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KAUTILYA ON ADMINISTRATION OF JUSTICE DURING THE FOURTH CENTURY B.C.

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> "It is the power of punishment alone, when exercised impartially in proportion to the guilt, and irrespective of whether the person punished is the King's son or an enemy, that protects this world and the next" (Kautilya, p. 77).

Vishnugupta Chanakya Kautilya wrote a treatise called *The Arthashastra*, which means "science of wealth."[1] It contains three parts, which deal with issues related to economic development, administration of justice, and foreign relations. It has 150 chapters, which are distributed into fifteen books. Book three, which has twenty chapters and book four, which has thirteen chapters, are devoted to the administration of justice. Kautilya's Judicial System called "Dandaniti," "the science of law enforcement" is an important part of *The Arthashastra*. Kautilya codified, modified, and created new laws related to: loans, deposits, pledges, mortgages etc., sale and purchase of property, inheritance and partition of ancestral property, labor contracts, partnership,[2] defamation and assault, theft and violent robbery, and sexual offenses. He dealt with law and justice issues relating to both the civil law and the criminal law. He offered a truly comprehensive system of justice, which not only incorporated all the salient elements of a twenty-first century system but also contained a few additional invaluable insights.

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[1]A. K. Sen (1987, p. 5) believes that Kautilya's *Arthashastra* is the first book on economics. He states:

> The "engineering" approach also connects with those studies of economics which developed from the technique-oriented analyses of statecraft. Indeed, in what was almost certainly the first book ever written with anything like the title "Economics," namely, Kautilya's *Arthashastra* (translated from Sanskrit, this would stand for something like "instructions on material prosperity"), the logistic approach to statecraft, including economic policy, is prominent.

[2]Joseph J. Spengler (1971) makes a special note of legal rules regarding partnership. He (p. 79) writes: "Rules for the distribution of remuneration when work was done jointly not only were laid out by Kautilya but also found expression in commercial arithmetic. When workmen, guild members, or others engage in cooperative undertakings, they shall divide the wages as agreed upon or in equal proportions" (3.14.18).

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Kautilya's *Arthashastra* discusses many issues that are currently the subject of intense research.[3] His contributions relating to law and order issues may be classified under three headings:

(a) *Importance of the Rule of Law:* According to Kautilya, the existence of law and order was a pre-requisite for economic growth.[4] He (p. 108) believed, "The progress of this world depends on the maintenance of order and the [proper functioning of] government (1.4)." He continued, "Unprotected, the small fish will be swallowed up by the big fish. In the presence of a king maintaining just law, the weak can resist the powerful (1.4)." Kautilya argued that corruption retarded economic growth by siphoning-off resources and by adversely affecting law and order. He (p. 286) listed corruption and greed among the causes of loss in tax revenue, implying a lower provision of public infrastructure, which was essential to economic growth.[5]

(b) *Laws must be clear, consistent and in a written form:* Kautilya (p. 213) stated, "The rule of kings depends primarily on [written] orders; even peace and war have their roots in them [2.10]." There are at least two reasons why Kautilya codified the laws[6] First, many of the traditional laws were outdated or were insufficient to deal with the new situation. As Charles Drekmeier (1962, p. 260) explains:

> By the fifth and fourth centuries B. C. the ancient tribal institutions had lost their ability to regulate society effectively. New modes of production, new types of social relationships, new salvation theologies were changing the old ways. Kautilya was the theorist who most clearly saw the need for expanded state authority to fill the ever-widening gaps left by the declining authority of tradition.

Second, Kautilya was quite concerned about the possibility of green justice, that is, judges accepting bribes in exchange for rendering favorable verdicts. He codified the laws and introduced material incentives, such as efficiency wages, to complement the existing moral incentives to resolve the principal-agent problem. Recently, Edward L. Glaeser and Andrei Shleifer (2002, p. 1196) assert:

> Codification emerges in our model as an efficient attempt by the sovereign to control judges as his knowledge of individual disputes deteriorates (as it did when the states

[3]Since Gary S. Becker's (1968) seminal work, hundreds of articles have appeared dealing with many aspects of law enforcement. These works analyze various aspects of law enforcement and deterrence. These may be classified as: (i) rent-seeking behavior or corruption by the enforcers and its impact on economic growth and crime deterrence, (ii) judicial fairness and the minimization of legal errors in the disposition of criminal cases, (iii) the form of punishment that whether it should be monetary or non-monetary, and (iv) the time inconsistency or the credibility problems, that is, the society may not find it optimal to carry out the punishment once the crime has been committed, and the related issue of judicial discretion.

[4]Only recently has this issue drawn attention from economists. Pranab Bardhan (1997) reviews the issues related to corruption and economic growth.

