

A Subjectivist Perspective on the Economics of Crime

Samuel Cameron

Inspired for the most part by the Chicago faction, orthodox economists have embarked on a considerable amount of empire building in the past two decades. They have purported to show the usefulness of their approach to problems such as sex, marriage, divorce, crime, abortion, and church attendance. (See McKenzie and Tullock [1978] and Radnitzky and Bernholz [1987] for textbook demonstrations of this.) On a cynical level, one might regard this empire building as a vehicle for insuring the expansion of the number of Ph.D. topics and publications to satisfy the career needs of the increasing supply of economists. Empire building is particularly suitable for such a purpose as there usually awaits the invader a large body of data that was previously unexplored or “inadequately” explored by other social scientists using tools with less cutting edge than those of the econometrician. Motives may not matter a great deal if the economic approach is in some sense useful in the areas into which it has been extended. This begs the prior question as to whether the orthodox economic approach is not potentially misleading on traditional topics. Subjectivist economists have long contended that it is (Yeager [1987], Bellante [1983]). This is the point of departure for this article as my contention is that the fallacies attendant upon neoclassical hubris have permeated the majority of research on the economics of crime. Not surprisingly, this point has been made previously by sociologists (see the comments in Rottenberg [1973] and also Glaser [1977]) and radical economists such as Gordon (1971), although Gordon simply restates propositions from traditional sociology and criminology that he then designates radical political economy.

This first section sketches the general equilibrium model of crime employed in the literature.¹ The first equation is the “crime-supply” equation, which relates the amount of crime to a set of variables intended to capture the costs and benefits of engaging in criminal activity rather than leisure or legal activity. These variables are of two types. The first set is exogenous, consisting of items that measure the wealth generated in noncriminal activity and the wealth obtainable from crime if the perpetrator is not captured or punished. The second set

comprises variables indicative of the certainty and severity of punishment such as arrest (or clear-up) rates, conviction or imprisonment rates, police; manpower, and expenditures. Most studies include some but not all of the punishment variables and treat them as endogenous. Usually the only endogenous variable is the arrest-rate variable. Thus the second equation is usually designed to explain the arrest rate. This is often labelled a police-production function. As police production is heavily labor-intensive, it is really a single-factor police-production function with the output (arrest rates) being related to the volume of police resources. Other exogenous variables are included to allow for differences in the nonlabor constraints across regions. For example, population density may influence the cost of making an arrest *ceteris paribus*. In some cases, an endogenous variable in the form of the crime rate is included as a “work-load” variable.

The rest of the model concerns the derived demand for instruments of crime prevention/reduction. The usual third equation is a demand-for-police function where policing is treated as an intermediate semipublic good that generates lower crime rates through the second equation. Demand is thus a function of the crime rate, the “price” of a unit of policing, and income. The usual operational model stops here although some consider a fourth equation to take account of the operation of the judicial system. This equation may treat sentencing as a function of the crime rate, constraints of available prison resources, and so on. In neoclassical terms, this might again be termed a production function although this is rather dubious terminology, as will be argued later.

The neoclassical general-equilibrium model recognizes many of the feedbacks between crime and responses to it plus the need to solve the problem in statistical work of identifying the structural equations. In the econometric work, the problem is “solved” by arbitrary exclusion of some exogenous variables from some equations. This weakness need not detract greatly from the apparent attractiveness of the approach for policy making provided we look only at exogenous variables as the impact of these can be assessed without complication through the reduced forms of the model. Policy analysis derives some of its credibility from the underlying theory that has been used to motivate number-crunching exercises. We now look critically at this underlying theory.

