



Published in final edited form as:

Youth Violence Juv Justice. 2004 January 1; 2(3): 256. doi:10.1177/1541204004265877.

CRIMINAL CAREERS OF SERIOUS DELINQUENTS IN TWO CITIES

Robert Brame,
University of South Carolina

Jeffrey Fagan,
Columbia University

Alex R. Piquero,
University of Florida

Carol A. Schubert, and
University of Pittsburgh

Laurence Steinberg
Temple University

Abstract

Because different methods for studying criminal behavior all suffer from important limitations, it is useful to apply different methodologies to the same population whenever possible. In this analysis, we examine the relationships between self-report and official record-based measures of offending activity using populations of adolescent serious offenders in Phoenix, Arizona, and Philadelphia, Pennsylvania.

Keywords

criminal behavior; measurement; longitudinal analysis

The measurement of criminal offending is fundamentally problematic. Recognizing this reality, researchers have developed complementary methodologies for systematically investigating patterns of criminal offending. Historically, the most prominent methodology for studying criminal behavior was to query the files of police agencies, courthouses, and confinement institutions. This body of research produced a number of important findings about the association between various demographic characteristics (i.e., age, sex, race, and social class), family structure, intelligence, urbanization, and criminal involvement (Glueck & Glueck, 1950; Shaw & McKay, 1930) and about the frequency of individual criminal offending and the length of criminal careers (Shannon, 1982; Wolfgang, Figlio, & Sellin, 1972). For example, in the first edition of *Principles of Criminology*, Sutherland (1924) noted that “the statistics of arrests, convictions, and commitments show that the maximum is reached in the age group 21–24, but there is considerable variation from place to place, without, however, taking the maximum outside the period of young adult life” (pp. 89–90).

Such influence was not without justification. Official record data provide researchers with readily measurable and quantifiable information about the timing and frequency of key events that fall within the sweep of the criminal justice system. It is almost obvious that a rigorous study of criminal involvement would attempt to consider information provided by official

records of that behavior. Although we can readily acknowledge the influence of official data sources in shaping knowledge about criminal offending, it is also clear that official record-based measures of criminality suffer from a number of key flaws and shortcomings. Recognizing some of these problems, Sutherland (1924) reached a pessimistic conclusion about excessive reliance on official records of criminal behavior: “In view of the difficulties and inaccuracies in criminal statistics, little dependence can be placed upon them for scientific purposes” (p. 54).

Although the quality of official record data has improved substantially since Sutherland’s comments, many of his concerns are still valid today. Specifically, he expressed reservations about jurisdictional variation in recording quality, different definitions and standards about what represents an offense worthy of a police report or an arrest, changes in accuracy over time, and differences in the quality, efficiency, and effectiveness of law enforcement efforts in different jurisdictions. A contemporary critique of official record methodologies would have to acknowledge each of these problems. For example, modern researchers accept the fact that official records represent only the “tip of the iceberg” of criminal activity. Underlying this finding are self-report surveys and careful studies of police behavior that show that the vast majority of criminal acts go undetected and that even when police officers have the legal authority to arrest they usually orient their discretion in the direction of leniency (Black & Reiss, 1970; Elliott, Huizinga, & Menard, 1989; Nye, 1958; Smith, 1984). This duality of findings has produced the conclusion that there is a large “dark figure of crime” that is ignored by studies relying on official records of criminal behavior.

Another modern concern about official records revolves around the potential problem that crimes filtering into official records do so either through the nonrandom mechanism of victim reporting behavior or police decision-making behavior. Research on victim reporting behavior, for example, reliably reveals that victims are more likely to report offenses that cause great physical harm or property loss, and they are less likely to report offenses that occur between friends and intimates (Bureau of Justice Statistics, 2002, Table 93). In addition, despite the fact that police use their discretion to achieve a nonarrest resolution of many situations, they clearly do not do so randomly. Research indicates that police decision making may be motivated by a variety of factors including the seriousness of the offense, victim preferences, evidentiary strength, offender demeanor, the presence of witnesses or bystanders, and organizational climate (Black & Reiss, 1970; McCord, Widom, & Crowell 2001; Smith, 1984). Concerns have also been raised about whether the nexus of victim reporting and police decision making leads to systematic biases in the distribution of official record measures of crime between race groups, social class levels, and neighborhoods within cities (Sampson, 1985; Smith, 1986).

Because most of the concerns raised above were widely accepted by the mid-1900s, researchers began to explore alternative means of data collection that would overcome the limitations of official record measures (see, e.g., Nye, 1958; Short & Nye, 1957). Free of the biases of victim reporting and police decision making, surveys of individuals’ self-reported involvement in criminal offending emerged as another means of studying involvement in criminal behavior. At first, the validity and utility of self-report data sources were not widely questioned; many social scientists were especially intrigued by the self-report finding of weak-to-nonexistent correlations between criminal involvement and social class because it mitigated or contradicted official record evidence of a strong correlation between criminal involvement and social class (see e.g., Tittle, Villemez, & Smith, 1978). However, researchers soon began to express an awareness of potential problems with self-report surveys as well.

It is now widely recognized that self-report data can produce distortions in inferences about criminal involvement. These distortions flow from problems with survey instrument design, sample selection bias and missing data problems, response errors, validity, and reliability

(Blumstein, Cohen, Roth, & Visser, 1986; Hindelang, Hirschi, & Weis, 1981; McCord et al., 2001; Weis, 1986). Response errors, for example, are typically due to the saliency, frequency, and timing of criminal activity. In most surveys, individuals are asked to provide a frequency count of the number of times they have engaged in a particular act within some well-defined time interval. For many individuals—especially high-rate offenders and those with a history of heavy drug and alcohol use—memory problems are likely to increase with longer recall periods and with greater intervals between the recall period and the time of the survey, or they may also intentionally misrepresent involvement in crime.