[5]Kautilya's contribution is discussed in Sihag (2005, 2007a).

[6]Early Roman law derived from custom and statutes, but the emperor asserted his authority as the ultimate source of law. His edicts, judgments, administrative instructions, and responses to petitions were collected with the comments of legal scholars. As one 3rd-century jurist said, "What pleases the emperor has the force of law." As the law and scholarly commentaries on it expanded, the need grew to codify and to regularize conflicting opinions. It was not until much later in the 6th century AD that the emperor Justinian I, who ruled over the Byzantine Empire in the east, began to publish a comprehensive code of laws, collectively known as the Corpus Juris Civils, but more familiarly as the Justinian Code." http://www.crystalinks.com/romelaw.html.

> and the economies developed). The simplicity of bright line rules, and the possibility of verifying their violation, enables the king to use them to structure incentives contracts for judges.[7]

It is difficult, however, to put any specific label to Kautilya's views since he combined elements of historical, metaphysical, imperative, and sociological schools of jurisprudence.

(c) *Administration of Justice*: His insights into the administration of justice are the focus of the current study. According to Kautilya, effective law enforcement depended on three factors. (i) *Honesty of the Law Enforcers*: Kautilya emphasized that the law enforcers themselves including the king must be honest and law-abiding.[8] This is presented in section II. (ii) *Importance of Judicial Fairness*: Similarly, he emphasized the standard of proof, prompt trials, minimization of Type I error, and implicitly the minimization of type II error (since the king was required to compensate the victim if the crime was not solved). These issues, which come under the rubric of judicial fairness, are presented in Section III. (iii) *Impartiality, proportionality and certainty of punishment:* Kautilya's utmost emphasis on impartiality, certainty, and proportionality of punishment and discretion in sentencing are provided in section IV. Kautilya preferred monetary fines to non-monetary punishment and making sure that fines were paid-off. This and some other related issues are collected in section V. Section I contains a brief introduction to Kautilya and a justification for considering administration of justice as a worthy topic in the history of economic thought.

I. AN INTRODUCTION TO KAUTILYA AND THE CONTENTS OF *ARTHASHASTRA*

Some time during the last quarter of the fourth century BC, Vishnugupta Chanakya Kautilya wrote *The Arthashastra*: *The Science of Wealth and Welfare*. He has been credited with toppling the tyrant Nandas and installing Chandragupta Maurya (321

[7]Additional analysis on this issue is provided in Sihag (2004).

[8]A. Mitchell Polinsky and Steven Shavell (2000), pp. 72–73 survey the field on law enforcement. In the last section of their article, under the sub-heading "future research" they recommend:

> The behavior and compensation of enforcement agents have not been examined in this article, but this topic is important and should be studied for two reasons. First, the incentive of enforcement agents to discover violations is affected by the structure of their payments. Secondly, enforcement agents may be corrupted: they may accept bribes, or demand payments, in exchange for not reporting violations. Corruption tends to reduce deterrence, and therefore its presence obviously will affect the theory of optimal law enforcement.

In the light of Kautilya's contribution their suggestion amounts to: "going back to the future." Similarly, David D. Friedman (1999, p. 5261) describes the various elements of an efficient system of criminal punishment, which includes "penal slavery for criminals who can produce more than it costs to guard and feed them." He summarizes his findings as: "Hence imprisonment is always dominated by execution and both are dominated by fines and other alternatives. Modern legal systems do not fit that pattern. One possible explanation is that the ability of enforcers to profit by convictions can produce costly rent seeking." Friedman believes that the real reason for the existence of inefficient system is to curb the possibility of rent seeking on the part of the enforcers.

BC-297 BC) on the throne. However, there is no reference to the emperor Chandragupta or to his kingdom Magadha (state of Bihar, India) in *The Arthashastra* since, as mentioned above, it was meant to be a theoretical treatise.[9] He was the prime minister (adviser) to Chandragupta Maurya but he was an independent thinker. Jawaharlal Nehru (1946, p 123) describes Kautilya as follows: "He sat with the reins of empire in his hands and looked upon the emperor more as a loved pupil than as a master. Simple and austere in his life, uninterested in the pomp and pageantry of high position."

Date and Authorship of The Arthashastra

There has been a lot of controversy about the date and authorship of *The Arthashastra*. Sihag (2004) provides a brief discussion on the available evidence on this issue and concludes, "Today, there exists no direct evidence against Kautilya being the sole author of *The Arthashastra*, nor evidence that it was not written during the 4th century B.C. The indirect evidence such as the writing style of various segments of *The Arthashastra*, is insufficient to challenge either the date of its writing or Kautilya as the sole author."