Superficially the theory of criminal activity is a subjective one as it derives allegedly from subjective expected-utility theory according to which decision makers choose on the basis of the weighted average utility from success or failure in some act. The weights are the subjective probabilities that the individual attaches to outcomes. In the case of crime, the relevant outcomes are states where some punishment is experienced and the punishment-free state of escape from detection. Following the Chicagoan methodology of Becker and Stigler (1977), all individuals obey the same calculus and even have the same utility function, which is unchanging over the life cycle. Anyone will, in this model,

become a criminal if the price is right; if the prices cease to be right, people will cease being criminals. Entry and exit into and out of crime are symmetrical. It is thus mistaken to talk about criminals as all individuals have *ex ante* criminal intentions; whether or not they are observed *ex post* to perform criminal acts simply depends on the values of the relevant constraints and expectations in the time period under consideration.

There are at least two important subjectivist criticisms of the crime-supply function that come to mind even before we question the validity of the supply-function concept in this context. First, the econometric work and the conclusions drawn from it pay no more than lip service to the notion of subjective expectations. It is hard for the situation to be otherwise as measures of criminal expectations are not used. The probability of being caught is represented by the arrest rate for the crime under consideration. This ratio is simply the total number of arrests divided by the total number of crimes. With a bit of difficulty we might accept this as a measure of the *objective* expectation of capture for the average individual. Even so there is no guarantee of a monotonic stable relationship between the arrest rate and subjective expectations of capture; even if a criminal knows for certain that the aggregate arrest rate has risen, he may not revise his personal capture probability because he does not perceive himself as similar in characteristics to those being arrested. The situation is not analogous to other risk situations such as that of driving along a road that is an accident black spot; all drivers coming on to this from a relatively safe road would perceive themselves as at increased risk. Where we move to a regime of higher arrest rates, some criminals may perceive their own expertise as sufficiently great that they are still at the same risk as before (presumably a very low one). Using a subjectivist perspective, we ought to ask what a rise in arrest rates means to the individual criminal; in part it conveys information that the given stock of criminal methods is less efficient than formally thought and as such it may prompt a change in *modus operandi* to perform the same number of crimes without appreciably greater risk (cp. Cook [1979]).

The second criticism is that the concept of subjectivism in the subjective expected-utility approach is restrictively static. There is no explanation as to where those contemplating crime get their expectations although some empirical work (McPheters and Stronge [1974], Bahl et al. [1978]) grafts on a crude adaptive expectations mechanism without giving any crude rationale for its use.² The unsatisfactory treatment of expectations is promoted by the symmetry of entry and exit just discussed. The expectations held by different individuals will depend on their position with respect to the crime process. Someone who has never performed a criminal act in the past can only get his expectations from others who have or from very general sources such as newspaper reports or anecdotal evidence. It is doubtful that very meaningful expectations can be formed from these sources. An individual's first crime is unique to the individual despite the banality of its appearance to some criminologists or

economists. In some respects, it is an act of investment. If performed with others, the individual may learn crime-relevant techniques “on the job.” Regardless of the organizational setup of the crime, the individual will learn about the risks of capture, his own feelings of stress or enjoyment at participating in a high-risk stigmatized activity, methods of escape, and perhaps the problems and returns involved in attempting to dispose of stolen property. Naturally the last of these does not apply to white-collar crime such as computer fraud, although it is replaced by the experience of learning how to dispose of income that others would not expect one to have without drawing attention to it. The preceding experiences cannot usefully be anticipated; it is mainly through participating in an act of crime that expectations can be developed. Vast numbers of people respond to the problem of forming precrime expectations by imagining the worst, viz. that the guilt will be so unbearable that a life of crime will prove intractable and/or that they will be so incompetent that they will be caught. If such extreme risk aversion were widespread in the population and stable over time, there would be no criminals whatsoever. Why then do some people commit crimes? The orthodox answer would rely on rational expectations so that the mean of the distributions of guilt, ability to escape detection, and so on would be decisive. It is hard to see how these distributions can have much meaning for the potential criminal as they relate to those who have already crossed the barrier from perceiving themselves as noncriminal into perceiving themselves as criminals. Either some people simply hold optimistic expectations about becoming criminals or there are some other factors influencing entry to crime.