Although selection biases are a commonly cited problem for official record studies, most self-report studies suffer from selection bias problems of their own. For example, the National Youth Survey had an original refusal rate of more than 25% and, even among those who agreed to participate in the first wave of the survey, attrition has taken a significant toll on the number of people remaining in the survey (Brame & Piquero, 2003; Elliott et al., 1989). Moreover, when people defy attrition and remain in a panel self-report study, there is some evidence that they become sensitive to so-called testing or panel fatigue effects whereby respondents' answers to current questions are shaped or conditioned somewhat by the experience of answering similar questions in the past (Lauritsen, 1998; Thornberry, 1989).

Still another potential threat to the reliability of self-reports is the changing content validity of items related to respondents' age. It may be the case that an individual's interpretation of self-report items changes over time, leading to apparent rather than real changes in behavior. Or, within a cross-section of individuals of different ages, there may be covariation in item content validity and age (Piquero, MacIntosh, & Hickman, 2002). Despite all of these problems, self-report surveys have made important contributions to knowledge of offending behavior, and reliance on self-report surveys is likely to grow in the years ahead (Elliott, 1994; Junger-Tas & Marshall, 1999; Thornberry & Krohn, 2000).

In light of the complementary strengths and weaknesses of official record and self-reported data sources, most contemporary researchers take it as axiomatic that both are important in advancing knowledge about criminal behavior. Thus, self-report and official record data sources should not be viewed as competing vehicles by which to assess involvement in criminal offending. Rather, both methodologies tap into the same underlying behavior—they are just different indicators of that behavior. Indeed, Farrington (1989) noted that official records and self-reports actually produce convergent inferences “on such important topics as prevalence, continuity, versatility, and specialization in different types of offenses” (p. 418).

In the literature on self-reports and official records, one particular study stands out. Dunford and Elliott (1984) used data from the National Youth Survey to compare offender typologies based on official arrest and self-reported delinquency. Their analysis led to three key findings. First, although there was a positive relationship between the percentage arrested and the self-reported typology, the number of career offenders identified using official arrest data was only a fraction of the number identified using self-reported data. Second, partitioning the respondents into different offender types (career offenders, non-career offenders, and nonoffenders) yielded differences when using a self-reported compared to an official arrest measure of criminal involvement. For example, all official-based career offenders were captured within the self-reported career offender classification (i.e., the six official career offenders were also identified based on the self-reported data as career offenders). However, only 2% of those identified as self-reported career offenders were identified as career offenders using official records. Finally, the majority of self-reported career offenders were never arrested during a 3-year period when they were involved in very frequent and serious offending.

One crucial but relatively understudied criminal career feature that has import for research on criminal careers generally, and deterrence/incapacitation in particular, is the probability of an official record following a(n) (self-reported) offense (Blumstein et al., 1986; Farrington et al., 2003). To date, very few efforts have attempted to link self-report and official records to estimate q , or the probability of arrest per crime, and its relationship to λ (the rate at which offenders commit offenses; Blumstein & Cohen, 1979; Cohen, 1986; Dunford & Elliott, 1984). Such analysis is important because it could help develop offense-specific estimates of the probability of arrest for a particular crime and indicate whether offenders differ from one another in their arrest risk per crime. For example, variations in q for any offense type may result from differential enforcement practices that increase arrest vulnerability for some offenders compared to others (Cohen, 1986). Thus, a lower q for certain subgroups will lead to their underrepresentation among arrestees and to a corresponding overestimate of their λ if the same q was applied uniformly to all subgroups in offense-specific analyses (Cohen, 1986). Another relevant question would be to determine if the probability of arrest per crime increases or decreases with increasing frequency. If it decreases with offending frequency, then this may suggest some sort of “learning” effect whereby high- λ offenders become apt at avoiding detection (see Spelman, 1994).

Comparisons of self-reports and official records typically report only a summary index of association between the two measures, and not the probability of an official record following an offense (see Hindelang et al., 1981). Early research on this topic by Elliott and Voss (1974) indicated that there were 4.4 police contacts per 100 self-reported felonies (robberies, grand thefts, auto thefts, drug use, and gang fights), whereas Elliott (1994) estimated that there were 2 arrests per 100 self-reported violent offenses (robberies, rapes, and aggravated assaults).

More recent research by Dunford and Elliott (1984) examined the proportion of youth arrested for any offenses, by the number of self-reported law violations. A number of key findings emerged from their analysis. First, the probability of arrest was very low for all levels of self-reported offending up to 100 offenses (less than 4%); however, the probability of arrest nearly doubled for youth reporting 100 to 200 offenses (7%) and quadrupled for those reporting more than 200 offenses (19%). Thus, only offenders at the tail end of the frequency continuum have any substantial risk for arrest, and even then, the risk of arrest is less than chance. When these authors examined serious criminal activity (index offenses), they found that there were many more arrests among the index offenders but that the overall arrest risk was not that high. For example, respondents reporting index offenses were arrested at a higher rate than were youth within the general population of offenders. Among those reporting one index offense, only 5% were arrested, while among those youth reporting 20 or more offenses, the risk of arrest was 22%. At the upper end of the offending scale, there were 23 persons who reported 20 or more offenses; within this group, the ratio of self-reported to officially recorded arrests was 40:1, such that for every 1 arrest, an average of 40 index offenses was reported. Based on their results, Cohen (1986) estimated q on the assumption that the probability of arrest after one offense was independent of the probability of arrest after each other offense. Dunford and Elliott estimated that the probability of arrest per offense decreased from .004 for youth admitting 1 to 2 offenses to .0008 for youth admitting more than 200 offenses.

There is even less data on the probability of an official record following specific types of offenses. In the Cambridge data, West and Farrington (1977) used data from the Cambridge Study in Delinquent Development to examine self-reported and officially recorded offending activity of adolescents between the ages of 15 and 18 years. Their analysis revealed that 13% of self-reported burglaries led to a conviction, whereas 62% of those convicted of burglary at least once also self-reported involvement in burglary. Similarly, 6% of vehicle thefts led to convictions, and 38% of vehicle thieves were convicted of vehicle theft. The more persistent offenders were more likely to be convicted sooner or later but less likely to be convicted per

offense committed. In a follow-up of the Cambridge participants to age 32 years, Farrington (1989) reported the probability of an offender being convicted for specific offenses in different age ranges and found that over the entire age range, this probability was high for burglary (54%) and vehicle theft (53%) but low for vandalism (6%) and drug use (3%).