Administration of Justice as a Part of History of Economic Thought

There are two arguments for including legal issues into the history of economic thought. First, Robert Dorfman (1991) notes, "*Wealth of Nations* was primarily a treatise on economic development." Adam Smith attached a significant role to the administration of justice as a prerequisite to economic growth in *The Wealth of Nations*. Smith wrote:

> Commerce and manufactures can seldom flourish long in any state which does not enjoy a regular administration of justice, in which the people do not feel themselves secure in the possession of their property, in which the faith of contracts is not supported by law, and in which the authority of the state is not supposed to be regularly employed in enforcing the payment of debts from all those who are able to pay. Commerce and manufactures, in short, can seldom flourish in any state in which there is not a certain degree of confidence in the justice of government (Bk. V, Ch. III, p. 445).

The inclusion of administration of justice in *The Wealth of Nations* is a sufficient justification to consider this topic as a part of the history of economic thought; for example, Dani Rodrik, Arvind Subramanian, and Francesco Trebbi (2004) begin their paper with the above quote. Steven G. Medema (2007) brings out Sidgwick's neglected but important contribution to this field. Glaeser and Shleifer (2002) provide a theoretical explanation for the differences between British and French legal systems (resulting in different outcomes, such as development of financial markets), which originated in the twelfth and thirteenth centuries. Somehow, many authors decided to

[9]Charles Drekmeier (1962, p. 167) observes: "The administrative organization and regulations of Kautilya are generally taken to be a description of the Mauryan system. However, Kautilya never purports to give an account of a specific polity. It is a theoretical work, and any attempt to deduce more than the broad outlines of the Mauryan administrative system from it must bear this in mind." It is a well-established fact that the *Arthashastra* is a theoretical treatise.

Pushpendra Kumar (1989, p. xxv) also notes: "Thus he stands out as the foremost theorist of ancient India and the first to prepare a scientific treatise on state-craft with economics as the basic factor."

publish in journals which are not classified as history of economic thought journals, but clearly their contributions belong to the history of economic thought.

Second, according to Henry W. Spiegel (1991), the trend of broadening the scope of economics started with Wicksteed. He states, "His (Wicksteed's) reference to the 'the purposeful selection between alternative applications of resources' was to resound later in Robbin's definition of economics as the science that treats of the allocation of scarce resources among different uses" (p. 528). He adds, "The elevation of the logic of choice to an all-encompassing rule guiding human behavior in all its aspects has encouraged later writers to claim for economics a far wider scope than is conventionally accorded to it." Similarly, both George J. Stigler (1984) and Edward P. Lazear (2000) label economics as an imperial science because of its colonization of other disciplines such as sociology, history, political science, and law. Paul A. Samuelson (1968) describes the current scope of economics quite aptly when comparing, "Harriet Martineau, who made fairy tales out of economics" with modern economists "who make economics out of fairy tales." Thus, according to the current scope of economics, any analysis related to the administration of justice is a part of economics, implying that it automatically becomes a part of history of economic thought also.[10]

Finally, Warren J. Samuels (2005, p. 404) explains it very elegantly and succinctly: "Smith's system of social science with the three spheres of moral rules, market, and law, and so on, neither component of a dichotomy or trichotomy is self-sufficient and independent of each other. They not only interact; they help change each other." That is, "moral rules, market and law" are endogenous variables and therefore, administration of justice is an integral part of any meaningful economic analysis including that of the history of economic thought. Moreover, if a study of eugenics can be recognized as a part of history of economic thought (Leonard 2005), administration of justice should also be a part of history of economic thought since it has an equal if not a higher standing.

The Arthashastra was written in Sanskrit but now its translations in English are available. The interpretations, to a large extent, are based on L. N. Rangarajan's translation of *The Arthashastra* but in a few cases are based on R. P Kangle's translation and only these are explicitly indicated. Kautilya, popularly known as Chanakya (the son of Chanaka), also completed two other works: *Chanakya-Sutras* (Rules of Science) and *Chanakya-Rajanitisastra* (Science of Government Policies).

II. KAUTILYA ON CORRUPTION OF ENFORCERS AND CRIME DETERRENCE

King as a Role Model

Kautilya (p. 121) stated, "A king endowed with the ideal personal qualities enriches the other elements when they are less than perfect (6.1)." He (p. 123) added,

[10]Hal R. Varian (1993, p. 162) notes: "When Markowitz defended his dissertation at the University of Chicago, Milton Friedman gave him a hard time, arguing that portfolio theory was not a part of economics, and therefore that Markowitz should not receive a Ph.D. in economics. Markowitz (1991) says, 'this point I am now willing to concede: at the time I defended my dissertation, portfolio theory was not part of Economics. But now it is'."

