their legal impact study of Minnesota.

Minnesota provides an interesting case study of juvenile justice reform. The state legislature was to be commended for its intent to protect accused youths by extending the statewide public

Direct correspondence to Kimberly Kempf-Leonard, Department of Criminal Justice, College of Liberal Arts, 4248 Faner Hall, Southern Illinois University Carbondale, Carbondale, IL 63901 (e-mail: kleonard@siu.edu).

defender system to juveniles. Although many urban courts have institutionalized both public defenders and prosecutors in juvenile courts, making counsel mandatory, which included the many (but far less busy) rural jurisdictions, was a unique commitment to due process. That the Minnesota Governor vetoed funding for the initiative was expected somewhat but still a disappointing reminder that funding for delinquency proceedings is not on par with criminal justice, despite compelling evidence that effective interventions with youths would be the best means to curb crime. The legislative response to the Minnesota Governor and the overwhelmed, underfunded public defenders was creative; reclassifying lesser misdemeanors downward to status offenses is at least bucking current trends of making more behaviors criminal and "boot-strapping" status offenses upward to be law violations. Their restriction against out-of-home placement indicates that restrictive dispositions are not considered as "in the best interests" of youths—at least those who are status offenders.

That setting, as well as data from 1994 and 1999, provided a sufficient foundation for the study of attorneys in juvenile courts that appears in this issue. Most importantly, even after the legal mandate had been implemented, attorneys still did not always represent youths in delinquency hearings. Counsel was more likely to be present in delinquency cases that involved serious misdemeanors, prior records, males, minorities, and suburban courts. Two changes were observed as a result of the new law. First, the level of legal representation did become more equitable across the state. Although attorneys more often were present in cases in suburban courts than in urban and rural courts, the geographic disparities were much less evident by 1999. Second, counsel was most likely to be present for youths with referrals for serious misdemeanor offenses—surprisingly, even more so than for felonies.

Juvenile Justice Goals and Procedures

In thinking about what the findings of the Minnesota study of legal counsel might mean for juvenile justice in this country, it is important first to understand that a considerable ambiguity exists in terms of both purpose and procedures within these legal systems. First, the systems are trying to achieve multiple goals of serving the best interests of the child, safeguarding due process and fairness, and promoting public safety. It is not at all clear what constitutes successful outcomes of these potentially incompatible objectives. It also is uncertain whether each goal should be pursued in every case or whether some objectives merit more priority in certain situations.

Such lack of clarity makes it possible for judges to exercise wide discretion, opting for a punitive sanction in some cases while pursuing benevolent care in the best interest of the child in other cases. For example, research suggests that minority youths, particularly African American males, are more likely than White youths to be viewed as culpable and treated punitively (e.g., Bridges and Steen, 1998; Steen, Bond, Bridges, and Kubrin, 2005). As such, the greater likelihood of attorneys present for minority youths in Minnesota could reflect judicial views that their hearings are more analogous to a criminal trial, and that those youths are more in need of legal counsel.

Somewhat related, the observed gender effect might point toward judicial paternalism that the court independently can determine what is in the best interests of girls, whereas boys more often might be viewed as offenders who merit counsel (Dembo, Williams, and Schmeidler, 1993; Krisberg, Schwartz, Fishman, Eisikovits, and Guttman, 1986). However, the gender effect in the Minnesota findings could be misleading too because the much larger number of boys processed in juvenile courts is likely to mask what actually happened to the far fewer girls. If Feld and Schaefer (2010) had conducted gender-specific analyses, then they might have observed—as elsewhere (Kempf-Leonard and Sample, 2000; Visher, 1983)—a lower threshold of offending and circumstance for which court officials feel compelled to intervene formally with girls but not with boys. Without such analyses, the role of attorneys and gender remains equivocal. Presumably, if legal counsel always were present to assist youths, then their role as advocates could help to encourage juvenile courts to pursue uniform objectives in all delinquency cases, and disparities linked to demographic traits then might disappear.

Besides the lack of explicit objectives, most juvenile courts also have no clear guidelines about how these goals can be achieved through the types of services and interventions available to the court. Thus, officials are left to implement their own individual creative dispositions based on available resources. The type and range of services and treatment also vary considerably by location. Moreover, rarely are adequate information systems available that can relay data back to court officials about how well their dispositions met the objectives they intended and how successful the youths were for whom they made important legal decisions. Without such feedback, these decision makers have no opportunity to learn from experience or to make data-driven adjustments to their procedures. Absent an explicit goal, specific guidelines on how and when to assign interventions and services, or information about when dispositions are successful, each court develops its own way of operating and establishes informal "going rates" for the routine processing of juvenile cases (Gottfredson and Gottfredson, 1987).

In considering how the Minnesota juvenile court officials made decisions, Feld and Schaefer (2010) recognize that informal practices develop to expedite case processing (Feeley, 1983) and that such practices can be resistant to external reforms (Eisenstein and Jacob, 1977). Indeed, evidence of various "going rates" are observed in the Minnesota findings, which show that in 1994, judges in urban, suburban, and rural courts differed in their practices of providing legal counsel to youths in delinquency proceedings. After the legislative mandate for attorneys, the disparity patterns became more equitable, but some evidence was revealed in 1999 of inconsistent judicial compliance based on patterns of "justice by geography" (Krisberg, Litsky, and Schwartz, 1984).

In addition, the greater presence of attorneys for serious misdemeanors than felonies in 1999 is likely to be connected to the revised legal classification of those offenses and to the lack of familiar "going rates" among court officials for the new midlevel classifications. This pattern illustrates the concept known as "criminal justice thermodynamics" in which processing is more varied for midlevel offenses in which a greater range of seriousness and harm is evident and is more standard for homogenous groups of minor and serious offenses (Walker, 2005).

It is important to note that the Minnesota study is the only impact study of legal reform intended to enhance the presence of attorneys in delinquency proceedings. The findings show some success in reducing the regional differences in legal representation of juveniles in the state. It also highlights ways in which the legal initiatives were circumvented by various political officials, which include juvenile court judges—who Feld and Schaefer (2010) clearly find at fault. In contrast, Feld and Schaefer place great value on lawyers in recommending policy initiatives that require counsel in delinquency proceedings and go so far as to suggest that counsel should not be allowed to be waived as a procedural defense against the immaturity of most juveniles. Unfortunately, this recommendation to require attorneys is based more on conventional wisdom of defense counsel in criminal cases than on their findings in the Minnesota study. Before we endorse legal advocates for juveniles, we should have evidence that attorneys actually make an important difference.

Present but Not Yet Effective Counselors

In the many years since the *In re Gault* (1967) decision, it is remarkable that not many studies have been conducted on the effectiveness of legal counsel in delinquency hearings. In those few studies that have been performed, nearly all have been restricted to whether an attorney is present at the hearing—yes or no. As Calvin Burdine (a gay man sentenced to death after a trial in which his court-appointed attorney frequently napped) can attest, mere attorney presence is not enough (*Burdine v. Johnson*, 2001). To endorse attorneys, we should have confidence that they function effectively to assist their young clients.

First, we need assurances that attorneys are skilled in juvenile law, particularly in delinquency proceedings. According to Martin Guggenheim (2005), a New York University law professor and expert on juvenile law, children's rights and the "best interests" objective of juvenile courts are more often secondary considerations to the interests of adults involved in the child's life. Attorneys, perhaps especially private counsel, often consider parents as their true client. Guggenheim provides persuasive arguments that parents do not understand juvenile justice systems adequately to direct attorneys or provide effective advice to their children. Most law schools offer only a single elective course in juvenile law, which often is dominated by adoption and dependency procedures. No training is available in adolescent development or the range and relative effectiveness of various juvenile dispositions and treatments. When surveyed, attorneys identify juvenile law as their least favorite substantive area and the one in which most have the least experience (Burruss and Kempf-Leonard, 2002). Likely, juvenile law also is one of the least prestigious and lowest paid substantive areas of law. Thus, it is easy to speculate that assigning attorneys routinely to juvenile court as public defenders, and even prosecutors, merely might result in more members of working groups co-opted to the "going rate."

In my own coauthored study of three Missouri jurisdictions, we found that out-of-home placement—the most restrictive and punitive disposition available—was the more likely outcome for juveniles who were represented by counsel, even controlling for many other relevant factors (Burruss and Kempf-Leonard, 2002: 60). We concluded that attorneys were not helpful,

although we could not distinguish incompetent counsel from those who were assigned too late to be effective.

Timing is a critical issue in delinquency proceedings. Unlike protracted criminal procedures, in most juvenile venues, the time from the initial screening, referral charge, and detention to the adjudication hearing is short. Prehearing detention is a strong predictor of restrictive dispositions, so effective counsel should be involved at the initial detention decision, but most are not assigned until later. Moreover, often adjudication and disposition decisions occur at a single formal hearing rather than in a truly bifurcated process that allows for additional time and for gathering more evidence. Case preparation in delinquency proceedings cannot compare with criminal court, although attorneys often consider their criminal law training as sufficient for both. Juvenile hearings typically forego transcription; thus documents rarely exist to facilitate appellate review. To complicate matters even more, the informal nature of many juvenile courts makes it likely that some judges assign counsel as a "CYA" measure to cases in which they already have determined the disposition will be harsh.

Although I am not yet persuaded that requiring attorneys in delinquency proceedings is the solution for unequal, haphazard juvenile court discretionary decisions, I do share many of the views expressed by Feld and Schaefer (2010), which include that juveniles accused of crimes currently are in grave need of assistance throughout delinquency proceedings. Recent scientific advances in developmental psychology provide compelling evidence that adolescents are not capable of making the same informed decisions about legal proceedings as adults (Grisso and Schwartz, 2000; Monahan, Steinberg, Cauffman, and Mulvey, 2009; Steinberg, 2009) and that increasingly punitive juvenile court interventions have profound life consequences for juveniles.

Unanswered questions persist regarding who can advocate best on behalf of youths accused of offenses and what interventions best serve their needs. Those who function as advocates for youths in juvenile court must comprehend both the developmental process—elements of juvenile justice that make it a unique system of law—and what services most likely will result in successful outcomes. Lawyers might help protect due process rights, but no evidence exists that they currently can or do assist in securing outcomes in the best interest of youths. Other advocates for youths are available, such as *guardian ad litems* and court-appointed special advocates, who serve benevolent advisory roles for some cases. Many of these positions are volunteer, however, with related concerns about their level of training and legal accountability. Many social service professionals and psychologists who are well versed in adolescent development and mental capacity work effectively in many capacities to assess, classify, and treat young offenders. However, most of these positions have treatment responsibilities for youths only after dispositional decisions, and these professionals are less familiar with legal issues. Thus, given current operations, none of the existing positions in juvenile justice to assist youths solely is effective counsel.

Of course, the real difficulty is not who should assist youths in delinquency proceedings. The problem for any advocate is how to be effective in a system that does not have much political clout, operates via informal directives and procedures, and is administered by officials

who rarely are held accountable. The solution requires larger reform than that attempted in Minnesota. We first need to elevate the value of youth in our country so that, second, we can implement system-wide reform that provides institutionalized ways to assess the real needs of juveniles and to respond to those needs with effective interventions delivered by compassionate, well-trained professionals. Persuasive evidence supports that such systems do make a substantial difference with juvenile offenders, but motivation is not yet sufficient nor is the political will for the necessary reforms.

References

Bridges, George S. and Sara Steen. 1998. Racial disparities in official assessments of juvenile offenders: Attributional stereotypes as mediating mechanisms. *American Sociological Review*, 63: 554–570.

Burruss, George W., Jr. and Kimberly Kempf-Leonard. 2002. The questionable advantage of defense counsel in juvenile court. *Justice Quarterly*, 19: 37–68.

Dembo, Richard, Linda Williams, and James Schmeidler. 1993. Gender differences in mental health service needs among youths entering a juvenile detention center. *Journal of Prison and Jail Health*, 12: 73–101.

Eisenstein, James and Herbert Jacob. 1977. *Felony Justice: An Organizational Analysis of Criminal Courts*. Boston, MA: Little, Brown, and Co.

Feeley, Malcolm M. 1983. *Court Reform on Trial: Why Simple Solutions Fail*. New York: Basic Books.

Feld, Barry C. and Shelly Schaefer. The right to counsel in juvenile court: Law reform to deliver legal services and reduce justice by geography. *Criminology & Public Policy*. This issue.

Gottfredson, Michael R. and Don M. Gottfredson. 1987. *Decisionmaking in Criminal Justice; Toward the Rational Exercise of Discretion*, 2nd Edition. New York: Basic Books.

Grisso, Thomas and Robert G. Schwartz. 2000. *Youth on Trial: A Developmental Perspective on Juvenile Justice*. Chicago, IL: University of Chicago Press.

Guggenheim, Martin. 2005. *What's Wrong with Children's Rights?* Cambridge, MA: Harvard University Press.

Kempf-Leonard, Kimberly and Lisa L. Sample. 2000. Disparity based on sex: Is gender-specific treatment warranted? *Justice Quarterly* 17: 89–128

Krisberg, Barry, Peter Litsky, and Ira M. Schwartz. 1984. Youth in confinement: Justice by geography. *Journal of Research in Crime and Delinquency* 21: 153–181.

Krisberg, B., I. M. Schwartz, G. Fishman, Z. Eisikovits, and E. Guttman. 1986. *The Incarceration of Minority Youth*. Minneapolis, MN: Hubert Humphrey Institute of Public Affairs.

Monahan, Kathryn C., Laurence Steinberg, Elizabeth Cauffman, and Edward P. Mulvey. 2009. Trajectories of antisocial behavior and psychosocial maturity from adolescence to young adulthood. *Developmental Psychology*, 45: 1654–1668.

Steen, Sara, Christine W.E. Bond, George S. Bridges, and Charis E. Kubrin. 2005. Explaining assessments of future risk: Race and attributions of juvenile offenders in presentencing reports. In (Darnell F. Hawkins and Kimberly Kempf-Leonard, eds.), *Our Children, Their Children: Confronting Racial and Ethnic Differences in American Juvenile Justice*. Chicago, IL: University of Chicago Press.

Steinberg, Laurence. 2009. Adolescent development and juvenile justice. *Annual Review of Clinical Psychology*, 5: 47–73.

Visher, Christy V. 1983. Gender, police arrest decisions, and notions of chivalry. *Criminology,* 21: 5–28.

Walker, Samuel. 2005. *Sense and Nonsense about Crime and Drugs: A Policy Guide*, 6th Edition. New York: Wadsworth.

Cases Cited

Burdine v. Johnson, 262 F.3d 336 (5th Cir. 2001) (en banc).

In re Gault, 387 U.S. 1 (1967).

Schall v. Martin, 467 U.S. 253 (1984).

Kimberly Kempf-Leonard is a professor of criminology and criminal justice at Southern Illinois University Carbondale. Her research examines offender patterns over the life course and ways in which to make juvenile and criminal justice systems more effective and fair. Recent publications focus on gender, race, and ethnic disparity in juvenile court processing.

When a "right" is not enough

Implementation of the right to counsel in an age of ambivalence

Robert G. Schwartz
Marsha Levick
Juvenile Law Center

Barry C. Feld and Shelly Schaefer (2010, this issue) have documented the disturbing lack of compliance with Minnesota's 1995 mandate to provide counsel to juveniles appearing in juvenile court. Their article is an important and welcome reminder that constitutional and legislative mandates by themselves cannot ensure the enforcement of our most fundamental rights.

The failure to provide counsel to children charged with delinquent acts has consequences. Last year, in Luzerne County, Pennsylvania, the U.S. Attorney indicted two juvenile court judges for accepting more than $2.6 million in kickbacks from the owners and the developer of two juvenile correctional facilities as a *quid pro quo* for sending children to those facilities. Critical to their scheme was the systematic denial of counsel to the children who appeared in Luzerne's juvenile court. Luzerne demonstrates the human toll behind Feld and Schaefer's (2010) data; the consequences can be profound and life altering. Although Luzerne County is an extreme—and likely the most extreme—example of what happens when we disregard the constitutional rights of children, its lessons bear heeding.

Forty years after *In re Gault* (1967), Luzerne County high-school sophomore, Hillary Transue, posted a MySpace parody of a school administrator. The posting included Hillary's unrealized hope that the administrator had a sense of humor. The administrator complained to the police, who charged Hillary with "harassment." Hillary and her mother appeared in the Luzerne County juvenile court before Judge Mark Ciavarella. They signed a document that turned out to be a waiver of Hillary's right to counsel. In a hearing eerily reminiscent of Gerald Gault's—except Hillary's was shorter and lasted only a couple of minutes—Hillary was adjudicated delinquent, shackled, dragged from the courtroom, and sent to a delinquency facility.

Direct correspondence to Robert G. Schwartz, Juvenile Law Center, The Philadelphia Building, 1315 Walnut Street, 4th Floor, Philadelphia, PA 19107 (e-mail: rschwartz @jlc.org); Marsha Levick, Juvenile Law Center, The Philadelphia Building, 1315 Walnut Street, 4th Floor, Philadelphia, PA 19107 (e-mail: mlevick@jlc.org).

Hillary had no lawyer, and neither the public defender who was in the room nor the district attorney who prosecuted the case uttered a word of protest. The professional silence in Judge Ciavarella's courthouse was troubling, because in the years prior to the scandal, Pennsylvania had taken many steps to guarantee a youth's right to counsel.

In 1980, national standards promulgated by the American Bar Association (ABA) called for juveniles to have an unwaivable right to counsel (Institute for Judicial Administration, 1980). More than 10 years later, Juvenile Law Center staff coauthored *America's Children at Risk*, which urged the organized bar to fulfill children's right to counsel as follows:

> Many of the problems that plague the juvenile justice system—including appalling conditions in confinement, inappropriate transfer to adult court, over-representation of children of color, and inadequate health and educational services—could be remedied if every child accused of a crime was well represented by competent counsel, knowledgeable about juvenile justice issues and committed to furthering that child's interests at all points in the juvenile justice process . . . (ABA, 1993: 60).

A Call for Justice (ABA, 1995) was a national assessment of the state of representation. The assessment was discouraging. Although pockets of excellence did exist, "the assessment raised serious concerns that the interests of many young people in juvenile court are significantly compromised, and that many children are literally left defenseless" (ABA, 1995: 6-7).

The national assessment led to the creation of the National Juvenile Defender Center (NJDC), which assumed responsibility for conducting state-based assessments of the right to counsel that the ABA Juvenile Justice Center had begun. The Juvenile Law Center joined the ABA and the NJDC in assessing indigent juvenile defense in Pennsylvania (Juvenile Law Center, 2003). The Pennsylvania assessment found that "a significant percentage of youth pass through the delinquency system without effective advocates or adequate safeguards to protect their interests" (Juvenile Law Center, 2003).

The Pennsylvania Supreme Court responded to the assessment when it promulgated procedural rules, which became effective in the fall of 2005. The new rules expanded on the expectation of Pennsylvania's Juvenile Act that youth would have counsel at every stage of the juvenile court process. The rules make it difficult for counsel to withdraw from a case; require appointment of counsel for youth without financial means; call for counsel to be appointed prior to a detention hearing if the youth is in detention; permit waiver of counsel only with a colloquy that makes clear that the waiver is knowing, intelligent, and voluntary; and permit the appointment of stand-by counsel even if the youth waives his or her right to counsel (Pennsylvania Rules of Juvenile Court Procedure, 2005). Despite these mandates and the momentum in support of a juvenile's right to counsel, Hillary Transue found herself without a lawyer and incarcerated for a first-time minor offense.

Hillary's mother found the Juvenile Law Center, which had encountered the same judge, and the same errant judicial behavior, in 1999. The Juvenile Law Center then had appealed a delinquency adjudication of a 12-year-old with mental health problems who (unrepresented)

had been tried summarily and sent to a detention center by Judge Ciavarella. When he was reversed on appeal, Ciavarella told a local newspaper, "I'll never do it again. . . . They obviously have a right to a lawyer, and even if they come in and tell me they don't want a lawyer, they're going to have one" (McNarney, 2001).