Farrington et al. (2003) compared the findings of several criminal career parameters based on official records with findings based on self-reports to see how where they were similar and different. In particular, they compared how various criminal dimensions such as prevalence, frequency, continuity, and chronicity varied with age according to self-reports and court referrals. In addition, Farrington and colleagues (2003) also investigated how strongly an early age of onset predicted a large number of offenses (in total and per year) in self-reports compared with court referrals, and most important, how the probability of an offender and an offense being officially recorded varied with age, with offense type, and with the number of offenses committed. To examine these issues, they used data on individuals in the Seattle Development Project through age 17 years. Self-reports and court referrals were based on eight offenses: burglary, vehicle theft, larceny, robbery, assault, vandalism, marijuana use, and drug selling. A number of key findings emerged from their study.

First, the prevalence of offending increased with age in the court and self-report data. Second, for all eight offenses, individual offending frequency (average number of offenses per offender) was higher in self-reports compared to court records. There was also a steady increase in individual offending frequency from age 11 to age 17 years in self-reports but not necessarily so in court referrals. Third, there was significant continuity for all types and categories of offenses between all age ranges, and this was so in self-report and official records. Fourth, regarding chronicity, there was no consistent tendency for offending to be more concentrated in either self-reports or court referrals. However, based on the fraction of the offenders, offending was more concentrated in self-reports probably because of the greater number of high-frequency offenders in self-reports. Still there was a significant overlap between official and self-reported chronic offenders as nearly one half of the official chronic offenders were also self-reported chronic offenders.

The data also suggest that an early age of onset predicted a large number of offenses in self-reports and court referrals. More interesting, although the average number of offenses per year after onset decreased with increasing age of onset for court referrals, the average number of self-reported offenses per year after onset decreased only slightly with increasing age of onset. In addition, an early age of onset (age 11 to 12 years) predicted a high rate of offending after onset in court referrals, but not in self-reports, which may have been because of the reluctance to refer youths ages 11 to 12 years to court after offending.

In studying the probability of a court referral, Farrington et al. (2003) found that although 36.6% of self-reported offenders were referred to court, only 3.4% of self-reported offenses led to a court referral. In addition, the probability of a self-reported offense leading to a court referral increased with age but decreased in late adolescence, primarily as a function of the increasing fraction of drug offenses that had a very low probability of court referral per offense. Finally, they examined the probability of a self-reported offender being referred to court and found that the probability increased with the number of offenses committed; however, the probability of a court referral following an offense decreased with the number of offenses committed suggesting that the more frequent offenders might be more skilled at avoiding court referrals. This was partly the case because these offenders tended to commit drug offenses, which have a very low probability of court referral.

In this article, we build on the limited literature exploring the relationship between offending as measured by self-reports and official records on the same individuals in two large cities—

Philadelphia, Pennsylvania, and Phoenix, Arizona. Our study differs somewhat from earlier efforts in this area by focusing on a relatively extreme sample of adolescent serious offenders. We provide some basic descriptive information about the composition of the sample and then investigate the distribution of involvement in self-reported offending during the year preceding a baseline interview along with the distribution of arrests that result in a referral to the juvenile courts in Philadelphia and Phoenix.

Data

The purpose of the study described here is to investigate the evolution of offending activity within a sample of adolescent offenders referred to juvenile and adult courts for serious criminal offenses. The project staff recruited 1,354 adjudicated adolescents between the ages of 13 and 19 years in Philadelphia and Phoenix. The youth were selected for potential enrollment after a review of court files revealed they had been adjudicated delinquent or found guilty of a serious offense (mostly felonies). To ensure a sample with meaningful heterogeneity in offending activity, the proportion of male juveniles with drug offenses was limited to 15% of the sample in both cities. This restriction did not apply to female juveniles or to youths transferred to the adult system. Female juveniles who met the age and adjudicated crime thresholds and all youth found guilty at the arraignment proceeding in the adult system were eligible for enrollment in the study.

Following our obtaining informed consent from the juveniles and their parents or guardians, youths who agreed to participate in the study completed a baseline interview. For youths in the juvenile system, this interview was conducted within 75 days of their adjudication hearing. For youths in the adult system, the baseline interview was conducted within 90 days of the decertification hearing in Philadelphia or of the adult arraignment hearing in Phoenix (there is no waive-back provision to the juvenile system under Arizona law). An adult collateral informant (a parent in 88% of cases) was interviewed at this point as well.

In this analysis, we rely on information about self-reported offending collected from the baseline interview pertaining to the 12-month period prior to that interview. The self-report delinquency scale used for this analysis includes questions about the following offenses: (a) purposely destroyed or damaged property that did not belong to you; (b) purposely set fires to a house, building, car or vacant lot; (c) entered or broke into a building to steal something; (d) stole something from a store (shoplifting); (e) bought, received, or sold something that you knew was stolen; (f) used checks or credit cards illegally; (g) stole a car or motorcycle to keep or sell; (h) joyriding; (i) entered or broke into a car to steal something; (j) sold marijuana; (k) sold other illegal drugs (cocaine, crack, heroin); (l) carjacking; (m) drove while drunk or high; (n) been paid by someone for having sexual relations; (o) forced someone to have sex; (p) killed someone; (q) shot someone (where bullet hit victim); (r) shot at someone (where respondent pulled the trigger); (s) took something from another person by force, using a weapon; (t) took something from someone by force, without using a weapon; (u) beaten up or physically attacked someone so badly that a doctor was probably needed; (v) been in a fight; (w) beaten up, threatened, or physically attacked someone as part of a gang; and (x) carried a gun. Information about official record offending comes from a query of the adolescents' files counting the number of arrests resulting in a court referral within the 12 months preceding the baseline interview (not including the arrest referral for the current incident).¹

¹One point of ambiguity is that our analyses assume that each individual was physically able to commit crimes during the entire 1-year period preceding the referral triggering enrollment in the study. Some of the individuals in our sample would clearly have been incapacitated during at least part of this period. To counterbalance this concern, however, we note that individuals are still able to commit offenses and be arrested for new offenses even while incapacitated. Still, the extent to which incapacitation may be affecting an individual's capacity to offend is not yet well understood, and this is clearly a limitation of our approach.