"Whatever character the king has, the other elements also come to have the same (8.1)." Kautilya expected a king to be like a sage. He (p. 145) explained a sage king:

> A rajarishi [a king, wise like a sage] is one who: has self-control, having conquered the [inimical temptations] of the senses, cultivates the intellect by association with elders, is ever active in promoting the security and welfare of the people, endears himself to his people by enriching them and doing good to them and avoids daydreaming, capriciousness, falsehood and extravagance (1.7).

Protection of Private Property Rights

According to Kautilya (p. 121), "The wealth of the state shall be one acquired lawfully either by inheritance or by the king's efforts (6.10)." He (p. 231) wrote, "Water works such as reservoirs, embankments and tanks can be privately owned and the owner shall be free to sell or mortgage them (3.9)."

A Justification for Bureaucracy

Kautilya (p. 177) observed, "A king can reign only with the help of others; one wheel alone does not move a chariot. Therefore, a king should appoint advisers as councilors and ministers and listen to their advice (1.7)." He (p. 196) added, "Because the work of the government is diversified and is carried on simultaneously in many different places, the king cannot do it all himself; he, therefore, has to appoint ministers who will implement it at the right time and place (1.9)."

Principal-Agent Problem

Adolf A. Berle and Gardiner C. Means (1932) observed that there was a separation of ownership and control in public corporations and suggested that incentives were required to induce the CEO, the agent, to adhere to the objective of the shareholders, the principal. Since then a considerable amount of effort has been devoted to explore a whole set of mechanisms to resolve the principal-agent problem.[11]

According to Sihag (2007b), Kautilya "Recognized the principal-agent problem and suggested various mechanisms to induce the agents to supply optimum effort, and also not to collude, quarrel, steal or desert the king." Kautilya recommended the payment of an efficient wage (8000 panas, a square-shaped silver coin, which was a medium of exchange and unit of account, whereas the lowest wage was 60 panas) to the judges to encourage honesty and efficiency. More than half a century ago, Frank H. Knight (1947, p. 62) observed, "In the liberal view, the individuals who implement state action do not act as individuals, but are the agents of law, and the law is the creation of society as a whole, of the 'sovereign people,' and not of individuals." Knight makes two important points: (i) the enforcers are just the agents of the state (he notes the principal-agent problem), and (ii) the whole society consisting of

[11]Joseph E. Stiglitz (1987, p. 966) credits Stephen Ross (1973) for coining the term principal-agent.

"sovereign" people creates the law. Kautilya understood the principal-agent problem but the public did not directly create the law, although Drekmeier (1962, p. 25) notes that "we may say that early Indian kingship was broadly contractual, conceived of as a trust, subject to popular approval, and, most important, subject to higher law and certain other restraints, normative and practical. It was basically a secular institution."

Kautilya's Insistence on Honest Enforcers as a Prerequisite for Effective Law Enforcement

Kautilya was acutely aware of the possibility that some law enforcers might resort to extortion. He believed that honesty on the part of law enforcers was a prerequisite for effective law enforcement. He (pp. 493–94) asserted, "Thus, the king shall first reform the administration, by punishing appropriately those officers who deal in wealth; they, duly corrected, shall use the right punishments to ensure the good conduct of the people of the towns and the countryside (4.9)." He (p. 221) pointed out:

> There are thirteen types of undesirable persons who amass wealth secretly by causing injury to the population. [These are: corrupt judges and magistrates, heads of villages or departments who extort money from the public, perjurers and procurers of perjury, those who practice witchcraft, black magic or sorcery, poisoners, narcotic dealers, counterfeiters and adulterators of precious metals.] When they are exposed by secret agents, they shall either be exiled or made to pay adequate compensation proportionate to the gravity of the offense (4.4).

He labeled them as "anti-social elements" and recommended their elimination. Interestingly, corrupt judges were in the list of the "undesirable persons."

Guidelines on Judicial Conduct

Kangle (Part III, p. 215) notes that, "The judges are called dharmasthas, a name which apparently refers to the dharma or law, by which they are to be guided in their work." Kautilya provided a detailed set of guidelines to ensure the judicial process would be fair and impartial. According to him (p. 381),

> A judge shall not: threaten, intimidate, drive away or unjustly silence any litigant; abuse any person coming before the court; fail to put relevant and necessary questions or ask unnecessary or irrelevant questions; leave out [of considerations] answers relevant to his own questions; give instructions [on how to answer a question]; remind [one of a fact]; draw attention to an earlier statement; fail to call for relevant evidence; call for irrelevant evidence; decide on a case without calling any evidence; dismiss a case under some pretext; make someone abandon a case by making them tired of undue delays; misrepresent a statement made in a particular context; coach witnesses; or rehear a case which had been completed and judgment pronounced. All these are punishable offenses; in case the offense is repeated, the judge shall be fined double and removed from office (4.9).