After the Juvenile Law Center's *habeas corpus* petition brought about Hillary's release, she told Juvenile Law Center staff that other youth she had met in placement also had been railroaded. The Juvenile Law Center investigated by interviewing additional youth, reviewing Juvenile Court Judges' Commission (JCJC) data, and observing the Luzerne County juvenile court.

The Juvenile Law Center discovered a massive violation of the right to counsel in Luzerne County, extending back for several years. In 2008, the Juvenile Law Center petitioned the Pennsylvania Supreme Court, asking it to address this systemic denial of children's rights: The petition asserted the following:

> In 2005, juveniles appeared without counsel in *fifty* percent of all delinquency dispositions involving hearings in Luzerne County (*i.e.*, 285 hearings without counsel out of 569 dispositions involving hearings before a judge or master), nearly *ten* times the state average (5.9 percent) reported by JCJC. A significant percentage of the hearings without counsel resulted in adjudication and sanctions. According to JCJC, in 2005 nearly half of the delinquency dispositions in Luzerne County that resulted in probation occurred without counsel (*i.e.*, 92 out of 187 juvenile dispositions resulted in probation without counsel), and nearly sixty percent of delinquency dispositions that resulted in out-of-home placement occurred without counsel (*i.e.*, 126 out of 219 juvenile dispositions resulted in placement without counsel) (Juvenile Law Center, 2008: 9-10).

With Luzerne as a backdrop, three clusters of questions emerge from Feld and Schaefer's (2010) documentation of the failure to provide youth with counsel in juvenile court. The first set of questions is core to Feld and Schaefer's analysis of Minnesota data. Too many juvenile courts find ways to avoid providing counsel. In the face of increasing mandates to provide counsel to youth, why do so many youth lack counsel, and why do judges in so many cases seem reluctant to enforce the mandate?

Feld has written often about the tension in juvenile court between social welfare and social control (Feld, 1997). At their best, lawyers limit courts' exercise of social control by ensuring that jurisdiction is appropriate—by finding ways to divert the youth from a system that has many opportunities for diversion, by ensuring that proof exists beyond a reasonable doubt that the youth committed the crime charged, and by pressuring the court to use the least restrictive alternative to meet its goals.

By fulfilling their obligations to challenge the juvenile court's exercise of control, lawyers for youth inevitably get in the way of courts' promotion of what they see as the best interests of youths. Luzerne County was an extreme example of a court intent on exercising control, regardless of either the actual commission of any wrongdoing of the youth or the best interests

of the youth (and regardless of whether any public goal would be served by the juvenile court's abuse of power). But well-meaning judges want to do more than exercise control; they have a romantic view that the coercive power of the court can assist youth, and to some of these judges, lawyers are a nuisance if they remind the court that the rule of law limits when and how judges provide that assistance.

Judges also perform a cost–benefit analysis. At one extreme were the corrupt judges of Luzerne County, who saw lawyers as obstacles to their corrupt scheme. But judges at the other extreme want to help youth and do in their court rooms what the Minnesota Legislature and Governor did when they created new categories of status offenses and eliminated increased funding for lawyers. Some judges want to help youth come to believe that a lawyer is an unnecessary expense at times. In their view, if they have no plans to incarcerate a youth, then a lawyer merely will be a cost without a benefit. This approach, of course, discounts the importance of teaching youth that the rule of law matters. It is also a sign of judges' overconfidence in their ability to know what is best for a youth and how little a lawyer can help them make that determination within the boundaries of the juvenile justice system. It also completely ignores the consequences that might follow youth convicted of any criminal conduct, whether or not they are incarcerated.

Judges also do cost–benefit analysis another way. Many assume that no funds will be allotted for indigent defense and that providing lawyers for all merely will mean increasing caseloads. In 1996, after the publication of *A Call for Justice* (ABA, 1995), two of its authors, Loren Warboys and Bob Schwartz, spoke about it to a national conference of juvenile court judges. Some judges in the audience challenged their call for giving every youth a lawyer. Those judges, like Feld and Schaefer's (2010) public officials in Minnesota, could not imagine *increasing* the pool of lawyers for youth. In their world, youths would be worse off because lawyers with higher caseloads could not give them the attention they deserved. Those judges were perversely prescient. Feld and Schaefer describe how an aspirational Minnesota system of progressive design—created to give every youth a lawyer—sinks to an equilibrium in which new categories of offenses are created that will not require lawyers, funding is cut for lawyers, and judges still decline to appoint lawyers in all cases. Effective, universal representation of youth in juvenile court is beyond what systems left to their own devices are willing to provide.

Waiver of the right to counsel by teens is particularly problematic. The MacArthur Foundation created a research network on adolescent development and juvenile justice that examined youths' capacities. Much of the network's early research found that capacities of youths changed through adolescence (Grisso and Schwartz, 2000), but they still needed far more support than adults to withstand pressure to waive counsel (Feld, 2000). "The problem becomes more acute when judges who advise youths about their right to an attorney seek a predetermined result, waiver of counsel, which influences both the information they convey and their interpretation of the juvenile's response" (Feld, 2000: 125).

Pennsylvania's juvenile court rules were written to avoid that problem. The comment to rule 152 (Pennsylvania Rules of Juvenile Court Procedure, 2005) recommends that courts, at

a minimum, engage the youth in a colloquy before permitting waiver of counsel to elicit the following:

> 1. Whether the juvenile understands the right to be represented by counsel;
>
> 2. Whether the juvenile understands the nature of the allegations and the elements of each of those allegations;
>
> 3. Whether the juvenile is aware of the dispositions, community service, or fines that may be imposed by the court;
>
> 4. Whether the juvenile understands that if he or she waives the right to counsel, he or she will still be bound by all the normal rules of procedure and that counsel would be familiar with these rules;
>
> 5. Whether the juvenile understands that there are possible defenses to these allegations that counsel might be aware of, and if these defenses are not raised at the adjudicatory hearing, they may be lost permanently;
>
> 6. Whether the juvenile understands that, in addition to defenses, the juvenile has many rights that, if not timely asserted, may be lost permanently; and if errors occur and are not timely objected to, or otherwise timely raised by the juvenile, these errors may be lost permanently;
>
> 7. Whether the juvenile knows the whereabouts of absent guardians and if they understand they should be present; and
>
> 8. Whether the juvenile has had the opportunity to consult with his or her guardian about this decision.

Judge Ciavarella never asked Hillary even one of these questions. Nor did he ask them of any of the thousands of youth who appeared before him throughout a 5-year period before 2008, when he stepped down from juvenile court after the filing of the Juvenile Law Center's first application to the Pennsylvania Supreme Court. Ciavarella's conduct was extreme but also necessary—to him—because lawyers might have gotten in the way of the corrupt bargain he and another judge had entered into with a for-profit detention center.

Feld and Schaefer (2010) do not discuss the role of the parent in waiving counsel, perhaps because Minnesota's Rules of Juvenile Procedure (3.06, 2005) require appointment of counsel if the child is unable to afford a lawyer. One implication of the high waiver rates in Minnesota is that parents did not insist that their children be represented. This finding is not surprising. Luzerne County is the poster child for the view that parents cannot be relied on to ensure that their children have lawyers.

Parents do a cost–benefit analysis, too. In most jurisdictions, parents must pay for their child's lawyer if someone in authority determines that the parent has the ability to pay. In

Luzerne County, many parents were told by lawyers, court personnel, or law enforcement that a lawyer would not make a difference, even if the charges suggested risk of placement. Others were told that the charges were so trivial that nothing bad could happen to their son or daughter. Under such circumstances, why waste money on an attorney? Still other parents had brought the petitions that led to the court hearings, and others were angry with their children for being arrested and wanted to teach them a lesson.

A second important question is raised by Luzerne County and implied by Feld and Schaefer (2010): Why do so many juvenile court professionals ignore the processing—or in Luzerne County, the railroading—of so many children without counsel? In Luzerene County and Minnesota, prosecutors, defense attorneys, probation staff, and courthouse onlookers were content with a system in which so many youth lacked counsel, despite the mid-1990s reforms.

Without systems of checks and balances, juvenile courts can be as indifferent to the rights of youth as criminal courts are to adult defendants—or even more so. Luzerne County is an extreme case driven by corruption. But when the public has misguided expectations for poorly funded systems, bad things happen, and injustice can become routine. This issue is not merely a failure of legislatures to fund counsel or of judges to appoint them. It takes a community to hurt a child.

Indeed, it took an unprecedented breadth and depth of indifference by court personnel to allow Luzerne County to occur. Many people have asked us, how could so many professionals on the periphery allow Luzerne County's abuses to continue? It turns out that what happens at the periphery is often the heart of the matter. As Amy Bach wrote, "Ordinary injustice results when a community of legal professionals becomes so accustomed to a pattern of lapses that they can no longer see their role in them" (Bach, 2009: 2).

A third set of questions exist, whose answers—properly implemented—would ensure that every youth has a lawyer and that the rule of law takes root in juvenile courts everywhere. Because mandates are ignored too often and, on their own, are inadequate to ensure that youth have counsel, what mechanisms of transparency and accountability would ensure that juveniles' right to counsel is fulfilled in every case? One obvious method of accountability—appellate review—disappears when youth lack counsel. Swift, meaningful appeals to address adjudications and dispositions are obviously unavailable to youth who lack counsel. Other approaches will be necessary to fulfill the mandate.

The first requirement is that the right to counsel actually be an unwaivable mandate; that is the approach of the ABA Juvenile Justice Standards (Institute for Judicial Administration, 1980). If counsel cannot be waived, then funding must be adequate for the complex roles inherent in juvenile defense (ABA, 1995). Those requirements are necessary, but insufficient prerequisites to changing a culture that prefers, in too many cases, to operate without lawyers.

A second requirement is opening juvenile court to public scrutiny. This condition, too, is a necessary but insufficient remedy. As Bach (2009) showed, injustices occur routinely in courts that are open to the public. An open court room, however, increases the chances that courts will appoint lawyers and that lawyers will do their jobs.

A third reform would not have helped in Minnesota but should be part of system change elsewhere; appointment of counsel should not depend on the income of parents or their willingness to hire a lawyer. The Minnesota Rules of Juvenile Procedure (2005) added the following:

> The child has the right to be represented by an attorney. This right attaches no later than when the child first appears in court. The attorney shall initially consult with the child privately, outside of the presence of the child's parent(s), legal guardian or legal custodian. The attorney shall act solely as the counsel for the child.

(The Institute for Judicial Administration Standards [1980] also prohibits consideration of the income of parents.) Despite the stringency of the rules, Feld and Schaefer (2010) found that many Minnesota youth appeared without counsel. Thus, mandating a right to counsel for the child is necessary but insufficient. Indeed, the failure of Minnesota's progressive policies to ensure that every youth actually has a lawyer suggests that it will be hard anywhere to implement *Gault*'s (1967) guarantee. As Feld and Schaefer unhappily observed, their "findings suggest continuing judicial resistance to formal legal rational initiatives in a substantively irrational organization."

The most important reform might be requiring data on appointment of counsel generated in real time, with oversight from a state supreme court or designated agency. Feld and Schaefer's (2010) retrospective analysis of Minnesota practice, like the Juvenile Law Center's review of Luzerne County data, is useful. But youth would be served better if red flags rose immediately when youth appeared without counsel.

Minnesota decriminalized many misdemeanors and turned them into status offenses for which lawyers were not required; Luzerne County *de facto* criminalized status offenses as well as a wide range of normative misbehavior— especially school-based behavior—and made sure that lawyers did not appear to object or impede their harsh treatment of youth. We know how many youth were harmed by the latter practice. In October 2009, the Pennsylvania Supreme Court granted relief in the case that began when Hillary Transue's mother first called the Juvenile Law Center. The Pennsylvania Supreme Court adopted the recommendations of its Special Master and vacated more than 4,500 cases. It held that the Special Master's

> independent review of the transcripts of individual cases disclosed Ciavarella's systematic failure to determine whether a juvenile's waiver of the right to counsel was knowingly, intelligently and voluntarily tendered; the failure to conduct the requisite waiver colloquy on the record; the failure to advise the juvenile of the elements of the offenses charged; and the failure to determine whether an admission was tendered, and then to apprise the juvenile of the consequences of an admission of guilt. In addition, this Court's review of those same transcripts reveals a systematic failure to explain to the juveniles the consequences of foregoing trial, and the failure to ensure that the juveniles were informed of the factual bases for what amounted to peremptory guilty pleas. The transcripts reveal a disturbing lack of fundamental process, inimical to any system of justice, and made even more

> grievous since these matters involved juveniles. . . . Ciavarella's complete disregard for the constitutional rights of the juveniles who appeared before him without counsel, and the dereliction of his responsibilities to ensure that the proceedings were conducted in compliance with due process and rules of procedure promulgated by this Court, fully support [the Special Master's] (Supreme Court Opinion, page 4). The lives of more than 4,500 children were thrown off course by arguably the most egregious judicial corruption scandal in our history. In furtherance of the judges' scheme, as many as half of these children appeared without counsel, and a substantial percentage of these unrepresented youth were sent to juvenile correctional facilities—in most cases, for very minor acts of misconduct. Children are silenced routinely in our legal system; the provision of lawyers is meant to remedy that silence. A culture that remains resistant to the appointment and assistance of counsel for these children—even in the face of mandates—strips a critical barrier between the rule of law and arbitrariness. In the latter case, the children suffer, but we all pay a price.

References

American Bar Association (ABA). 1993. *America's Children at Risk: A National Agenda for Legal Action.* Washington, DC: American Bar Association Juvenile Justice Center.

American Bar Association (ABA), Juvenile Law Center, Youth Law Center. 1995. *A Call for Justice: An Assessment of Access to Counsel and Quality of Representation in Delinquency Proceedings*. Washington, DC: American Bar Association Juvenile Justice Center.

Bach, Amy. 2009. *Ordinary Injustice: How America Holds Court*. New York: Metropolitan Books.

Feld, Barry C. 1997. Abolish the juvenile court: Youthfulness, criminal responsibility, and sentencing policy. *Journal of Criminal Law & Criminology*, 88: 68–136.

Feld, Barry C. 2000. Juveniles' waiver of legal rights: Confessions, *Miranda*, and the right to counsel. In (Thomas Grisso and Robert G. Schwartz, eds.), *Youth on Trial: A Developmental Perspective on Juvenile Justice*. Chicago, IL: University of Chicago Press.

Feld, Barry C. and Shelly Schaefer. 2010. The right to counsel in juvenile court: Law reform to deliver legal services and reduce justice by geography. *Criminology & Public Policy*. This issue.

Grisso, Thomas and Schwartz, Robert. 2000. *Youth on Trial: A Developmental Perspective on Juvenile Justice*. Chicago, IL: University of Chicago Press.

Institute for Judicial Administration/American Bar Association (ABA). 1980. *Standards Relating to Pretrial Court Proceedings, Part V*. Chicago, IL: American Bar Association.

Juvenile Law Center. 2008. *In Re Jessica Van Reeth; H.T., A Minor Through Her Mother, L.T.; On Behalf Of Themselves and Similarly Situated Youth: Application for an Exercise of Either King's Bench Power or Extraordinary Jurisdiction From Delinquency Dispositions Entered by The Luzerne County Court of Common Pleas—Juvenile Division*. Philadelphia, PA, pp. 9–10.

Juvenile Law Center, American Bar Association (ABA) in collaboration with the National Juvenile Defender Center and Northeast Juvenile Defender Center. 2003. *Pennsylvania: An Assessment of Access to Counsel and Quality of Representation in Delinquency Proceedings*. Washington, DC: American Bar Association Juvenile Justice Center.

McNarney, Michael. 2001. Superior Court overturns ruling in child's case: Judge Mark A. Ciavarella should not have found a boy delinquent in a 1999 case, the Court says. *Wilkes-Barre Times Leader*, January 6.

Cases Cited

In re Gault, 367 U.S. 1, 4 (1967).

In Re: Expungement of Juvenile Records and Vacatur of Luzerne County Juvenile Court Consent Decrees or Adjudications from 2003–2008, Pennsylvania Supreme Court (2009).

Statutes Cited

Minnesota Rules of Juvenile Procedure, Rules 3.01-08 (2005).

Pennsylvania Rules of Juvenile Court Procedure, Rules 150, 151, 152 (2005).

Robert G. Schwartz co-founded Juvenile Law Center in 1975 and has been its executive director since 1982. In 1993, Schwartz co-authored the American Bar Association's report on youth's access to quality lawyers, *A Call for Justice*. He is past chair of the Juvenile Justice Committee of the American Bar Association's Criminal Justice Section. From 1996 to 2006, he was a member of the MacArthur Foundation Research Network on Adolescent Development and Juvenile Justice.

Marsha Levick is the deputy director and chief counsel of Juvenile Law Center. Levick was a co-founder of the organization in 1975, and was its first executive director. She manages Juvenile Law Center's litigation and appellate docket; has authored and argued numerous appellate briefs in state and federal courts throughout the country; and co-authored several scholarly articles in the field of children's rights. Levick has spearheaded the state and federal litigation arising out of Pennsylvania juvenile court judges' scandal.

EDITORIAL INTRODUCTION

FORENSIC EVIDENCE PROCESSING

Forensic identification evidence

Utility without infallibility

Simon A. Cole, *Senior Editor*
University of California, Irvine

Law has long held out high hopes that forensic evidence would bring efficiency and certainty to the investigation of crimes (Golan, 2004; Mnookin, 1999). Although forensic evidence has fulfilled those hopes in part, it has not proven to be the panacea that had been hoped around, say, the turn of the 20th century. Among the key reasons for this relative disappointment is the unavailability of many forms of forensic evidence at many crime scenes and the lack of searchable databases of reference samples against which crime-scene samples could be compared.

At the end of the 20th century, high hopes were raised again because of major advances in forensic technology. Two areas in particular have generated high expectations—one, of course, is forensic DNA profiling (Aronson, 2007; Lynch, Cole, McNally, and Jordan, 2008), and the other (more important, I would argue) crucial development concerned advances in information and computing technology. These latter developments have rendered affordable the compilation and maintenance of large databases as well as the rapid searching of these databases, among many other important capabilities. Indeed, hopes have been raised so high that some have called for the establishment of universal DNA databases (Lazer, 2004), and legal actors and media sources have declared the existence of the "CSI effect" by which juries supposedly will no longer convict without forensic evidence. Although little evidence exists that the television program, *CSI*, actually has such an effect or that jury verdicts actually have changed (Podlas, 2006a, 2006b; Tyler, 2006), a somewhat more reasonable argument can be made for what has been called the "tech effect" (Shelton, Kim, and Barak, 2006), which holds that juries reasonably have adjusted their expectations slightly in response to real, not fictional, advances in forensic technology (Cole and Dioso-Villa, 2009).

And yet, a host of reasons remain as to why forensic technology is still not a panacea for criminal investigations. Not all types of forensic evidence always are recoverable from all crime

Direct correspondence to Simon Cole, 2357 Social Ecology II, University of California, Irvine, CA 92697-7080 (e-mail: scole@uci.edu).

scenes, despite forensic scientists' increasing capacity to recover identifiable DNA from ever-more-minute amounts of biological material. And databases remain incomplete, although perhaps for good reason, as we shall see later. Another reason, however, is underusage (Pratt, Gaffney, Lovrich, and Johnson, 2006; Raymond, Walsh, Van Oorchot, Gunn, and Roux, 2004).