Table 1 presents a summary of the demographic characteristics associated with the Philadelphia and Phoenix samples. As expected, the ethnicity distribution of the two samples differs somewhat. Blacks represent 71.9% of the Philadelphia sample, whereas only 9.0% of the Phoenix sample is Black. Hispanics constitute 15.1% of the Philadelphia sample; however, the Hispanic contribution to the Phoenix sample is much greater—53.1%. Finally, Whites represent 30.9% of the Phoenix sample but only 10.3% of the Philadelphia sample. The age distribution of the Philadelphia sample is slightly older than the age distribution of the Phoenix sample—12.1% of the Philadelphia sample is at least 18 years of age at baseline while only 4.1% of the Phoenix sample is at least 18 years of age. The gender distributions of the two samples are virtually identical.

Analysis Results

In this section, we summarize the marginal distributions of self-reported and official record measures of offending separately for the male juveniles and female juveniles in Philadelphia and Phoenix. We then turn to an assessment of self-reported offending distributions after conditioning on the number of arrests resulting in a referral separately for male juveniles and female juveniles in Philadelphia and Phoenix. Next, we examine the distribution of arrest (with referral) activity after conditioning on the self-reported offending distributions. Finally, we explore the correlations between self-reported and official record offense frequency distributions within different demographically defined groups in the Philadelphia and Phoenix samples.

Table 2 presents a summary of the self-reported offending frequency distributions in Philadelphia and Phoenix—separately for male juveniles and female juveniles. In all of the analyses reported in this table, it is clear that most individuals self-report relatively few offenses, whereas a small number of individuals self-report large numbers of offenses. For example, more than 50% of the Philadelphia male juveniles self-report involvement in 14 or fewer offenses during the year preceding the baseline interview. Considering that the upper bound on this distribution exceeds 1,000 offenses, it is clear that the self-reported offending distribution for Philadelphia male juveniles (and for the other groups) is positively skewed. This is consistent with other self-report studies that routinely yield offense frequency distributions that are positively skewed.

Table 2 also indicates that male juveniles exhibit much greater frequencies of offending on average than female juveniles. There is some evidence in this analysis that there are more highly active female juveniles in Phoenix than in Philadelphia. Yet, in both instances, the female distributions are skewed and represent lower levels of offending than those in evidence for the male juveniles.

The data presented in Table 3 indicates, as expected, that skewed frequency distributions are not confined to the self-reported offense frequency distributions. Examining the male juveniles and the female juveniles in Philadelphia and Phoenix separately, it is apparent that about 50% of the male juveniles have zero arrests with referrals in the year preceding the baseline interview. These numbers are slightly higher for the female juveniles. In each instance, the numbers of people declines rapidly as the number of arrests with referrals increases. Our conclusion here is that official record arrest frequencies are highly skewed in both cities and for both sexes and that male juveniles exhibit significantly more arrest activity in the year preceding baseline than the female juveniles.

Tables 2 and 3 emphasize the marginal distributions of self-reported and official record measures of offending activity. In Table 4, we examine the distribution of self-reported offending frequency after conditioning on the number of arrests with referral experienced

during the 12 months preceding the baseline interview. This analysis reveals a tendency for self-reported offense frequency to increase in conjunction with number of arrests for the male juveniles. The Philadelphia male juveniles with 0 arrests had a median self-reported offense frequency of 8.0, whereas those with 1, 2, and 3+ arrests had median self-reported offense frequencies of 17.5, 50.0, and 62.5, respectively. For Phoenix male juveniles, the relationship was equally pronounced with median self-reported offense frequencies of 9.0, 22.0, 30.5, and 44.0 for ascending numbers of arrests resulting in referrals.

For the female juveniles, the relationship between arrest frequencies and self-reported offense frequencies appears to be somewhat weaker. However, as Table 4 indicates the patterns for the female juveniles are based on smaller sample sizes. Under these circumstances, it is possible for small numbers of outlying cases to influence the results quite heavily. With this caveat in mind, the same general pattern is in evidence. Female juveniles who have been arrested more frequently in the year preceding baseline tend to self-report involvement in criminal activity more frequently than those who were arrested less often.

Table 5 reverses the conditioning as we now examine arrest activity within self-reported offense frequency strata for both sites and both sexes combined. To obtain strata of approximately equal sample size, we created deciles based on self-reported offense frequency. This analysis indicates that, in general, higher ranking deciles tend to have higher mean arrest frequencies and higher proportions of offenders arrested at least one time in the year preceding baseline. The relationship is not perfect. For example, in Decile #8, 60.4% of the sample had been arrested at least once. In Decile #9, this statistic drops to 51.5%, and then, in Decile #10 it increases to 61.9%. Nevertheless, the important theme in this table is that the arrest prevalences and mean arrest frequencies in the higher deciles generally tend to be larger than the arrest prevalences and arrest frequencies in the lower deciles.

Another important feature of Table 5 is the rightmost column headed Mean Probability of Arrest Per Offense. This column presents our calculation of q for the nine nonzero self-reported offense frequency deciles. Cohen's (1986) analysis of data from the National Youth Survey reveals that arrest activity tends to increase and q tends to decrease with self-reported offense frequency. We have already established that arrest activity increases with self-reported offense frequency in these data; however, Table 5 also reveals that q decreases with increased self-reported offending.

It is not clear just how to interpret the finding that q decreases as the frequency of self-reported offending increases. On one hand, this may indicate a learning effect whereby offenders who commit more offenses become adept at avoiding detection. On the other hand, the finding may simply reflect the fact that the upper bound on offending activity is higher by definition than the upper bound on arrests. There are at least a couple of reasons why this is plausible. First, the number of high-frequency offenders—which is most likely quite small to begin with—will be the ones who are especially likely to experience residential or secure placement. This, of course, can produce an incapacitation effect that essentially means that one's chances of being arrested drop to 0 (or near 0) for the period of confinement. Second, when the number of offenses someone can commit is infinite (or close enough), the number of arrests a police force can make are still limited by a number of factors including the size of the force and the number of hours police are on the street. Faced with a ratio that is defined by a numerator that is right censored and a denominator that is not, the ratio has to diminish as the denominator increases.