Kautilya offered a comprehensive list of ways in which a judge could affect the outcome of a case. He believed that a judge must be competent and not compromise

with the judicial process to ensure impartiality. It is obvious that the judges themselves were not above the law. Kangle (Part III, pp. 221–22) observes, "Such treatment expected to be meted out to members of the judiciary strikes us today as being very strange. If judges are themselves to be fined, the dignity that is expected to be attached to their office is bound to disappear. The judges, in the scheme of this context, occupy a position subordinate to the executive and are far from being independent of it." However, there was no other practical way to remove them since there did not exist any legislative body to have hearings for the removal of corrupt judges.

In fact, there were guidelines even for the judge's clerk. Kautilya (p. 382) wrote, "The clerks [who record statements made before the court] shall: record the evidence correctly; not add to the record statements not made; hide the ambiguity or confusion in evidence badly given; make unambiguous statements appear confused; or change, in any way, the sense of the evidence as presented. All these are punishable offenses (4.9)."

Similarly, Kautilya was concerned about the dishonesty of other government officials. For example, he (p. 284) argued against an overzealous tax collector, "He who produces double the [anticipated] revenue eats up the janapada [the countryside and its people, by leaving inadequate resources for survival and future production] (2.9)." He (p. 181) suggested to the king, "He shall protect agriculture from being harassed by [onerous]) fines, taxes and demands of labor (2.1)." He advised the king to compensate the victims and punish the corrupt officials. He (p. 297) recommended, "A proclamation shall then be issued calling on all those who had suffered at the hands of the [dishonest] official to inform [the investigating officer]. All those who respond to the proclamation shall be compensated according to their loss (2.8)." He (p. 742) suggested, "Any official who incurs the displeasure of the people shall either be removed from his post or transferred to a dangerous region (13.5)."

III. KAUTILYA ON JUDICIAL FAIRNESS AND MINIMIZATION OF LEGAL ERRORS

Current discussion on issues related to judicial fairness is focused primarily on the standard of proof and minimization of legal errors.[12] Kautilya's judicial system incorporated all the essential ingredients of fairness in resolving disputes. These are explained below.

Expedient Trials

The judicial trials were initiated very promptly, perhaps not to adhere to the dictum that "justice delayed is justice denied" but due to the belief of an increasing unreliability of evidence as time passed. Kautilya (p. 462) argued, "Because interrogation after some days is inadmissible [unreliable?], no one shall be arrested on suspicion of having committed theft or burglary if three nights have elapsed since the crime,

[12]For example, Thomas J. Miceli (1990) remarks that, "For instance, an important question of fairness relates to the incidence of errors by the criminal process."

unless he is caught with the tools of the crime (4.8)." However, he (p. 472) did state, "An offender shall not go scot-free [just because of passage of time] (3.19)." He (p. 386) suggested, "The maximum time allowed for a defendant to file his defense shall be three fortnights (3.1)."

Standard of Proof

According to Kautilya (p. 386), "[In any case before the judges] admission [by the defendant of the claim against him] is the best. If the claim is not admitted, then the judgment shall be based on the evidence of trustworthy witnesses, who shall be persons known for their honesty or those approved by the Court. [Normally,] there shall be at least three witnesses (3.11)." He (p. 388) added:

> In determining a suit in favor of one or the other party, the following shall be taken as strengthening a party's case: statements of eyewitnesses, voluntary admissions, straightforwardness in answering questions and evidence tendered on oath. The following shall go against a party: contradiction between earlier or later statements, unreliable witnesses or being brought to court by secret agents after absconding (3.1).

A few remarks are in order. First, Kautilya's goal was to prevent the incidence of crimes and to ensure judicial fairness if a crime occurred. His conceptual framework offers a reference point. For example, there was no jury, or a team of prosecutors or of defense lawyers at that time. The simple question is: has this institutional change improved upon the delivery of justice? According to Kautilya, judicial fairness depended on the amount of evidence and its reliability. Obviously non-availability of statistical methods at that time was not a big handicap in measuring the reliability of the evidence. Since objective measures of probabilities regarding the accuracy of evidence were not available during the fourth century BC, nor are they available now. Most likely the judge formed some subjective measure of reliability and similarly; even today every judge or juror has to form some subjective measure of reliability of evidence. That is why a concerted effort is made both by defense and prosecution to appeal to the juror's emotions to influence his/her subjective measure of reliability. Second, Kautilya considered the "number of witnesses," that is, the amount of evidence also in deciding a case. These days the prosecutor stresses the "mountain" of evidence whereas the defense questions its reliability—that is, tries to create a reasonable doubt. According to Kautilya, witnesses must be independent and known for their honesty, implying that the current practice of allowing testimonies of biased and paid expert witnesses or of convicted jailhouse inmates may be helpful in convicting the innocent or setting the guilty free (such as in committing legal errors) but not necessarily in the delivery of justice.