Optimistic expectations may arise from simple ignorance and/or upbringing in a particular cultural milieu i.e., some individuals may have an excessive confidence in their own ability in untried arts and also downplay the stress of living under the shadow of guilt. In a subjectivist view, it is perhaps too simple to think of there being separate groups of individuals with optimistic or pessimistic expectations. All individuals may continually entertain both scenarios alternately, facing a perpetual need to resolve the conflict. The resolution cannot be made in the way described in orthodox economics as the relevant probabilities can only be known through repeated sampling; it is not possible for an individual to repeatedly sample crime without engaging in some. Once some, even if only one, crime has been sampled, there will be adaptations in the behavior of the individual. Reversion to previous behavior is not simply symmetric. Having once crossed the barrier into crime, one has made some investment in being a criminal in that bearing the burden of guilt might be considered a form of overhead capital³ that has no alternative use in legitimate markets. Put simply, the difficulty of performing the second crime should be much less than that of the first as stressful imponderables have now entered the realm of the ponderable. This is providing that the first-time offender is not caught. The effect of capture depends on the response of law enforcement agencies. For very young offenders and minor infractions, severe

warnings without punishment may serve as a deterrent sufficiently powerful to dissuade the offender from ever making another attempt. Publicly visible punishments may serve to enhance the attractiveness of criminal activity to the individual in a number of ways. Empirical workers such as Myers (1983) have noted that the stigma of past convictions and the “training” effects of prison will work to shift the balance of advantages to crime rather than legal activity. We may further note that conviction may help cement an individual’s previously uncertain self-image. It might be instructive to liken the situation to that of becoming an entrepreneur. In economic models, the entry to entrepreneurial activity is simply based on comparisons of costs and benefits with alternatives. Becoming an entrepreneur involves much more than this in that it may satisfy an individual’s needs for power, exercise of creativity, excitement, social importance, and so on. So it is with crime. In the case of supplying illicit goods and services, the criminal may see himself as socially beneficial in correcting government attempts to subvert the market mechanism. Where the crime involves theft or transfer from the incomes of others, the criminal may perceive himself as more clever than other people. Such activity may be parasitic, if the criminal exploits other individuals who have submitted themselves to the restrictions of market discipline. Punishment may serve to crystallize to the individual that he is acting in the just mentioned roles. In the prepunishment period, an individual may be undecided over his relationship to legal and illegal activity. Punishment modifies perceptions by revealing to the criminal that he is now perceived as a criminal by the rest of society. In short, conviction and punishment may provide the subjective push that is needed to generate the process of a criminal career.

The criminal career involves entry at an early age followed by changes in the volume and type of crime as the criminal matures; eventually individuals may drop out of crime altogether when they age sufficiently (Blumstein and Cohen [1987], Cameron [1987]). Traditionally the criminal career idea has not permeated the work of economists to any great extent. This does not mean that a conventional economic analysis of it is not possible.⁴ Such an approach could be developed by taking account of learning and information acquisition. As time passes, a criminal learns about the techniques of crime and the available opportunities for crime from other criminals. Punishment plays a special role in this as the prison is a veritable university of crime where the tyro criminal has an opportunity to learn from the past successes and failures of masters of the art. In the Chicago approach, entrants to crime are rational utility maximizers with time-invariant preferences; this implies that they should purposefully get arrested in order to obtain entry to prison! The subjectivist critique is that this does not happen because, as I pointed out, entry to crime is an act of resolving conflict in an environment where risks are not known because of the absence of repeated sampling and the substantial uniqueness of each person’s entry. Mixing with more experienced criminals cements the decision to

become a criminal, but it is not the by-product of a deliberate decision to obtain human capital by going to prison.