Nevertheless, it is also possible for high-rate offenders to commit many offenses in a short period of time. We present both of these results to make a point: There are clearly important linkages between self-reported offense frequency and one's likelihood and level of

involvement with the criminal justice system as measured by arrests with referrals. Although we would certainly expect to see this relationship in a general population sample, it is interesting that it is also evident in a population of adolescent serious offenders.

Tables 6A, 6B, and 6C present parallel analyses for the Philadelphia male juveniles, the Phoenix male juveniles, and the Philadelphia and Phoenix female juveniles combined, respectively. In each of these analyses, the same basic patterns are in evidence. As self-reported offending frequency deciles increase, the arrest likelihood and arrest frequency tend to be higher, and the mean probability of arrest per offense tends to diminish. Again, we emphasize that there are discontinuities and the relationship is far from perfect. However, there is a clear tendency for people who put themselves at risk of arrest more often by committing more offenses to actually be more likely to be arrested and to be arrested more often.

Our final analysis, presented in Table 7, presents Spearman rank correlation coefficients between the full distribution of self-report offense frequencies and arrest frequencies. The correlations are calculated for the pooled sample and then separately for each site. Then, the correlations are calculated within gender, ethnicity, and age groups for the two sites combined and then separately for each site. More interesting, the analysis indicates that the correlations between self-reported offense frequency and arrest frequency are positive (overall correlation = +.227). The correlations also appear to be quite similar for male and female juveniles. The correlation for Hispanics in Philadelphia seems to stand out as being quite strong (correlation = +.382) as does the correlation for Blacks in Phoenix (correlation = +.351). The correlation for Hispanics in Phoenix stands out as being relatively weak (correlation = +.173). With respect to age, the correlation for individuals in the age 14 group in both sites seems to be relatively strong (correlation = .302 overall, +.300 in Philadelphia, and +.299 in Phoenix) whereas the correlation for individuals in the age 18 group in both sites seems to be relatively weak (correlation = +.055 overall, +.057 in Philadelphia, and $-.075$ in Phoenix). It is worth noting that the Phoenix age 18 correlation is based on only 27 individuals—the smallest cell frequency in the entire table. On balance, however, most of the correlations can be characterized as positive and moderate in strength.

Discussion and Conclusions

Researchers have reached a basic consensus about the fact that official record and self-reported measures of offending provide useful information to develop inferences about involvement in criminal behavior. It is clear that both methods have particular strengths and weaknesses. Consequently, it is generally advisable to use both measures to develop inferences when it is possible to do so. Unfortunately, there have not been many criminological data sets where information on official records and self-reports have been available for simultaneous study on the same individuals (Piquero, Farrington, & Blumstein, 2003). Nevertheless, the available evidence on the issue indicates that there is generally a modest positive correlation between self-reported and official record measures of involvement in criminal behavior.

This analysis builds on previous efforts in this area by examining the relationship between self-reported and official record measures of offending with a sample of adolescent serious offenders in contact with the criminal justice system in two large U.S. cities. Despite the fact that most previous analyses focused on general populations, our analysis of adolescent serious offenders leads to conclusions that are quite similar to those obtained in general population studies. Similar to previous research, we found that offense frequencies—whether measured by self-reports or by official records—tend to be positively skewed. Similar to previous research, we found that individuals who are arrested more often tend to self-report involvement in offending at greater levels than those who have been arrested less often. Moreover, we also found that the correlation between self-reported offending frequency and arrest frequency is

relatively robust across different demographic groups within the population—for most of the groups we studied, it is fair to say that we observed a modest positive correlation between the two measures of criminal offending. Future research should track self-report and official records over time within individuals to examine changes in criminal offending between different measurement approaches.

Acknowledgments

This research was supported by the John D. and Catherine T. MacArthur Foundation's Network on Adolescent Development and Juvenile Justice, the National Institute of Justice, the Office of Juvenile Justice and Delinquency Prevention, and other funders of the Research on Pathways to Desistance Project.

References

- Black DJ, Reiss AJ. Police control of juveniles. *American Sociological Review* 1970;35:63–77. [PubMed: 5416298]
- Blumstein A, Cohen J. Estimation of individual crime rates from arrest records. *Journal of Criminal Law and Criminology* 1979;70:561–585.
- Blumstein, A.; Cohen, J.; Roth, JA.; Visher, CA. *Criminal careers and “career criminals”*. Washington, DC: National Academy Press; 1986.
- Brame R, Piquero AR. Selective attrition and the age-crime relationship. *Journal of Quantitative Criminology* 2003;19:107–128.
- Bureau of Justice Statistics. *Sourcebook of criminal justice statistics*. Washington, DC: U.S. Department of Justice; 2002.
- Cohen, J. Research on criminal careers: Individual frequency rates and offense seriousness. In: Blumstein, A.; Cohen, J.; Roth, JA.; Visher, CA., editors. *Criminal careers and “career criminals”*. Vol. 1. Washington, DC: National Academy Press; 1986. p. 292–418.
- Dunford FW, Elliott DS. Identifying career offenders using self-reported data. *Journal of Research in Crime and Delinquency* 1984;21:57–87.
- Elliott DS. 1993 presidential address—Serious violent offenders: Onset, developmental course, and termination. *Criminology* 1994;32:1–22.
- Elliott, DS.; Huizinga, D.; Menard, S. *Multiple problem youth: Delinquency, substance use, and mental health problems*. New York: Springer-Verlag; 1989.
- Elliott, DS.; Voss, HL. *Delinquency and dropout*. Lexington, MA: D. C. Heath; 1974.
- Farrington, DP. Self-reported and official offending from adolescence to adulthood. In: Klein, MW., editor. *Cross-national research in self-reported crime and delinquency*. Dordrecht, the Netherlands: Kluwer; 1989. p. 399–423.
- Farrington DP, Jolliffe D, Hawkins JD, Catalano RF, Hill KG, Kosterman R. Comparing delinquency careers in court records and self-reports. *Criminology* 2003;41:933–958.
- Glueck, S.; Glueck, E. *Unraveling juvenile delinquency*. New York: The Commonwealth Fund; 1950.
- Hindelang, M.; Hirschi, T.; Weis, J. *Measuring delinquency*. Beverly Hills, CA: Sage; 1981.
- Junger-Tas, J.; Marshall, IH. The self-report methodology in crime research. In: Tonry, M., editor. *Crime and justice: A review of research*. Vol. 25. Chicago: University of Chicago Press; 1999. p. 291–367.
- Lauritsen J. The age-crime debate: Assessing the limits of longitudinal self-report data. *Social Forces* 1998;77:127–155.
- McCord, J.; Widom, CS.; Crowell, NA. *Juvenile crime, juvenile justice*. Washington, DC: National Academy Press; 2001.
- Nye, FI. *Family relationships and delinquent behavior*. New York: John Wiley; 1958.
- Piquero, AR.; Farrington, DP.; Blumstein, A. The criminal career paradigm. In: Tonry, M., editor. *Crime and justice: A review of research*. Vol. 30. Chicago: University of Chicago Press; 2003. p. 359–506.
- Piquero AR, MacIntosh R, Hickman M. The validity of a delinquency scale. *Sociological Methods and Research* 2002;30:492–529.