In "Unanalyzed evidence in law-enforcement agencies: A national examination of forensic processing in police departments," Kevin J. Strom and Matthew J. Hickman (2010, this issue) improved upon existing studies of underusage by addressing evidence other than DNA, improving sample design and response rates, and correcting for missing data. Strom and Hickman showed that DNA evidence remains significantly underused. Importantly, they showed that, in fact, two "backlogs" of forensic evidence exist—the better-known backlog of evidence (such as untested rape kits), which sits unanalyzed at the laboratory because of insufficient resources to conduct the analysis, and the less well-known backlog of evidence that is collected by the police but never submitted to the laboratory for analysis. Consistent with a previous study (Pratt et al., 2006), Strom and Hickman's qualitative survey reported the interesting finding that the primary reason for underusage is that DNA profiling is conceived by police investigators as a tool for building evidence against a suspect identified by other means rather than as a means of *generating* a suspect by treating existing archives of genetic information as what have been called "DNA intelligence databases" (Walsh and Buckleton, 2005).

This study (2010) has made a significant contribution to an issue that has been relatively understudied, especially when compared with, for example, the ethical issues surrounding inclusion in DNA databases. Strom and Hickman are to be commended for providing useful information and for focusing attention on the issue of how the technology is actually used in the present day, when so much attention is being lavished on more exotic speculations about the future of the technology. One suspects, however, that most scholars have been more attracted to these ethical issues than to the mundane realities of usage. It is of little surprise, therefore, that the three policy essays moved quickly from discussions of usage to the more familiar ethical issues raised by the growth of DNA databases. Beaver (2010, this issue) discussed the ethical issues raised by inclusion in DNA databases. Cowan and Koppl (2010, this issue) discussed the issue of laboratory bias and independence. And Roth (2010, this issue) discussed the issues raised by "cold hits" from "no-suspect" databases searches. Each essay, therefore, related the underusage problem to other ongoing debates about forensic evidence.

Cowan and Koppl (2010) related the underusage issue raised by Strom and Hickman (2010) to a long-running debate about the independence of crime laboratories. Separating crime laboratories from law-enforcement agencies has emerged in recent years as perhaps the leading proposed reform of forensic science (e.g., Giannelli, 1997), and it is among the reforms highlighted by the recent landmark National Academy of Science report on forensic science (National Research Council, 2009). Several arguments support such a separation, such as fostering a culture of science rather than of law enforcement. A major rationale, however, is bias, which

can be understood in several ways that range along a continuum of intent and consciousness (Dror, Charlton, and Péron, 2006; Risinger, Saks, Thompson, and Rosenthal, 2002). Although most scholars have been concerned about bias in the *analysis* of forensic evidence, Cowan and Koppl (2010) used Strom and Hickman's study to show that we also should be concerned about bias in the *selection* of evidence to analyze. This concern only heightens, in their view, the need for independent crime laboratories as well as for other reforms they have proposed elsewhere (Koppl, 2005), such as redundancy, competition, and cross-jurisdictional management. In this way, they added an interesting policy implication to Strom and Hickman's (2010) findings.

A more obvious policy implication of Strom and Hickman's (2010) study, however, is simply that the criminal justice system could benefit from greater usage of forensic evidence, especially DNA. Because of Strom and Hickman's replication of Pratt et al.'s (2006) finding that the leading cause of nonsubmission of evidence is the absence of a suspect, the research would seem to call for an increased searching of crime-scene DNA evidence against law-enforcement databases in cases in which no suspect has been identified by conventional investigative means. This is the position of Beaver (2010), who argued that, even based on the imperfect data available from the United Kingdom, an increase of DNA testing in "no-suspect" cases would benefit public safety.

Andrea Roth (2010) challenged this argument, drawing on a now long-running debate about the statistical interpretation of evidence generated through "cold searches" of databases of the sort that would seem to be called for by Strom and Hickman's (2010) findings. As Roth noted, statisticians have cautioned that courts have to take care that juries not be misled as to the probative value of DNA "hits" generated through such searches. Moreover, genuine disagreement seems to exist among statisticians on this issue; although some argue that the probative value decreases significantly with the size of the database searched, others contend that the probative value increases slightly. Turning on its head the bias issue raised by Cowan and Koppl (2010) in which forensic evidence is interpreted with knowledge of the investigative leads in the case, Roth astutely pointed out that "cold searches" have the potential to generate "a related problem… in reverse"; investigative leads are interpreted with knowledge about the database "hit." Roth, thus, argued that increased "cold searches" are not necessarily an unmitigated good, especially if other issues, such as database reliability, laboratory contamination, the allowance of access to data for academic researchers to test statistical independence assumptions, arrestee sampling, familial searching, and "John Doe" warrants, are not addressed.

Greater usage of forensic evidence might be beneficial, as Beaver (2010) pointed out, to the causes of both public safety and due process. But, we can come to this conclusion without indulging in an overselling of the evidence, which casts it as some sort of infallible "truth machine" (Lynch et al., 2008). Roth (2010) as well as Cowans and Koppl (2010) illustrated two different potential biasing mechanisms in the interpretation of DNA evidence that contradict, at least in part, Beaver's (2010) familiar claim that DNA "evidence speaks for itself without bias or prejudice."

References

Aronson, Jay D. 2007. *Genetic Witness: Science, Law, and Controversy in the Making of DNA Profiling*. New Brunswick, NJ: Rutgers University Press.

Beaver, Kevin M. 2010. The promises and pitfalls of forensic evidence in unsolved crimes. *Criminology & Public Policy*. This issue.

Cole, Simon A. and Rachel Dioso-Villa. 2009. Investigating the "CSI effect" effect: Media and litigation crisis in criminal law. *Stanford Law Review*, 61: 1335–1373.

Cowan, E. James and Roger Koppl. 2010. An economic perspective on "Unanalyzed evidence in law-enforcement agencies." *Criminology & Public Policy*. This issue.

Dror, Itiel E., David Charlton, and Ailsa E. Péron. 2006. Contextual information renders experts vulnerable to making erroneous identifications. *Forensic Science International*, 156: 74–78.

Giannelli, Paul. 1997. The abuse of scientific evidence in criminal cases: The need for independent crime laboratories. *Virginia Journal of Social Policy and the Law*, 4: 439–478.

Golan, Tal. 2004. *Laws of Men and Laws of Nature*. Cambridge, MA: Harvard University Press.

Koppl, Roger. 2005. How to improve forensic science. *European Journal of Law and Economics*, 20: 255–286.

Lazer, David, ed. 2004. *DNA and the Criminal Justice System*. Cambridge, MA: MIT Press.

Lynch, Michael, Simon A. Cole, Ruth McNally, and Kathleen Jordan. 2008. *Truth Machine: The Contentious History of DNA Fingerprinting*. Chicago, IL: University of Chicago Press.

Mnookin, Jennifer L. 1999. *Images of Truth: Evidence, Expertise, and Technologies of Knowledge in the American Courtroom*. Unpublished Ph.D. dissertation, Program of History and Social Study of Science and Technology, MIT, Cambridge, MA.

National Research Council. 2009. *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies.

Podlas, Kimberlianne. 2006a. "The CSI effect": Exposing the media myth. *Fordham Intellectual Property, Media and Entertainment Law Journal*, 16: 429–465.

Podlas, Kimberlianne. 2006b. The "CSI effect" and other forensic fictions. *Loyola of Los Angeles Entertainment Law Review*, 27: 87–125.

Pratt, Travis C., Michael J. Gaffney, Nicholas P. Lovrich, and Charles L. Johnson. 2006. This isn't "CSI": Estimating the national backlog of forensic DNA cases and the barriers associated with case processing. *Criminal Justice Policy Review*, 17: 32–47.

Raymond, Jennifer J., Simon J. Walsh, Roland A. Van Oorchot, Peter R. Gunn, and Claude Roux. 2004. Trace DNA: An underutilized resource or Pandora's box? A review of the use of trace DNA analysis in the investigation of volume crime. *Journal of Forensic Identification*, 54: 668–686.

Risinger, D. Michael, Michael J. Saks, William C. Thompson, and Robert Rosenthal. 2002. The *Daubert/Kumho* implications of observer effects in forensic science: Hidden problems of expectation and suggestion. *California Law Review*, 90: 1–56.

Roth, Andrea. 2010. Database-driven investigations: The promise—and peril—of using forensics to solve "no-suspect" cases. *Criminology & Public Policy*. This issue.

Shelton, Donald E., Young S. Kim, and Gregg Barak. 2006. A study of juror expectations and demands concerning scientific evidence: Does the "CSI effect" exist. *Vanderbilt Journal of Entertainment and Technology Law*, 9: 331–368.

Strom, Kevin J., and Matthew J. Hickman. 2010. Unanalyzed evidence in law-enforcement agencies: A national examination of forensic processing in police departments. *Criminology & Public Policy*. This issue.

Tyler, Tom. 2006. Viewing *CSI* and the threshold of guilt: Managing truth and justice in reality and fiction. *Yale Law Journal*, 115: 1050–1085.

Walsh, Simon J. and John Buckleton. 2005. DNA intelligence databases. In (John Buckleton, Christopher M. Triggs, and Simon J. Walsh, eds.), *Forensic DNA Evidence Interpretation*. Boca Raton, FL: CRC Press.

Simon A. Cole is an associate professor and the Chair of the Department of Criminology, Law, and Society at the University of California, Irvine. His most recent book is *Truth Machine: The Contentious History of DNA Fingerprinting* (University of Chicago Press, 2008, with Michael Lynch, Ruth McNally, and Kathleen Jordan). He is a member of the American Judicature Society Commission on Forensic Science & Public Policy, and he is co-editor of the journal *Theoretical Criminology*. His current interests are the sociology of forensic science and the development of criminal identification databases and biometric technologies.

RESEARCH ARTICLE

FORENSIC EVIDENCE PROCESSING

Unanalyzed evidence in law-enforcement agencies

A national examination of forensic processing in police departments

Kevin J. Strom
RTI International

Matthew J. Hickman
Seattle University

Research Summary

This study investigated forensic evidence processing in a nationally representative sample of state and local law-enforcement agencies (n = 3,153). For a 5-year period, agencies reported that 14% of all unsolved homicides (an estimated 3,975 cases) and 18% of all unsolved rapes (an estimated 27,595 cases) contained forensic evidence that had not been submitted to a forensic crime laboratory for analysis. Approximately 40% of these unanalyzed homicide and rape cases were reported to have contained DNA evidence. The lack of a suspect in the case was the most frequently cited reason for not submitting forensic evidence for analysis.

Policy Implications

Despite an increased diffusion of knowledge regarding the value of forensic evidence in the prosecution and defense of criminal cases, the investigative capabilities of forensic science are not being realized by law enforcement. Additional training for law enforcement on the use of forensic science to develop investigative leads is critical, as is the creation of departmental policies that prioritize and streamline the analysis of forensic evidence for homicide and rape cases—even in "no-suspect" cases. Ensuring adequate resources and information sharing for forensic processing, especially of violent crimes, is also critical.

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Throughout the past 20 years, forensic evidence has taken an increasingly central role in the investigation, prosecution, and defense of criminal cases. This rise in the use of forensic evidence is attributable primarily to technological developments (particularly in the area of DNA analysis) as well as to the diffusion of knowledge about the value of forensic evidence in both the criminal justice community and in popular culture.[1] The annual volume of forensic submissions by law-enforcement agencies to crime laboratories has increased as have evidence backlogs within crime laboratories. Simply put, more evidence is collected and submitted than is analyzed, which results in substantial laboratory backlogs (Durose, 2008; Horvath and Meesig, 1996; Lovrich et al., 2004; Mennell and Shaw, 2006; Peterson and Hickman, 2005). But the challenges associated with efficiently processing forensic evidence in crime laboratories reveal only a portion of the larger process because forensic case backlogs also exist (Lovrich et al., 2004). Backlogs within law-enforcement agencies represent evidence from unsolved cases that has not been submitted to a laboratory for analysis.

Laboratory backlogs have led some to speculate about the extent to which these backlogs represent "justice delayed," which is an understandable sentiment considering that evidence has been submitted to a laboratory but is awaiting eventual analysis. However, when evidence is unanalyzed because it has not been submitted to a crime laboratory—especially in cases when that evidence is probative—it might be more accurate to view backlogs as a case of "justice denied." The Los Angeles Police Department and the Los Angeles Sheriff's Department, for example, both have acknowledged failing to identify forensic evidence from rape kits in unsolved sexual assaults (Rubin, 2009; Rubin and Winton, 2008). For the Los Angeles Police Department, DNA evidence from more than 400 unsolved rape kits reportedly had not been submitted to the crime laboratory for analysis, despite the fact that these cases involved strangers and remained unsolved with no suspects identified. Although no guarantees can be offered that testing this evidence would produce new investigative leads, these types of deficiencies can have serious consequences for the administration of justice, which affect the defense and the prosecution of a case, create feelings of distrust among crime victims, and potentially allow perpetrators to commit more crimes against more victims ("Neglected Law Enforcement Asset," 2002; Perkel, 2007).

1. Forensic evidence is defined as "physical evidence collected during a criminal investigation that could be processed by scientific methods and usable in the courts" (Strom, Ropero-Miller, Jones, Sikes, Pope, and Horstmann, 2009). The various forms of forensic evidence include (but are not limited to) trace evidence, biological screening (including DNA), latent prints, as well as firearms and tool marks. It is important to recognize that physical evidence more generally can refer to any evidence introduced in a trial intended to prove a fact in the case, and it does not have to include evidence that can be tested using scientific methods.

The forensic sciences can play a critical role in investigations, particularly in developing new investigative leads. Yet our understanding of how forensic evidence is used, and its impact on case outcomes, is still largely limited. Early studies that had some bearing on the use of forensic evidence in investigations tended to suffer from either too narrow or too broad a focus. In addition, many of these studies blurred the lines between the use of specific forms of forensic evidence (e.g., DNA or latent prints) and physical evidence more generally. It is also important to note that different forms of forensic evidence might afford different possibilities in terms of information that can be used to move a case forward. Forensic evidence such as DNA and latent prints involves techniques that offer evidence about identity and are widely considered among the most powerful and discriminating forms of forensic evidence.

Greenwood, Chaiken, Petersilia, and Prusoff's (1975) study of the investigation process considered the role of physical evidence but largely was focused on fingerprints. As such, the finding that clearance rates were not affected by physical evidence (thus defined) perhaps is not surprising. At the other end of the spectrum, Forst, Lucianovic, and Cox (1977) concluded that when "tangible evidence" was recovered, conviction rates (i.e., convictions per arrest) increased significantly.

One of the first definitive studies of the importance of forensic evidence to criminal investigations reported the results of an analysis of approximately 2,700 randomly selected case files from four jurisdictions (Peterson, Mihajlovic, and Gilliland, 1984). The case files included approximately 1,600 cases in which physical evidence was analyzed and approximately 1,100 similar cases in which no physical evidence was collected. Clearance rates for burglary and robbery were found to be three times higher in cases with analyzed physical evidence after controlling for the availability of suspects, eyewitnesses, and time between the offense and reporting to police. Physical evidence also influenced the probability and the length of incarceration (Peterson, Ryan, Houlden, and Mihajlovic, 1987; see also Briody, 2004, for a similar analysis focused on DNA evidence).

Earlier research generally reports that evidence also was collected in only a few cases, and evidence actually was analyzed in an even smaller proportion (e.g., Eck, 1983; Greenwood et al., 1975). In their review of the empirical literature, Horvath and Meesig (1996) concluded that, on balance, the available literature supported these ideas and that forensic analysis was used primarily to support the prosecution. Studies of that era that examined evidence collection in the United Kingdom (as well as more recent studies in the United Kingdom) seem to report generally higher rates of collection and analysis compared with the United States (see Bradbury and Feist's [2005] review).

Horvath and Meesig (1996) reported that investigators believed physical evidence was most valuable as a complement to interviews with suspects. It might be that the perceived limitations of scientific analyses (e.g., in identifying suspects), as well as the limits of investigator knowledge and skills regarding physical evidence, influence investigator decision making about whether to collect evidence and what evidence to collect (Horvath and Meesig, 1996). Research in the

United Kingdom from the mid-1990s similarly found that officers lacked knowledge about the use of forensic science and that forensic science largely was being used reactively (Tilley and Ford, 1996), although that has changed in recent years (Bradbury and Feist, 2005). Horvath, Meesig, and Lee's (2001) update of the RAND study (Greenwood et al., 1975) found that not much had changed in the previous 25-year period, but Horvath et al. (2001) allowed that recent developments in forensic technology (particularly the automation of records and DNA analysis) were promising for the future, specifically in the identification of suspects.

Recent research also has demonstrated that collecting and analyzing forensic evidence in property crimes (specifically DNA evidence) can significantly increase arrests and prosecutions. These efforts also can have positive effects on public safety because the persons identified using these techniques might have numerous prior convictions for property and violent crimes (Roman, Reid, Reid, Chalfin, and Knight, 2008; Zedlewski and Murphy, 2006). This identification is the primary purpose of the Combined DNA Index System (CODIS).[2] In addition, the testing of latent prints and other forms of forensic evidence also can benefit property cases by providing new leads in which no suspects have been identified as well as by connecting offenders across multiple crime scenes (Bradbury and Feist, 2005).

This issue raises questions as to why law-enforcement agencies would not submit the evidence collected in unsolved cases. One explanation is that the use of forensic science for investigative purposes has been (unintentionally) sidelined by constraints on laboratory resources—and the corresponding laboratory backlogs—associated with processing evidence for criminal court. In many laboratories, a key factor for prioritizing forensic requests is a trial date. In cases in which no suspect has been identified, generally no trial date is set; thus, related evidence of an investigative nature is likely to be a low priority for these laboratories. In other instances, police investigators might not submit forensic evidence because of victim compliance or statutory limitation factors, or because they do not believe that the evidence in question is tied specifically to the crime. Some law-enforcement personnel also continue to lack a complete understanding of the potential for forensic evidence to assist with investigative leads. Prior to the implementation of CODIS, no system existed for identifying potential suspects using DNA profiles from across U.S. jurisdictions. Since CODIS was considered operational in the late 1990s, the number of DNA profiles stored in the system has grown, which created a more comprehensive and effective system. Significant advances also have been made in the search capabilities and in the number of records accessible for fingerprint evidence. The Integrated Automated Fingerprint

2. CODIS, operated by the CODIS Unit of the Federal Bureau of Investigation (FBI) Laboratory, is a hierarchical database for storing and searching DNA profiles. These profiles are contributed to the database by forensic crime laboratories that have obtained samples from crime scenes, convicted offenders, arrestees, and in support of missing person investigations. The profiles enter CODIS through the Local DNA Index System and flow upward through the State DNA Index System to the FBI-Managed National DNA Index System. As of September 2009, more than 7.4 million offender profiles were listed in the Convicted Offender Index (containing profiles of convicted offenders), and more than 285,000 profiles were listed in the Forensic Index (containing profiles developed from crime scenes). The primary use of CODIS is to aid in the identification of suspects in "no suspect" cases. As of September 2009, more than 98,000 offender "hits" were obtained through CODIS. For greater detail, see the CODIS section of the FBI Web site (fbi.gov).

Identification System (IAFIS), a national fingerprint and criminal history system maintained by the FBI, now holds criminal history records on more than 55 million subjects. Prior to IAFIS, agencies faced significant delays in the fingerprint identification process and did not have the ability to search large numbers of records.

To the extent that nonsubmitted evidence represents justice denied—whereas submitted evidence awaiting analysis represents justice delayed—one has to be concerned about the dual justice system goals of protecting the innocent and convicting the guilty. Early forensic analyses in no-suspect cases serve these dual goals because these analyses are blind to suspect characteristics. An improved understanding of how forensic evidence is processed within law-enforcement agencies and the underlying reasons for why forensic evidence is not analyzed in unsolved cases is critical to both equity and efficiency in the administration of justice. In this article, we report the findings from a national study estimating the nature and scope of forensic evidence backlogs within law-enforcement agencies. The study specifically addressed unsolved (i.e., open) cases containing forensic evidence that had not been submitted to a laboratory as well as potential inhibitors to submitting evidence. These unsolved (or open) cases were defined as cases that officially had not been cleared by the agency, which included all cases that had not been closed by arrest or cleared by exceptional means (e.g., cases closed because of the death of the primary suspect). In the next section, we briefly discuss relevant literature on forensic evidence processing. We then turn to our research methods and data, the analytic results, and a discussion of the research findings with a focus on policy implications.

