

Deterrence Theory in Practice

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According to leading Portuguese criminal justice experts, among the problems that ail the Portuguese criminal justice system is the lack of political involvement and accountability after approving laws that criminalize certain acts as one of the causes of this system's dismay (Carvalho 2002). Legislative politics are said to be disconnected from the criminal justice system. However, this is not a problem that is particular to the Portuguese justice system. The credibility of the justice systems around the world suffers from this problem. This paper deals with this disconnection and how law enforcement, court, and prison criminal subsystems deal with this in maintaining deterrence strategies—central to criminal justice systems.

From previous studies (Mendes 2001), I inferred that statutory sentencing and prison capacity are not aligned policies. Setting the maximal severity of the deterrent threat is independent of the allocation of criminal justice system resources. Once prisons reach and surpass capacity limits and there are no more beds, there is not much judges and parole officers can do but turn to options that in one way or another release prisoners and reduce the intake, and in this way, relieve the pressure on the system. I have elsewhere shown that from the time deterrent policies are adopted, they already lack any connection to reality. The evidence suggests that legislatures, in conformity with the literature on its symbolic role in the fight against crime, do not appear to be concerned with the end result of the threat they adopt. To the extent that legislatures participate in deterrence, they set the “ceilings”—that is, they set the outer limits of

deterrent strategies and little else. One of those limits is the sentencing maxima; another is the allocation of available prison resources. The evidence and the literature point to the idea that legislatures are not concerned with the need for the level of severity, so the crime rate does not appear to be an ingredient in setting the deterrent threat in the legislative arena. They leave it to the administrative and judicial apparatus to give deterrence any real meaning. Thus, the legislative role in deterrence theory in practice is arational; once a legislature adopts a politically correct and electorally safe deterrent threat, it disassociates itself from it.

If there is any rational comprehensiveness to deterrence strategies in practice, that rationality must come from somewhere else—the law enforcement, judicial, and correctional actors of the criminal justice system. The legislative delegation of authority simultaneously allows politicians to claim credit for doing their part to fight crime *and* it also allows them to blame the criminal justice apparatus for any inefficacy in the implementation of the deterrent strategies.

The consequence of delegating deterrent decisions to the police, the prosecutors, the judges, the wardens, and the parole boards is that these actors are really the ones that influence the expected cost of punishment. They design the contours of deterrence theory and set it in motion with the necessary discretion to keep things in balance. The discretion they enjoy allows them to employ, manipulate, and/or ignore legislative directives or intent. Thus, despite the determinate sentencing scheme introduced in the 70s, these actors are to a great extent left to their own devices, free to impose their mark on the expected cost of punishment.

This freedom is not, however, without its limitations. Their hands are likely to be tied by one very real and unavoidable constraint over which they have no power: resource limitation and most especially, the lack of sufficient prison space. This forces the actors to adapt. From a systems-analysis viewpoint, the criminal justice system adjusts the amount of input into the system—criminals—to match to the available

resources they have to work with. The output is the conditional result of the constraints on the system. With so many existing and expected prison beds, judges, wardens, and parole boards must exhaust all outlets to house incoming convicted individuals. But there comes a point where deterrence theory in practice is adjusted to existing circumstances and contexts. Deterrence theory is contingent on the context, as with all other theories. The police, prosecutors, judges, and parole officers, have no choice but to make adjustments in the certainty and imposed severity of punishment to keep the system from collapsing.

If we were to imagine the extreme situation, this would allow us to see what a straightforward application of the deterrent threat adopted by the legislature would demand of the criminal justice system. It would reveal the kinds of decision criminal justice actors potentially face and how they have to deal with the limited resources. Let us imagine that every time someone commits a crime he or she is arrested. Let us also imagine that none of these suspects are released by the police and that all are indicted, charged, and convicted by way of a trial. This is already unrealistic because law enforcement and the courts lack the money and the personnel to accomplish such tasks. But, for the sake of example, let us go on. Suppose that the type of penalty or sanction that all convicted felons receive is a prison sentence—the maximum prison penalty allowable by law. If we were to estimate the expected cost of punishment, this would tell us that it could not be. The cost would be so far out of the bounds of reality that the system would break down. It could not happen simply because there would not be enough prison space to house everyone. Briefly stated, following through with the level of statutory harshness is not an option for criminal justice agencies.

If collapse is not an option, then what is? What do these agencies do? How do they handle things when the crime rates rise and criminal intake reaches unrealistic levels? The system has not collapsed as of yet and will most likely not collapse because there are built in “oxygen vents”, meaning the system is designed to adjust. Each agent

has the power to adjust. Not all crimes are detected. The police cannot detect all criminal activity and those activities that are detected are not all reported or pursued. So not all suspects are arrested and of those who are arrested, many are released for any number of reasons. They are screened out of the system so that, in principle, only the most serious and most solid cases are sent to the prosecutor. The prosecutors are the middle men. They have a great deal of power to keep the system working. They get to select which cases to prosecute, and only a proportion of those are handed over to the prosecutors' offices proceed. Of those cases that are selected, again only a small number of cases are brought before a court. At least in the U.S. an overwhelming majority of indicted cases are resolved outside the courtroom through plea bargaining. Plea bargains are a good example of adjusting tools the system created to lessen the pressure the system must face. Of those individuals who are convicted by way of a plea or a trial, only some proportion of them is actually sent to prison. And finally of those that do time in prison, a great deal of them only serves a portion of their prison term. Many are released on parole before their sentence is over. Other's sentences are converted to non-incarceration sanctions. And, in some countries, for instance Portugal, the system created what is referred to as an "amnistia" or a pardon; this is a general or partial pardon decree that is issued from time to time and that releases prisoners from serving the remaining portions of their sentences.

This paper is organized as follows. Following the development of the argument and a brief review of the literature on the relationship among the deterrence elements in practice, I lay out the preliminary evidence in Western Europe, and, in particular, Portugal as to whether and how deterrence theory follows through in practice. The findings are discussed in the final section.

The Theory on the Criminal Justice System in Equilibrium

“Sentencing policy is only as mandatory as police, prosecutors, and judges choose to make it...Legislators, whatever their purpose for supporting mandatory sentencing laws, once the vote is cast move on to other issues. For judges, prosecutors, and defense counsel, it is another story... [they] *must* keep the courts functioning. That they sometime devise ways to avoid application of laws they believe to be uncommonly harsh should come as no surprise.” (Tonry 1992, 267 italics not in the original)

In the late seventies right about the time when determinate sentencing schemes were coming into effect, Daniel Nagin (1978) introduced criminal justice scholars to his theory of a long-run incarceration equilibrium. Just as Michael Tonry’s words suggest, judges, prosecutors, parole officers, as well as the police do not have much of a choice but to use their discretionary powers to keep the system under some sort of feasible control. From the above hypothetical situations, we see that managing the incoming suspects and/convicted individuals with the available resources is a question of survival. Given the fragmentation of the system and the level of discretion that each and every one of the criminal justice actors has, adaptation can get out of balance and this of course takes its toll on the deterrent threat. With the certainty of punishment and the severity of punishment changing constantly due to changes originating from all ends of the criminal justice system so to keep the system’s outputs within the bounds, the expected cost of punishment can get out of control.

The core of the Nagin’s thesis is based on the system-capacity model of the criminal justice system (Phillips and Votey Jr.1972; Shinnar and Shinnar 1975; Green and Allen 1981-2) and the principle of “thermodynamics” (Walker 1985; Benekos 1992). The idea is that resources are scarce. They do not increase proportionately with increases in the crime rates or the level of legislative severity. Because resources are limited, there is a reasonable stability in the level

punishment. "...As pressure is experienced at one point of the system (e.g., getting tougher on crime with more mandatory and longer minimum sentences) it is diffused at some other point in the system (e.g. early release with good time and emergency authority to shorten the length of sentence)." (Benekos 1992, 8).

Nagin argues that in the long run, the criminal justice system adapts to crime rates and the level of harshness of penal sanctions, producing an equilibrium in the incarceration rate. In other words, this means that the actors of the criminal justice system adjust or modify their behavior within the bounds of their power and competency. He uses the following equation to represent his theory of a long-run equilibrium:

$$\text{Incarceration Rate} = \text{Crime Rate} * \text{Probability of Conviction} * \text{Time Served in Prison},$$

where the incarceration rate is the number of individuals imprisoned per some number of population, the probability of conviction represents the certainty with which punishment will be imposed, and time served represents the severity of that punishment.

Green and Allen (1981-2) speak of an "adaptive function" of the criminal justice system to mean just what Nagin is getting at. The system "neutralizes overly-severe penalties" and sidesteps laws that were not designed to fit reality in many ways. In the presence of overly harsh penalties, the police are selective of the individuals they feed into the system. Prosecutors are selective of those individuals they charge and/or to whom they offer plea bargains. And finally, to those individuals who are committed to prison, judges impose more lenient sentences and parole offices offer what authors have labelled as "backdoor", "sidedoor", and even "trapdoor" solutions. These are opportunities to cut short prison terms by way of parole or to at least convert the remaining portions into non-prison sentences (Green

and Allen 1981-2; Mullen 1987; Blumstein 1987).

This notion of equilibrium of the incarceration rate or of an adaptive criminal justice system allows us to get at the relationship between the certainty and severity of punishment. I can tentatively say that a stable level of punishment translates into a stable expected cost of punishment despite attempts made to increase severity on the part of legislature. This consequently translates into seemingly ineffective deterrent effects. Why? Because it suggests that the certainty and the severity of punishment are inversely related. If we algebraically manipulate Nagin's equilibrium function, we uncover this inverse relationship:

$$\text{Probability of Conviction} = \text{Incarceration Rate} * \frac{1}{\text{Crime Rate}} * \frac{1}{\text{Time Served in Prison}}$$

or

$$\text{Time Served in Prison} = \text{Incarceration Rate} * \frac{1}{\text{Crime Rate}} * \frac{1}{\text{Probability of Conviction}}$$

If the probability of arrest and the severity of punishment are indeed inversely related, then this tradeoff makes effective changes in the deterrent threat, as seen through the expected cost of punishment, difficult to achieve. Increases in statutory penalties are offset by reductions in either imposed penalties or by a lower probability of conviction and arrest. Increases in the probability of arrest are offset by decreases in either the probability of conviction or the severity of the sentences imposed.

The Role of the Courts, Prosecutors, and Correctional Officers

Correctional officers are the first to feel the pressure points of the criminal

system. Wardens are those with the least control over the inputs in the system. Yet they are the most burdened by any failures on the part of the other actors, legislatures included, to devise, implement, and adapt deterrent strategies so as to maintain coordination and policies that are feasible and in touch with the available resources. When the seams begin to bulge and prison overcrowding infringes upon the constitutional rights of the prisoners, those actors that do have some adaptive control over the inputs in the system get together to “circumvent” legislative policies (Tonry 1992, 256; Green and Allen 1981-2; Blumstein 1987; Benekos 1992; Cole and Call 1992). Policies designed to be “tough” on crime can end up producing the opposite effect (Walker 1985).