- Sampson RJ. The effects of socioeconomic context on official reaction to juvenile delinquency. *American Sociological Review* 1985;51:876–885.
- Shannon, L. Assessing the relationship of adult criminal careers to juvenile careers. Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention; 1982.
- Shaw, C.; McKay, HD. *Juvenile delinquency and urban areas*. Chicago: University of Chicago Press; 1930.
- Short JF, Nye FI. Reported behavior as a criterion of deviant behavior. *Social Problems* 1957;5:207–213.
- Smith DA. The organizational context of legal control. *Criminology* 1984;22:19–38.
- Smith, DA. The neighborhood context of police behavior. In: Tonry, M.; Morris, N., editors. *Crime and justice: A review of research*. Vol. 8. Chicago: University of Chicago Press; 1986. p. 313-342.
- Spelman, W. *Criminal incapacitation*. New York: Plenum; 1994.
- Sutherland, E. *Principles of Criminology*. Philadelphia: J. B. Lippincott; 1924.
- Thornberry, TP. Panel effects and the use of self-reported measures of delinquency in longitudinal studies. In: Klein, MW., editor. *Cross-national research in self-reported crime and delinquency*. Dordrecht, the Netherlands: Kluwer; 1989. p. 347-369.
- Thornberry, TP.; Krohn, MD. The self-report method for measuring delinquency and crime. In: Dufee, D.; Crutchfield, RD.; Mastrofski, S.; Mazerolle, L.; McDowall, D., editors. *Measurement and analysis of crime and justice*, Vol. 4. *Criminal justice 2000*. Washington, DC: U.S. Department of Justice, Office of Justice Programs, National Institute of Justice; 2000. p. 33-83.
- Tittle C, Villemez WJ, Smith DA. The myth of social class and criminality: An empirical assessment of the empirical evidence. *American Sociological Review* 1978;43:474–503.
- Weis, JG. Issues in the measurement of criminal careers. In: Blumstein, A.; Cohen, J.; Roth, JA.; Visher, CA., editors. *Criminal careers and “career criminals”*. Washington, DC: National Academy Press; 1986. p. 1-51.
- West, DJ.; Farrington, DP. *The delinquent way of life*. London: Heinemann; 1977.
- Wolfgang, ME.; Figlio, RM.; Sellin, T. *Delinquency in a birth cohort*. Chicago: University of Chicago Press; 1972.

Biographies

Robert Brame is an associate professor in the Department of Criminology and Criminal Justice at the University of South Carolina. His research emphasizes the development of criminal behavior and methodological issues related to the study of crime and criminal justice.

Jeffrey Fagan is a professor of law and public health at Columbia University. His research and scholarship focuses on crime, law, and social policy. He is a member of the Committee on Law and Justice of the National Research Council, the MacArthur Research Network on Adolescent Development and Juvenile Justice, and the Incarceration Working Group of the Russell Sage Foundation. He is past editor of the *Journal of Research in Crime and Delinquency*. He is a Fellow of the American Society of Criminology.

Alex R. Piquero is an associate professor of criminology and law at the University of Florida, member of the National Consortium on Violence Research, and Network Associate with the MacArthur Foundation’s Research Network on Adolescent Development and Juvenile Justice. His research interests include criminal careers, criminological theory, and quantitative research methods.

Carol A. Schubert is research program administrator for the Law and Psychiatry Program at Western Psychiatric Institute and Clinic at the University of Pittsburgh School of Medicine. She has managed several large-scale research projects (funded by the National Institute of Mental Health and the MacArthur Foundation) that followed individuals who were violent and mentally ill in the community. She is currently the director and a member of the working group

for the Pathways to Desistance Project, a MacArthur Foundation–funded longitudinal study of serious adolescent offenders.

Laurence Steinberg is the Distinguished University Professor of psychology at Temple University and the director of the MacArthur Foundation Research Network on Adolescent Development and Juvenile Justice. His research concerns normative and atypical development during adolescence and the influence of parents and peers on psychosocial development.