Literature Review

Although recent years have witnessed great technological advancements and increased interest in the forensic sciences, research interest in crime laboratory operations started with the forensic sciences program undertaken in the 1970s by the Law Enforcement Assistance Administration's National Institute of Law Enforcement and Criminal Justice (predecessor of the current National Institute of Justice [NIJ]). Much of this program and the subsequent research focused on scientific methods and procedures, laboratory resource needs, proficiency testing, and other critical issues in the forensic sciences (see Peterson and Leggett, 2007, for a comprehensive review).

During the last 10 years, research has focused on the problem of laboratory backlogs. For example, extensive backlogs were documented in two national surveys of DNA crime laboratories that reported data for 1997 and 2000 (Steadman, 2000, 2002). In 1997, approximately 70% of these laboratories reported backlogs, which totaled roughly 6,800 subject cases and 287,000 CODIS samples (Steadman, 2000). In 2000, approximately 80% of laboratories reported backlogs, which totaled roughly 16,000 subject cases and more than 265,000 CODIS samples (Steadman, 2002). Although CODIS backlogs decreased by approximately 7%, subject case backlogs increased 135% between the two surveys (Steadman, 2002).

A 2002 national census of public crime laboratories documented evidence processing across a wide range of forensic services and reported more than 262,000 backlogged cases and approximately 500,000 backlogged requests (Peterson and Hickman, 2005). Controlled sub-

stance processing accounted for the bulk of the backlog followed by latent print requests and DNA analysis. Backlogs were observed in all areas of forensic services. In a 2005 update of the census, a 24% increase in case backlogs was reported (Durose, 2008).

Importantly, the U.S. Congress has been responsive to this body of research. Federal funding was allocated for DNA backlog reduction in response to studies focused on DNA backlogs, and additional funding was allocated for backlog reduction in all areas of forensic services in response to later studies that documented broader backlogs. It remains to be seen whether this funding has had any effect on backlogs. Future iterations of the Bureau of Justice Statistics (BJS) crime laboratory census will be necessary to determine whether backlogs have been affected substantially by federal funding for backlog reduction. A recent report by the NIJ shows that state and local forensic laboratories have become more efficient in processing and analyzing DNA cases, which has enabled laboratories to keep pace with the increasing number of DNA requests coming in from law enforcement (Lothridge, 2009). However, despite their increased productivity, most laboratories still cannot make significant reductions in their existing DNA backlogs.

Another study funded by the NIJ investigated forensic backlogs within law-enforcement agencies (Lovrich et al., 2004; Pratt, Gaffney, Lovrich, and Johnson, 2006). Lovrich et al. (2004) designed a nationally representative sample survey of both law-enforcement agencies and crime laboratories. The goals of the survey were to estimate the number of unsolved criminal cases that could benefit from DNA analyses, estimate the capacity of law-enforcement agencies and crime laboratories to process these cases, and estimate the potential effect of the expanded use of DNA analyses. Using the higher bounds of 95% confidence intervals around their point estimates, their survey for the 20-year period (1982–2002) yielded an estimated 221,000 unsolved rape and homicide cases (169,000 rapes and 52,000 homicides) that contained biological evidence that potentially could be submitted for DNA analysis. Using the same estimation strategy, they reported a total of 264,000 unsolved property crime cases that contained biological evidence. Combined with "other" cases having possible DNA evidence, Lovrich et al. (2004) concluded that an estimated 542,700 unsolved cases with biological evidence had not been submitted to forensic laboratories for analysis.

Law-enforcement survey respondents also identified decision factors for not submitting DNA evidence to laboratories: 31% reported no suspect in the case, 10% reported a suspect had been identified but not charged, and 9% reported a prosecutor had not requested testing. Approximately 25% of the surveyed agencies identified funding as a constraint in submitting DNA evidence to laboratories. Lovrich et al. (2004) included crime laboratory workload, personnel, and funding issues as factors in the generation of law-enforcement agency backlogs.

The Lovrich et al. (2004) study was the first effort of its kind and yielded important initial information about a previously unexplored area of justice. However, our study builds on it in several important ways. First and foremost, more recent estimates were required to understand better the full nature of the backlog problem in law-enforcement agencies. The present study also includes a broader range of forensic evidence than DNA, such as trace evidence, latent prints,

and firearm and tool mark evidence. As such, we estimate not only the overall proportion of unsolved cases that contained such evidence but also the types of forensic evidence associated with these cases. In addition, our recall period is a more reasonable 5 years as opposed to the 20-year period used in Lovrich et al. (2004), and we offer an improved estimation strategy. Finally, the overall low response rates in the previous project raise questions about bias and the extent to which results can be generalized.[3] Our study, however, employed a variety of techniques to achieve higher response rates as well as a more representative sample design.[4] In summary, our study builds on the efforts of Lovrich et al. (2004) to provide more current and accurate estimates of the nature and extent of evidence backlogs in law-enforcement agencies. In the next section, we review our overall research methodology and data collection.

Methods and Data

To collect information about forensic evidence processing in law-enforcement agencies, we employed a nationally representative survey of state and local law-enforcement agencies. The primary goal of the survey was to develop national estimates of the number of unsolved criminal cases (focusing on homicide, rape, and property crimes but also including controlled substances) that contained forensic evidence that had not been submitted to a crime laboratory for analysis. In addition, we sought to describe agency policies and procedures for processing, submitting, and retaining forensic evidence, including the systems used for tracking evidence. One central goal of our project was to identify possible barriers to submitting evidence to forensic laboratories. The following sections review the questionnaire design, sample design, data collection processes, response rates, and weighting and imputation procedures.

Questionnaire Design

The survey questionnaire was developed with input from a panel of experts in the fields of law enforcement and forensics as well as from other project stakeholders. The initial questionnaire was based on the instrument used in the 2002 National Forensic DNA Study (Lovrich et al., 2004), including questions on the number of homicide and rape cases with DNA evidence, stor-

3. Although the overall response rate was not reported in either Lovrich et al. (2004) or Pratt et al. (2006), from the response rates reported within the sampling strata by size (Lovrich et al., 2004: 10; Pratt et al., 2006: 45), the overall response rate would be approximately 45.7% (1,617 / 3,540). From data reported in Appendix 2 of Lovrich et al. (2004), the overall response rate would be 50.1% (1,672 / 3,338); excluding tribal agencies, the response rate would be 51.5% (1,618 / 3,144). Both report, in their respective texts, a total of 1,692 reporting from "approximately" 3,400 agencies (Lovrich et al., 2004: 10; Pratt et al., 2006: 35), which yielded a 49.8% response rate. It is unknown which set of figures is correct; regardless, roughly half of the sampled agencies responded with substantially lower rates among smaller and "unspecified size" agencies.

4. For example, the strata definitions for law-enforcement agencies included in the 2002 survey also included a problematic category of "unspecified size." It is unknown why Lovrich et al. (2004) could not determine the size of these agencies to develop their sampling frame; the information is readily available through the BJS Census of State and Local Law Enforcement Agencies. The response rate among the agencies of "unspecified size" was reported to be approximately 20% (Lovrich et al., 2004: 10; Pratt et al., 2006: 45), although Appendix 2 in Lovrich et al. (2004) reported the response rate for this group as 53%.

age procedures, reasons for not processing the evidence, and whether the sampled departments had a cold case squad to review unsolved crimes. This questionnaire was augmented to reflect a broader range of forensic evidence, which included controlled substances, firearms, latent prints, and toxicology. Project stakeholders reviewed question wording, respondent instructions, layout, and other formatting issues that might affect unit and item nonresponse. After incorporating their suggestions, the questionnaire again was reviewed by the expert panel.

The questionnaire then was pretested with six law-enforcement agencies from across the country including state police agencies, municipal police departments, and county sheriffs' offices. We asked pretest participants to provide feedback on specific questions as well as suggestions for other questions they thought could be useful for understanding the processing of forensic evidence. Our objective was to provide a survey questionnaire that yielded a high response rate but also provided complete, accurate, and useful data. The questionnaire was forwarded to all agencies that agreed to participate in the pretest and, 2 weeks later, we conducted debriefing interviews through the telephone. The debriefing interviews assessed how well survey questions were understood and what record checks would be needed to respond to specific questions.

Sample Design

The sampling frame consisted of all state and local law-enforcement agencies enumerated in the BJS 2004 Census of State and Local Law Enforcement Agencies (Reaves, 2007). The 2004 census represented nearly 18,000 state and local law-enforcement agencies with the equivalent of at least one full-time officer operating in the United States.

The sample design was similar to that used by the BJS Law Enforcement Management and Administrative Statistics surveys. The sampling frame first was stratified by agency type (i.e., state police agencies, municipal police departments, and sheriffs' offices). Information provided by the BJS also was used to remove sheriffs' offices that did not have a law-enforcement investigative function (this decision removed sheriffs' offices that provided security for jails and courts but did not investigate crimes as part of their regular functions).

The second stratum partitioned the sampling frame based on agency size (defined as full-time sworn personnel or full-time equivalents). The agency size categories include agencies with 100 or more officers, 50–99 officers, 25–49 officers, and fewer than 25 officers. Agencies with 100 or more sworn officers were selected with certainty. For other size categories, an equal probability sample was selected within each stratum combination of agency type and agency size.

A total of 3,153 agencies were selected. Table 1 provides the final stratified sampling frame by agency size, type of agency, and number of agencies selected from each stratum combination. From a probability sample of 3,153 agencies, 59 agencies were deemed ineligible for the study, which resulted in a final sample of 3,094 eligible agencies. A total of 54 agencies was removed because the agency either did not investigate crimes (e.g., sheriffs' departments that only performed jail and court security), or it was not the lead investigating agency for criminal cases in their jurisdiction (e.g., state police that only served as support agencies). An additional

five agencies were considered ineligible because the investigating agency merged with another agency in the sample or no longer was found to exist.

TABLE 1

Sampling Frame by Agency Type and Size

Agency Type	<25 Officers		25–49 Officers		50–99 Officers		100+ Officers		Total	
	N	*n*	*N*	*n*	*N*	*n*	*N*	*n*	*N*	*n*
All agencies	11,386	731	2,135	753	1,124	689	980	980	15,625	3,153
Municipal police	9,649	376	1,556	391	807	372	600	600	12,612	1,739
Sheriffs' offices	1,737	355	579	362	317	317	331	331	2,964	1,365
State agencies	0	0	0	0	0	0	49	49	49	49

Data Collection

Data collection was conducted between August and December 2008. Data were collected using the following three modes:

1. Internet response
2. Hardcopy return
3. Computer-assisted telephone interview

For all modes, surveys were reviewed as they were received, and follow-up communication with agencies was conducted as needed.

A lead letter was mailed to the entire sample of agencies approximately 2 weeks before the start of data collection, which explained the study objectives and notified respondents that a questionnaire package would be forthcoming. The first questionnaire package was mailed in September 2008 and included an eight-page questionnaire, an endorsement letter from the International Association of Chiefs of Police (IACP), and a personalized cover letter that described the purpose of the study. A second mailing was sent to nonrespondents in October 2008, which included a new cover letter stressing the importance of the study, as well as a replacement questionnaire. Starting in October 2008, interviewers began contacting all nonrespondents via telephone.

Response Rates

A total of 2,250 agencies responded to the survey, which yielded an overall survey response rate of 73% (Table 2). The lowest response rates were among agencies with fewer than 25 officers (65%) and among state police agencies (63%). Response rates were highest among agencies with 50–99 officers (77%), 100 or more officers (76%), and municipal police departments (75%).

TABLE 2

Response Rates by Agency Type and Size

	Number Responding	Response Rate (%)
Overall	2,250	72.7
Agency type		
Municipal police	1,294	75.1
Sheriffs' offices	929	70.0
State agencies	27	62.8
Agency size		
100+ officers	735	76.3
50–99 officers	524	76.9
25–49 officers	536	71.9
< 25 officers	455	64.5

Nearly half of the returns were received through the Internet-response option (46%) followed by the hardcopy questionnaires (41%) and the fax returns (11%). Two percent of the surveys were completed via telephone. Because completing the survey often required coordination across multiple units within the agency, the primary goal of the telephone follow-ups was not to complete the survey by telephone but rather to prompt the agency to complete the survey using the Internet or another response method.

Weighting and Imputation

To reduce potential bias caused by nonresponding agencies, the design weights for responding agencies were adjusted within cells indexed by variables that were predictive of response status, such as the sample stratification variables. The sample design weights for responding agencies were adjusted upward to compensate for those agencies that did not respond. These weights were computed using generalized exponential modeling (GEM) software (Folsom and Singh, 2000). GEM is a ranking procedure that is a generalization of the logic-type model, which has been proven to produce weights with less variability than what is achievable through traditional methods. GEM enables the weighted agency data to reflect distributions better from the target agency universe with respect to the strata defined based on the agency type and the agency size. These data are obtained by producing survey estimates that better represent the universe of agencies without significantly increasing the variance of the survey estimates.

We used a hot-deck imputation method; in general, these methods use item respondents in the current data file as response "donors" for the item nonrespondents (which become the "receptors"). For each receptor, a donor is identified either by ordering the database on various characteristics and selecting the donor most similar to the receptor or by randomly selecting a donor from a pool of donors with similar characteristics, such as agency type by agency size. Specifically, we used a weighted sequential hot-deck procedure developed by Iannacchione (1982). This procedure selected a donor from a receptor pool using the sampling weights of donors and probability minimal replacement sequential sampling (Chromy, 1979).

Our analysis was conducted so that statistical inferences from the 2,250 participating agencies could be made to the entire population of state and local law-enforcement agencies in the United States. This inference was possible because we had used probability sampling to select the agency sample so that, in general, each participating agency represented approximately seven agencies in the population (15,625 / 2,250). Therefore, each participating agency had the weight of six other agencies that were not selected for the study. The weight of each agency then was applied to the survey data for each participating agency to obtain reliable national estimates. Estimation for specific analysis domains or subgroups was obtained by partitioning the weighted estimates by domains, such as agency type, agency size, and census region. To produce the estimates, the most recent edition of SUDAAN (RTI International, Research Triangle Park, NC) was used because it computes weighted statistics and variance estimates for cluster-correlated data.

Results

Unsolved Cases Containing Unanalyzed Forensic Evidence

Law-enforcement agencies were asked to report the number of unsolved homicide, rape, and property cases for the past 5 years (i.e., cases originating during or after 2003) that contained forensic evidence not submitted to a crime laboratory for analysis (see Table 3). Approximately 14% of all the unsolved homicides reported during the 5-year period contained forensic evidence that was not analyzed by a crime laboratory (an estimated 3,975 cases). Approximately 18% of the unsolved rape cases were reported to contain forensic evidence that had not been submitted to a laboratory (an estimated 27,595 cases). Finally, approximately 23% of the unsolved property crime cases contained forensic evidence that had not been submitted to a laboratory (an estimated 5,126,719 cases).

TABLE 3

Unsolved Homicide, Rape, and Property Crime Cases Containing Unanalyzed Forensic Evidence, 2003–2007

Crime Type	Estimated Number of Unsolved Cases	Estimated Number of Unsolved Cases with Unanalyzed Forensic Evidence	Percentage of Unsolved Cases with Unanalyzed Forensic Evidence
Property crime	22,013,113	5,126,719	23.3
Rape	150,070	27,595	18.4
Homicide	28,319	3,975	14.0

Note. Standard errors and confidence intervals are provided in the Appendix.

Variation by Size and Type of Agency

By agency size, more than four out of five unsolved homicide cases (84%) with unanalyzed forensic evidence were from the largest police departments (i.e., 100 or more sworn officers; see Table 4). Approximately 8% of the unsolved homicides with unanalyzed evidence were reported by agencies with 50–99 sworn personnel, 6% by agencies with 25–49 officers, and 2% from agencies with fewer than 25 officers. Mid- to small-sized agencies accounted for larger proportions of rape and property backlogged cases than homicide cases. Among all the unsolved rape cases with unanalyzed forensic evidence, large agencies with 100 or more sworn officers accounted for 59% of cases, agencies with 50–99 sworn officers accounted for 13% of cases, agencies with 25–49 sworn officers accounted for 14% of cases, and small agencies with fewer than 25 sworn officers accounted for 13% of cases. Similar patterns were reported for unsolved property cases, with the largest agencies accounting for nearly two thirds of backlogged cases (65%).

TABLE 4

Unsolved Cases Containing Unanalyzed Forensic Evidence by Agency Size, 2003–2007

	Crime Type					
Agency Size	Homicide	Percentage	Rape	Percentage	Property	Percentage
All sizes	3,975	100.0	27,595	100.0	5,126,719	100.0
100+ officers	3,333	83.8	16,386	59.4	3,345,714	65.3
50–99 officers	323	8.1	3,564	12.9	652,474	12.7
25–49 officers	233	5.9	3,955	14.3	480,457	9.4
<25 officers	86	2.2	3,690	13.4	648,074	12.6

Note. Standard errors and confidence intervals are provided in the Appendix.

Municipal police agencies accounted for approximately four out of five unsolved homicide (79%) and property crime cases (78%) but accounted for a slightly lower percentage of unsolved rapes (73%; see Table 5). Sheriffs' offices reported approximately one in five homicide, rape, and property backlogged cases. State police agencies were least likely to account for backlogged rape cases and represented approximately 9% of all unsolved rape cases with forensic evidence that remained unanalyzed.

Regional Variation

Using standard U.S. Census Bureau regional definitions, law-enforcement agencies in the South (47%) and the West (30%) reported the largest homicide backlogs followed by the Midwest (14%) and the Northeast (9%; see Table 6). This pattern was similar to backlogged rape cases in which half of the cases were reported in the South, approximately one quarter were reported in the West (26%), and the remainder were reported in the Midwest (17%) and in the Northeast (8%). For backlogged property cases, the South reported 41% of all cases, whereas the West and the Midwest each accounted for approximately one quarter of cases.

TABLE 5

Unsolved Cases Containing Unanalyzed Forensic Evidence by Agency Type, 2003–2007

	Crime Type					
Agency Type	Homicide	Percentage	Rape	Percentage	Property	Percentage
All agencies	3,976	100.0	27,594	100.0	5,126,719	100.0
Municipal police	3,153	79.3	20,016	72.5	3,986,278	77.8
Sheriffs' offices	721	18.1	5,207	18.9	1,031,928	20.1
State agencies	102	2.6	2,371	8.6	108,513	2.1

Note. Standard errors and confidence intervals are provided in the Appendix.

TABLE 6

Unsolved Cases Containing Unanalyzed Forensic Evidence by Census Region, 2003–2007

	Crime Type					
Region	Homicide	Percentage	Rape	Percentage	Property	Percentage
All regions	3,975	100.0	27,595	100.0	5,126,719	100.0
South	1,863	46.9	13,695	49.6	2,089,378	40.8
West	1,191	30.0	7,259	26.3	1,400,046	27.3
Midwest	548	13.8	4,573	16.6	1,239,982	24.2
Northeast	373	9.4	2,068	7.5	397,314	7.7

Note. Standard errors and confidence intervals are provided in the Appendix. Detail may not sum to total due to rounding.

Type of Evidence

Agency respondents were asked to estimate the types of evidence contained in unanalyzed homicide and rape cases (Table 7). Overall, DNA (40%) was the most common form of evidence contained in the unanalyzed cases. This data translated to an estimated 12,548 unsolved homicide and rape cases that contained DNA evidence but had not been submitted to a crime laboratory for analysis. In addition, 27% of the unsolved homicide and rape cases were reported to have contained trace evidence (8,520 cases),[5] 26% contained latent prints (8,274 cases), and 23% contained firearm/tool mark evidence (7,363 cases).