Kautilya (p. 462) recommended, "Anyone arrested [on suspicion of having committed a theft of burglary] shall be interrogated in the presence of the accuser as well as witnesses from inside and outside [the house of the accuser] (4.8)." He (p. 463) asserted, "A suspect may admit to being a thief, as Ani-Mandavya did, for fear of the pain of torture. Therefore, conclusive proof is essential before a person is sentenced (4.8)." Kautilya insisted on solid evidence for conviction (although the above story is told a little differently in the Epic Mahabharata, that a sage did not

want to break his vow of silence to declare his innocence, but the implication is the same). Kautilya (pp. 464–65) offered a detailed discussion on forensic evidence for establishing the cause of death. However, he (pp. 466–67) did recommend torture to elicit confession but only in those cases (excluding the sick, the minors, the aged, the debilitated, the insane, those suffering from hunger, thirst or fatigue after a long journey and a pregnant woman) where there was a strong suspicion of guilt. He (p. 467) cautioned, "A person can be tortured only on alternative days and only once on the permitted days. Torture shall not result in death; if it does so, the person responsible shall be punished (4.8)." It may be noted that the accused was to be questioned in front of the accuser implying that Kautilya would not have approved the current practice of giving a choice to the accused whether to take the witness stand or not.

Punishment for Perjury

Perjury was a punishable offense. Kautilya (p. 388) stated, "Witnesses are obliged to tell the truth. For not doing so, the fine shall be 24 panas and half for refusal to testify (3.11)."

Futility of Witness Tampering

Kautilya (p. 389) added that if a party to a suit "conspires with witnesses by talking to them in secret when such conversation is prohibited (3.1)" would be an adequate ground against the party.

Cost of Type I Error

Kautilya (p. 493) wrote, "An innocent man who does not deserve to be penalized shall not be punished, for the sin of inflicting unjust punishment is visited on the king. He shall be freed of the sin only if he offers thirty times the unjust fine (4.13)." According to Kautilya, convicting an innocent person was a "sin," that is, an ethical lapse and also a huge monetary loss ("thirty times") for the State.

Cost of Type II Error

Kautilya (p. 437) suggested, "If a King is unable to apprehend a thief or recover stolen property, the victim of the theft shall be reimbursed from the Treasury (i.e. the king's own resources). Property [unjustly] appropriated shall be recovered [and returned to the owner]; otherwise, the victim shall be paid its value (3.16)." Two remarks are in order. First, a much broader and more relevant definition of Type II error is discernible from Kautilya's statement. He did not make a distinction between the guilty who were arrested but not convicted and those guilty defendants who had evaded arrest (this is explained below), whereas the commonly advanced definition of Type II error is confined only to the guilty defendants who are arrested but not convicted due to lack of sufficient evidence against them. Second, at that time, no private insurance policies (a case of missing markets) were available against the possibility of loss

Table 1a. A Numerical Example to Calculate Type I and Type II Errors

		Guilty	Not Guilty	Total
Arrested		100	10	110
	Convicted	80	5	
	Not Convicted	20	5	
Not Arrested		900	98990	99890
Total		1000	99000	100,000

caused by theft and burglary and the king was asked to fulfill this role. Consequently, there was a built-in incentive to prevent crimes from happening and solving them if they happened; otherwise, the king had to compensate for the loss. Certainly a market for insuring such losses has been created, which is a good thing, but in the process the built-in incentive to prevent and solve such crimes has been lost. The above numerical table 1a may be used to make Kautilya's definitions of Type I and Type II errors explicit.[13]

[13]Becker (1968) discussed only the prevention of crimes but did not suggest anything if a crime was committed. Miceli (1991) proposes a comprehensive model of fairness and deterrence, which presumably combines Becker's crime prevention model and Miceli's (1990) fairness model. However, Kautilya implicitly provided a more comprehensive approach with many additional insights. The following table 1b captures Kautilya's conceptual framework.

Table 1b. Kautilya's Conceptual Framework for Defining Type I and Type II Errors.