TABLE 1Basic Frequency Distributions ($N = 1,354$)

Category	Philadelphia ($n = 700$)		Phoenix ($n = 654$)	
	<i>n</i>	% of Total	<i>n</i>	% of Total
Gender				
Male	605	86.4	565	86.4
Female	95	13.6	89	13.6
Ethnicity				
White	72	10.3	202	30.9
Black	503	71.9	59	9.0
Asian	1	0.1	1	0.2
Native American	4	0.6	23	3.5
Hispanic	106	15.1	347	53.1
Missing	14	2.0	22	3.4
Age				
13 years	0	0.0	1	0.2
14 years	89	12.7	72	11.0
15 years	116	16.6	139	21.3
16 years	204	29.1	207	31.7
17 years	206	29.4	208	31.8
18 years	84	12.0	27	4.1
19 years	1	0.1	0	0.0

TABLE 2

Number of Self-Reported Offenses in Prebaseline Year

No. of Offenses	Male Distributions						Female Distributions					
	Philadelphia (n = 600, missing 5)			Phoenix (n = 561, missing 4)			Philadelphia (n = 94, missing 1)			Phoenix (n = 88, missing 1)		
	n	%		n	%		n	%		n	%	
0	63	10.5		31	5.5	0	13	13.8		8	9.1	
1	38	6.3		41	7.3	1	6	6.4		6	6.8	
2	32	5.3		28	5.0	2	8	8.5		10	11.4	
3	35	5.8		32	5.7	3	9	9.6		6	6.8	
4	22	3.7		20	3.6	4	8	8.5		3	3.4	
5	21	3.5		26	4.6	5	7	7.5		3	3.4	
6	15	2.5		13	2.3	6	6	6.4		2	2.3	
7	13	2.2		15	2.7	7	2	2.1		1	1.1	
8	15	2.5		14	2.5	8	0	0.0		1	1.1	
9	10	1.7		12	2.1	9	5	5.3		1	1.1	
10 to 14	41	6.8		29	5.2	10 to 14	5	5.3		6	6.8	
15 to 19	25	4.2		32	5.7	15 to 19	4	4.3		2	2.3	
20 to 29	22	3.7		32	5.7	20 to 29	4	4.3		10	11.4	
30 to 39	19	3.2		32	5.7	30 to 39	4	4.3		4	4.6	
40 to 49	12	2.0		21	3.7	40 to 49	1	1.1		1	1.1	
50 to 74	24	4.0		27	4.8	50+	12	12.8		24	27.8	
75 to 99	17	2.8		20	3.6							
100 to 199	32	5.3		50	8.9							
200 to 299	20	3.3		26	4.6							
300 to 399	22	3.7		15	2.7							
400 to 499	15	2.5		9	1.6							
500 to 749	31	5.2		12	2.1							
750 to 999	13	2.2		5	0.9							
1000+	43	7.2		19	3.4							

NOTE: Percentages may not total 100 due to rounding.

TABLE 3

Number of Arrests Resulting in Referral in Prebaseline Year

No. of Priors	Male Distributions						Female Distributions					
	Philadelphia (n = 605)			Phoenix (n = 565)			Philadelphia (n = 95)			Phoenix (n = 89)		
	n	%	No. of Priors	n	%	No. of Priors	n	%	No. of Priors	n	%	No. of Priors
0	300	49.6	0	291	51.5	0	58	61.1	0	49	55.1	0
1	172	28.4	1	115	20.4	1	27	28.4	1	26	29.2	1
2	84	13.9	2	72	12.7	2	9	9.5	2	7	7.9	2
3	30	5.0	3	43	7.6	3	0	0.0	3	5	5.6	3
4	15	2.5	4	24	4.3	4	0	0.0	4	2	2.3	4
5	2	0.3	5	9	1.6	5	1	1.1	5	0	0.0	5
6	1	0.2	6	5	0.9	6	0	0.0	6	0	0.0	6
7	1	0.2	7	3	0.5	7	0	0.0	7	0	0.0	7
8	0	0.0	8	2	0.4	8	0	0.0	8	0	0.0	8
9	0	0.0	9	1	0.2	9	0	0.0	9	0	0.0	9

TABLE 4
 Self-Reported Offending Frequency in Prebaseline Year Conditioning on Arrests With Referrals in Prebaseline Year

No. of Arrests Resulting in Referral in Prebaseline Year	Philadelphia Male Adolescents (<i>n</i> = 605, missing = 5)				Phoenix Male Adolescents (<i>n</i> = 565, Missing = 4)			
	<i>n</i>	%	Mean SRO Frequency	Median SRO Frequency	<i>n</i>	%	Mean SRO Frequency	Median SRO Frequency
0	295	49.2	157.8	8.0	289	51.5	121.7	9.0
1	172	28.7	200.3	17.5	115	20.5	108.3	22.0
2	84	14.0	325.5	50.0	70	12.5	118.3	30.5
3+	49	8.2	369.3	62.5	87	15.5	166.0	44.0

No. of Arrests Resulting in Referral in Prebaseline Year	Philadelphia Female Adolescents (<i>n</i> = 95, missing = 1)				Phoenix Female Adolescents (<i>n</i> = 89, missing = 0)			
	<i>n</i>	%	Mean SRO Frequency	Median SRO Frequency	<i>n</i>	%	Mean SRO Frequency	Median SRO Frequency
0	57	60.6	34.4	5.0	49	55.1	58.1	6.0
1	27	28.7	282.7	4.0	26	29.2	44.6	19.0
2	9	9.6	12.4	6.0	7	7.9	127.9	39.0
3+	1	1.1	42.0	42.0	7	7.9	179.6	28.0

NOTE: SRO = self-reported offending.

TABLE 5
 Arrest Activity After Conditioning on Self-Reported Offending Frequency Deciles ($N = 1,354 - 11$, Missing Cases = 1,343)

Philadelphia and Phoenix Combined									
Self-Reported Offending Decile	<i>n</i>	Self-Reported Offense Range	Median No. of Offenses	Mean No. of Arrests	% Arrested at Least Once	Lower 95% Bound	Upper 95% Bound	Mean Probability of Arrest per Offense	
D ₁	115	0	0.0	0.461	33.0	24.3	41.8	—	
D ₂	169	1 to 2	1.0	0.438	29.6	22.6	36.5	.3313	
D ₃	135	3 to 4	3.0	0.674	40.0	31.6	48.4	.2025	
D ₄	124	5 to 7	6.0	0.927	50.0	41.1	58.9	.1656	
D ₅	119	8 to 13	10.0	0.815	44.5	35.5	53.6	.0812	
D ₆	141	14 to 27	18.0	0.943	53.9	45.6	62.2	.0522	
D ₇	138	28 to 61	39.5	1.196	63.0	54.9	71.2	.0306	
D ₈	134	62 to 165	98.0	1.284	60.4	52.1	68.8	.0138	
D ₉	134	166 to 462	282.5	1.179	51.5	42.9	60.1	.0043	
D ₁₀	134	469 to 3,493	1,002.5	1.254	61.9	53.6	70.3	.0014	

NOTE: Lower 95% and Upper 95% bounds provide the 95% Confidence Interval for % Arrested at Least Once. The probability of arrest per offense is given by the number of arrests in the year preceding the baseline interview divided by the number of self-reported offenses in the year preceding the baseline interview. The average of this quantity for each group is presented as the Mean Probability of Arrest per Offense.