5. Trace evidence was defined as small particles collected during a criminal investigation, which included hair, paint, glass, textiles and fibers, soils, and gunshot residue. Although not considered as trace evidence by definition, many laboratories examine and analyze impression evidence such as footwear and tire track impressions within their trace evidence section. All of this evidence was included for the purposes of this survey. Latent prints were defined as fingerprints, palm prints, or partial prints that could be processed to identify an individual involved in a criminal act and used for legal purposes.

TABLE 7

Type of Forensic Evidence Contained in Unanalyzed Homicide and Rape Cases, 2003–2007

Type of Forensic Evidence	Estimated Number of Backlogged Homicide and Rape Cases Containing Evidence Type	Percentage of Backlogged Cases Containing Evidence Type
DNA	12,548	39.7
Trace evidence	8,520	26.8
Latent prints	8,274	26.1
Firearm/toolmarks	7,363	23.2

Note. Standard errors and confidence intervals are provided in the Appendix.

Reasons Why Law-Enforcement Agencies Did Not Submit Forensic Evidence

Forensic case backlogs in law-enforcement agencies have many potential explanations. Table 8 presents the most common "inhibiting factors" provided by agency respondents for why unsolved crimes had not been sent to a crime laboratory for testing. Forty-four percent of the agencies indicated that they did not submit evidence if a suspect had not been identified. Seventeen percent of the agencies reported that forensic evidence had not been submitted because they did not feel the evidence was useful to the case. Agencies also reported that evidence had not been submitted because the suspect in the case had been adjudicated without forensic testing (24%), the analysis had not been requested by the prosecutor (15%), or the suspect had been identified but not formally charged (12%). A final category of inhibiting factors related to laboratory resource or timeliness issues (collectively, 26%) included the inability of the laboratory to produce timely results (11%), insufficient funding for analysis (9%), and the laboratory not accepting evidence because of evidence backlogs (6%).

TABLE 8

Factors Inhibiting the Submission of Forensic Evidence to Crime Laboratories

Inhibitory Factor	Percentage of Agencies
Suspect has not been identified	44
Suspect adjudicated without forensic evidence testing	24
Other/not applicable	24
Case has been dismissed	19
Uncertain of usefulness of forensic evidence	17
Analysis not requested by prosecutors	15
Suspect has been identified but not formally charged	12
Inability of laboratory to produce timely results	11
Insufficient funding for analysis of evidence	9
Laboratory will not accept forensic evidence due to backlog	6
Uncertain where to send forensic evidence for analysis	2

Study Limitations

Although our survey methodology was effective, efficient, and generated many useful findings, certain limitations of the study must be acknowledged. First, the percentage of unsolved cases that contained unanalyzed evidence was based on estimates reported by the law-enforcement agency respondents. Although some agencies had the ability to query management-information systems to calculate the requested information, many agency respondents based these responses on approximations.

Second, this analysis captured the number of unsolved cases with forensic evidence that were not submitted to a crime laboratory. Yet, it is unknown how many of the investigations for these open, backlogged cases would benefit from analysis. As an example, in some cases, the evidence might not have been tested because the investigator knew it was unrelated to the case. Today, many law-enforcement agencies tend to collect a wide range of evidence from a crime scene, and some of that evidence might not be tied directly to the case itself. The survey also did not capture evidence for unsolved cases that had been analyzed at one point in time but would benefit from reanalysis. For example, if latent print evidence was analyzed and submitted to IAFIS several years ago with no successful match on a suspect, then the case could benefit from being resubmitted to IAFIS because the offender in question could have been entered into the system in the interim. Also, new analytic technologies might warrant testing for initial analyses as well as for reanalysis of forensic evidence that would have been considered inappropriate to test in the past.

Third, because multiple offices within the agencies often were involved in completing the survey (especially for mid- to large-sized agencies), it was difficult to verify that completed responses were dependent on which office completed which questions. In other words, if criminal investigations and research and planning offices both were asked to answer the same questions on backlogs, it is possible that they would provide different answers. Detailed directions had been provided to agencies, which indicated that some coordination within the agency likely would be required.

Discussion

The findings of this study confirm that a substantial number of unsolved homicides and rapes with forensic evidence have not been submitted to forensic laboratories for analysis. Among the crimes committed during the 5-year period studied, nearly 4,000 unsolved homicide cases and more than 27,500 unsolved rape cases contained forensic evidence that had not been submitted to a crime laboratory. In other words, 14% of the unsolved homicides and 18% of the unsolved rapes contained forensic evidence that never had been analyzed. Approximately 4 in 10 of these unanalyzed homicide and rape cases contained DNA—evidence that could be used to identify unknown suspects or to link a perpetrator to a specific crime (e.g., linking a rapist to a semen sample). Similarly, latent prints were contained in approximately 1 in 4 unanalyzed homicide and rape cases—evidence that also can prove to be useful to identify suspects and to develop new leads by searching the national fingerprint database.

Results showed that large police agencies (those with 100 or more sworn officers) accounted for more than 80% of all backlogged homicide cases, but they also accounted for lower percentages of backlogged rapes and property cases (59% of all backlogged rape cases and 65% of all backlogged property cases). Smaller agencies (those with fewer than 50 sworn officers) contributed to relatively larger percentages of the backlogged rape cases in the United States (28% of total backlogged rapes). When looking at the results by agency type, municipal police departments accounted for three out of four backlogged homicide, rape, and property cases, whereas sheriffs' departments accounted for approximately one in five backlogged cases. State police agencies reported approximately 9% of all unsolved rape cases with unanalyzed forensic evidence.

Another important finding pertains to the substantial number of backlogged property cases. Law-enforcement agencies reported more than 5 million unsolved property crimes with forensic evidence that had not been analyzed by a forensic laboratory. This figure translated to approximately 23% of unsolved property cases that contained forensic evidence not submitted for analysis. Findings from the DNA Field Experiment study demonstrated that collecting and analyzing DNA evidence from property crime scenes can affect arrest and prosecution outcomes (Roman et al., 2008; see also Zedlewski and Murphy, 2006). Persons arrested in the DNA property cases had more prior arrests and more prior convictions compared with persons arrested through traditional investigations. Although analyzing additional backlogged property cases would require significant increases in resources within both law enforcement and crime laboratories, the potential benefits to clearing property crimes and improving public safety could be substantial.

NIJ-funded research has demonstrated the importance of DNA evidence in property cases. However, it is also clear that a wholesale testing of forensic evidence could overwhelm completely an already stressed system. What is needed are policies that prioritize cases to ensure that the most important ones are analyzed quickly and efficiently as well as the necessary resources to support these efforts. The efficient processing and analysis of forensic evidence is an increasingly critical issue in today's criminal justice system. Law-enforcement agencies vary considerably in their procedures for processing, analyzing, and submitting forensic evidence, and backlog problems are not limited to police agencies of certain sizes or types. The challenge is to identify the key factors that contribute to successful case processing systems as defined by reduced backlogs and decreased case turnaround time while also maintaining high analytic standards for accuracy and precision (e.g., Briody, 2005). Establishing more uniform case submission protocols and criteria to prioritize cases for analysis are other effective methods to address the backlog problem.

The finding that 43% of the police agencies surveyed indicated that they might not submit evidence if a suspect had not been identified is an indicator of a knowledge gap among some personnel in law enforcement. To be fair, it must be recognized that national information systems such as CODIS are still relatively new (e.g., CODIS became operational in the late 1990s). Some investigators might "triage" their cases based on their need and experiences and might not yet

have internalized fully the potential for advancing a no-suspect case based on DNA evidence. Yet, these findings also suggest that some law-enforcement agencies either are not aware that forensic evidence can be used for investigative purposes or, in the matter of no-suspect cases, standing policies or other inhibitors might prevent them from doing so.

On the latter point, 15% of the agencies indicated that evidence might not be submitted if the analysis is not requested by a prosecutor. In some jurisdictions, the relationship among police, prosecutors, and laboratories is described best as interwoven; in others, specific lines of communication exist. Evidence typically is submitted to the laboratory from a law-enforcement agency, although the submission might or might not be directed by a prosecutor. Laboratories might require prosecutors to sign off that a case requiring forensic analyses in fact will go forward to avoid what otherwise would be viewed as an unnecessary use of laboratory resources.

The findings related to evidence not submitted because of laboratory delays or resource limitations also are cause for concern and suggest that crime laboratory backlogs in some jurisdictions might have reached crisis levels, wherein they cannot accept additional evidence until existing backlogs have been reduced. In these circumstances, law enforcement's hands are tied in that they simply cannot submit evidence for analysis because of the standing policy. A related concern is that if investigators are conscious of the laboratory resource problem (and in the absence of policy to inform them specifically of laboratory priorities), it potentially could bias the way they view evidence in "no suspect" cases, which leads to a lower likelihood of pursuing potential investigative leads. To be fair, forensic laboratories generally have become more efficient in recent years at processing evidence, but because the volume of cases being submitted has continued to increase, forensic backlogs have persisted in some jurisdictions (Lothridge, 2009). Policies such as mandatory DNA collection from felony arrestees in some states have placed additional pressure on laboratory resources. Currently, approximately 20 states and the federal government have passed legislation that requires DNA collection for arrestees (Berson, 2009). Although the NIJ's "Convicted Offender and/or Arrestee DNA Backlog Reduction Program" provides funding for states to process these DNA profiles, laws that have expanded the scope of submissions to forensic laboratories must be taken into account when examining laboratory efficiency issues (Taylor et al., 2007).

Collectively, the findings reported here point to two major policy implications. First, improved training and awareness within law-enforcement agencies must be developed to encourage the increased use of forensic testing for investigative purposes, which includes cases in which no suspect has been identified. Law-enforcement officials, criminal investigators, and even forensic laboratory personnel and prosecutors should be encouraged to think differently about the use of resources in these cases. If necessary, specific departmental policies should be developed to dictate when forensic evidence testing is appropriate. Procedures should be developed quickly to ensure that when evidence is probative, it is submitted and analyzed in a timely fashion. This prioritization might take into account issues related to case seriousness and instances in which analysis of the evidence can have the greatest effect in terms of closing the case.

To improve understanding about the usefulness of forensic evidence, training programs must be expanded and administered more widely to communicate the value of forensic evidence for investigative purposes to U.S. law-enforcement personnel. This expansion should include training for mid- to small-sized law-enforcement agencies because the police departments with fewer than 50 sworn officers accounted for nearly three out of ten unsolved rape cases that contained unanalyzed forensic evidence.

Second, policies that either discourage or openly reject the submission of evidence under certain circumstances must be modified to accommodate (and even encourage) investigative requests. Such a review might include more closely examining policies that require prosecutorial sign-off for forensic testing for investigative purposes. To deny these requests by law enforcement potentially is to deny justice. Instead, justification should be required when evidence is not tested in homicide and rape cases (i.e., all rape kits). In other words, the default should be to test the evidence in these cases unless you have a compelling reason not to do so. In addition, aggressive review and prioritization processes should be implemented to determine when evidence should be analyzed for other cases (such as property crime cases). Policy makers must ensure that adequate resources are available to alleviate laboratory backlogs to accommodate investigative requests.

As part of this process, the costs and benefits associated with additional testing for specific types of criminal cases must be weighed. The responsibility to submit forensic evidence to the crime laboratory should not rest with a single investigator. Rather, agencies should develop clear guidelines as well as checks and balances that ensure critical evidence does not fall through the cracks. One critical issue is how the access of an agency to a crime laboratory can influence the ability of the agency to encourage case prioritization and streamline case turnaround times at the laboratory. Some forensic laboratories are internal to the law-enforcement agency itself, whereas other laboratories are outside the agency. Although it is not known whether these varying structures between police departments and crime laboratories impact the processing of forensic evidence, any policies related to case prioritization or case tracking at least must consider these factors (National Research Council, 2009).

A closely related issue is the need to enhance law-enforcement information systems so that they systematically can track and monitor forensic evidence associated with criminal cases. In this study, nearly six in ten law-enforcement agencies reported not having a computerized information system in place capable of tracking forensic evidence inventory. Among agencies that did report having a system with these capabilities, it is not known whether those systems were integrated with more centralized police records management systems. For example, could the information system determine what evidence had been tested (or not tested) in a case, how long the evidence in a case has been in storage, or the status of cases for which forensic evidence was collected? In some instances, larger police agencies (including large county agencies and state police agencies) reported a significant difficulty providing information for questions about unsolved rape and property cases because this information was not maintained in a centralized

system. For example, property crimes in larger agencies typically are investigated at the precinct level, and as a result, case status information is maintained at similar levels. The same might be true for rape cases.

Finally, we want to raise an issue of methodological concern for future research. Recent years have seen a rise in social science research focused on the forensic sciences (specifically surrounding the issues of evidence processing and laboratory backlogs), and these studies have generated a great deal of knowledge about the extent and nature of the use and processing of forensic evidence. Yet, this large-scale, survey-based quantitative research also generally is limited to high-level issues. It is critical for future research to get deeper inside the "black box" of the police agency and crime laboratory and pull apart the process to ensure that future survey-based studies continue to generate meaningful data. In addition, a more "holistic" view of evidence processing, which includes police, prosecutors, and crime laboratories, is necessary as we move forward. In short, we believe the field would benefit greatly from additional qualitative research on forensic evidence processing and its role in the larger justice process.

Conclusion

Without doubt, technological advances in the forensic sciences during the past 20 years have affected the administration of justice in the United States dramatically. In concert with an increased reliance on forensic evidence in the prosecution and defense of criminal cases, U.S. laboratories have seen increasing evidence submissions and evidence backlogs. Part of the response to these backlogs has been to establish either formal policies or informal operating procedures that restrict or limit evidence submissions.

Although the National Research Council (2009) recently challenged the forensic community to examine closely the scientific underpinnings of a variety of forensic techniques, the scientific examination of crime scene evidence undoubtedly will continue to play a central role in the legal process. What remains to be seen is whether a greater balance can be achieved that ensures the more effective use of forensic evidence for law-enforcement investigative needs. Few would argue that the right to a speedy trial is unimportant, but we have to ask which takes priority—justice delayed or justice denied? The victim's right to justice is equally (or perhaps more) important.

Forensic science traditionally is defined as the application of science to the law. A conservative interpretation of this definition is that forensic science refers to scientific analyses being introduced into legal proceedings. Many crime laboratories apparently have prioritized their work in this light. But forensic science plays an equally important role in the criminal justice process that leads up to legal proceedings as well as to postconviction proceedings. As such, forensic science might be defined more properly as the application of science to justice. If police, prosecutors, and crime laboratories universally endorse this view, then we might succeed in creating a more efficient process for the analysis and the use of evidence that achieves the dual goals of protecting the innocent and convicting the guilty.

References

A neglected law enforcement asset. 2002. *The New York Times*, May 9: A38.

Berson, Sarah. 2009. Debating DNA collection. *NIJ Journal*, 264: 9–13.

Bradbury, Sarah-Anne and Andy Feist. 2005. *The Use of Forensic Science in Volume Crime Investigations: A Review of the Research Literature*. London, U.K.: Home Office.

Briody, Michael. 2004. The effects of DNA evidence on homicide cases in court. *The Australian and New Zealand Journal of Criminology*, 37: 231–252.

Briody, Michael. 2005. A case prioritizing system for forensic DNA laboratories. *Forensic Bulletin*, Summer: 34–35.

Chromy, James. 1979. Sequential sample selection methods. In *Proceedings of the 1979 American Statistical Association, Survey Research Methods Section*. Washington, DC: American Statistical Association.

Durose, Matthew. 2008. *Census of Publicly Funded Forensic Crime Laboratories, 2005*. Washington, DC: Bureau of Justice Statistics.

Eck, John E. 1983. *Solving Crimes: The Investigation of Burglary and Robbery*. Washington, DC: Police Executive Research Forum.

Folsom, Ralph and Avi Singh. 2000. The generalized exponential model for sampling weight calibration for extreme values, nonresponse, and poststratification. In *Proceedings of the 2000 Joint Statistical Meetings, American Statistical Association, Survey Research Methods Section*. Alexandria, VA: American Statistical Association.

Forst, Brian, Judith Lucianovic, and Sarah Cox. 1977. *What Happens after Arrest? A Court Perspective of Police Operations in the District of Columbia*. Washington, DC: Institute for Law and Social Research.

Greenwood, Peter, Jan Chaiken, Joan Petersilia, and Linda Prusoff. 1975. *The Criminal Investigation Process, Volume III: Observations and Analysis*. Chicago, IL: RAND.

Horvath, Frank and Robert Meesig. 1996. The criminal investigation process and the role of forensic evidence: A review of empirical findings. *Journal of Forensic Sciences*, 41: 963–969.

Horvath, Frank, Robert Meesig, and Young Hyeock Lee. 2001. *National Survey of Police Policies and Practices Regarding the Criminal Investigations Process: Twenty-Five Years After RAND*. Washington, DC: National Institute of Justice.

Iannacchione, Vincent. 1982. Weighted sequential hot deck imputation macros. In *Proceedings of the Seventh Annual SAS Users Group International Conference*. Cary, NC: SAS Institute.

Lothridge, Kevin. 2009. *Making Sense of the DNA Backlog*. Paper presented at the annual National Institute of Justice Research and Evaluation Conference, Arlington, Virginia.

Lovrich, Nicholas P., Travis C. Pratt, Michael J. Gaffney, Charles L. Johnson, Christopher H. Asplen, Lisa H. Hurst, and Timothy M. Schellberg. 2004. *National Forensic DNA Study Report, Final Report*. Washington, DC: U.S. Department of Justice.

Mennell, Julie and Ian Shaw. 2006. The future and crime scene science: Part I. A U.K. forensic science user and provider perspective. *Forensic Science International*, 157: S7–12.

National Research Council, Committee on Identifying the Needs of the Forensic Science Community. 2009. *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies Press.

Perkel, Jeffrey. 2007. DNA labs facing huge backlog: Canadians and Americans failing to meet target processing times for thousands of forensic DNA samples. *The Scientist*, May: 21.

Peterson, Joseph and Matthew C. Hickman. 2005. *Census of Publicly Funded Forensic Crime Laboratories, 2002.* Washington, DC: U.S. Department of Justice.

Peterson, Joseph and Anna Leggett. 2007. The evolution of forensic science: Progress amid the pitfalls. *Stetson Law Review*, 36: 621–660.

Peterson, Joseph, Steven Mihajlovic, and Michael Gilliland. 1984. *Forensic Evidence and the Police: The Effects of Scientific Evidence on Criminal Investigations*. Washington, DC: National Institute of Justice.

Peterson, Joseph, John Ryan, Pauline Houlden, and Steven Mihajlovic. 1987. The uses and effects of forensic science in the adjudication of felony cases. *Journal of Forensic Science*, 32: 1730–1753.

Pratt, Travis C., Michael J. Gaffney, Nicholas P. Lovrich, and Charles L. Johnson. 2006. This isn't CSI: Estimating the national backlog of forensic DNA cases and the barriers associated with case processing. *Criminal Justice Policy Review*, 17: 32–47.

Reaves, Brian. 2007. *Census of State and Local Law Enforcement Agencies, 2004*. Washington, DC: Bureau of Justice Statistics.

Roman, John, Shannon Reid, Jay Reid, Aaron Chalfin, and Carly Knight. 2008. *The DNA Field Experiment: Cost-Effectiveness Analysis of the Use of DNA in the Investigation of High-Volume Crimes*. Washington, DC: U.S. Department of Justice.

Rubin, Joel. 2009. DNA going untested in cases throughout L.A. County. *Los Angeles Times*, March 31. Retrieved April 3, 2009 from latimes.com/news/local/la-me-dna31-2009mar31,0,4150400.story.

Rubin, Joel and Richard Winton. 2008. L.A. announces plan to reduce backlog of unexamined DNA evidence from violent crimes. *Los Angeles Times*, October 29. Retrieved April 3, 2009 from latimes.com/news/local/la-me-dna29-2008oct29,0,2704026.story.

Steadman, Greg. 2000. *Survey of DNA Crime Laboratories,* 1998. Washington, DC: Bureau of Justice Statistics.