		Truly Guilty (G)	Innocent (G_c)	
Arrested (A)	Convicted (C)	$P(A \cap G)$ P(C ∩ A ∩ G) (Correct Decision)	$P(A \cap G_c)$ $P(C \cap A \cap G_c)$ (Type I Legal Error)	P (A)
	Not convicted (C_c)	$P(C_c \cap A \cap G)$ (Type II Legal Error)	$P(C_c \cap A \cap G_c)$ (Correct Decision)	
Not arrested (A_c)		$P(A_c \cap G)$	$P(A_c \cap G_c)$	$P(A_c)$
		P (G)	$P(G_c)$	1

Let G = the number of guilty and G_c = the number of innocent. Let $P_a = P(A/G) = [P(A \cap G) / P(G)] =$ probability of arresting a guilty person, $P_c = [P(C \cap A \cap G)/ P(A \cap G)] =$ probability of convicting a guilty person who has been arrested, $\pi = P_a P_c = P(C \cap A \cap G)/ P(G) =$ probability of arresting and convicting a guilty person. Kautilya's implicit definition of Type II error includes defendants (a) who actually committed crimes and were arrested but did not get convicted and, (b) who were not even arrested, that is who were still at large. According to Kautilya, the king was supposed to compensate the victims under both the possibilities, implying that if the defendant did not get convicted his arrest alone was not sufficient in reducing the king's liabilities. So Kautilya's approach implicitly defined the probability of Type II error as, $\beta = (1 - P_a P_c) = (1 - \pi) =$ probability of a guilty person not convicted, and the probability of Type I error as, $\alpha = P(C \cap A \cap G_c) / P(G_c) =$ probability of arresting and convicting an innocent person.

Kautilya's Definitions

Probability of Type I error $= (1 - \delta)\ P_i\ (A/\ G_c) = 5/99000$. It may be noted that given other things constant, the probability of Type I error increases as the number of arrests increases. In actuality as the number of arrests increase, the police may get over-burdened and courts get crowded and, consequently, both δ and P_i are adversely affected. The probability of arresting and convicting the criminal is $\pi = \delta\ P_g\ A/G = 80/1000$, and this is relevant if the goal is the prevention of crimes. That is precisely the definition Gary S. Becker considers for preventing crimes. As mentioned above, Kautilya did not make a distinction between those defendants who were arrested but not convicted and those guilty defendants who were not even arrested. Since the king was asked to compensate for all the unresolved cases, according to Kautilya, the Type II error probability is $= 1 - \pi\ = 920/1000$. It may be noted that given other things equal, the probability of Type II error decreases as the arrests increase.[14]

Of course, Kautilya's goals were to avoid the arrest of an innocent person and if an innocent person is arrested, not to convict him—that is, if possible to achieve, $\delta = 1$, or $P_i = 0$. However, if $\delta = 1 - \delta$ or $P_g = P_i$, that is, if the probabilities of arrest or conviction were the same for the guilty and the innocent, there would be a chaos. Kautilya was quite concerned about the possibility of such a situation.

[14]A judicial process is initiated to find the guilt or innocence of a person arrested for an alleged crime. For example, Miceli (1991) defines the probabilities of legal errors as follows: He sets $\delta =\ P\ (G/A) = [P\ (A \cap G)/P\ (A)]$ = probability that an arrested person is guilty; $P_g = [P(C \cap A \cap G)/\ P\ (A \cap G)]$ = probability of convicting a guilty person (i.e., $(1 - P_g)$ is the probability of not convicting a guilty person); probability that an arrested person is guilty and is convicted $=\ \delta P_g = P\ (C \cap A \cap G)/\ P\ (A)$. Type II legal error probability $= \delta\ (1 - P_g)$. Probability of convicting an innocent person $= P_i = P\ (C \cap A \cap G_c)/\ P\ (A \cap G_c)$, and Type I legal error probability $= (1 - \delta)\ P_i = P\ (C \cap A \cap G_c)\ /\ P\ (A)$ = probability of arresting and convicting an innocent person.

Miceli's definitions based on the numbers: Type I error probability $= 5/110$ and type II error probability $= 20/110$. If the objective is to assess the performance of the judiciary only, Miceli's definitions are sufficient since his analysis is confined only to those who have been arrested. However, his definitions are not relevant if the objective is to deter crimes. For example, if the enforcement authorities arrest just one criminal person (out of the 1000) and convict him, that is, $\delta = 1$ and $P_g = 1$. According to Miceli's definition, the probability of conviction $= \delta\ P_g = 1$. But that cannot be correct since the probability of conviction of a guilty person would be $= 1/1000\ (= \delta\ P_g\ A/G = A/G)$, which is very small to deter any crime. It means that Miceli's model did not achieve its goal of combining prevention of crimes and judicial fairness.

Polinsky and Shavell (2000) do not define the various probabilities explicitly. It seems that they define the legal errors in the following way. Let the probability of detection, P be defined as $P =\ A/G = 110/\ 1000$, the Type I error probability (they call it Type II error), $\varepsilon_2 = (1 - \delta)\ A/G = 10/1000$; and Type II error probability, $\varepsilon_1 = \delta\ (1 - P_g)\ A/G = 20/1000$. That means in the presence of legal errors, the effective probability of detection $= P\ (1 - \varepsilon_1 - \varepsilon_2) = \delta\ P_g\ A/G = 80/1000$. This is precisely, the probability of arresting and convicting a guilty person and is relevant for deterring crimes.