According to Donald Gottfredson and Ralph Taylor, writing for the National Institute of Justice in 1983, there are four things that can be done about the limitation of prison space and avoiding prison overcrowding and prison overcrowding litigation: 1) construction of new prison facilities, 2) reduction of prison intake, 3) acceleration of release, and 4) tolerance of overcrowding. The first option is not up to the police, prisons, and courts. The last option is unconstitutional and has been tested and set right in extensive overcrowding litigation that has obligated courts to order states to reduce prison overcrowding so as to restore constitutional limits on prison capacity (Blumstein 1987; Levitt 1996). That leaves the criminal justice system with options numbers two and three.

Although parole boards are the ones with the power over the convicted individuals once they are sent to a correctional facility, judges are the primary authority when it comes to the level of severity of punishment, for they are the only ones to hand down sentences. Judges also have to deal with prison overcrowding problems. They cannot dismiss capacity problems when sentencing without the problems coming back to them in the form of overcrowding litigation. Not only are judges faced with the dilemma of the overcrowding litigation, where they often have to rule in favor of the

plaintiff, that is, the convicted prisoner (Benekos 1992; Cole and Call 1992; Levitt 1996), they have to impose sentences will lesser future litigation and relieve the pressure placed on the parole officers to release prisoners. In doing so, they have to take into account what resources they have to work with and the incoming flow of prisoners and balance these with the deterrent threat of the sentence. Just sentences for those who have been convicted and effective sentences for those who need to be deterred are sacrificed in the name of efficiency (Waldfogel 1993). When resources are low and/or the rate of conviction is high, judges and juries have no choice but to impose sentences that are a fraction of the maximum sentences that legislatures set. In this way they exercise a “front-door” solution to the problem of overcrowding (Logan 1972; Bullock 1961; Tittle 1969; Green and Allen 1981-2; Andreoni 1991; Louthan 1985; Green and Allen 1981-2; Tonry 1992; Cole and Call 1992; Tullock 1995).

Another option that judges have employed to sidestep increased certainty of punishment and limited prison capacity is the “sidedoor” solution (Gottfredson 1987; Blumstein 1987; 1988). This consists in judges converting already imposed sentences into non-prison sentences, so as to create new space. Prisoners can serve the remaining portion of their sentence under house arrest, performing community service, paying a fine, etc. And finally, there is the “trapdoor” solution, a term that Donald Gottfredson (1987) coined. This consists of the adoption of “emergency release laws” that act as “safety valves” and come into effect in extreme situations.

Resources and the probability of conviction aside, judges are said to employ a psychological discounting function where they account for the declining marginal disutility of the prisoners’ imprisonment experience (Fitzmaurice and Pease 1986; Ostrom and Ostrom 1999). Each additional year in prison has less deterrent effect because the prisoner’s value in terms of legal income earning capacity decreases, which only contributes to the probability of recidivism, and because prisoners themselves do some adapting. They become accustomed to prison life to the extent that one more year

will not make much of a difference when discounted to the present. Since resources constraints and the probability of conviction cannot be ignored, the consequence of the judges' balancing act is an even higher judicial discount rate, which results in a lower level of severity of punishment than that announced by the legislatures.

Then there is the figure of the prosecutor. Prosecutors have the "single most unreviewed exercise of power in the criminal justice system" (Gottfredson and Gottfredson 1980, 146). They decide which cases filed by the police. When the legislature tightens its control over the courts, prosecutorial power increases. The discretion judges lose is shifted to the prosecutors so that the game is still on this side of the court. Even juries tend to deliver fewer guilty verdicts when the severity is very high and the hands of the judges are tied as to the minimum mandatory required sentence in the face of a guilty verdict (Andreoni 1991). Penalties and the probability of conviction are interdependent.

A Look at the Evidence

If we take a given criminal justice system at any given moment and examine the deterrence components what do you find? What can a static observation of the world tell us about how criminal justice agencies and subsystems carry out the deterrent threat once the legislatures set the initial deterrent threat in the statutes they adopt? They can tell us plenty. Above Nagin (1978), Green and Allen (1981-82), and Tsebelis (1989; 1990; 1991; 1993; 1995), and others tell us implicitly assume that the criminal justice is about being equilibrium. Equilibrium, in turn, implies that some thing or phenomenon that is in equilibrium might not always be in equilibrium. In other words, and for the purpose of my study here, the criminal justice system stretches, contracts, etc.. Its subsystems act and react to the shocks to the systems, shocks constituting changes brought about by the legislatures on the one hand, and by all the other bureaucratic and judicial agencies on the other. This gives us a notion that these agencies are responsive

to one another. They have to be to secure some sort of balance in the criminal justice system and keep it from collapsing.

An ideal criminal justice system would have the capacity to house all arrested individuals convicted to the maximum penalty allowable by law. But in reality nothing is ideal, nor is “ideal” ever the objective, as any economist would tell us. Not as long as there are resource constraints. And governments are never without them. This means public policies are not meant to solve all public problems and the goal is never zero pollution, zero health problems, etc. or, in this case, zero crime and total justice, meaning every one who commits a crime is arrested for it, convicted and sent to prison for as long as the law permits.

So this being the case, I can examine how the elements under the control of the agencies that implement and effectively set the deterrent threat vary across jurisdictions, namely:

- 1) Given that we know tradeoffs must and do occur to keep the system in balance?

How can we detect them?

- 2) How do different jurisdictions “trade things off” as they are faced with their resource constraints? What balancing acts are done, and on whose part?

One gains confidence in arriving at an answer for these major questions by looking at what the worldly evidence across jurisdictions for any given year has to offer. In this section, I attempt to do just that by providing a series of tables, graphs, and scatterplots of Western European criminal justice systems, with particular focus on the Portuguese system. In the case of Western Europe, I have two sets of data: 1995 data from the *European Sourcebook of Crime and Criminal Justice Statistics of the Council of Europe*; and 1994 data from the *United Nations World Surveys on Crime Trends and Criminal Justice Systems*. In the Appendix to this chapter, I provide 1994 UN data on specific major crimes for those interested.

Finally in Portugal, I have a time dimension with data reaching back to 1960 and as recent as 1997. These data are from the Portuguese Research and Planning Office of the Ministry of Justice—the *Gabinete de Estudos e Planeamento do Ministério e Justiça* (GEPMJ).

Western Europe

Table 1 includes data on total offense rate (offenses/100,000 persons), the number of arrests, the number of convictions, statutory and imposed sentence lengths in years, prison population, and prison capacity. Figure 1 is the graphic depiction of much of what we see listed in Table 1: the total offense rate, the number of arrests, the number of convictions, prison capacity, and the prison population in 17 Western European nations. Several Appendix Tables 1-6 covering 19 UN nations for specific major crime types in 1994) are provided for those interested in specific crime types. The purpose of Figure 1 is to illustrate the discrepancies between the offense rate, deterrent elements of arrests and convictions, and prison data and to pinpoint some indications of “balancing acts” or tradeoffs within nations. As is plain to visualize, the number of arrests constitutes a small proportion of total reported offenses; the number of convictions is, in turn, a smaller fraction of the number of arrests. Even so, the number of convictions is overwhelming compared to the space available to put these convicted individuals, provided they are convicted to some type of prison confinement. Most obvious to reader is the lack of or very near capacity of the prison systems in these countries. Switzerland, for instance, a nation with an offense rate in the same ballpark as that of, say, Finland, arrests and convicts fewer times than Finland. But compare the prison population and capacity figures. Finland has more room to house incoming convicted felons. Compare a Southern European nation, such as Portugal with, say, Ireland. Portugal has a somewhat similar arrest figure to that of Ireland; but notice that since Portugal, contrary

to Ireland, was already operating above capacity in 1995, it is plausible to expect that Portugal convicted a lot fewer than Ireland, less than half the number of times.

It is evident from Figure 2 shows that the prison population tracks and many times exceeds the capacity for that population in every nation under observation for which I have inmate and capacity data. The few exceptions, Austria, Denmark Finland, Germany, Sweden, Switzerland, and Ireland, are a small ways away from reaching the limit, after which tradeoffs are most likely to occur with greater consequences.

[Table 1 about here]

[Figures 1-2 about here]

Table 2 compares statutory and imposed severity for six Western European nations and for four different offenses (those Western European nations for which imposed sentence data is available). This table shows that, again, judicially-imposed sentences are a very small fraction of the statutory maxima. England Wales are among the harshest Western European nations when it comes to statutory severity and that Sweden is among the most lenient. Table 2 tells us, in the case of murder, for instance, these two nations are on opposite ends of the statutory severity scale, but they have very similar levels of imposed severity. In the case of theft, England and Wales impose a mere .02% of the statutory maxima, 40 years, for an average imposed sentence length of almost 10 months. In Sweden, the actual average imposed sentence length is not much different from that of the English and Welsh imposed sentence despite the statutory maximum penalty of six years in penalty.

[Table 2 about here]

[Appendix Tables 1-6 about here]

Portugal

In Portugal, the evidence is indicative that criminal justice agencies, just as in Western Europe, respond to the pressures of resource constriction that is evident on

Figures 3 and 4. Figure 3 displays, the number of individuals charged with a crime, the number of persons convicted, the number of persons serving time in prison, the number of persons incarcerated, and finally, the prison capacity from 1960 to 1994.ⁱ To note is companion table, Table 3, which provides the numbers that serve as the basis of this graph. This number of persons charged with a crime and convicted and well as those sentenced to prison began to decrease. This downward trend is also apparent when we look at the evolution of the Portuguese prison system. From 1960 to 1972/74, prison occupation was well below capacity. The number of prisons decreased dramatically as Portugal made its transition to a democratic regime in 1974. This number went from 207 in 1960 to 112 in 1972 and dropped even further to 79 by 1974 and stabilized around 36 by 1978.

Things start gradually to pick up as the democratic regime progresses. By this, the number of persons charged with a crime, as well as the number of persons convicted to a given sanction, gradually increases, particularly in the mid 1980s. Notice, however, that the correctional subsystem never quite accompanies the growth in law enforcement, prosecution, and court loads. This indicates that resources capped at a given point and the prison system did not and could not grow to match the growth in crime. This is when the pressure on a criminal justice system with 40-some prisons begins to build and by the mid 1980s prison capacity is very near the limit. In fact in 1985 prison capacity was already at 114%. By the early to mid 1990s, the prison constraints reached an all-time high. Interesting to note in Portugal is the role of the “amnistia” or a governmental pardon. When the pressure did begin to mount by the middle of the 1980s, the Portuguese legislative bodiesⁱⁱ created a legislative act designed to relieve pressure on the prison system. Eight pardons were approved from 1981 to 1994.

Figure 3 vividly depicts the mounting stress on the Portuguese criminal justice system beginning especially in the mid 80s and growing dimmer with each passing year thereafter. Figure 4 concentrates on the latter portion of Figure 3. Comparing Figure 4

with last two columns of Table 4, as well as the last two columns of Table 3, we can more easily visualize the physical bound that the Portugal legislative bodies imposed on Portuguese law enforcement and the wider judicial apparatus.

[Tables 3 and 4 about here]

[Figures 3 and 4 about here]

Even though the Portuguese criminal justice system experienced this pressure, it did not collapse. The number of convictions kept growing and so did the number of individuals sentenced to prison at least until 1993. So what happened? Tradeoffs. From 1993 to 1997, the number of convicted individuals began to drop, despite an increase in offenses, and in the number of persons charged (for those interested in more detailed and disaggregated data for each districts in Continental Portugal, refer to Appendix Tables 7 and 8). To be exact, convictions dropped 9% and the number of person serving time 11% from 1993 to 94 alone.