Steadman, Greg. 2002. *Survey of DNA Crime Laboratories,* 2001. Washington, DC: Bureau of Justice Statistics.

Strom, Kevin J., Jeri Ropero-Miller, Shelton Jones, Nathan Sikes, Mark Pope, and Nicole Horstmann. 2009. *The 2007 Survey of Law Enforcement Forensic Evidence Processing: Final Report*. Washington, DC: National Institute of Justice.

Taylor, Ralph B., John Gol dkamp, Doris Weiland, Clarissa Breen, R. Marie Garcia, Lawrence Presley, and Brian Wyant. 2007. Revise policies mandating offender DNA collection. *Criminology & Public Policy*, 6: 851–863.

Tilley, Nick and Andy Ford. 1996. *Forensic Science and Crime Investigation*. London, U.K.: Home Office.

Zedlewski, Edwin and Mary Murphy. 2006. DNA analysis for "minor" crimes: A major benefit for law enforcement, *NIJ Journal*, 253: 2–3.

Kevin J. Strom is a senior research scientist at RTI International. His research interests include law-enforcement responses to community violence and the impact of forensic science on the criminal justice system. He has published his research in journals that include the *Journal of Quantitative Criminology*, *Homicide Studies*, and *Crime & Delinquency*. Prior to joining RTI, Strom was employed for 6 years with the Bureau of Justice Statistics in the U.S. Department of Justice, in Washington, DC. He received his doctoral degree in criminology from the University of Maryland, College Park, in 2001.

Matthew J. Hickman is an assistant professor in the Department of Criminal Justice at Seattle University. Prior to joining the faculty at Seattle University in 2007, he spent 7 years as a statistician at the Bureau of Justice Statistics in the U.S. Department of Justice, in Washington, DC. He received his doctoral degree in criminal justice at Temple University in 2005. His general research interests are in policing, forensic science, and quantitative methods. His recent work has been published in a variety of journals, including *Criminology & Public Policy*, *Crime & Delinquency*, and *Police Quarterly.*

APPENDIX

Standard Error and Confidence Intervals for Estimated Number of Unsolved Cases with Forensic Evidence

	Estimated Number of Unsolved Cases with Forensic Evidence	Standard Error	Confidence Interval Lower 95% Limit	Confidence Interval Upper 95% Limit
By crime type from the past 5 years				
Homicide	3,975	511	2,973	4,978
Rape	27,595	3,290	21,144	34,046
Property crimes	5,126,719	416,611	4,309,735	5,943,703
By type of forensic evidence from the past 5 years				
DNA	12,548	1,662	9,287	15,808
Trace evidence	8,520	820	6,913	10,128
Latent prints	8,274	1,255	5,813	10,734
Firearm/toolmarks	7,363	1,504	4,414	10,312
By agency size and crime type from the past 5 years				
Homicide				
<25 officers	86	31	26	147
25–49 officers	233	44	147	319
50–99 officers	323	76	173	473
100+ officers	3,333	503	2,347	4,318
Rape				
<25 officers	3,690	1,872	18	7,362
25–49 officers	3,955	715	2,554	5,357
50–99 officers	3,564	538	2,510	4,619
100+ officers	16,386	2,553	11,378	21,393
Property Crimes				
<25 officers	648,074	104,511	443,125	853,023
25–49 officers	480,457	64,023	354,906	606,008
50–99 officers	652,474	72,631	510,042	794,905
100+ officers	3,345,714	391,498	2,577,977	4,113,451
By agency type and crime type from the past 5 years				
Homicide				
Sheriff's department	721	200	328	1,114
Municipal police department	3,153	468	2,236	4,070
State police	102	49	5	198
Rape				
Sheriff's department	5,207	783	3,672	6,743
Municipal police department	20,016	2,665	14,791	25,242
State police[a]	2,371	1,763	0	5,829
Property crimes				
Sheriff's department	1,031,928	106,971	822,156	1,241,700
Municipal police department	3,986,278	397,060	3,207,634	4,764,921
State police[a]	108,513	66,826	0	239,562

	Estimated Number of Unsolved Cases with Forensic Evidence	Standard Error	Confidence Interval Lower 95% Limit	Confidence Interval Upper 95% Limit
By census region and crime type from the past 5 years				
Homicide				
Midwest	548	211	134	962
Northeast	373	95	186	560
South	1,863	397	1,084	2,642
West	1,191	247	707	1,676
Rape				
Midwest	4,573	821	2,963	6,182
Northeast	2,068	425	1,234	2,902
South	13,695	3,042	7,730	19,660
West	7,259	990	5,318	9,199
Property crimes				
Midwest	1,239,982	201,222	845,380	1,634,583
Northeast	397,314	59,162	281,296	513,332
South	2,089,378	295,394	1,510,104	2,668,652
West	1,400,046	235,252	938,712	1,861,380

[a] Low precision is attributed to sample size.

POLICY ESSAY

FORENSIC EVIDENCE PROCESSING

The promises and pitfalls of forensic evidence in unsolved crimes

Kevin M. Beaver
Florida State University

The use of forensic evidence in the investigation of criminal cases increasingly has become a constant fixture among law-enforcement agencies during the past 20 years (Jobling and Gill, 2004). One of the major driving forces behind the increased use of forensic evidence has been the rapid development of sophisticated technological machines that can process microscopic fibers. Minute pieces of physical evidence, such as a fleck of touch DNA, a single strand of hair, and a latent fingerprint, that were once impossible to analyze, today can be examined with precision. Now, even the smallest fiber of forensic evidence that was unknowingly left behind at the crime scene can lead law-enforcement agents to identify a suspect, a prosecutor to charge the suspect, and a jury to render a guilty verdict. The extent to which forensic evidence can be used effectively by the criminal justice system, however, hinges on the detection and the processing of forensic evidence. Although popular law-enforcement television dramas, such as *CSI*, typically depict the *processing* of forensic evidence as a straightforward process in which evidence is gathered at the crime scene and shipped immediately to a laboratory to be analyzed, much remains unknown about the processing of forensic evidence by law-enforcement agencies.

To shed some empirical light on the nature of how forensic evidence is processed, Strom and Hickman (2010, this issue) conducted a study to investigate two main interrelated questions. First, they sought to estimate the number of unsolved crimes in which forensic evidence had been collected but was never submitted to a laboratory for analysis. The second main goal of their study was to determine the various obstacles that were in place that prevented forensic evidence from being submitted and from being processed at a crime laboratory. To address these issues, Strom and Hickman analyzed data drawn from a nationally representative sample of 3,153 state and local law-enforcement agencies. By using sampling weights to adjust for survey nonresponse and by using a hot-deck data imputation method, their study generated estimates

Direct correspondence to Kevin M. Beaver, College of Criminology and Criminal Justice, Florida State University, 634 W. Call Street, Tallahassee, FL 32306 (e-mail: kbeaver@fsu.edu).

that were generalizable to all state and local law-enforcement agencies. All things considered, Strom and Hickman's study represents the most methodologically rigorous treatment of this subject to date.

The results of their analyses provided some insightful information and detail about the processing of forensic evidence by law-enforcement agencies. Of particular importance were the national estimates revealing that approximately 23% of all unsolved property crimes had unanalyzed forensic evidence, approximately 18% of all unsolved rapes had unanalyzed forensic evidence, and approximately 14% of all unsolved homicides had unanalyzed forensic evidence. Additionally, their study revealed that the most common reason law enforcement provided for why forensic evidence remained unanalyzed was the lack of a single suspect for the unsolved case. As detailed in the subsequent discussion, these findings have the potential to be transformed into public policies that govern the use and processing of forensic evidence.

Forensic Evidence and Unsolved Crimes

One of the more intriguing and important findings to emerge from Strom and Hickman's (2010) research is not the sheer number of forensic evidence samples that have not been processed but the reason for not processing them. As noted, the modal response provided by law-enforcement agents for not submitting forensic evidence to be analyzed was the lack of a legitimate suspect. Apparently, several law-enforcement agencies believe that forensic evidence only can be used to tie a particular suspect to the crime scene—that is, without a suspect, the forensic evidence cannot aid the criminal investigation. This view of forensic evidence, however, is incorrect.

Today, several DNA databases worldwide are available to aid law-enforcement agents in ways that were unimaginable just a couple of decades ago. In the United States, the Federal Bureau of Investigation has a specialized unit, known as CODIS, that is responsible for managing the national DNA database used by law-enforcement agencies. Other countries have similar databases that are used in criminal investigations. These DNA databases are highly versatile and powerful investigative tools that can be used, for example, to link different crime scenes to the same suspect (e.g., serial killers). Perhaps most importantly, especially in unsolved cases lacking any solid leads, these DNA databases can be used to generate suspects. DNA evidence gathered at a crime scene can be processed and checked against all DNA profiles included in any DNA database. If the DNA of a suspect is contained in the DNA database, then law enforcement will be provided with the name of the likely perpetrator.

The nagging question, of course, is the "hit" rate when analyzing forensic evidence in a DNA database for an unsolved crime without a suspect. Although no known estimates exist for CODIS, some specific estimates come from the United Kingdom's national DNA database. According to a 2003–2004 annual report, the hit rate was about 45% (Forensic Science Service, 2004). Stated differently, in the United Kingdom, if DNA evidence was collected from a crime scene and that DNA evidence was checked against all DNA profiles in the database, then a match occurred about 45% of the time.

Using the "hit" rate from the U.K. annual report along with the number of unsolved crimes provided in Strom and Hickman's (2010) study, it is possible to generate an estimate of the number of unsolved homicides and rapes that could be solved if the available forensic evidence was analyzed. According to Strom and Hickman, the law-enforcement agencies included in their study indicated that, during the past 5 years, 3,975 unsolved homicides contained forensic evidence, and 27,595 unsolved rapes contained forensic evidence. For both of these types of crimes, approximately 40% contained unanalyzed DNA evidence (the other 60% contained other types of forensic evidence, such as latent fingerprints). As a result, the estimated number of unsolved homicides that contain unanalyzed DNA evidence is 1,590, whereas the estimated number of unsolved rapes that contain unanalyzed DNA evidence is 11,038. These values then can be multiplied against a "hit" rate of .45 to gain an estimate of the number of matches that would occur had the DNA evidence been processed. If these DNA samples had been analyzed, then a match between the forensic evidence at the crime scene and a profile in the DNA database would have occurred in approximately 715 unsolved homicides and in approximately 4,967 unsolved rapes. Even if the "hit" rate was substantially lower in the United States than the 45% match rate in the United Kingdom, then a significant number of suspects would still be identified.

These estimates clearly point to the need to develop and implement some type of national protocol for the processing and analysis of forensic evidence, especially DNA evidence, in unsolved crimes. No longer should "no-suspect" crimes be an excuse or justification for not analyzing DNA evidence, but rather, evidence from these types of crimes should be a priority. By using DNA databases in this way, more and more unsolved cases will receive new leads and new suspects. And, the end result likely would facilitate one of the main goals of the criminal justice system—increased public safety.

Ethical Considerations

Although DNA databases and other recent technological advances in forensic science at first glance might appear as a straightforward crime-fighting tool, a host of ethical considerations have emerged and will continue to emerge (Wallace, 2006). In many ways, the science of forensic evidence has progressed at such a rapid clip that the ethical dilemmas that have come along with them have yet to be resolved. Perhaps the most salient area of concern from a bioethical standpoint deals with the collection and storage of DNA in national databases. Laws and procedures governing who DNA can be collected from and how long it is retained in the database vary from state to state. The most controversial states are those mandating that DNA be collected from all suspects who are arrested for a crime. Their DNA profile then remains in the database (under some state laws) even if they ultimately are exonerated from the crime. Not all states follow such rigid policies, but recent calls have been made in several states to widen the net of people who could be forced to provide their DNA for the national DNA database.

Opponents of these DNA collection processes argue that the forced collection of DNA from suspects who ultimately are cleared of any wrongdoing poses a serious threat to the protection of individual rights and to the presumption of innocence. Proponents of widespread DNA collection, however, point out that the genes that are analyzed for law-enforcement purposes are noncoding—that is, they do not provide any information about a person's unique suite of physical, emotional, or health characteristics. When used in this way, according to advocates of DNA collection, DNA simply provides another investigative tool that can be used to solve crimes.

In a similar vein, DNA analysis has been used to tie a suspect to the DNA evidence found at a crime scene without ever analyzing DNA drawn directly from the suspect. Because suspects are frequently hesitant to provide DNA samples voluntarily, law-enforcement agents can have difficulty obtaining a quality DNA sample to analyze. Recently, however, law enforcement has turned its eyes to the family members of suspects. By analyzing the DNA of the family members of a suspect and comparing that DNA to the crime scene, law enforcement is provided with an indirect way to determine whether the DNA of the suspect matches the DNA of the crime scene. The ethics of such practice are particularly pronounced when family members are pressured or even mandated to submit DNA samples. For example, law enforcement had strong circumstantial evidence that Dennis Rader was the elusive BTK Killer who murdered at least ten victims. To gain DNA evidence to link him to the murders, a search warrant was issued to access his daughter's recent Pap smear to be genotyped. The results of this DNA analysis provided a high probability that Dennis Rader was indeed the BTK Killer, and as a result, he ultimately was arrested, charged, and convicted.

The use of forensic evidence, especially DNA evidence, represents a relatively new way to investigate and solve crimes. Along with the analysis of DNA evidence comes a tremendous amount of responsibility at a level that the criminal justice system has not experienced previously. Before jumping head first into implementing widespread DNA collection laws that cut across all types of offenders, the criminal justice system needs to have policies in place that ensure that the appropriate safeguards have been employed to protect the basic rights and liberties of citizens. Although philosophical debates likely will emerge concerning the ethical use of DNA evidence, ultimately, these ethical issues will transform into legal issues that are settled in a court of law.

The Future

Whether we like it or not, DNA evidence and DNA databases are the way of the future for investigating crimes and identifying suspects. Of course, advocates always will push for more widespread DNA collection and opponents always will push for legislation to abolish the use of DNA in criminal investigations. The use of DNA evidence, however, actually represents a middle ground in the due-process versus crime-control models of the criminal justice system. From a due-process standpoint, DNA evidence can exonerate the innocent even if they have

been incarcerated for decades. According to *The Innocence Project* (2009), 249 convictions have been overturned because of DNA evidence. If DNA evidence had been available at the time these trials originally occurred, then it is highly unlikely that any of the innocent defendants would have been convicted. In one of the most high-profile cases of recent times, the parents of JonBenét Ramsey were considered prime suspects in the murder of their daughter. However, after DNA was collected and analyzed, it pointed to a male suspect who was not related to the family, thereby clearing the parents of the murder.

In contrast, forensic DNA evidence also dovetails nicely with the philosophy of crime-control advocates. Seen from this perspective, DNA evidence represents an investigative tool that can be used to identify, process, and convict the guilty even if it occurs many years after the crime was committed. To illustrate, in 1982, seven people were murdered when they ingested Tylenol capsules that had been laced with potassium cyanide. No arrests have been made, but a list of suspects has been made. One of those suspects, James William Lewis, was ordered in January 2010 to submit samples of his DNA for genetic analysis. Depending on the results of this test, the perpetrator of the Tylenol murders finally could be solved more than 25 years after they took place.

In reality, the distinction between a due-process model and a crime-control model is really just an artificial one. What most people are after is justice that is carried out in an unbiased manner and that renders an accurate outcome. Most pieces of evidence, however, are open to human error, such as eyewitness testimony, which is notoriously inaccurate (Loftus, 1996). DNA evidence, however, represents an exception to this rule. For the most part, DNA is highly accurate; it has been scientifically validated, and it is objective. It is not racist, sexist, classist, or discriminatory against any group. If the DNA from a crime scene is matched to a particular suspect, then the evidence speaks for itself without bias or prejudice. And, simply, that is what the criminal justice system strives to achieve and what DNA evidence can promote when used responsibly.

References

Forensic Science Service. 2004. *The National DNA Database Annual Report, 2003–2004*. Retrieved November 15, 2008 from forensic.gov.uk/pdf/company/publications/annual-reports/annual-report-NDNAD.pdf.

Jobling, Mark A. and Peter Gill. 2004. Encoded evidence: DNA in forensic analysis. *Nature Reviews Genetics*, 5: 739–752.

Loftus, Elizabeth F. 1996. *Eyewitness Testimony*. Cambridge, MA: Harvard University Press.

Strom, Kevin J. and Matthew J. Hickman. Unanalyzed evidence in law-enforcement agencies: A national examination of forensic processing in police departments. *Criminology & Public Policy*. This issue.

The Innocence Project. 2009. News and information fact sheets. *Innocenceproject.org*. Retrieved June 29, 2009 from innocenceproject.org/Content/351.php.

Wallace, Helen. 2006. The U.K. national DNA database: Balancing crime detection, human rights, and privacy. *EMBO Reports*, 7: S26–S30.

Kevin M. Beaver is an assistant professor in the College of Criminology and Criminal Justice at Florida State University. His research interests include biosocial criminology, gene-environment interplay, and the unfolding of antisocial behavior across the life course. He recently was awarded the American Society of Criminology's Ruth Shonle Cavan Young Scholar Award.

POLICY ESSAY

FORENSIC EVIDENCE PROCESSING

An economic perspective on "Unanalyzed evidence in law-enforcement agencies"

E. James Cowan
Roger Koppl
Fairleigh Dickinson University

Strom and Hickman (2010, this issue) establish an important set of facts regarding evidence submission. They made a crucial analytical point in distinguishing two types of backlogs, one (widely recognized) creating a risk of justice delayed and the other (often neglected) creating a risk of justice denied. We are confident that their work will be recognized as an important study whose implications for law enforcement and forensic science must be carefully considered. We concur with Strom and Hickman's policy recommendations as far as they go but suggest that significant improvement requires more than the incremental changes they have proposed.

Strom and Hickman (2010) provide important and timely insights into the processing of forensic evidence in law-enforcement agencies. They identify the number and distributions of unsolved homicides (14%), rape cases (18%), and property crimes (23%) in which forensic evidence was not submitted to the crime laboratories for analysis as well as the number and distributions of reasons for nonsubmission of evidence and the types of evidence supporting each of those cases. The study makes the vital point that there are two kinds of backlog in forensic science. First, evidence submitted to crime laboratories might not be processed promptly, which creates a risk of justice delayed. Second, law-enforcement agencies do not always submit forensic evidence from unsolved cases for testing, which creates a risk of justice denied. The study concluded with recommendations on how to modify current practice.

Strom and Hickman (2010) call for improved training within law-enforcement agencies. They note the value of improved information systems within law-enforcement agencies. Finally, they recommended several policy changes to encourage forensic evidence submission such as requiring written justification when evidence is not submitted in rape and homicide cases.

Direct correspondence to E. James Cowan, Silberman College of Business, M-MS1-03, Fairleigh Dickinson University, Madison, NJ 07940 (e-mail: ejcowan2@fdu.edu); Roger Koppl, Department of Economics and Finance, Silberman College of Business, M-MS1-03, Fairleigh Dickinson University, Madison, NJ 07940 (e-mail: koppl@fdu.edu).

We believe the facts revealed by Strom and Hickman (2010) point toward the need for major policy and institutional changes. Our recommended changes include independence of crime laboratories from the prosecution and law-enforcement agencies, submission of all forensic evidence to independent laboratories through a case manager, as well as democratic and cross-jurisdictional management of crime laboratories, with scientific inquiry and scientific "truth" available to both the prosecution and defense in all cases involving such evidence.

The Importance of Strategic Choice

Strom and Hickman (2010) celebrate the "rise in social-science research focused on the forensic sciences" and express the wish that future research "get deeper inside the 'black box' of the police agency and crime laboratory and pull apart the process to ensure that future survey-based studies continue to generate meaningful data." We concur in the call to enter the "black box." Strom and Hickman's statement almost seems to suggest, however, that social science consists in "survey-based studies." Such a view would cast out much of social science, including our home discipline of economics. Our analysis builds largely on the social-science perspective provided by economic theory. Strom and Hickman surely recognize the variety of social-science disciplines and methods, but their statement on survey-based studies underscores their tendency to neglect strategic choice by law-enforcement personnel such as police investigators. The economic point of view is hardly the only one relevant to forensic science and law enforcement, but it is an important one, and we should not neglect it. It improves understanding, in part, by drawing our attention to the importance of incentives in influencing choice.