Subjectivist critique can shed some light on correlations that have puzzled criminogenic economists. Although the belief does not automatically follow from orthodox theory, economists have held strong expectations that all punishment and probability of detection variables should deter crime. It has often been found (see Cameron [1988]) that prison correlation may be explained by the “training” effects. The positive correlation with police arises in almost all studies that insert the level of policing directly in the crime-supply equation in place of the arrest rate. Interestingly, Sandelin and Skogh (1986) include the police *and* arrest variables in the supply of property-crime equation. They find that the police variable is negatively related to the crime rates, but the arrest rate is positively related to the crime rate. Their explanation for this contradiction of their expectations is the weak post-hoc one that “criminals react to the size of the police force rather than the arrest rate” (p. 555). This is even self-contradictory as the arrest rate did influence crime rates with a significant positive correlation. It is clear from our earlier discussion that these allegedly puzzling correlations are to be explained in large part by the failure of economists to measure criminal’s subjective expectations in the subjective expected-utility model. Further, it is conceivable that high levels of punishment and/or policing generate an increased predisposition to criminal behavior. There are two ways in which this may happen. First, capturing inexperienced criminals at low-skill crimes may lead to greater high-skill crimes in the future when they have accumulated human capital.⁵ Second, the frequency of formal contacts with police officers when engaged in acts that may be treated as criminal could tip the scales in favor of a subjective evaluation of oneself as criminal when the conflict over individual identity is being resolved.

An additional difficulty is that the arrest rate is arguably not a very good measure of the objective probability of capture for an individual. Most of the difficulty arises from the fact that arrest rates are not objective measures such as temperature or weight; indeed, they are not even pseudo-objective measures such as gross national product. Rather, they are the outcome of administrative statistics controlled by the police. This is more appropriately dealt with later in the context of police production.

My final comment on the individual supply-of-crime function concerns the problem of whether it is meaningful to conceive of such an entity at all. This has been hinted at in an econometric critique of Ehrlich’s work on capital punishment. Forst, Filatov, and Klein (1978, p. 343) comment:

His theoretical model is much like that used to derive specifications for demand and supply functions in the economic analysis of production and consumption. In that respect, we find his theory strongly contrived, i.e. *set up in an essentially imitative way vis à vis the design of economic theory that*

is used to generate specifications of econometric models. We have doubts about the insight that this approach is likely to bring to an understanding of criminal behavior. (emphasis added)

Unfortunately the authors of the preceding proposition choose not to expatiate. There is a subtle methodological point concerning the possibility that *all* economic models are really constructed by analogy with markets because the institutional environment of most commodity exchange is not a market in any sense. I shall not pursue this here, but shall concentrate instead on the matter of how much criminal activity departs from other supply behavior such as consumer goods or labor time. The most obvious point of departure is that there is no demand for the supply of criminal effort except in the case of demand derived from the need of some criminals to have others work with them. There is complete market failure in the literal sense that the potential targets of crime do not have an offer curve of how much they are willing to pay for protection from victimization. Even in situations of extortion, the contract is nonenforceable (i.e., the victims have no recourse if the extorters demand a pay raise outside the initial agreement). Given the general absence of direct trade between victims and criminals, the demand has to be derived from the demand for protection against crime. Suppose that all households could at sufficiently low cost procure 100 percent effective protection; then the supply of crime would vanish. As protection is necessarily less than 100 percent effective, there is scope for supply of crime, which should vary in response to the effectiveness of protection. If the supply-function concept is meaningful here, then shifts in the “demand” for crime in the form of locks, burglar alarms, and so on should influence the level of crime through their impact on the expected rate of return. As pointed out in connection with policing, there are formidable difficulties for the criminal in knowing this. Suppose improved locks become general. How are criminals to know this? Only learning by doing (or learning from others doing) will suffice; by the time a criminal has reached the point where he discovers a superior lock in place, he will already have made investments of time, planning, equipment, and so on and taken risks—all of which will come to nothing if he simply gives up at this point. There is then some incentive to alter the planned mode of entry to something that may be riskier and less rewarding but still the source of net gains. This arises because of the inapplicability of competitive supply functions. Crimes are not performed at the margin where the rate of return equals the marginal productivity of the criminal.⁶ An increase in the supply of criminals need not decrease the expected rate of return as there will, at any time, be unexploited opportunities for crime at the prevailing rate because of risk. It is hard to visualize the process of competition that would occur in the “crime industry”; either criminals would have to turn up at the same location and fight over it or the more efficient criminals would somehow be able to deter the less efficient from poaching