[Appendix Tables 7-8]

Figure 5 shows that in 1997, the number of arrests represented a mere 7% of total offenses recorded by the three major police forces (the *Polícia Judiciária*, the *Polícia de Segurança Pública*, and the *Guarda Nacional*); and the number of convictions represented only 1% of total offenses and 16% of all arrests. Figure 6 merely breaks these aggregate numbers among the Continental Portuguese districts. As shown in Figure 7, with the exception of one district, Bragança, the prison population exceeded the prison capacity in every district in Continental Portugal, the most severe of these districts being Évora, Faro, Lisboa, Porto, and Setúbal. These are indications of the system operating within its bounds, conforming and adjusting to them.

[Figures 5-7 about here]

With all of these legislative and resource restrictions, there must occur tradeoffs among the agencies. Figure 8 (for total offenses) shows three scatterplots with the respective regressional equations: 1) relationship between the probability of arrest and

the probability of conviction; 2) average maximum imposed sentence and the probability of arrest, and 3) the average maximum imposed sentence and the probability of conviction. These plots appear to indicate tradeoffs between deterrence elements. The relationship appears to be negative between the probability of arrest and the probability of conviction—a clear indication of these deterrent elements responding to one another. It also appears to be negative between the average imposed sentence severity and each of the certainty deterrent elements, however the latter two relationships are not statistically significant as the regression coefficients below the plots indicate.

[Figure 8 about here]

Conclusion

Having examined and discussed the tradeoffs that occur among criminal justice agencies within Western European criminal justice systems, we can see in this paper that, as Nagin and others argue, these systems manage to survive under the conditions that the level of statutory harshness and the level of prison resources available to them impose on them. How? By the agencies making use of the built-in flexibility that allows for interactive maneuvering and adjustments on the part of the administrative and judicial apparatus. Criminal justice systems do not collapse. They do not continuously expand as the level statutory penal harshness does and would require. Critics are quick to point out that the system has grown out of control. The legislatures do not allow for that; and really an economic outlook on the subject of crime would never claim that the objective of criminal justice systems is a zero crime rate because of something called budget restrictions. Justice systems do not grow indefinitely, but as I have observed and compared elements of deterrence across jurisdictions above, they do bend and stretch a good deal as a result of the adjustments made on the part of those

whom the legislatures intended: the police who control the probability of arrest and detection; the prosecutors who greatly influence the probability of conviction; the judges who decide the actual punishment within very broad limits; and the parole boards who have the last say about the time served in prison for those individuals who were convicted and sentenced to incarceration.

Every one of these actors holds the power over one or more components that comprise deterrence theory. If statutory severity rises with no adequate or rationally associated increase in the prison capacity, the expected cost of punishment will not necessarily increase. What does this mean in practice? It means that we would see the probability of arrest, the probability of conviction, the length of court-imposed sentences, as well as the effective length of time served in prison fluctuate with the intention of keeping the system in balance. Campaign slogans promising tougher penalties and consequently the adoption of stiffer statutory penalties does not mean a greater deterrent effect. The initial deterrent threat may rise, but as I have discussed, that threat is altered as the criminal justice subsystems find ways to counteract the pressures that the increases in deterrent harshness places on them.

I investigated how the police, the courts (in particular) and correctional subsystem, as a fragmented system, operationalize deterrent theory. The evidence shows that prison capacity is extremely limited compared to the input that the criminal justice systems receive. The police, prosecutors, judges, and parole officers, due to unavoidable resource constraints especially prison capacity, make adjustments in the certainty of punishment and the imposed severity of punishment to keep the system from becoming extinct. The survival of the criminal justice system implies that the certainty and severity of punishment play off one another. In other words, the certainty of punishment responds to the severity of punishment and vice-versa, and both respond to the availability of prison space.

References

- Andreoni, J. 1991. "Reasonable Doubt and the Optimal Magnitude of Fines: Should the Penalty Fit the Crime?" *Rand Journal of Economics* 22 (3): 385-95.
- Benekos, Peter J. 1992. "Public Policy and Sentencing Reform: The Politics of Corrections." *Federal Probation* (March): 4-10.
- Blumstein, Alfred. 1987. "Sentencing and the Prison Crowding Problem." In *America's Correctional Crisis: Prison Populations and Public Policy*, eds. Stephen D. Gottfredson and Sean McConville. Westport, CT: Greenwood.
- Bullock, Henry A. 1961. "Significance of the Racial Factor in the Length of Prison Sentences." *Journal of Criminal Law, Criminology, and Police Science* 52 (4): 411-17.
- Cole, Richard B. and Jack E. Call. 1992. "When the Courts Find Jail and Prison Overcrowding Unconstitutional." *Federal Probation* (March): 29-39.
- European Committee on Crime Problems (CDPC). 1999-2000. *European Sourcebook of Crime and Criminal Justice Statistics*. Strasbourg: Council of Europe.
- Fitzmaurice, Catherine and Kenneth Pease. 1986. *The Psychology of Judicial Sentencing*. Manchester, UK: Manchester University Press.
- Gabinete de Estudos e Planeamento do Ministério da Justiça. 1993-1997. *Estatísticas Da Justiça [Justice Statistics]*. Lisboa: Ministério da Justiça.
- Gottfredson, Donald M. 1987. "The Problem of Crowding: A System Out of Control." In *America's Correctional Crisis: Prison Populations and Public Policy*, eds. Stephen D. Gottfredson and Sean McConville. Westport, CT: Greenwood.
- Gottfredson, Michael R. and Donald M. Gottfredson. 1980. *Decisionmaking in Criminal Justice: Toward the Rational Exercise of Discretion*. Cambridge, MA: Ballinger.
- Green, Penny A. and H. David Allen. 1981-82. "Severity of Societal Response to Crime: A Synthesis of Models." *Law & Society Review* 16 (2): 181-205.
- Levitt, Steven D. 1996. "The Effect of Prison Population Size on Crime Rates: Evidence From Prison Overcrowding Litigation." *Quarterly Journal of Politics* (May): 319-51.
- Logan, Charles H. 1972. "General Deterrent Effects of Imprisonment." *Social Forces* 51 (1): 64-73.
- Louthan, William C. 1985. "The Politics of Discretionary Justice Among Criminal Justice Agencies." In *Discretion, Justice, and Democracy A Public Policy Perspective*, eds. Carl F. Pinkele and William C. Louthan. Ames, IO: Iowa State University Press.
- Mendes, Silvia M. 2001. *Criminal Deterrence: Theory, Politics, and Practice*. Binghamton, NY: SUNY.

- Mullen, Joan. 1987. "State Responses to Prison Crowding: The Politics of Change." In *America's Correctional Crisis: Prison Populations and Public Policy*, eds. Stephen Gottfredson and Sean McConville. Westport, CT: Greenwood.
- Nagin, Daniel. 1978. "Crime Rates, Sanction Levels, and Constraints on Prison Population." *Law & Society Review* 12: 341-66.
- Ostrom Brian J. and Charles W. Ostrom. 1999. "Conceptualizing and Measuring Sentence Severity: The Sentencing Unit." *Sentencing and Society International Conference*. Glasgow, Scotland.
- Phillips, Llad and Jr. Harold L. Votey Jr. 1972. "An Economic Analysis of the Deterrent Effect of Law Enforcement on Criminal Activity." *Journal of Criminal Law, Criminology, and Police Science* 63 (330-42).
- Shinnar, Shlomo and Reuel Shinnar. 1975. "The Effects of the Criminal Justice System on the Control of Crime: A Quantitative Approach." *Law & Society Review* (Summer): 581-611.
- Tittle, Charles R. 1969. "Crime Rates and Legal Sanctions." *Social Problems* 16 (4): 409-23.
- Tonry, Michael. 1992. "Mandatory Penalties." In *Crime and Justice A Review*, ed. Michael Tonry. Chicago, IL: University of Chicago Press.
- Tsebelis, George. 1989. "The Abuse of Probability in Political Analysis: The Robinson Crusoe Fallacy." *American Political Science Review* 83: 77-91.
- Tsebelis, George. 1991. "Penalty Has No Impact on Crime: A Game-Theoretic Analysis." *Rationality and Society* 2: 255-86.
- Tsebelis, George. 1993. "Penalty and Crime: Further Theoretical Considerations and Empirical Evidence." *Journal of Theoretical Politics* 5 (3): 349-74.
- Tsebelis, George. 1995. "Research Note Another Response to Gordon Tullock." *Journal of Theoretical Politics* 7 (1): 97-9.
- Tullock, Gordon. 1995. "Research Note Further Comments on Penalty and Crime." *Journal of Theoretical Politics* 7 (1): 93-5.
- United Nations. 1994. *UN World Surveys on Crime Trends and Criminal Justice Systems*.
- Waldfogel, Joel. 1993. "Criminal Sentences As Endogenous Taxes: Are They 'Just' or 'Efficient'?" *Journal of Law & Economics* 36 (April): 139-51.

Table 1: Offenses, Arrests, Convictions, and Prison Data for Western Europe, 1995

Countries	Offenses	Arrests	Convictions	Prison Pop	Prison Capacity
Austria	3674.4	820	323.4	76	95
Belgium	5697.2			76	64
Denmark	10699.3		865.4	66	73
Finland	5975.9	1777	790.3	59	80
France	4949.7	636		89	84
Germany	5577.4	1501	330.6	81	87
Greece	1628.9	232	66.2		41
Ireland	2666.6	1256	376.8	59	62
Italy	2819.7	285	70	87	71
Luxembourg	1686	565		115	11
Netherlands	9053.4	1180	242.9		76
Norway	6368.7	336	209.7	56	63
Portugal	2410.4*	1006**	128.7	106	91
Spain		162**	114.6	102	78
Sweden	10017.6	630	488.9	66	70
Switzerland	4920.5	702	98	81	85
England & Wales	10062.6*	807	381.1	99	98

Note: Figures are per 100,000 persons.

Source: European Sourcebook of Crime and Criminal Justice Statistics of the Council of Europe.

*Portuguese and English and Welsh figures does not include murder offenses.

** Portuguese figure does not include arrests for murder; Spanish figure does not include arrests for murder and theft.

Table 2: Statutory and Imposed Sentence Severity in Western Europe, 1995

Countries	Murder		Rape		Robbery		Theft	
	Statutory	Imposed	Statutory	Imposed	Statutory	Imposed	Statutory	Imposed
France	40	10.7	20	9.2	20	1.8	10	0.5
Norway	40	9.2	40	2.8	12	2.3	6	1.7
Portugal	25	9.6	10	5.9	18	4.6	8	2.4
Sweden	40	6.3	10	2.5	10	1.9	6	0.4
Switzerland	40	8.2	20	3.7	20	2.3	10	0.4
England & Wales	40	5.7	40	6.5	12	3.2	40	0.8

Note: Figures are in years.

Source: European Sourcebook for Crime and Criminal Justice Statistics 1999-2000; Library of Congress, Washington D.C. and interviews with legal specialists in foreign law of the Law Library of Congress (January 2000).