In the economic understanding of human action, incentives tend to influence our actions even when we are not aware of such influence. For example, most drivers would probably deny that they drive more recklessly when protected by safety features such as air bags, antilock brakes, and safety belts. The preponderance of the evidence suggests, however, that drivers engage in precisely such "compensating behavior" (Peltzman, 1975). Winston, Maheshri, and Mannering (2006) provided evidence on airbags and antilock brakes. Cohen and Einav (2003) denied "the Peltzman effect" (1975: n. 29, p. 834) in the case of safety belts, although they interpreted the effect to imply that compensating behavior *fully* offsets the beneficial effects of safety belts. In any event, the economic concept of compensating behavior nicely illustrates our human tendency to adjust our behavior to incentives even when we are not conscious of doing so.

If incentives matter even when we do not realize their effects, then it would be a mistake to suggest that only "bad apples" respond to inappropriate incentives. Nor are we vilifying anyone when we refer to "strategic choice." Our analysis is meant to be "positive" and not "normative." It is based on a universal human tendency to respond to incentives rather than an asymmetric view of any group as either more ethical and upright than others or less so.

The Relationship between Prosecution, Law-Enforcement Agencies, and Crime Laboratories Is a Problem

The adversarial system pits prosecution against defense and (generally) creates an alliance between the police and the prosecution. This structure tends to give prosecutors an incentive to win. In the extreme, this incentive might operate independently of the prosecutor's opinion of the guilt of a suspect, as illustrated by cases of prosecutorial misconduct such as the famous Duke case in which Michael Nifong attempted to withhold exculpatory evidence from the defense (Zuccino, 2006). Presumably, cases of willful misconduct by police or prosecution are exceptional. They reflect, however, the incentive of prosecutors to maximize convictions and the tendency of police and prosecution to be allies. If incentives matter, then we should interpret the law-enforcement backlogs as reflecting in part, strategic choice by police and prosecution.

Prosecutors select the subset of cases to pursue and, in conjunction with law-enforcement agencies and the crime laboratories, build evidence to present to the judge or jury. This tight relationship among the three players (prosecutor, police, and crime laboratory) creates a vertically integrated monopoly supplier of criminal justice (Koppl, 2005). The tight relationships that bind the prosecution, law enforcement, and the crime laboratory create a principal–agent relationship in which the law-enforcement agency (at certain points in the process) or prosecution (at other points) is the principal, and the crime laboratory is the agent. In the current monopoly structure, the principal and the agent are aligned in their incentives and share the objective of getting a conviction.

A principal–agent problem occurs when it is costly or impossible for the principal to monitor all relevant aspects of the agent's performance. The boss cannot always watch to be sure you are not napping on the job, for example. The problem exists because the agent has information the principal does not. Economists say agency problems derive from "asymmetric information." The crime laboratory knows what it can do and the effort required to complete an analysis, and the prosecution must rely on what the crime laboratory tells it. Also, a kind of reverse agency problem is created by asymmetric information. The prosecution and the law-enforcement agency know what the potential volume of cases is, and the crime laboratory must rely on information flowing to it from the prosecution and law enforcement.[1] Strom and Hickman (2010) provide important information on the reverse agency problem with crime laboratories.

Strom and Hickman's (2010) data partially quantify the reverse agency problem created by prosecutorial discretion in determining the cases to pursue. It also provides insight into the filtering mechanism used by the prosecution and the law-enforcement agency to achieve the goal of maximizing the probability of a conviction. This reverse agency problem, whereby the principal (prosecution) knows something about the capability of the system that the agent (crime

1. The notion of a reverse agency problem usually does not usually arise in the principal–agent literature in economics. The standard application of agency theory is the employment contract. In that context, the agent's performance usually is judged solely from the principal's perspective. In the case of crime laboratories, however, we can judge the laboratory's performance from a perspective other than that of the principal and recognize, thereby, a kind of "reverse-agency problem."

laboratory) does not, degrades the ability of the criminal justice system to collect and analyze forensic evidence properly. Tight integration of police, prosecution, and crime laboratory as well as the consequent ability of police and prosecution to engage in strategic evidence filtering lie at the heart of error creation in the criminal justice system.

Many studies have examined how crime laboratories tend to identify with law enforcement, which creates bias and consequent error (examples include Cowan, 2010; Risinger, Saks, Thompson, and Rosenthal, 2002; Whitman and Koppl, 2010). Strom and Hickman (2010) draw our attention to a different source of error, namely, the filtering of evidence and information by prosecutors and law-enforcement agencies (hereafter, filtering). Filtering occurs within case and across case. Within-case filtering exists when potentially relevant items are kept from the crime laboratory, or the crime laboratory is precluded from releasing all results of its analyses.[2] Across-case filtering occurs when the prosecution or law-enforcement agency does not pass items collected from some crime scenes to the crime laboratory for testing and analysis. Evidence destruction of the sort chronicled in Greene and Moffeit (2007) should be considered a form of filtering. Strom and Hickman indicate that filtering occurs frequently. The study noted several reasons for filtering, which include the following: A suspect has not been identified, a suspect is adjudicated without forensic evidence testing, a case has been dismissed, there is uncertainty about the usefulness of forensic evidence, an analysis is not requested by prosecutors, a suspect has been identified but not formally charged, and there is uncertainty about where to send forensic evidence for analysis (Strom and Hickman, 2010: Table 8). Failure to complete the analyses precludes the development of a complete picture of criminal activity by the prosecution, the law-enforcement agency, or the crime laboratory, potentially leading to errors of omission concerning the individual cases being examined, as well as identifying criminal behavior across cases.

Strategic filtering creates the risk of wrongful convictions. Withholding evidence from the crime laboratory might prevent an innocent suspect from being exonerated directly by forensic evidence. Even when a direct exoneration is not possible, withholding evidence might cause investigative attention to be directed away from the perpetrator(s) and, ultimately, to innocent persons.

Baltimore police detectives seem to have engaged in filtering, and we have some reason to fear that the filtering might have been strategic filtering, serving to reduce the risk that police suspects would not be convicted. "In at least nine homicide, sex assault and burglary cases, Baltimore police detectives instructed crime lab technicians not to follow up on convicted criminals' DNA found on evidence at crime scenes because they determined it was not relevant to their investigations" (Fenton, 2008). The prosecutor's office seems to have been unhappy with this exercise of discretion by police detectives. Baltimore State's Attorney Patricia C. Jessamy said "it was up to her office, not the Police Department, to determine whether the unreported hits are relevant to the cases. 'We make that decision,' she said" (Fenton, 2008). Note that Jessamy's statement leaves defense attorneys with little or no influence on what evidence is tested.

2. The Duke rape case mentioned earlier provides a particularly egregious example of the latter.

At least one case of withheld evidence came to the attention of the relevant defense attorney. Defense attorney Donald Daneman "was informed by prosecutors that DNA lifted from a beer can picked up two blocks from the scene of a shooting matched someone besides the defendant" (Fenton, 2008). Evidence from so distant a location might not have been probative, but details matter. If the unknown party whose prints were found had been observed threatening the victim earlier in the day, for example, then reasonable doubt of the defendant's guilt might have been raised. This episode illustrates the risk of false conviction created by strategic filtering.3

Further evidence is provided by Greene and Moffeit (2007) who identified 141 prisoners "whose bids for freedom have stalled because officials lost or destroyed DNA." It might be that in each of these cases, strategic considerations played no conscious or unconscious role. Greene and Moffeit noted, however, the efforts by some prosecutors to defend their right to destroy evidence.4 The existence of such efforts supports the thesis of strategic filtering and suggests that, in at least some cases, strategic filtering is not entirely unconscious.

Policy Prescriptions

Strom and Hickman (2010) identify the risk of justice denied created by backlogs originating with prosecutors and law-enforcement agencies. We have argued that strategic filtering creates many of these backlogs. If we are right, these backlogs are a structural problem requiring a structural solution. Stom and Hickman's policy suggestions do not seem to address the structural sources of the problem. Measures proposed by Thomson (1974), Risinger et al. (2002), Koppl (2005), Krane et al. (2008), and others would help to address the structural sources of the problem.

Submission of Crime Scene Evidence from All Crime Scenes to a Case Manager

All cases with forensic evidence should be collected, catalogued, and sent to an independent case manager for control and routing. Risinger et al. (2002) identified bias caused by "observer effects" and proposed the use of the Evidence and Quality Control Officer with an emphasis on his or her role in screening forensic examiners from context information. Using the preferable term "case manager," Krane et al. (2008) provided a protocol for such "sequential unmasking" in DNA profiling. We recommend that the case manager should not only manage the forensic evidence itself but also catalogue, track, and record all cases involving forensic evidence.

3. The newspaper article creates the curious impression that Daneman was not concerned with such possibilities. Daneman is quoted as saying, "It wasn't a question of my client drinking a beer" (Fenton, 2008). Whether this impression is accurate, or whether Daneman's client was guilty, the episode illustrates the risk of false conviction created by strategic filtering.

4. Their discussion of the 1988 U.S. Supreme Court ruling in *Arizona v. Youngblood* addresses an important institutional issue that we, unfortunately, cannot enter into in this essay.

Independence of Forensic Laboratory from Prosecutorial and Law-Enforcement Control

The NAS report (2009) recommended independence for crime laboratories. To the extent that such independence can be achieved in substance (as well as formally), it will break the principal–agent relationship that now exists between police and prosecution on the one hand and crime laboratories on the other hand. Although such independence would not eliminate informational asymmetries between police or prosecutors and crime laboratories, it would increase the probability that defense attorneys could influence what evidence is tested, particularly if our suggestions regarding the role of case manager are adopted as well.

Koppl (2005) went beyond independence to recommend the privatization of crime laboratories. It is vital to note, however, that privatization would probably be harmful unless it occurs in the context of Koppl's other proposals and is designed to ensure genuine rivalry among crime laboratories. We note that privatization might be hard to achieve in any event and recommend, therefore, changes in the basic governance structure for crime laboratories to help mitigate the exaggerated influence of prosecutors and law-enforcement agencies. Crime laboratory personnel should report to an independent board of directors, which consist of a local prosecutor, a prominent defense attorney, a representative of the public defender's office, a (nonforensic) research scientist, and a forensic scientist from a laboratory in another jurisdiction. Board members would be elected and serve staggered 2–3-year terms. The board would have oversight responsibilities for the laboratory in general, and it would have the ability to hire and fire the laboratory director. In this way, the principal–agent bonds between the prosecutor and the police on the one hand and the forensic laboratory on the other hand are broken because the laboratory now is responsible to the broader electorate through their representatives (Cowan, 2010: 29).

Democratic and Cross-Jurisdictional Management of Crime Labs

We favor cross-jurisdictional management of crime laboratories. That is, each crime laboratory should serve several jurisdictions, and each jurisdiction should be served by several crime laboratories. Currently, several small forensic laboratories exist with a median number of employees of 16 (Durose, 2008: 2). Such laboratories typically cover only a subset of the 17 forensic areas required of modern forensic science. Durose (2008: 5–7) estimated that approximately 54% of the laboratories outsourced work to private laboratories; 89% had test facilities for controlled substances; 59% for firearms; 53% for DNA analysis; and 55% for latent prints (with 76% of the municipal laboratories having the capability to analyze latent prints). Finally, 19% of the laboratories lacked accreditation by either the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) or by other organizations.[5] Ninety-one percent of state laboratories were accredited, whereas only 67% of county and 62% of municipal jurisdictions were accredited (Durose, 2008: 3). These numbers reflect the fragmented system described in NAS (2009).

5. Seventy-eight percent of the laboratories were accredited by the ASCLD/LAB, and 3% were accredited by other organizations (Durose, 2008: 3).

The strength of the current structure is its distributed nature, (i.e., small local laboratories closely aligned with the prosecution and law-enforcement agencies). This property is also its greatest weakness because the alignment with the prosecution and law-enforcement agencies leads to bias and error. We recommend consolidation of smaller laboratories and cross-jurisdictional management. With consolidation, the ability to take advantage of technological change and data-processing advancement improves; accreditation is achieved more readily and with these improvements come more standardized processes and lower error rates. Cross-jurisdictional management will reduce the tight linkages among the prosecutor, law-enforcement agencies, and forensic laboratories; will minimize bias; and will lower error rates.

Cross-jurisdictional management might also reduce the taxpayer costs by allowing crime laboratories to achieve economies of scale and scope. Economies of scale exist when increased rates of output correspond to lower average costs of production. Economies of scope exist when expanding the array of outputs reduces the average cost of producing any one output. Competitive markets tend to achieve full economies of scale and scope. Democratically managed crime laboratories might not be as successful in achieving such economies. Consolidation and cross-jurisdictional management, however, create the opportunity to capture at least some economies of scale and scope and, thus, might allow the taxpayer costs of forensic science services to fall.

Scientific Inquiry and Scientific Truth for Both the Prosecution and the Defense

Efficiency in processing items from crime scenes is important, and the distributed nature of the current forensic laboratories allows for an "efficient" prosecution of those cases that are selected for prosecution, i.e., cases most likely to be won by the prosecution. This efficiency is an important consideration. It is more important, however, that forensic science produces scientific truth. Scientific truth should be the output of the forensic science processes, not a conviction. The prosecution and the defense should have access to the same unbiased analysis. The judge or jury should then decide whether the evidence supports a conviction or an acquittal.

The economic theory of public goods might help make the point. By definition, a public good is nonrivalrous and nonexcludable (Samuelson, 1954). "Nonrivalrous" means my consumption of the good does not reduce how much is available for you to consume. "Nonexcludable" means that the good is consumed freely by all once it is produced. "National defense" is probably the leading textbook example, although asteroid deflection might be a better example.[6] Forensic truth is nonrivalrous, like a public good. Unlike a public good, however, forensic truth is, unfortunately, excludable. The institutional changes we have proposed increase the difficulty of excluding scientific truth from any interested parties in the criminal justice system. They cause scientific truth generated by crime laboratories to behave more like a public good. Neither the prosecution nor the defense should be excluded from forensic truth. There can be

6. Apparently, the example is attributable to Tyler Cowen and Alex Tabarrok (2009). See marginalrevolution.com/marginalrevolution/2009/12/asteroid-deflection-as-a-public-good.html.

differences of opinion about what the scientific truth means but not about the veracity of the public good itself.

Conclusion

Strom and Hickman's (2010) study is an important contribution to our understanding of backlogs in forensic science. We expect it to be an enduring contribution to the literature on forensic science. We believe the value of the study would be enhanced by employing economic logic in the interpretation of the facts the study reveals. If incentives matter, then we should consider what incentives are created by the current institutions of our criminal justice system. If prosecutors and law-enforcement agencies engage in the strategic filtering of forensic evidence and information, then the incremental changes proposed by Strom and Hickman are unlikely to produce more than incremental improvements in the system. Structural problems require structural solutions. The structural changes we have proposed have the potential to effect more than incremental improvements in the American criminal justice system.

References

Cohen, Alma and Liran Einav. 2003. The effects of mandatory seat belt laws on driving behavior and traffic fatalities. *The Review of Economics and Statistics*, 85: 828–843.

Cowan, E. James. 2010. *Engaging Cultural Key Masters in Forensic Science Supervisors, Laboratory Directors and Incentives for Change*. Unpublished manuscript.

Cowen, Tyler and Alex Tabarrok. 2009. *Modern Principles of Economics*. New York: Worth Publishers.

Durose, Matthew R. July 2008. *Census of Publicly Funded Forensic Crime Laboratories*. Bureau of Justice Statistics Bulletin. Washington, DC: Bureau of Justice.

Fenton, Justin. 2008, September 27. Criminals' DNA ignored. *The Baltimore Sun*. Retrieved January 14, 2010 from articles.baltimoresun.com/2008-09-27/news/0809270007_1_dna-crime-lab-found-on-evidence.

Greene, Susan and Miles Moffeit. 2007, July 22. Bad faith is difficult to prove. *The Denver Post*. Retrieved 28 January 2009 from denverpost.com/evidence/ci_6429277.

Koppl, Roger. 2005. How to improve forensic science. *European Journal of Law and Economics*, 20: 255–286.

Krane, Dan, Simon Ford, Jason Gilder, Keith Inman, Allan Jamieson, Roger Koppl, Irving Kornfield, D. Michael Risinger, Norah Rudin, Marc Scott Taylor, and William C. Thompson. 2008. Sequential unmasking: A means of minimizing observer effects in forensic DNA interpretation. *Journal of Forensic Sciences*, 53: 1006–1007.

NAS Committee on Identifying the Needs of the Forensic Science Community. 2009. *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies Press.

Peltzman, Sam. 1975. The effects of automobile safety regulation. *Journal of Political Economy*, 83: 677–725.

Risinger, Michael, Michael J. Saks, William C. Thompson, and Robert Rosenthal. 2002. The Daubert/Kumho implications of observer effects in forensic science: Hidden problems of expectation and suggestion. *California Law Review*, 90: 1–56.

Samuelson, Paul A. 1954. The pure theory of public expenditure. *Review of Economics and Statistics*, 36: 387–389.

Strom, Kevin J. and Matthew J. Hickman. 2010. Unanalyzed evidence in law-enforcement agencies: A national examination of forensic processing in police departments. *Criminology & Public Policy*. This issue.

Thomson, M. A. 1974. Bias and quality control in forensic science: A cause for concern. *Journal of Forensic Sciences*, 19: 504–517.

Whitman, Glen and Roger Koppl. 2010. Rational bias in forensic science. *Law, Probability, and Risk.* In press.

Winston, Clifford, Vikram Maheshri, and Fred Mannering. 2006. An exploration of the offset hypothesis using disaggregate data: The case of airbags and antilock brakes. *Journal of Risk and Uncertainty,* 32: 83–99.

Zuccino, David. 2006, December 16. Duke case worsens for prosecution. *Los Angeles Times.* Retrieved December 16, 2006 from latimes.com/news/nationworld/nation/la-na-duke16dec16,1,7339197.story?coll=la-headlines-nation&ctrack=1&cset=true.

E. James Cowan is the Associate Director of the Institute for Forensic Science Administration and the Associate Director of the Florham Laboratory for Experimental Social Science. He is a lecturer in the Department of Economics, Finance, and International Business at Fairleigh Dickinson University. Cowan's research interests in forensic science administration include institutional process and incentive design using experimental economics, economics of experts, principal–agent issues, and economic signaling. A recent publication is "A battle of forensic experts is not a race to the bottom" with Roger Koppl in the *Review of Political Economy*.

Roger Koppl is a professor of economics and finance in the Silberman College of Business at Fairleigh Dickinson University and the Director of Silberman College's Institute for Forensic Science Administration. He conducts research in forensic science administration, which is the study of how error rates in forensic science might be affected by institutional and organizational structures. Recent publications include "Rational bias in forensic science," with D. Glen Whitman, *Law, Probability, and Risk,* 2010; "Organization economics explains many forensic science errors," *Journal of Institutional Economics,* 2010, 6: 71–81; and "Epistemics for forensics," with Robert Kurzban and Lawrence Kobilinsky, *Epistmeme: Journal of Social Epistemology,* 2008, 5: 141–159.