on their intended targets. Neither situation seems plausible except for highly organized crimes. We are forced to conclude then that the notion of an aggregate supply function of crime does seem to be constructed by analogy with markets. There do *not* seem to be competitive processes at work in the crime sector. In a trivial sense, we can talk about supply functions in the sense that criminals obviously allocate (supply) some time to crime rather than rival legitimate activities. The existence of a supply and the construction of analogies to prices does not however automatically guarantee that the supply function concept can be legitimately employed.

We now consider the underpinnings of the second equation in the orthodox general equilibrium approach to crime.⁷ This equation relates the resources allocated by the community to the police sector. A peak of objectivism is reached here as the usual work bypasses all questions of coordination by the public-sector managers who are analogous to entrepreneurs. The police-sector managers are assumed to passively translate the given inputs into the outputs that the community demand function has stipulated. Under such circumstances, there is a straightforward correspondence between the production and cost functions achieved through objectively given production processes and exogenously set factor prices. The idea of an objective cost function in the private sector has been criticized by Yeager (1987, p. 16) on the grounds that “cost curves are no more objectively given to business firms than are demand curves for their products. A large part of the task of entrepreneurs and managers is to learn what the cost (and demand) curves are.” This applies with even greater force to the issue under consideration.

Subjectivism enters the analysis of police production in the shape of the difficulty of identifying police output. Presumably police output is whatever the community demands and uses to monitor police performance. In conventional economic terms, output should represent value added. The econometric work on police-production functions (see Cameron [1987a]) uses arrest or clearance rates as the output measure. It is hard to see this as adding value to anything. It may serve to reduce the loss of value from crime if it acts to deter criminals. Even if this does occur, there are difficulties in translating this into value added for the consumers (potential victims) of police services. In the orthodox approach (see Bartel [1975]) they too would obey the calculus of subjective expected-utility theory. The objections to this approach are the same as those to applying it to the performance of crime; indeed, their force may be even greater. How can a firm or household possibly know the relationship between the level of protection and the probability of victimization? Learning about it through random sampling seems rather difficult. Suppose a householder deliberately varied his level of protection to derive the supply of crime to his property. Over a large range of levels of protection, no crime would be observed at least in part because crime is a relatively rare event. If a crime did occur, how would the householder

separate the random and systematic elements in its occurrence (i.e., how is he to know that the crime would not have taken place whatever the level of protection)? The learning that may take place from having been victimized may well suffer from built-in obsolescence. If the mode of entry and so on of the criminal lead to improvements in the type of locks and so forth, criminals could well recognize these changes and adjust their mode of entry to render them ineffective. Casual empiricism suggests that value added to the consumers of police “production” is really just reassurance against a feeling of fear (Cameron and Golby [1987]). This is much too vague and subjective to be satisfactorily rendered into the concept of a police-production function.