Table 3: Criminal Justice Data for Portugal, 1960-94

	N° Charged	N° Convicted	%Convicted	Total Prison Pop	Prison Pop Await. Trial	Serving Time in Prison	% Prison Pop Convicted	N° Prisons	Prison Capacity	%Prison Occupation
1960	38245	22398	59	8418	807	7611	90	207	10878	77
1962	37760	22390	59	8933	1140	7793	87	213	10823	83
1964	35633	22264	62	8532	1163	7369	86	213	10823	79
1966	33815	20722	61	7411	911	6500	88	215	10857	68
1968	29988	17788	59	6298	723	5575	89	215	11032	57
1970	19918	14570	73	5056	571	4485	89	215	10705	47
1972	25781	13998	54	3405	509	2896	85	112	8978	38
1974	18135	9788	54	2132	985	1147	54	79	7749	28
1976	30165	13175	44	3633	1360	2273	63	50	7449	49
1978	30924	15866	51	4709	1541	3168	67	36	7138	66
1980	29612	14227	48	5352	1583	3769	70	36	7138	75
1981*	39298	11684	30	5402	1544	3858	71	36	7138	76
1982*	37410	12510	33	4957	1544	3413	69	36	7138	69
1983	35563	13700	39	6391	2724	3667	57	36	7150	89
1984	38981	15801	41	7993	3161	4832	60	36	8236	97
1985*	49970	19237	38	9150	3520	5630	62	36	8004	114
1986*	61489	17935	29	7936	3586	4350	55	38	7334	108
1987	54215	19346	36	7965	3169	4796	60	39	7334	109
1988	53941	20189	37	7960	2583	5377	68	39	7321	109
1989	54474	21650	40	8358	2625	5733	69	39	7321	114
1990*	56192	21833	39	8874	2507	6367	72	41	7386	120
1991*	71687	22833	32	7877	2993	4884	62	40	7267	108
1992	82972	22863	28	9451	3465	5986	63	40	7267	130
1993	74274	30351	41	11062	3850	7212	65	47	7267	152
1994*	95107	37442	39	10120	3632	6488	64	48	7897	128

Source: Barreto 1995* These are years during which laws issuing pardons (“amnistias”) were passed. Three pardons (one general and two partial) in 1981; one general pardon in 1982; one partial pardon in 1985; one partial pardon in 1990; one general pardon in 1991; and one general pardon (except for offenses related to European fund fraud) in 1994.

Table 4: Offenses, Arrests, Convictions, Sentence and Prison Data for Continental Portugal, 1993-97

Year	Offenses	Arrests	Convictions	Sent. Length	Prison Pop	Prison Cap.
1993	330905	27834	5812	31.22	7668*	6318
1994	368331	26331	5190	35.43	8837	6657
1995	362723	25445	5835	36.48	10504	7246
1996	335223	23971	4604	35.31	12077	7646
1997	340071	23716	3888	38.25	12418	9148

Source: GEPMJ

Notes: Convictions refers to individuals sentenced to unsuspended prison incarceration. Prison population includes individuals awaiting trial. Prison capacity refers to beds in central and regional prison facilities but excludes beds in three special prison facilities.

*1993 prison data refers to 1992 prison data.

Appendix Table 1: Criminal Justice Data for Western Democracies, Total Offenses, 1994

Nations	Offenses	Suspects	Prosecutions	Court Acquittals	Brought to Trial	Convictions	Sentenced to Prison	Adult Pris. Beds	Adult Prisons	Juv. Pris. Beds	Juv. Prisons	Prison Adm.	Adults Adm.	Convict. Adm.	Convict. Adult Adm.
AUSTRALIA					1545400		14762	16643	104						23774
AUSTRIA	504568	201757		15744	85229	69485	4827	8000	47	200	2	17421		5064	4979
BELGIUM	577902						3686	6002	31			17082	16464	3266	3764
CANADA	2919557	702425	152431	6221	152431	180607	28318	34984	221			4758			
DENMARK	546928	147094	164794	1513	30968	27471	2584	3756	57			15071	14871	2584	2584
FINLAND	389287	211791	88870	3410	88870	85460	2642	3606	23	176	1	8711		2642	2506
FRANCE	3919008	775120													
GERMANY			637531	24667	936459	501386									
GREECE	303311	273840				83818		3737	25	350	2	5157	4581	3985	3775
ITALY	2173448	744892	601369	59368	265999	206631	25630		360		23	100829	99386	25630	25336
JAPAN	1863390	376988	1173806	181	60286	58889	37482	59466	184	5105	8	21266		37482	37450
LUXEMBOURG	21067				3315		303		1		1			304	303
NETHERLANDS			236352	3115	95990	81570	4980	543		263					
PORTUGAL			95107	60623	95107	34484	6403	7897	48	273	1	7885	7339	6403	6152
SPAIN	692915	229664													
SWEDEN	1112505	101892	197114			152996	5150	5132	78			14198	14164	5150	5140
SWITZERLAND	357794					82050		6159	172			10180	10180		4435
ENGLAND & WALES	5249478		1928806	63770	1928806	320448	35226	41177	108	7772	26	61188	118677	35226	30024
USA	13989500	14648700								57542	1076	541434	541434		
N. IRELAND	67886		10675	1543	10675	8345	1429	1953	4	300	1	1375	1349	1429	1420
SCOTLAND	527064		62432	3643	62182	51261	4419	4761	17	874	4	12709	16752	4505	3785
Mean	2071506.35	1674014.82	445773.92	20316.50	382979.79	129660.07	11856.07	13587.73	92.50	7285.50	104.09	55950.93	76836.09	10282.31	10361.80
Standard Deviation	3406356.23	4310398.35	575854.65	25668.41	624381.35	131277.74	13034.37	17439.14	97.89	17851.09	322.47	136809.10	159161.78	13178.36	12151.11
Minimum	21067	101892	10675	181	3315	8345	303	543	1	176	1	1375	1349	304	303
Maximum	13989500	14648700	1928806	63770	1928806	501386	37482	59466	360	57542	1076	541434	541434	37482	37450

Source: UN World Surveys on Crime Trends and Criminal Justice Systems, 1970-1994 (ICPSR #2513)
 Note: Sentence is in months.

Appendix Table 2: Criminal Justice Data for Western Democracies, Murder Offenses, 1994

Nations	Murders	Completed Murders	Suspects	Completed Murder Suspects	Prosecutions	Completed Murder Prosecutions	Convictions	Aver. Sent. Served	Prison Adm.	Completed Murder Prison Adm.
AUSTRALIA	641	296						146		
AUSTRIA	197	88	183				67			
BELGIUM	315	120					146			
CANADA	547		439		119		30			
DENMARK	255	75	235	73	272	101	51		33	24
FINLAND	2696	1406	2075	1108						
FRANCE					327	234	282			
GERMANY	264	133	278				51		175	141
GREECE	2691	969	2044	577	2364	1299	581		1601	
ITALY	1279	695	1275	696	713		567		460	
JAPAN										
LUXEMBOURG					2412		745			
NETHERLANDS					539	289	383			
PORTUGAL	837	159	289	75	294	79	1			
SPAIN					927	527	260			
SWEDEN							297			
SWITZERLAND	338	83			96	60	36			
USA	732	109			145	53	86		57	36
ENGLAND & WALES	512	147	505	151	219	123	215			
N. IRELAND	641	266	799		369941	8				
SCOTLAND	161	80					59	56	26	
Mean	807.07	330.43	812.20	446.67	29105.23	356.50	232.71	101	392	67
Standard Deviation	819.75	406.31	733.95	419.93	102411.46	409.67	220.20	63.64	614.57	64.37
Minimum	161	75	183	73	96	53	30	56	26	24
Maximum	2696	1406	2075	1108	369941	1299	745	146	1601	141

Source: UN World Surveys on Crime Trends and Criminal Justice Systems, 1970-1994 (ICPSR #2513)
Note: Sentence is in months.

Appendix Table 3: Criminal Justice Data for Western Democracies, Manslaughter Offenses, 1994

<u>Nations</u>	<u>Manslaughters</u>	<u>Suspects</u>	<u>Prosecutions</u>	<u>Convictions</u>	<u>Aver. Sent. Served</u>	<u>Prison Adm.</u>
AUSTRALIA	234				77	
AUSTRIA	86	93		219		
BELGIUM	28			337		
CANADA	49	52	121	41		
DENMARK	8	7	14			0
FINLAND	21					
FRANCE						
GERMANY			962	636		
GREECE	34	38		145		22
ITALY	349	488	4446	4172		110
JAPAN	467	597	235	237		
LUXEMBOURG						
NETHERLANDS			15	15		
PORTUGAL			327	138		
SPAIN						
SWEDEN	213	116	113	76		
SWITZERLAND				257	11	14
USA				19		
ENGLAND & WALES			50	247		
NORTHERN IRELAND	3		21	18		
SCOTLAND	4		39	35		26
Mean	124.67	198.71	576.64	439.47	44.00	34.40
Standard Deviation	155.44	239.60	1312.60	1045.66	46.67	43.41
Minimum	3	7	14	15	11	0
Maximum	467	597	4446	4172	77	110

Source: UN World Surveys on Crime Trends and Criminal Justice Systems, 1970-1994

(ICPSR # 2513) Note: Sentence is in months.

Appendix Table 4: Criminal Justice Data for Western Democracies, Rape Offenses, 1994

Nations	Rapes	Suspects	Prosecutions	Convictions	Aver. Sent. Served
AUSTRALIA	14027				44
AUSTRIA	553	400	400		
BELGIUM	899				
CANADA	31690	12533	12533	118	
DENMARK	481	291	291	272	
FINLAND	387	248	248	71	
FRANCE	6526	4810	4810		
GERMANY				1415	
GREECE	258	191	191		
ITALY	869	885	885	1294	
JAPAN	1616	1161	1161	792	
LUXEMBOURG					
NETHERLANDS				1009	
PORTUGAL				218	
SPAIN	1211	828	828	1319	
SWEDEN	1812	277	277		30
SWITZERLAND	275				30
USA	102220	36610	36610		
ENGLAND & WALES	5067			1782	
N. IRELAND	208			45	
SCOTLAND	569			91	
Mean	9921.65	5294	5294	702.17	34.67
Standard Deviation	25068.48	11024.74	11024.74	637.58	8.08
Minimum	208	191	191	45	30
Maximum	102220	36610	36610	1782	44

Source: UN World Surveys on Crime Trends and Criminal Justice Systems, 1970-1994 (ICPSR #2513) *Note:* Sentence is in months.

Appendix Table 5: Criminal Justice Data for Western Democracies, Robbery Offenses, 1994

Nations	Robberies	Suspects	Prosecutions	Convictions	Aver. Sent Served	Prison Adm.
AUSTRALIA	14370				56	
AUSTRIA	2442	400		595		
BELGIUM	1448			2312		413
CANADA	28888	12533	1495	1985		1000
DENMARK	4880	291	1074	515		390
FINLAND	2122	248	547	505		
FRANCE	73310	4810				
GERMANY			9765	7592		
GREECE	812	191		78		117
ITALY	29981	885	9833	5871		7987
JAPAN	2684	1161	1122	821		650
LUXEMBOURG						
NETHERLANDS			5569	3123		
PORTUGAL			1584	1294		
SPAIN	55678	828	103765			
SWEDEN	5331	277		546	23	365
SWITZERLAND	1954			417	25	139
USA	618950	36610		1824	56	
ENGLAND & WALES	59765		9303	4902		2801
N. IRELAND	1567		303	168		
SCOTLAND	5297		961	710		414
Mean	53498.76	5294	12110.08	1956.35	40	1427.60
Standard Deviation	147592.39	11024.74	29116.38	2203.28	18.49	2434.48
Minimum	812	191	303	78	23	117
Maximum	618950	36610	103765	7592	56	7987

Source: UN World Surveys on Crime Trends and Criminal Justice Systems, 1970-1994 (ICPSR #2513)

Note: Sentence is in months.