POLICY ESSAY

FORENSIC EVIDENCE PROCESSING

Database-driven investigations

The promise—and peril—of using forensics to solve "no-suspect" cases

Andrea Roth
Stanford Law School

Anyone who reads the popular press is familiar with backlogs in DNA and other forensic testing (Moore, 2008). The forensic science community seems to understand the danger of such backlogs, which "can result in prolonged incarceration for innocent persons wrongly charged," "delayed investigation of those who are not yet charged," and "can contribute to the release of guilty suspects who go on to commit further crimes" (National Research Council, 2009: 40). Less understood are the reasons such backlogs exist. The mystery is, in large part, a function of poor data; the National Academy of Sciences's groundbreaking 2009 report on the state of forensic science noted that "backlog data are not entirely reliable" because of the lack of uniformity in how laboratories count submissions, tests, and outcomes (National Research Council, 2009: 62). One might assume that the problem simply is related to funding and that efforts such as President George W. Bush's $1 billion "DNA Initiative" in 2003 eventually would ameliorate the backlog issue (National Research Council, 2009).

Strom and Hickman's (2010, this issue) startling empirical piece on forensic laboratory processing offers two central insights that challenge existing assumptions about the backlog problem and will surely be critical to any successful effort at reform. The first is that DNA typing and other forensic sciences can and should be used not only as confirmatory evidence in cases already proceeding to trial but as tools of investigation in "no-suspect" cases by comparing evidence profiles with profiles in offender databases. The second is that laboratory backlogs are a direct result not only of a lack of resources but also of a culture in which forensic scientists—and perhaps even prosecutors—do not fully grasp the first point. Rather, as Strom and Hickman revealed through their 2008 data, current laboratory bureaucracy and law-enforcement politics tend to prioritize open cases, however minor the crime, that already have trial dates at the expense of unsolved homicides and rapes. One necessary component of any long-term solution, then, is

Direct correspondence to Andrea Roth, Stanford Law School, Room 79J, 559 Nathan Abbott Way, Stanford, CA 94305 (e-mail: aroth@law.stanford.edu).

a paradigm change among laboratories, police agencies, and prosecutors toward more frequent use of forensic testing at the investigative stage before a suspect is identified.

A large-scale cultural shift toward forensics-based investigation of no-suspect cases surely will save lives, as well as time and resources, across the long term. But database-driven investigation of no-suspect cases raises critical ethical, scientific, and jurisprudential questions that the scientific and legal communities must acknowledge and resolve. I briefly explore some of those policy issues here and offer concrete suggestions for how to proceed.

Avoiding Complacency and Confirmatory Bias in Subsequent Investigation

When a criminal suspect initially is identified through traditional, nonforensic means, the fear exists—voiced by many—that confirmatory forensic testing might be biased if the examiner knows the context of the case and the identity of the existing suspect (Krane et al., 2008; Risinger, 2007). For example, a DNA examiner who knows an existing suspect's profile might be more likely to view a comparison with the evidence sample profile as an "inclusion" by interpreting what might be an artifact of the testing process as a true and matching allele or by interpreting a true but nonmatching allele as merely an artifact (Thompson, 2009: 260–261).

Although Strom and Hickman (2010) rightly noted that early forensic analyses in no-suspect cases do not suffer from this particular type of post hoc confirmatory bias, a related problem does exist in reverse. In cases in which a suspect initially is identified through a "cold hit," or database match, investigators must be conscious of how knowledge of the match might lead them to view innocuous facts as inculpatory evidence against the suspect. For example, in the notorious Brandon Mayfield case, in which an Oregon attorney was accused falsely of participating in the 2004 Madrid train bombings based solely on a cold hit from the Federal Bureau of Investigation's (FBI) fingerprint database, investigators found no other evidence linking him to the crime but viewed Mayfield's conversion to Islam, as well as the absence of records showing that Mayfield had left the country, as suspicious (Cole and Lynch, 2006). In the hands of an investigator ignorant of the forensic testing results, the latter fact might seem exculpatory.

Others have expressed concern that the use of forensic science to identify suspects in the first instance will supplant traditional investigatory techniques because database searches are quicker and cheaper than gumshoe detective work (Cole and Lynch, 2006; McCartney, 2006), an observation somewhat at odds with Strom and Hickman's (2010) findings that forensic testing is often sidelined until shortly before trial when other inculpatory evidence already has been collected. Although finding suspects through database hits is a laudably objective and efficient method of identification, the virtues of common sense, objectivity, and persistence in nonforensic investigation will become more, not less, critical to prosecute the guilty effectively and to protect those whose database profile matches might be erroneous or coincidental.

The Need to Ensure Reliability of Database Matches and Match Statistics

The more we rely on forensic science to resolve no-suspect cases, the more we must ensure that reported database matches are themselves reliable and their probative value properly understood. Law enforcement must ensure that the testing of offender samples is contamination-free and that the recording of database entries is error-free. Numerous errors in DNA databases have been reported, some of which have led to erroneous database matches (Geddes, 2010; Thompson, 2008), whereas other false DNA cold hits have been blamed on contamination at the time the suspect's sample was tested (Cole and Lynch, 2006; Thompson, 2006).

An increased reliance on database matches to resolve no-suspect cases likely will lead to more prosecutions in which the entirety, or near-entirety, of the state's case is a database match (Roth, 2010). The older a no-suspect case is, the less likely it is that the government will present fact witnesses to corroborate forensic testing results. Such "pure cold hit" cases will require judges not only to consider whether DNA evidence alone is sufficient evidence of guilt (Song, Patil, Murphy, and Slatkin, 2009) but also to ensure that fact-finders understand the probative value of a database match and that the state's match statistics are reliable. The statistical significance of a database match is a function of the "random match probability" (RMP)—the probability that a person randomly selected from the population would match the profile—and the size of the likely suspect population (Kaye, 2009a). Take, for example, *People v. Puckett* (pending, No. A121368, Cal. Ct. App.), a San Francisco rape/murder case in which the only evidence against the suspect—a now elderly man identified 30 years after the crime—was a prior sex conviction and a DNA database match with an RMP of 1 in 1.1 million (Humes, 2009). Although the 1.1 million figure might sound damning to lay persons, who often mistake the RMP for the chance the suspect is not the source of the DNA, consider that approximately 2 million prime-aged men were in the Bay Area at the time of the crime, which means that one would expect potential suspects other than Puckett to match the profile (Kaye, 2009a). Absent direction from judges and experts, juries might not grasp the limited probative value of an uncorroborated database match in cases in which the RMP is relatively high or the suspect population is large.

Although "pure" cold hit cases such as *Puckett* are still relatively rare, their numbers are growing (Cole and Lynch, 2006; Murphy, 2007; Song et al., 2009). And although most such cases will have RMPs with denominators much larger than 1.1 million, cases involving degraded samples and mixtures, like *Puckett* itself, might require judges to adopt a numerical threshold for determining when the match statistics make out a legally sufficient case for guilt (Roth, 2010).

Moreover, some statisticians and population geneticists have argued that infinitesimally small RMPs, with denominators in the quintillions or higher, are likely the product of inaccurate assumptions about independence of loci or population substructure (Devlin, 2006; Weir, 2001). Analyses of Arizona, Illinois, and Maryland offender databases have suggested that matches at 9 or more of the 13 loci used in most forensic typing are much more common than originally

believed, and at least one biologist has concluded that these results are incompatible with current independence assumptions (Mueller, 2008).

One obvious and critical step laboratories should take to test the reliability of its RMP estimates is to give academic researchers access to anonymized profiles in offender databases. As Thompson (2008) noted, "the relatively small size of available statistical databases . . . makes it impossible to perform sensitive tests of the statistical independence of markers across multiple loci." Although the FBI and local law-enforcement agencies as of this writing have refused to allow such access (Geddes, 2010; Kaye, 2009b), several scientists, scholars, lawyers, and journalists have called for law enforcement to end its resistance in the name of justice and good science (Kaye, 2009b; Krane et al., 2009; Murphy 2009; Editorial, *New Scientist*, 2010).

The foregoing discussion of the reliability of match statistics might seem at first glance irrelevant to the identification of suspects through fingerprint database searches. But fingerprint cases raise an even more fundamental issue—the validity *vel non* of the forensic science community's position that claims of individualization in latent print analysis are justified without the need for reporting match probabilities. Forensic examiners are not permitted by their professional organizations to testify that a known print and a recovered latent print have a particular probability of coming from a common source (Cole, 2009). Rather, they testify that two impressions necessarily come from the same source, with 100% certainty, because of the number of consistent points of comparison and the fact that fingerprints are "unique" (Cole, 2009: 239). Presumably, the uniqueness assumption led Strom and Hickman (2010) to describe latent print analysis as an "individualizing" forensic science. Yet scholars have questioned the scientific basis for such claims and have called for friction ridge analysts to develop population-data-based rarity estimates and to substitute probabilistic conclusions for claims of individualization (Cole, 2009; National Research Council, 2009).

Expansion of Forensic DNA Databases

The trend toward database-driven investigations of no-suspect cases also might place pressure on lawmakers to expand existing offender databases and to consider calls for universal citizen databases. Even now, the categories of offenders who must place samples in DNA databases are ever-expanding. State and federal DNA databases have grown to include not only convicted felons but also misdemeanants, juveniles, noncitizen detainees, and even arrestees (Gabel, 2010; 42 U.S.C. § 14132[(a)(1)(C) (as amended Jan. 5, 2006)]). Moreover, respected voices in the policy discourse, such as James Hodge, director of the Center for Law and Public Health at Johns Hopkins University, already have suggested the creation of universal databases in which all citizens place their DNA samples (Doherty, 2006). Michigan's Commission on Genetic Privacy similarly has suggested that DNA samples be stored for all newborns (McCartney, 2006).

Comprehensive citizen databases arguably would address the civil rights concern raised by some that current offender databases contain a disproportionate number of persons of color (Kaye and Smith, 2004; Levine, Small, Gettman, and Reinarman, 2008). But universal data-

bases also could exacerbate racial disparities in arrests if the government someday could profile citizens on the basis of certain "suspicious" biomarkers (McCartney, 2006: 147). Moreover, the more expansive DNA databases become, the more likely investigators will chance upon a coincidental or erroneous match and falsely accuse someone based solely on his genetic profile (Thompson, 2008). Then again, if databases were truly universal, a suspect might be less likely to be accused falsely based on a coincidental match because any other profile matches in the population also would be revealed. Others fear that the government cannot be trusted with using citizens' genetic information solely for forensic identification purposes, and that universal databases will create a "surveillance society" (Editorial, *Nature*, 2008).

One answer to the privacy dilemma would be to ensure, at a minimum, that the DNA samples of arrestees—who still are cloaked in the presumption of innocence and whose charges have not yet been subject to public scrutiny by grand or petit jury—are not retained by the state unless the case leads to conviction. In 2008, the European Court of Human Rights ruled that the United Kingdom could not retain the DNA samples of two men who were arrested but whose cases ended in acquittal and dismissal, respectively (Annas, 2009). Although a person's 13-loci forensic DNA profile—ostensibly consisting of "junk" DNA—might contain little sensitive genetic information that we know of, the same cannot be said of a sample of the person's DNA.

Familial Searching

As database searching takes a central role in criminal investigation, policy makers also will have to contend with the ethics of "familial searching." The term refers to the practice of searching offender databases not only for complete profile matches but also for partial matches (e.g., 9 of 13 loci). Although the partially matching offender himself is excluded as a suspect, the similarity between his profile and the evidence sample arguably suggests that one of his close relatives might be the perpetrator (Gabel, 2010). Some jurisdictions have begun in earnest to use familial searching in criminal investigation with a handful of highly publicized results (Epstein, 2009). Although the technique holds promise for solving some otherwise unresolvable no-suspect cases, the process is controversial from a civil liberties standpoint because it subjects family members to police scrutiny based solely on the misdeeds of their relatives and is sure to affect minorities disproportionately (Mnookin, 2007). Assuming courts continue to uphold the practice's legality, states at least should require that the DNA sample of a family member be destroyed when he is cleared of wrongdoing.

Due Process Issues with Resurrecting Older No-Suspect Cases through Forensic Testing

A final legal issue raised by resolving no-suspect cases through forensic testing is the potential unfairness of bringing a criminal prosecution years after the alleged crime. Older "cold hit" cases "raise justice-related concerns, especially since mounting a defense to a crime that occurred in the past is becomes increasingly difficult as time progresses" (Song et al., 2009: 22). Such

justice concerns with old cases are the reason statutes of limitations exist. But in more and more no-suspect cases with only a genetic profile to go on, prosecutors have begun to secure so-called "John Doe" indictments against the person(s) matching the genetic profile recovered from the evidence sample (Garrett, 2008). Although some argue that this practice allows prosecutors to perform an effective end-run around statutes of limitations, several states explicitly have amended their laws to allow such indictments (Garrett, 2008). Indeed, the federal Justice for All Act has extended the use of John Doe indictments to all felonies prosecuted under federal law (Powell, 2008).

Although the "John Doe" practice inherently might not offend due process, Congress and state legislatures should adopt standards requiring courts to consider the potential prejudice of pretrial delay on a case-by-case basis in deciding whether to allow a prosecution to proceed (Powell, 2008). Another potential and seemingly critical safeguard would be to appoint counsel for the "John Doe" target. This solution would allow counsel to investigate and document the crime scene, attempt to interview the government's witnesses, and raise possible jurisdictional or other legal defenses to the indictment in a timely manner. If a human suspect matching the profile then is apprehended years later, the prejudice from pretrial delay at least has been minimized.

Conclusion

The investigation and potential resolution of no-suspect cases through forensic testing is a laudable goal, and police, prosecutors, and forensic examiners should heed Strom and Hickman's (2010) call for uniformity and for a shift toward prioritizing testing in no-suspect rape and homicide cases. This priority shift necessarily will require increased reliance on forensic DNA and fingerprint databases to identify suspects in the first instance. As long as policy makers responsibly address the legal, ethical, and scientific issues uniquely raised by database-driven investigation, the promises of forensic testing in solving cold cases will outweigh the perils.

References

Annas, George J. 2009. Protecting privacy and the public: Limits on police use of bioidentifiers in Europe. *New England Journal of Medicine*, 361: 196–201.

Cole, Simon A. 2009. Forensics without uniqueness, conclusions without individualization: The new epistemology of forensic identification. *Law, Probability, and Risk*, 8: 233–255.

Cole, Simon and Michael Lynch. 2006. The social and legal construction of suspects. *Annual Review of Law and Social Science*, 2: 39-60.

Devlin, Keith. 2006. *Damned Lies*. Devlin's Angle, Mathematical Association of America. Retrieved January 21, 2010 from maa.org/devlin/devlin_10_06.html.

Doherty, Brian. 2006. Collecting DNA: Database mission creep. *Reason Magazine Online*. Retrieved January 20, 2010 from reason.com/news/show/36657.html.

Editorial. 2008. Watching Big Brother. *Nature*, 456: 657–676.

Editorial. 2010. Time for full and frank data disclosure. *New Scientist*, 205: 5.

Epstein, Jules. 2009. "Genetic surveillance": The bogeyman response to familial DNA investigations. *University of Illinois Journal of Law, Technology, and Policy*, 2009: 141–173.

Gabel, Jessica D. 2010. Probable cause from probable bonds: A genetic tattle tale based on familial DNA. *Hastings Women's Law Journal*, 21: 3–57.

Garrett, Brandon. 2008. Claiming innocence. *Minnesota Law Review*, 92: 1629–1719.

Geddes, Linda. 2010. Unreliable evidence? Time to open up DNA databases. *New Scientist*, 205: 8–9.

Humes, Ed. 2009. Guilt by the numbers: How fuzzy is the math that makes DNA evidence look so compelling to jurors? *California Lawyer*. Retrieved January 21, 2010 from callawyer.com/story.cfm?pubdt=NaN&eid=900572&evid=1.

Kaye, David H. 2009a. Rounding up the usual suspects: A legal and logical analysis of DNA trawling cases. *North Carolina Law Review*, 87: 425–503.

Kaye, David H. 2009b. Trawling DNA databases for partial matches: What is the FBI afraid of? *Cornell Journal of Law and Public Policy*. In press.

Kaye, David H. and Michael E. Smith. 2004. DNA databases for law enforcement: Coverage question and the case for a population-wide database. In (David Lazer, ed.), *DNA and the Criminal Justice System: The Technology of Justice*. Cambridge, MA: MIT Press.

Krane, Dan, Volker Bahn, David Balding, Bicka Barlow, Howard Cash, Betty Layne Desportes, Paul D'Eustachio, Kevin Devlin, Travis E. Doom, and Itiel Dror, et al. 2009. Time for DNA disclosure. *Science*, 326: 1631-32.

Krane, Dan, Simon Ford, Jason Gilder, Keith Inman, Allan Jamieson, Roger Koppl, Irving Kornfield, D. Michael Risinger, Norah Rudin, Marc Scott Taylor, and William Thompson. 2008. Sequential Unmasking: A Means of Minimizing Observer Effects in Forensic DNA Interpretation, *Journal of Forensic Sciences*, 53: 1006-07.

Levine, Harry, Deborah Peterson Small, Jon B. Gettman, and Craig Reinarman. 2008. Drug arrests and DNA: Building Jim Crow's database. *GeneWatch*, 21: 9–11.

McCartney, Carole. 2006. *Forensic Identification and Criminal Justice: Forensic Science, Justice, and Risk*. Devon, U.K.: Willan.

Mnookin, Jennifer. 2007. Devil in the DNA database. *Los Angeles Times*, April 5: A23.

Moore, Solomon. 2008. Progress is minimal in clearing DNA cases. *New York Times.* Retrieved January 21, 2010 from nytimes.com/2008/10/25/us/25dna.html.

Mueller, Laurence D. 2008. Can simple population genetic models reconcile partial match frequencies observed in large forensic databases? *Journal of Genetics*, 87: 101–108.

Murphy, Erin. 2007. The new forensics: Criminal justice, false certainty, and the second generation of scientific evidence. *California Law Review*, 95: 721–797.

Murphy, Erin. 2009. Give scholars access to the national DNA database. *San Francisco Chronicle*, February 24: A11.

National Research Council. 2009. *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: National Academy Press.

Powell, Lindsey. 2008. Unraveling criminal statutes of limitations. *American Criminal Law Review*, 45: 115–154.

Risinger, D. Michael. 2007. Appendix: Cases involving the reliability of handwriting identification expertise since the decision in *Daubert*. *Tulsa Law Review*, 43: 477–595.

Roth, Andrea L. 2010. Safety in numbers?: Deciding when DNA alone is enough to convict. *New York University Law Review*. In press.

Song, Yun S., Anand Patil, Erin E. Murphy, and Montgomery Slatkin. 2009. The average probability that a cold hit in a DNA database results in erroneous conviction. *Journal of Forensic Science*, 54: 22–27.

Strom, Kevin J. and Matthew J. Hickman. 2010. Unanalyzed evidence in law-enforcement agencies: A national examination of forensic processing in police departments. *Criminology & Public Policy*. This issue.

Thompson, William C. 2006. Tarnish on the "gold standard": Understanding recent problems in forensic DNA testing. *Champion*, 30: 10–16.

Thompson, William C. 2008. The potential for error in forensic DNA testing. *GeneWatch*, 21: 5–8.

Thompson, William. 2009. Painting the target around the matching profile: The Texas sharp-shooter fallacy in forensic DNA interpretation. *Law, Probability, and Risk*, 8: 257–276.

Weir, Bruce S. 2001. DNA match and profile probabilities: Comment on Budowle et al. (2000) and Fung and Hu (2000). *Forensic Science Communications*. Retrieved January 21, 2010 from fbi.gov/hq/lab/fsc/backissu/jan2001/weir.htm.

Cases Cited

People v. Puckett, No. A121368 (Cal. Ct. App.).

Statutes Cited

Index to Facilitate Law Enforcement Exchange of DNA Information, 42 U.S.C. § 14132(a)(1)(C) (as amended Jan. 5, 2006).

Andrea Roth is a teaching fellow at Stanford Law School. For 9 years, she was a public defender in Washington, DC, and litigated issues relating to DNA admissibility and access to forensic testing. She has written and lectured throughout the country on DNA and other forensic science issues. Her latest article, "Safety in numbers?: Deciding when DNA alone is enough to convict," is forthcoming in the *NYU Law Review*. She is a 1998 graduate of Yale Law School.