Table 6

TABLE 6A. Arrest Activity After Conditioning on Self-Reported Offending Frequency Deciles: Philadelphia Male Adolescents (N = 605 – 5, Missing = 600)

Self-Reported Offending Decile	n	Self-Reported Offense Range	Median No. of Offenses	Mean No. of Arrests	% Arrested at Least Once	Lower 95% Bound	Upper 95% Bound	Mean Probability of Arrest per Offense
D ₁	63	0	0.0	0.571	36.5	24.3	48.7	—
D ₂	70	1 to 2	1.0	0.443	31.4	20.3	42.6	.3500
D ₃	57	3 to 4	3.0	0.702	36.8	23.9	49.8	.2193
D ₄	49	5 to 7	5.0	0.857	55.1	40.7	69.5	.1534
D ₅	56	8 to 13	10.0	0.589	41.1	27.8	54.4	.0583
D ₆	66	14 to 35	19.0	0.818	57.6	45.3	69.8	.0419
D ₇	60	36 to 91	54.5	1.133	68.3	56.2	80.5	.0215
D ₈	59	93 to 308	166.0	1.000	55.9	42.9	69.0	.0064
D ₉	60	309 to 722	449.5	1.117	56.7	43.8	69.6	.0024
D ₁₀	60	730 to 3,493	1,108.5	1.383	71.7	59.9	83.4	.0012

TABLE 6B. Arrest Activity After Conditioning on Self-Reported Offending Frequency Deciles: Phoenix Male Adolescents (N = 565 – 4, Missing = 561)

Self-Reported Offending Decile	n	Self-Reported Offense Range	Median No. of Offenses	Mean No. of Arrests	% Arrested at Least Once	Lower 95% Bound	Upper 95% Bound	Mean Probability of Arrest per Offense
D ₁	31	0	0.0	0.387	32.3	14.8	49.7	—
D ₂	69	1 to 2	1.0	0.507	29.0	18.0	40.0	.3768
D ₃	52	3 to 4	3.0	0.673	36.5	23.0	50.1	.1987
D ₄	54	5 to 7	6.0	1.111	48.1	34.4	61.9	.1982
D ₅	65	8 to 15	10.0	1.200	53.8	41.4	66.3	.1077
D ₆	54	16 to 29	21.0	0.981	44.4	30.8	58.1	.0470
D ₇	59	30 to 52	39.0	1.424	69.5	57.4	81.6	.0364
D ₈	59	53 to 121	86.0	1.390	62.7	50.0	75.4	.0176
D ₉	59	122 to 300	184.0	1.508	57.6	44.6	70.6	.0081
D ₁₀	59	303 to 2,939	644.0	1.237	44.1	31.0	57.1	.0021

Table 6C. Arrest Activity After Conditioning on Self-Reported Offending Frequency Deciles: Philadelphia and Phoenix Female Adolescents (N = 184 - 2, Missing = 182)

Self-Reported Offending Decile	n	Self-Reported Offense Range	Median No. Offenses	Mean No. of Arrests	% Arrested at Least Once	Lower 95% Bound	Upper 95% Bound	Mean Probability of Arrest per Offense
D ₁	21	0	0.0	0.238	23.8	3.9	43.7	—
D ₂	12	1	1.0	0.250	25.0	0.0	53.7	.2500
D ₃	18	2	2.0	0.278	27.8	4.9	50.7	.1389
D ₄	26	3 to 4	3.0	0.615	53.8	33.3	74.4	.1731
D ₅	10	5	5.0	0.600	50.0	12.3	87.7	.1200
D ₆	22	6 to 10	7.5	0.636	36.4	14.5	58.2	.0871
D ₇	18	11 to 21	17.0	0.833	50.0	24.4	75.6	.0508
D ₈	19	22 to 42	30.0	1.105	52.6	27.9	77.4	.0375
D ₉	18	50 to 121	68.5	0.556	38.9	13.9	63.8	.0086
D ₁₀	18	131 to 2,191	436.5	0.944	55.6	30.1	81.0	.0027

NOTE: Lower 95% and Upper 95% bounds provide the 95% Confidence Interval for % Arrested at Least Once. The probability of arrest per offense is given by the number of arrests in the year preceding the baseline interview divided by the number of self-reported offenses in the year preceding the baseline interview. The average of this quantity for each group is presented as the Mean Probability of Arrest per Offense.

TABLE 7
Spearman Rank-Order Correlations Between Self-Reports and Arrest-Referral Measures

Sample Selection Criterion	Both Sites Combined		Philadelphia		Phoenix	
	<i>n</i>	Correlation Coefficient	<i>n</i>	Correlation Coefficient	<i>n</i>	Correlation Coefficient
Overall sample	1,343	+ .227	694	+ .241	649	+ .210
Males	1,161	+ .218	600	+ .240	561	+ .197
Females	182	+ .216	94	+ .118	88	+ .274
Whites	271	+ .199	70	+ .227	201	+ .185
Blacks	561	+ .231	502	+ .215	59	+ .351
Hispanics	447	+ .218	104	+ .382	343	+ .173
Age = 14	159	+ .302	89	+ .300	70	+ .299
Age = 15	254	+ .250	115	+ .288	139	+ .211
Age = 16	407	+ .261	201	+ .261	206	+ .266
Age = 17	411	+ .204	205	+ .236	206	+ .166
Age = 18	110	+ .055	83	+ .057	27	- .075