The problem of identifying and measuring value added from police work brings difficulties for those who actually perform it. Someone involved in a simple manufacturing process can easily see what is expected of them and gauge how well they are achieving it. Further motivation can readily be stimulated by appropriate incentive mechanisms. With police work, the expectations entertained by workers are much more nebulous. Satisfactory service to the community requires entrepreneurial acts of innovation and marketing by the ultimate managers of the police force. They cannot simply sit back and administrate the performance of clearly stipulated activities. It is not clear *even to the workers in the police service* what is the precise functional relationship between any of their acts and the level of crime; indeed, it is unlikely that they perceive that any such relationship exists. The most appropriate concept of police output is as information in the minds of the community. Thus the police force managers may generate an increase in welfare through process innovation such as developing programs of “community policing” or reallocating resources (e.g., putting more officers on patrol in an area perceived as dangerous even though there may not be any actual changes in the victimization probabilities of members of the community). In a restricted sense, we might see this as a conventional response of producers to demand conditions where the product demanded is highly intangible. With an intangible product, the consumer should employ some proxies for the true level of output. Provided that these proxies are sufficiently correlated with “true” output, the conventional analysis should apply. The important difference here is that production deals almost entirely *with the generation of subjective perceptions*, not with products that are viewed differently by different consumers but that still have an objective quantifiability. Consumers are not simply “rationally ignorant” as are voters in the public-finance literature (see Browning and Browning [1987, chapter 3]), who could find out all they want to know about public-sector output but are deterred by prohibitive costs of information gathering and processing. Rather, consumption of police output can never be fully assessed no matter how long or how expensive the search of consumers. To a great extent, this is due to the protean quality of such output; the flow of information from the police administration to the public largely determines the perception of output.

The management of the police sector also requires attention to police personnel at lower levels of the organization. Satisfaction of community requirements dictates the hiring and retention of officers who will contribute positively to the production of feelings of security. In the conventional approach, the entry to the police sector is again based on subjective expected utility with individuals making a career choice based on the discounted expected lifestreams of earnings from different occupations. The pecuniary returns to police work are much more easily estimated than the nonpecuniary. Joining will be influenced by psychic income derived from the components of danger, glamour, social contribution, and so on. In the orthodox approach, these would be convertible to monetary equivalents that would enter into the calculus of subjective expected-utility theory weighted by their perceived probability of occurrence. The psychic-income components will be valued differently by different individuals according to their personality type. Yet again we have the problem of how a measurement of that which is to be valued is obtained. Individuals cannot sample the nonpecuniary returns of police work without joining. The major alternative source of information is popular-media portrayals of the life of police officers. These give excessive emphasis to the amount of action and excitement involved as well as portraying an image that crimes are continually being solved by the application of thought and bravado. Such distortions serve the function of perpetuating the idea that police inputs do generate tangible outputs. In addition, they help attract individuals in search of an active, socially useful life. A study by Van Maanen (1975) shows that the morale of recruits drops steadily after joining. This may be characterized as learning about the true nature of police output. Bearing in mind that managers will seek to satisfy the need of citizens for reassurance, there is an incentive to motivate lower-level workers to help perpetuate the feeling that "something is being done about crime." They are more likely to perpetuate this feeling the less they themselves question the proposition that something can be done. Avoiding such questioning dictates an emphasis on action and variety rather than appraisal in day-to-day police work. A successful police-sector manager/entrepreneur would therefore divert administrative work such as record keeping to civilians rather than police personnel as a high ratio of time on administrative duties to time on "real" police work will promote poor self-image by officers with a consequent effect on their public profile. A similar process applies to mundane civil offenses. (For example, in England, parking violations were originally part of police work, but were diverted to civilians in uniform in the 1960s.) Again, the manager should allocate his worker's time in a way that makes their job seem more important and relevant. As an example, resources might be moved from less exciting duties to undercover drug investigations. In a neoclassical model, the ratio of these two types of activity would be determined by their exogenously given societal marginal valuations. The marginal valuations are not of course exogenous as they are determined

by the control exercised by police managers over the flow of information. It follows from all of the preceding that the cost structure of police operations is not given, but is a product of exploratory enterprising behavior by the police-sector managers.