Appendix Table 6: Criminal Justice Data for Western Democracies, Theft and Burglary Offenses, 1994

Nations	Thefts	Burglaries	Theft Suspects	Burglary Suspects	Theft Prosecutions	Burglary Prosecutions	Theft Convictions	Burglary Convictions	Theft Sent. Served	Burglary Sent. Served	Theft Prison Adm	Burglary Prison Adm
AUSTRALIA									14	26		
AUSTRIA	127076	90162	20734	8275			12305	2428				
BELGIUM	275484	154659					6138	5095			2529	3601
CANADA	1003322	387877	124310	50218	14833	7740	26179	14960				406
DENMARK	206278	106338	48182	10982	51911	8533	23069	3637			3387	1663
FINLAND	115234	98656			36680		36086					
FRANCE	2573074	484901	293350	55272								
GERMANY					172771	38450	140590	30863				
GREECE	57343	37123	8455	4768			2359				1419	
ITALY	1333089		110177		62003	1499	32254	422			23408	176
JAPAN	1310077	247661	146745	18168		1790	14084				6222	189
LUXEMBOURG												
NETHERLANDS					88140		25644		16			
PORTUGAL					14827		7594					
SPAIN	72313	140723	10282	24804		495211						
SWEDEN	506642	141278	28912	6650	35187	12407	32443		8		2102	
SWITZERLAND	195409	66466					8094		8		1477	
USA	9419100	2712800	1714700	396100			3126	136	11	24		
ENGLAND & WALES	2501778	1257916			142825	59217	101756	37952			12453	10441
N. IRELAND	33233	16902			3687	1212	3044	979			187	188
SCOTLAND	238233	88394			25561	6051	21255	4921			5999	2236
Mean	7980.31	402123.73	250584.70	63915.22	58947.73	63211	29177.65	10139.30	11.40	25	5918.30	2362.50
Standard Deviation	3651.93	710620.67	521878.44	125949.89	54793.95	152968	370.29	13577.27	3.58	1.41	7102.16	3492.08
Minimum	33233.	16902	8455	4768	3687	1212.	2359	136	8	24	187	176
Maximum	94191.	27128	17147	3961	172771	495211	140590	37952	16	26	23408	10441

Source: UN World Surveys on Crime Trends and Criminal Justice Systems, 1970-1994 (ICPSR #2513)

Note: Sentence is in months

Appendix Table 7: Criminal Justice Data for Districts in Continental Portugal, 1993-97

Districts	Year	Crimes				Arrests				Convictions				Average Length of Imposed Sentences (months)				Prison Data*	
		Person	Property	Society	State	Person	Property	Society	State	Person	Property	Society	State	Person	Property	Society	State	Prispop	Priscap
Aveiro	1993	4403	9506	1761	123	103	300	950	91	52	210	41	16	28	35	40	8	83	43
Aveiro	1994	4483	10564	1836	483	117	303	829	101	33	165	38	29	44	35	44	27	75	43
Aveiro	1995	4472	10329	2276	175	79	323	904	123	28	167	23	7	55	34	41	9	106	43
Aveiro	1996	4542	10066	2309	116	80	279	1101	77	51	130	14	7	57	31	13	9	111	43
Aveiro	1997	4779	10294	2114	152	50	264	1123	96	31	114	25	11	50	33	35	11	79	43
Beja	1993	700	1130	719	40	57	113	486	23	19	66	9	3	49	26	20	6	72	48
Beja	1994	645	1325	815	44	20	87	424	28	11	59	3	2	45	33	27	18	79	48
Beja	1995	722	1299	939	43	27	82	525	28	8	47	2	2	25	22	49	18	217	166
Beja	1996	694	1153	794	51	24	72	474	31	22	35	4	3	38	18	17	37	255	166
Beja	1997	726	1070	763	34	12	49	418	16	12	36	2	1	51	31	6	1	256	104
Braga	1993	4559	9933	2089	96	76	399	1029	92	69	200	45	15	49	29	23	5	247	179
Braga	1994	4677	10795	1981	96	57	400	871	59	55	158	40	8	54	33	34	13	247	179
Braga	1995	5131	10532	2480	116	58	384	907	75	45	186	55	12	43	29	47	9	323	179
Braga	1996	5359	10338	2255	104	42	268	871	69	37	175	20	10	55	32	31	36	306	179
Braga	1997	5468	10096	2096	87	60	252	1046	64	27	184	21	7	102	29	31	21	311	120
Bragança	1993	872	1570	339	21	20	29	144	15	14	20	5	4	50	35	35	45	36	59
Bragança	1994	881	1719	672	18	35	41	201	11	20	19	3	1	82	38	5	29	75	59
Bragança	1995	999	1913	584	20	12	45	161	18	17	32	6	1	64	32	40	10	101	59
Bragança	1996	924	1765	626	16	18	50	871	69	28	46	6	2	86	28	20	8	232	359
Bragança	1997	1085	1652	551	18	21	26	1046	64	14	13	4	2	120	32	20	20	359	364
C. Branco	1993	884	1631	563	47	14	66	260	34	14	31	8	3	68	25	21	2	113	150
C. Branco	1994	909	1614	663	49	18	51	281	30	15	36	10	3	88	29	29	10	139	150
C. Branco	1995	958	1881	809	42	18	67	369	29	14	28	4	1	92	38	40	41	190	150
C. Branco	1996	1018	1728	659	16	25	41	207	6	13	22	4	3	73	33	5	25	317	150
C. Branco	1997	1072	1903	663	49	26	53	279	12	18	30	5	6	65	43	56	6	377	223
Coimbra	1993	2617	6631	1145	82	49	164	386	62	46	128	38	7	52	25	23	7	531	387
Coimbra	1994	2746	7146	1518	114	35	197	353	63	19	93	15	8	59	31	45	15	511	387
Coimbra	1995	3181	7555	2123	105	17	145	398	66	32	121	34	13	21	26	32	9	591	387

Coimbra	1996	3296	7085	1489	75	22	137	342	39	21	129	32		34	35	23		631	387
Coimbra	1997	3325	6493	1411	81	30	67	374	35	15	80	29	11	90	37	32	10	684	668
Évora	1993	1017	1749	546	68	17	66	373	23	18	35	2	4	99	32	11	25	52	40
Évora	1994	1054	2069	550	58	25	55	360	26	11	61	7	5	34	28	62	14	60	40
Évora	1995	1082	2270	652	25	13	86	311	19	21	63	7	4	38	32	42	25	61	40
Évora	1996	1168	2167	586	23	20	98	442	12	7	55	2	4	33	29	39	29	82	40
Évora	1997	1038	2075	397	44	24	91	372	27	12	55	2		33	43	31		109	46
Faro	1993	2717	13769	1562	125	118	516	866	95	68	227	26	9	68	32	26	13	296	116
Faro	1994	2880	14948	1860	144	67	604	1049	78	69	273	34	8	62	34	35	14	333	125
Faro	1995	3182	14429	2167	119	70	500	1277	72	37	226	21	9	51	37	34	21	377	125
Faro	1996	3390	15393	2104	122	59	368	1511	61	55	240	12	6	58	33	18	29	477	225
Faro	1997	3957	14984	2123	165	54	320	1396	110	20	169	14	7	51	40	18	12	490	246
Guarda	1993	776	1382	437	24	22	84	191	15	18	57	13	2	82	31	43	43	80	84
Guarda	1994	810	1501	764	26	40	67	210	12	28	22	13	3	90	35	23	17	147	84
Guarda	1995	810	1431	631	43	18	51	203	24	15	30	1	2	79	28	30	70	194	84
Guarda	1996	750	1219	653	38	9	68	237	26	11	19	3		62	36	32	20	175	84
Guarda	1997	906	1403	550		45	48	293	17	10	12	2		74	24	35		205	162
Leiria	1993	2307	7206	1367	60	50	268	611	34	34	89	25	6	43	26	40	4	286	142
Leiria	1994	2536	8115	1675	66	36	275	687	37	37	149	22	6	49	40	23	13	350	142
Leiria	1995	2662	8479	1702	72	38	231	751	44	32	161	28	8	78	34	43	10	393	142
Leiria	1996	3000	7986	1412	71	54	178	796	40	17	113	18	3	95	35	24	5	402	142
Leiria	1997	3143	7580	1441	79	51	183	636	42	22	107	13	3	77	30	19	9	400	207
Lisboa	1993	20882	104590	10037	1017	451	4541	3769	239	142	1502	186	61	41	31	30	11	3458	3375
Lisboa	1994	20723	123355	11162	1557	395	3873	3201	273	154	1672	120	54	60	35	35	18	4062	3595
Lisboa	1995	16525	117331	10771	994	298	3157	2851	311	146	2168	153	34	64	38	35	24	4745	4050
Lisboa	1996	17150	101607	1044	1044	188	1869	2894	348	144	1637	71	46	63	40	28	18	5356	4050
Lisboa	1997	18260	95415	10168	1067	222	1819	2888	415	118	1248	78	36	73	43	34	25	5444	4602
Portalegre	1993	625	1267	395	25	31	77	174	20	6	53	2	16	57	32	46	32	34	24
Portalegre	1994	705	1399	498	40	31	52	266	30	9	49	4	6	59	23	40	16	60	24
Portalegre	1995	705	1389	618	35	30	92	295	25	7	35	3	1	94	30	9	2	61	40
Portalegre	1996	714	1465	582	27	8	24	242	15	5	26	3	2	50	25	23	30	82	40
Portalegre	1997	797	1487	487	36	11	33	253	19	5	18	4	1	39	24	15	14	109	46
Porto	1993	8738	43504	4576	394	129	2086	2552	225	125	780	87	29	31	25	30	7	1701	1241

Porto	1994	7879	49293	4215	311	113	2381	1885	191	70	569	51	16	61	32	36	10	1844	1351
Porto	1995	8825	47440	4204	282	154	2166	1919	190	73	710	76	30	73	33	37	14	2099	1351
Porto	1996	9772	47043	4316	220	138	1169	2233	160	79	546	57	12	80	33	23	7	2428	1351
Porto	1997	10791	47209	4216	306	91	1193	2370	174	57	510	45	7	82	35	32	14	2366	1691
Santarém	1993	3348	5150	1792	76	55	203	791	43	52	165	39	13	43	25	21	6	62	31
Santarém	1994	3360	5861	1903	73	69	184	772	63	19	119	28	6	47	30	37	19	57	31
Santarém	1995	3695	5701	2161	68	60	218	818	42	29	109	16	5	52	32	54	18	87	31
Santarém	1996	3810	5625	1844	71	81	162	965	37	20	51	15	3	89	32	37	5	64	31
Santarém	1997	4049	5894	1503		35	139	862	36	24	52	10	5	85	32	35	7	62	38
Setúbal	1993	5416	14808	2367	221	154	1312	1368	107	82	295	39	15	48	29	32	22	323	168
Setúbal	1994	5285	16712	2850	177	103	1282	1518	142	42	322	33	13	65	36	28	16	379	168
Setúbal	1995	5904	17054	2663	176	135	1117	1400	149	39	332	22	6	68	35	40	9	447	168
Setúbal	1996	6322	15750	2775	140	115	763	1830	108	51	260	10	6	60	34	36	10	588	168
Setúbal	1997	6419	15627	2560	196	125	649	1609	128	38	257	38	15	102	33	30	18	622	233
V. Castelo	1993	1203	2539	895	75	15	59	173	50	38	93	16	5	15	26	27	13	88	60
V. Castelo	1994	1109	2790	811	64	19	51	209	27	19	38	11	2	54	29	23	19	140	60
V. Castelo	1995	1181	2942	1480	64	16	66	346	36	12	82	9	5	42	29	22	3	160	60
V. Castelo	1996	1304	2747	1003	49	23	47	363	25	16	26	13	1	46	53	36	3	173	60
V. Castelo	1997	1375	2595	1098	38	9	55	507	19	13	32	19	3	21	34	13	4	153	78
Vila Real	1993	1265	2515	682	51	40	88	283	32	38	67	12	3	55	28	31	7	102	98
Vila Real	1994	1264	2290	824	40	31	94	284	29	22	48	7	2	40	42	23	6	143	98
Vila Real	1995	1507	2397	1012	63	36	78	315	55	20	56	10	3	45	23	32	17	175	98
Vila Real	1996	1540	2659	840	46	34	54	296	28	22	29	4	2	80	29	45	33	193	98
Vila Real	1997	1741	2810	850	46	24	45	235	25	14	34	2		111	43	44		193	135
Viseu	1993	2025	3140	670	44	61	94	270	31	37	89	19	10	44	44	25	10	104	73
Viseu	1994	2103	3864	893	72	51	101	327	44	33	44	10	7	67	39	54	12	136	73
Viseu	1995	2388	3439	1209	60	50	80	332	40	16	65	13		47	43	41		177	73
Viseu	1996	2325	3622	1127	80	45	54	408	51	17	39	7	5	69	34	32	8	205	73
Viseu	1997	2265	3670	1144	85	24	87	361	62	23	26	8	2	59	31	16	32	199	142

Source: GEP MJ

Notes: Convictions refers to individuals sentenced to unsuspended prison incarceration. Prison population includes individuals awaiting trial. Prison capacity refers to beds in central and regional prison facilities but excludes beds in three special prison facilities. *1993 prison data refers to 1992 prison data.

Appendix Table 8: Offenses, Arrests, Convictions, Sentence and Prison Data for Districts in Continental Portugal, 1993-97

Distrito	Year	Offenses	Arrests	Convictions	Imp.Sentence	PrisPop*	PrisCap
Aveiro	1993	15793	1444	319	27.75	83	43
Aveiro	1994	17366	1350	265	37.50	75	43
Aveiro	1995	17252	1429	225	34.75	106	43
Aveiro	1996	17033	1537	202	27.50	111	43
Aveiro	1997	17339	1533	181	32.25	79	43
Beja	1993	2589	679	97	25.25	72	48
Beja	1994	2829	559	75	30.75	79	48
Beja	1995	3003	662	59	28.50	217	166
Beja	1996	2692	601	64	27.50	255	166
Beja	1997	2593	495	51	22.25	256	104
Braga	1993	16677	1596	329	26.50	247	179
Braga	1994	17549	1387	261	33.50	247	179
Braga	1995	18259	1424	298	32	323	179
Braga	1996	18056	1250	242	38.50	306	179
Braga	1997	17747	1422	239	45.75	311	120
Bragança	1993	2802	208	43	41.25	36	59
Bragança	1994	3290	288	43	38.50	75	59
Bragança	1995	3516	236	56	36.50	101	59
Bragança	1996	3331	1008	82	35.50	232	359
Bragança	1997	3306	1157	33	48	359	364
C.Branco	1993	3125	374	56	29	113	150
C.Branco	1994	3235	380	64	39	139	150
C.Branco	1995	3690	483	47	52.75	190	150
C.Branco	1996	3421	279	42	34	317	150

C.Branco	1997	3687	370	59	42.50	377	223
Coimbra	1993	10475	661	219	26.75	531	387
Coimbra	1994	11524	648	135	37.50	511	387
Coimbra	1995	12964	626	200	22	591	387
Coimbra	1996	11945	540	182	30.67	631	387
Coimbra	1997	11310	506	135	42.25	684	668
Évora	1993	3380	479	59	41.75	52	40
Évora	1994	3731	466	84	34.50	60	40
Évora	1995	4029	429	95	34.25	61	40
Évora	1996	3944	572	68	32.50	82	40
Évora	1997	3554	514	69	35.67	109	46
Faro	1993	18173	1595	330	34.75	296	116
Faro	1994	19832	1798	384	36.25	333	125
Faro	1995	19897	1919	293	35.75	377	125
Faro	1996	21009	1999	313	34.50	477	225
Faro	1997	21229	1880	210	30.25	490	246
Guarda	1993	2619	312	90	49.75	80	84
Guarda	1994	3101	329	66	41.25	147	84
Guarda	1995	2915	296	48	51.75	194	84
Guarda	1996	2660	340	33	37.50	175	84
Guarda	1997	2859	403	24	44.33	205	162
Leiria	1993	10940	963	154	28.25	286	142
Leiria	1994	12392	1035	214	31.25	350	142
Leiria	1995	12915	1064	229	41.25	393	142
Leiria	1996	12469	1068	151	39.75	402	142
Leiria	1997	12243	912	145	33.75	400	207
Lisboa	1993	136526	9000	1891	28.25	3458	3375

Lisboa	1994	156797	7742	2000	37	4062	3595
Lisboa	1995	145621	6617	2501	40.25	4745	4050
Lisboa	1996	120845	5299	1898	37.25	5356	4050
Lisboa	1997	124910	5344	1480	43.75	5444	4602
Portalegre	1993	2312	302	77	41.75	34	24
Portalegre	1994	2642	379	68	34.50	60	24
Portalegre	1995	2747	442	46	33.75	61	40
Portalegre	1996	2788	289	36	32	82	40
Portalegre	1997	2807	316	28	23	109	46
Porto	1993	57212	4992	1021	23.25	1701	1241
Porto	1994	61698	4570	706	34.75	1844	1351
Porto	1995	60751	4429	889	39.25	2099	1351
Porto	1996	61351	3700	694	35.75	2428	1351
Porto	1997	62522	3828	619	40.75	2366	1691
Santarém	1993	10366	1092	269	23.75	62	31
Santarém	1994	11197	1088	172	33.25	57	31
Santarém	1995	11625	1138	159	39	87	31
Santarém	1996	11350	1245	89	40.75	64	31
Santarém	1997	11446	1072	91	39.75	62	38
Setúbal	1993	22812	2941	431	32.75	323	168
Setúbal	1994	25024	3045	410	36.25	379	168
Setúbal	1995	25797	2801	399	38	447	168
Setúbal	1996	24987	2816	327	35	588	168
Setúbal	1997	24802	2511	348	45.75	622	233
V. Castelo	1993	4712	297	152	20.25	88	60
V. Castelo	1994	4774	306	70	31.25	140	60
V. Castelo	1995	5667	464	108	24	160	60

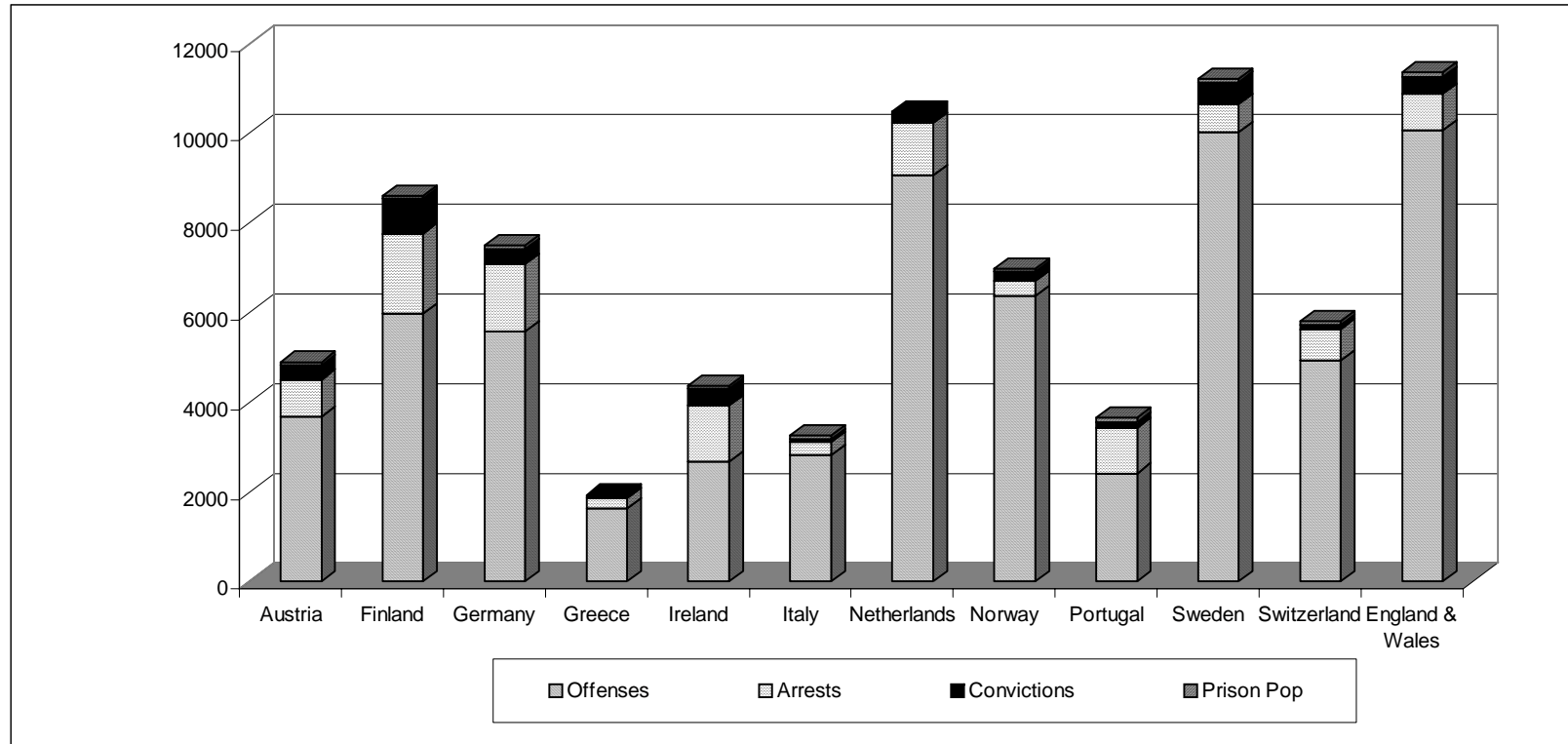
V. Castelo	1996	5103	458	56	34.50	173	60
V. Castelo	1997	5106	590	67	18	153	78
Vila Real	1993	4513	443	120	30.25	102	98
Vila Real	1994	4418	438	79	27.75	143	98
Vila Real	1995	4979	484	89	29.25	175	98
Vila Real	1996	5085	412	57	46.75	193	98
Vila Real	1997	5447	329	50	66	193	135
Viseu	1993	5879	456	155	30.75	104	73
Viseu	1994	6932	523	94	43	136	73
Viseu	1995	7096	502	94	43.67	177	73
Viseu	1996	7154	558	68	35.75	205	73
Viseu	1997	7164	534	59	34.50	199	142

Source: GEPMJ

Notes: Convictions refers to individuals sentenced to unsuspended prison incarceration. Prison population includes individuals awaiting trial. Prison capacity refers to beds in central and regional prison facilities but excludes beds in three special prison facilities.