In the general equilibrium model of crime, deterrence is separated into two branches: police (who mostly determine the probability of punishment) and the judicial system (which mostly controls the severity of punishment). We have thus far not discussed the latter. There is little to add by way of a subjective critique. In the majority of papers estimating crime models, sentencing is treated as exogenous (for exceptions, see Carr-Hill and Stern [1979] and Nagin [1981]) although there is a separate literature on the welfare economics of crime that analyzes substitution between punishment probability and severity in the welfare function.⁸ The determination of sentences by judges is subject to the same kind of filtering of citizens' subjective perceptions of the costs of crime as goes on in police departments. The major difference is that judges do not influence the flow of information to the citizens. Hence it is difficult to discern elements of entrepreneurship in the judicial role. The appointment of judges is not generally contingent on the accuracy of their estimates of public perceptions; only ludicrous deviations from public sentiment such as letting brutal murderers walk free in situations where there are no mitigating circumstances would be likely to lead to deposition. In situations where they are appointed rather than elected, judges are not in a very strong position to display adaptive behavior as they have little opportunity (unlike the police) to observe the consequences of their actions.

A vast literature exists on the economics of crime, the great bulk of it being constructed by analogy with neoclassical general-equilibrium models of commodity-market and factor-market interdependence. I have appraised this approach in a subjective light. The main conclusion of this look is that for the most part, the economics of crime has been methodologically misguided. From time to time in the literature, observations have been made that show recognition of this, but these have never been integrated in a meaningful way.

Notes

1. For examples of the implementation of the general economic models of crime, see Buck, Hakim, and Spiegel (1985), Avio and Clark (1978), Carr-Hill and Stern (1979), and Ehrlich (1972, 1973, 1975, 1981).

2. A rationale for an adaptive model is provided by Buck, Hakim, and Spiegel (1985).

3. The same kind of argument is given by Gilad, Kaish, and Loeb (1987) as an explanation for the general manifestation of cognitive dissonance in economic decision making.

4. A treatment on such lines is given by Friedman, Hakim, and Spiegel (1988), who do not answer the question of why rational utility-maximizing criminals do not go to prison on purpose "to learn."
5. Some evidence suggestive of this is presented in Cameron (1987b).
6. This is not often explicitly stated in the preamble to the presentation of regression results, but see the theoretical papers of Usher (1986, 1987), which do make clear this property of neoclassical general-equilibrium crime models.
7. The discussion in this section also draws on the third equation as this makes it easier to express the points being made.
8. The welfare literature is reviewed in McDonald (1987).

References

- Avio, K.L., and Clark, C.S. 1978. "The Supply of Property Offenses in Ontario: Evidence on the Deterrent of Punishment," *Canadian Journal of Economics* 11(1): 1-19.
- Bahl, R.W., Gustely, R.D., and Wasylenko, M.J. 1978. "The Determinants of Local Government Police Expenditure: A Public Employment Approach," *National Tax Journal* 31(1): 67-79.
- Bartel, A. 1975. "An Analysis of Firm Demand for Protection against Crime," *Journal of Legal Studies* 33(4): 443-78.
- Becker, G.S., and Stigler, G.J. 1977. "De Gustibus Non Est Disputandum," *American Economic Review* 67(1): 76-90.
- Bellante, D. 1983. "A Subjectivist Essay on Modern Labor Economics," *Managerial and Decision Economics* 4(4): 234-43.
- Blumstein, A., and Cohen, J. 1987. "Characterizing Criminal Careers," *Science* 237 (August 28).
- Browning, E.K., and Browning, J.M. 1987. *Public Finance and the Price System*, 3rd ed. Macmillan, New York.
- Buck, A.J., Hakim, S., and Spiegel, U. 1985. "The Natural Rate of Crime by Type of Community," *Review of Social Economy* 43(2): 245-59.
- Cameron, S. 1987a. "A Disaggregated Study of Police Clear-up Rates for England and Wales," *Journal of Behavioral Economics* 16 (forthcoming).
- . 1987b. "Substitution between Offence Categories in the Supply of Property Crimes: Some New Evidence," *International Journal of Social Economics* 14(11): 48-60.
- . 1988. "The Economics of Crime Deterrence: A Survey of Theory and Evidence," *Kyklos* 34(2) (forthcoming).
- Cameron, S., and Golby, D. 1987. "The Public Goodness of Police Output." Paper presented at the APTE Conference, Coventry, England.
- Carr-Hill, R.A., and Stern, N. 1979. *Crime, the Police and Criminal Statistics*. Wiley, New York.
- Cook, P.J. 1979. "The Clearance Rate as a Measure of Criminal Justice System Effectiveness," *Journal of Public Economics* 11(1): 135-42.
- Ehrlich, I. 1972. "The Deterrent Effect of Criminal Law Enforcement," *Journal of Legal Studies* 1: 259-76.