*1993 prison data refers to 1992 prison data.

Figure 1: Offenses, Arrests, Convictions, and Prison Population for Western Europe, 1995



Source: European Sourcebook of Crime and Criminal Justice Statistics of the Council of Europe 1999-2000.

* There are no prison population figures for Greece and The Netherlands.

Figure 3: Offenses, Persons Charged, Convicted, and Serving Time, and Prison Data, Portugal, 1960-94

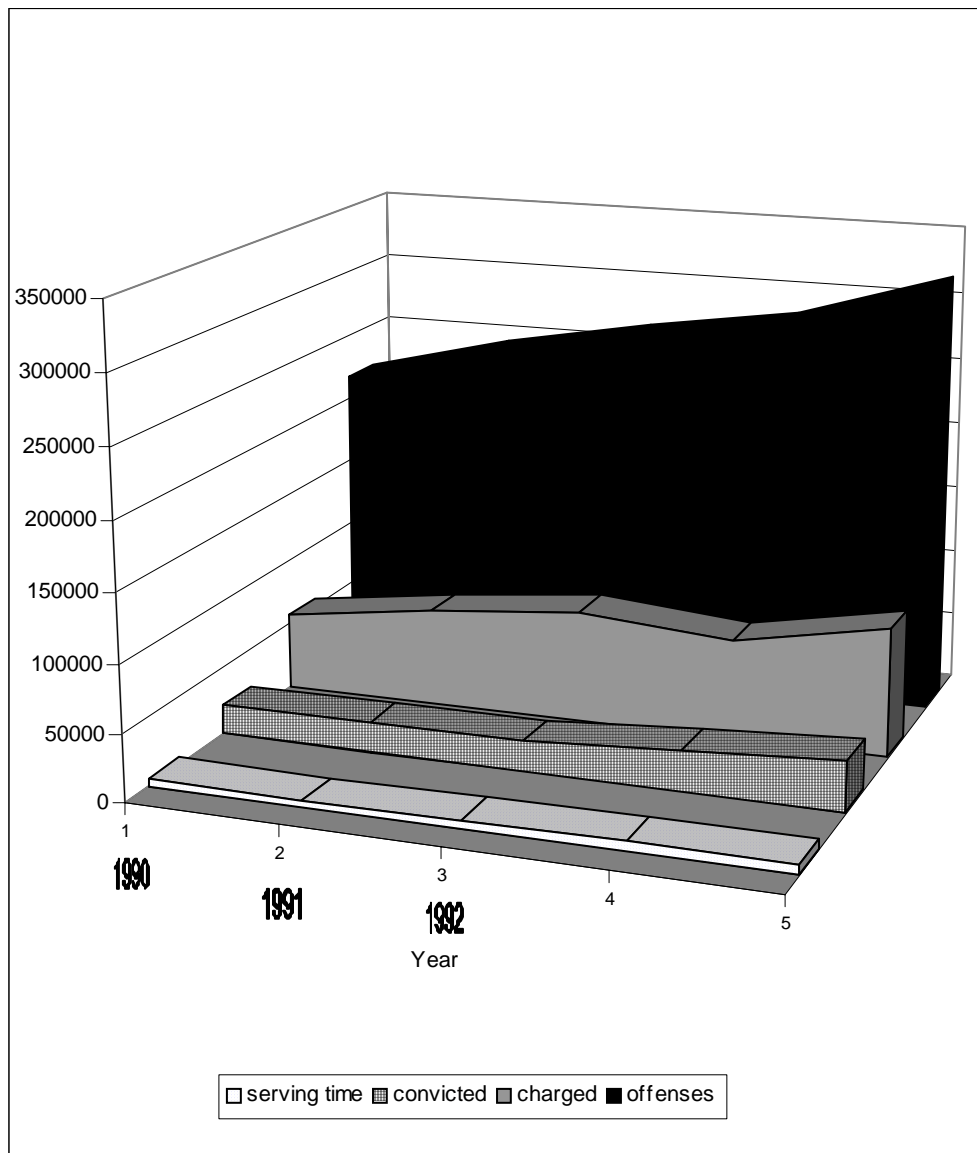


Source: See Table 7.4 for data; Barreto 1995

Note: The time units on the X-axis are biannual year numbered sequentially from 1960-80; they correspond to a single year thereafter so that year 1 is 1960, year 2 is 1962, year 12 is 1981, etc.

Figure 4: Offenses, Persons Charged, Convicted, and Serving Time in Portugal,

1990-94



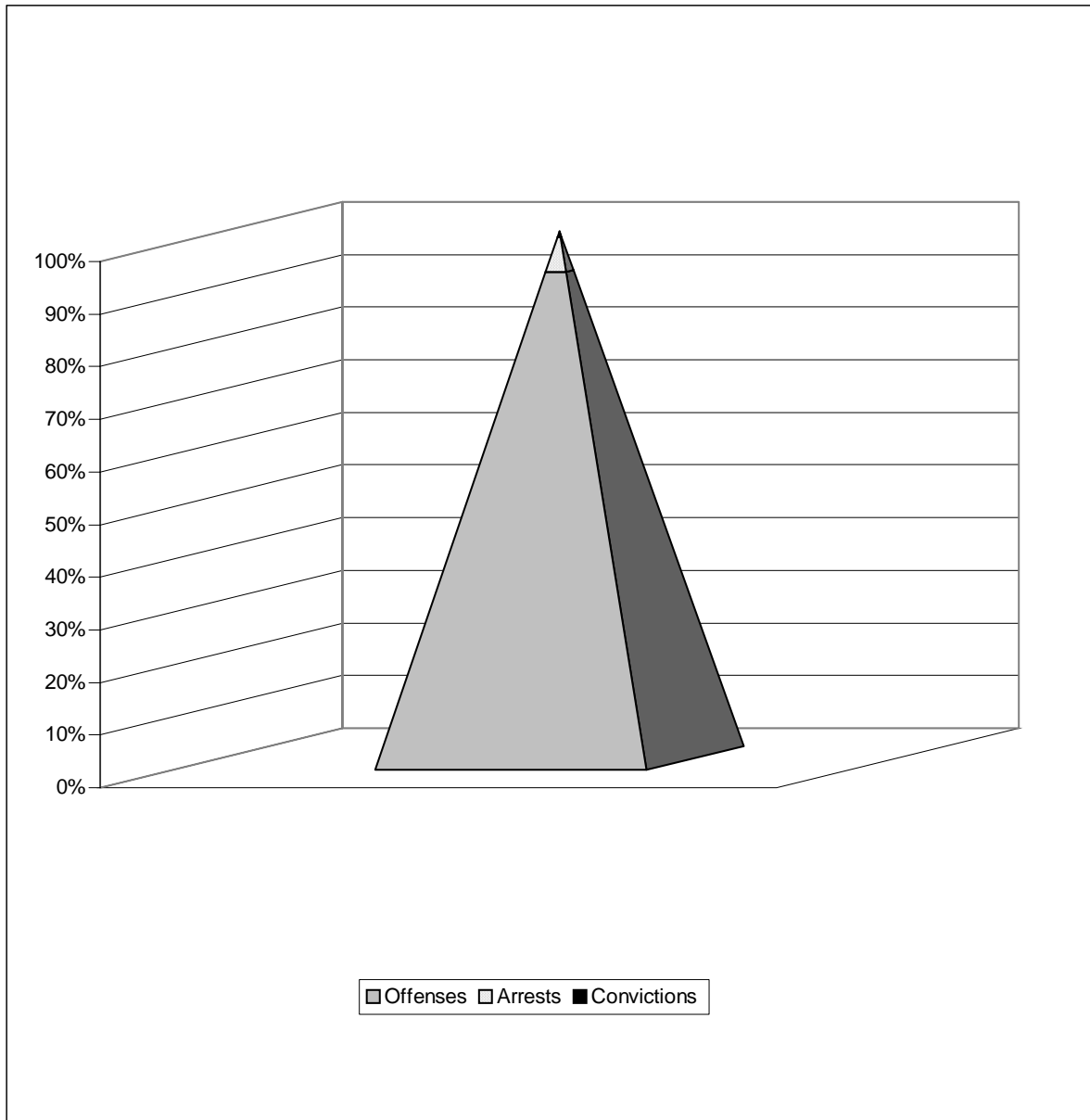
Year	N° Offenses	N° Charged	N° Convicted	N° Serving Time
1990	216999	56192	21833	6367
1991	244901	71687	22863	4884
1992	265819	82972	30351	5986
1993	283860	74274	37442	7212
1994	317882	95107	34484	6488

Source: Barreto 1995

Notes: Individuals charged are those brought before a criminal court. Convictions include sanctions other than unsuspended prison sentences. Individuals serving time include only those sentenced to prison incarceration.

* These are pardon or "amnistia" years.

Figure 5: Offenses, Arrests, and Convictions in Continental Portugal, 1997

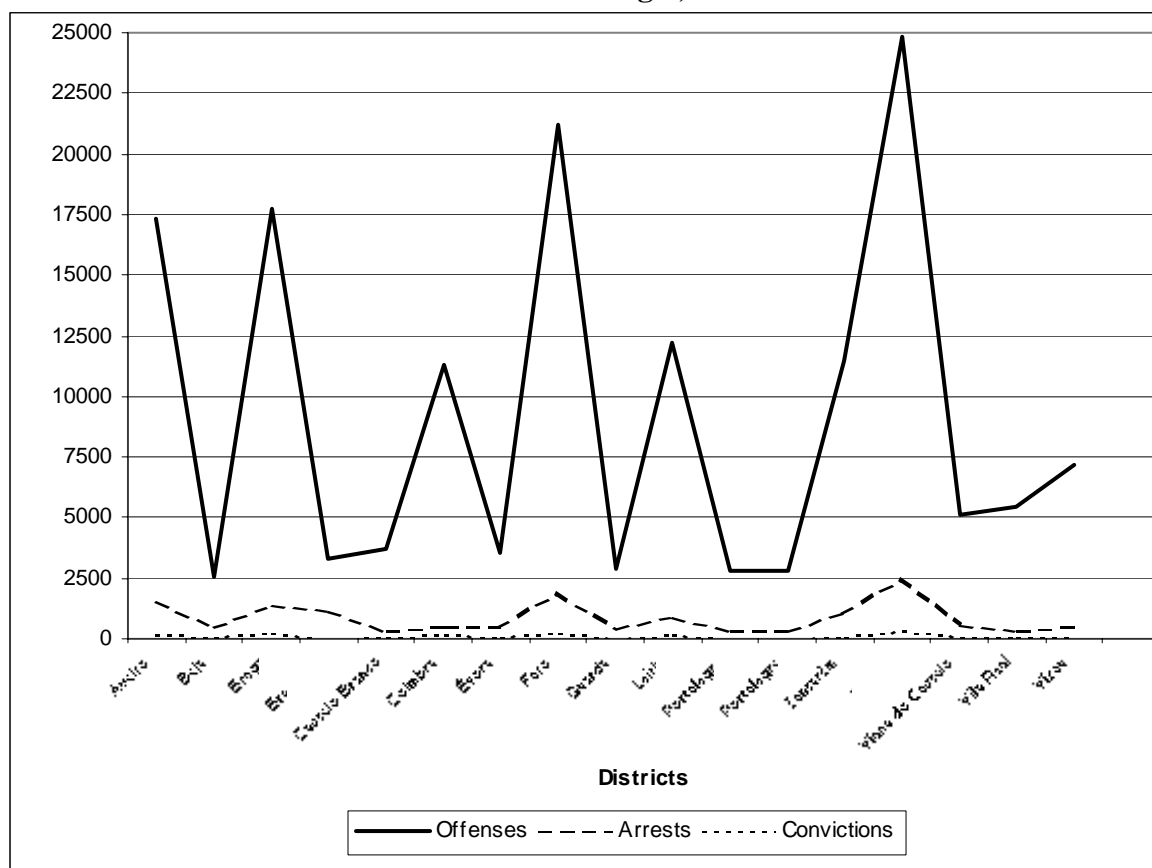


Offenses	Arrests	Convictions
340071	237160 (7%)	3888 (16% of Arrests; 1% of Offenses)

Source: GEPMJ

Note: Convictions refers to individuals sentenced to unsuspended prison incarceration.

Figure 6: Offenses, Arrests, and Convictions for the Districts of Continental Portugal, 1997

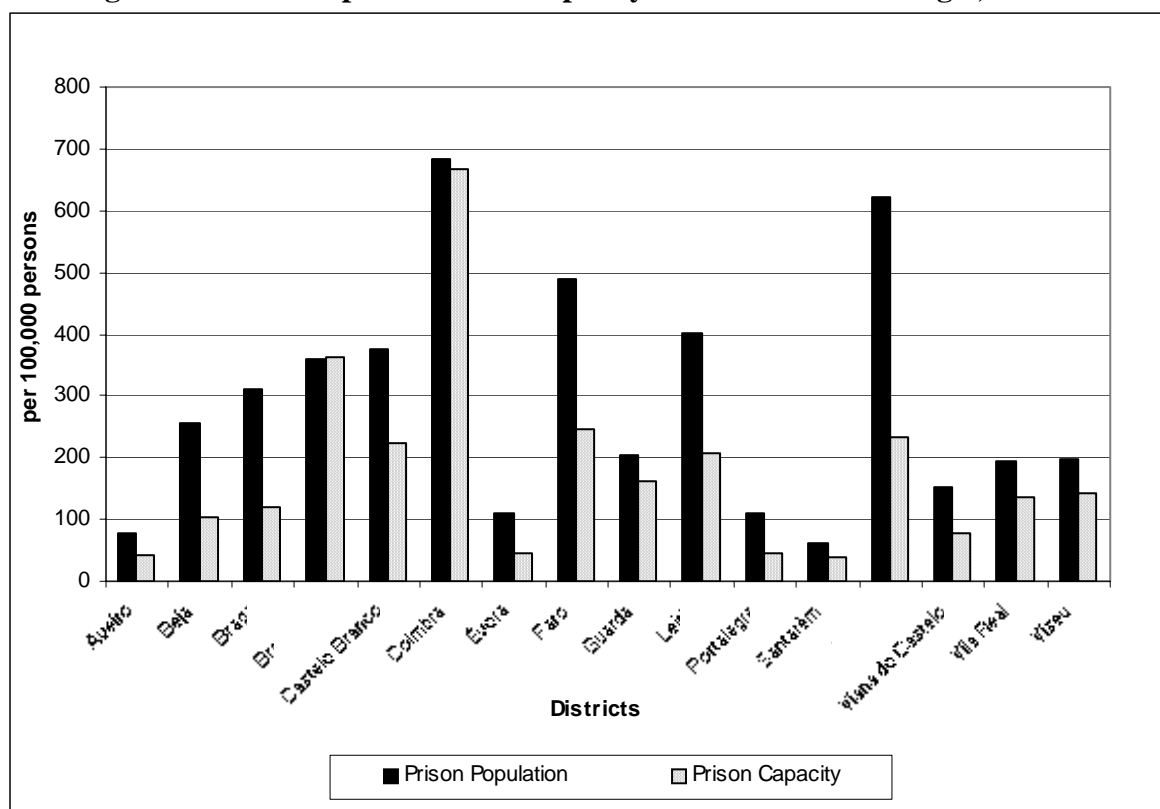


Districts	Offenses	Arrests	Convictions
Aveiro	17339	1533	181
Beja	2593	495	51
Braga	17747	1422	239
Bragança	3306	1157	33
Castelo Branco	3687	370	59
Coimbra	11310	506	135
Évora	3554	514	69
Faro	21229	1880	210
Guarda	2859	403	24
Leiria	12243	912	145
Lisboa	124910	5344	1480
Portalegre	2807	316	28
Porto	62522	3828	619
Santarém	11446	1072	91
Setúbal	24802	2511	348
Viana do Castelo	5106	590	67
Vila Real	5447	329	50
Viseu	7164	534	59

Source: GEPMJ

Notes: Convictions refers to individuals sentenced to unsuspended prison incarceration; Lisboa and Porto are excluded from the figure for greater resolution on the Y-axis, but the data for these two districts appear in the companion table.

Figure 7: Prison Population and Capacity in Continental Portugal, 1997

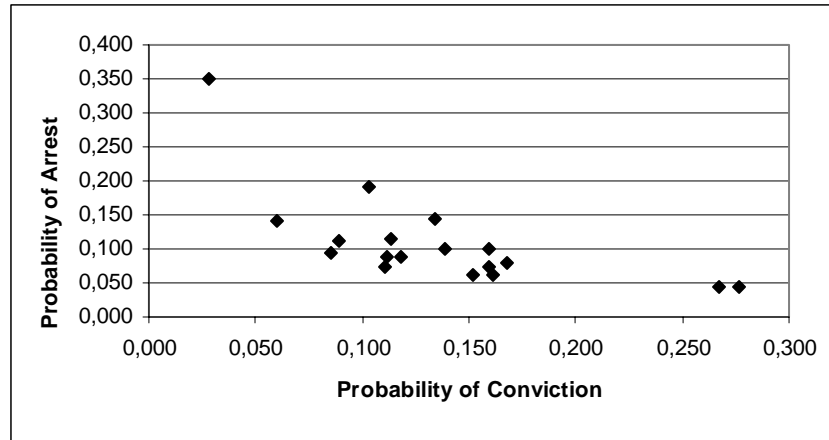


<u>District</u>	<u>Prison Population</u>	<u>Prison Capacity</u>
Aveiro	79	43
Beja	256	104
Braga	311	120
Bragança	359	364
Castelo Branco	377	223
Coimbra	684	668
Évora	109	46
Faro	490	246
Guarda	205	162
Leiria	400	207
Lisboa	5444	4602
Portalegre	109	46
Porto	2366	1691
Santarém	62	38
Setúbal	622	233
Viana do Castelo	153	78
Vila Real	193	135
Viseu	199	142

Source: GEP MJ

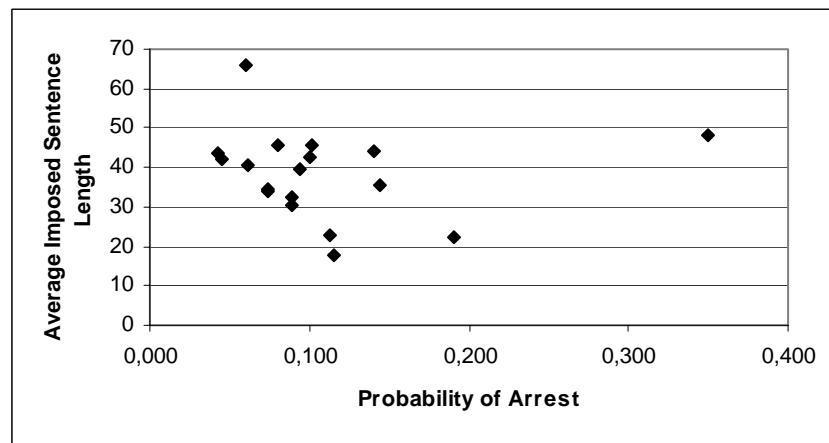
Notes: Prison data pertain to central and regional prison facilities; Lisboa and Porto are excluded from the figure for greater resolution on the Y-axis, but the data for these two districts appear in the companion table.

Figure 8: Scatterplots of the Probability of Arrest, Probability of Conviction, and Average Imposed Sentence Length for Total Crimes in Portugal, 1997



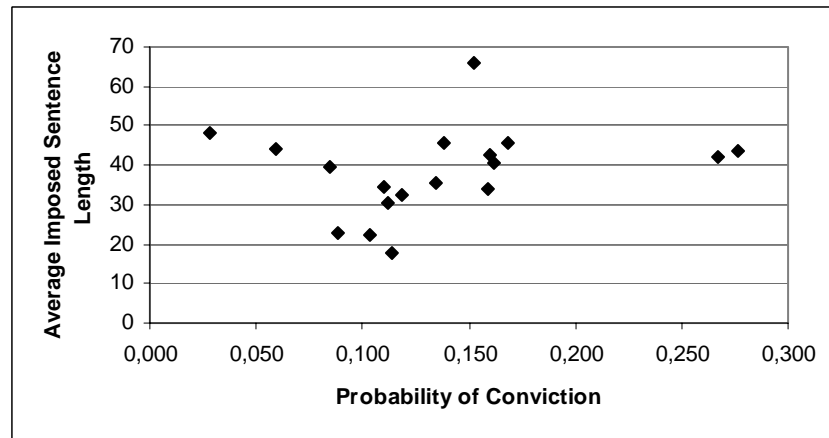
$$ProbArrest = .214 + .774 ProbConviction \quad R^2 = .461 \quad S_e = .053 \quad N = 18$$

(.031) (.209)



$$AverSentLength = 39.614 + 11.729 ProbArrest \quad R^2 = .005 \quad S_e = 11.550 \quad N = 18$$

(5.117) (39.667)



$$AverSentLength = 32.877 + 40.304 ProbConviction \quad R^2 = .049 \quad S_e = 11.292 \quad N = 18$$

(6.550) (44.206)

ⁱ The time units on the X-axis are biannual years numbered sequentially from 1960-1980 and annually thereafter so that year 1 is 1960, year 2 is 1962, year 12 is 1981, ... and year 25 is 1994.

ⁱⁱ In Portugal, both the national and regional legislative assemblies and the executive body (the Government) have the authority to legislate.