- Ehrlich, I. 1973. "Participation in Illegitimate Activities: A Theoretical and Empirical Investigation," *Journal of Political Economy* 81: 521–64.
- . 1975. "The Deterrent Effect of Capital Punishment: A Question of Life and Death," *American Economic Review* 65(3): 397–417.
- . 1981. "On the Usefulness of Controlling Individuals: An Economic Analysis of Rehabilitation, Incapacitation and Deterrence," *American Economic Review* 71: 307–22.
- Forst, L.R., Filatov, V., and Klein, L.R. 1978. "The Deterrent Effect of Capital Punishment. An Assessment of the Estimates," in Blumstein, A., Cohen, J., and Nagin, D., eds. *Deterrence and Incapacitation: Estimating the Effects of Criminal Sanctions on Crime Rates*. National Academy of Sciences, Washington, D.C., pp. 336–60.
- Friedman, J., Hakim, S., and Spiegel, U. 1988. "A Natural Rate of Crime, Police Outlays and Criminals' Process of Learning by Doing," *American Journal of Economics and Sociology* (forthcoming).
- Gilad, B., Kaish, S., and Loeb, P.D. 1987. "Cognitive Dissonance and Utility Maximisation. A General Framework," *Journal of Economic Behavior and Organization* 8(1): 61–73.
- Glaser, D. 1977. "The Realities of Homicide versus the Assumptions of Economists in Assessing Capital Punishment," *Journal of Behavioral Economics* 6(1/2): 243–68.
- Gordon, D.M. 1971. "Class and the Economics of Crime," *Review of Radical Political Economy* 3(1):51–75.
- McDonald, J.F. 1987. "Crime and Punishment: A Social Welfare Analysis," *Journal of Criminal Justice* 15(3): 245–54.
- McKenzie, R.B., and Tullock, G. 1978. *The New World of Economics*. Homewood, Ill.: Richard D. Irwin.
- McPheters, L.R., and Stronge, W.B. 1974. "Law Enforcement Expenditures and Urban Crime," *National Tax Journal* 27(4): 633–45.
- Myers, S. 1983. "Estimating the Economic Model of Crime: Punishment versus Deterrent Effects," *Quarterly Journal of Economics* 98(1): 157–66.
- Nagin, D. 1981. "Methodological Issues in Estimating the Deterrent Effect of Sanctions," in Fox, J.A., ed., *Models in Quantitative Criminology*. New York: Academic Press.
- Radnitzky, G., and Bernholz, P. 1987. *Economic Imperialism*. Paragon House, New York.
- Rottenberg, S., ed. 1973. *The Economics of Crime and Punishment*. American Enterprise Institute, Washington, D.C.
- Sandelin, B., and Skogh, G. 1986. "Property Crimes and the Police. An Empirical Analysis of Swedish Data," *Scandinavian Journal of Economics* 88(3): 547–61.
- Usher, D. 1986. "Police, Punishment and Public Goods," *Public Finance* 41(1): 96–115.
- . 1987. "Theft as a Paradigm for Departures from Efficiency," *Oxford Economic Papers* 39(2): 235–52.
- Van Maanen, J. 1975. "Police Socialization: A Longitudinal Examination of Job Attitudes in an Urban Police Department," *Administrative Science Quarterly* 20(2): 207–28.
- Yeager, L. 1987. "Why Subjectivism?" *The Review of Austrian Economics* 1:5–32.