They present an alternative insightful interpretation of these errors. They consider the negative impact of Type I error (contrary to tradition, they call it Type II error) on crime deterrence, and they note, "The second type of error, mistaken liability, also lowers deterrence because it reduces the difference between the expected fine from violating the law and not violating it. In other words, the greater is ε_2, the smaller the increase in the expected fine if one violates the law, making a violation less costly to the individual."

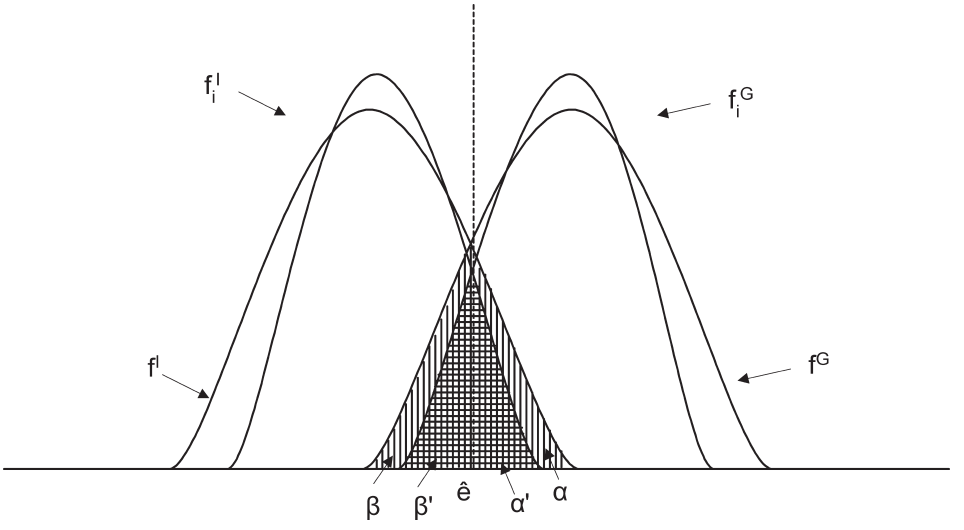

Figure 1. (f^I) and (f^G) indicate the initial probability distributions of evidence against an innocent person and a guilty person respectively. f_i^I and f_i^G are the respective probability distributions with reduced variances of evidence against an innocent person and a guilty person and α' and β' are the reduced respective probabilities of Type I and Type Ii errors due to the availability of additional evidence.

Reduction of Errors through Additional Evidence

Kautilya (p. 389) explained, "If there is a conflict in the evidence given by different witnesses, the judgment shall take into account the number of witnesses, their reliability and the [opinion of the court on their] disinterestedness (3.11)." It is significant to note that according to Kautilya, additional evidence, such as the number of witnesses, was assumed to reduce the magnitudes of both the Type I and Type II errors.[15] The above figure 1 may be used to explain Kautilya's insight.

The probability distribution of evidence against an innocent person is indicated by (f^I) and that against a guilty person by (f^G). Kautilya's analysis implied that the probability distributions shrank as the amount of evidence increased. The probability distribution for the innocent shrank from f^I to f_i^I and the probability distribution for the guilty shrank from f^G to f_i^G. Consequently the Type I error was reduced[16] from α to α^1 and the Type II error was reduced from β to β^1.

IV. KAUTILYA ON THE OPTIMUM LEVEL OF PUNISHMENT

Role of the Judge

In the absence of a jury, a defense lawyer, and a prosecutor, there was a very heavy burden on the judges and magistrates to keep legal errors to the minimum. Kautilya

[15]See Thomas H. Wonnacott and Ronald J. Wonnacott (1977, pp. 259–60).

[16]On the other hand, Miceli (1990) assumes that an increase in efforts by the prosecutor to collect more evidence shifts the distributions to the right implying an increase in the probability of Type I error. He notes that prosecutors generally try to shift the distributions to the right. That is clearly against the collective sense of justice.

(p. 377) expected, "Judges shall discharge their duties objectively and impartially so that they may earn the trust and affection of the people (3.2)." And in return, as mentioned above, Kautilya recommended a decent salary of 8,000 panas for a judge (magistrate).

Guidelines on Sentencing

Kautilya recommended a set of guidelines relating to sentencing. It is obvious that fairness is not a modern notion since mankind has been concerned with it for a long time.[17] It is considered one of the pillars on which human civilization rests. Kautilya (p. 377) wrote:

> A king who observes his duty of protecting his people justly and according to law will go to heaven, whereas one who does not protect them or inflicts unjust punishment will not. It is the power of punishment alone, when exercised impartially in proportion to the guilt, and irrespective of whether the person punished is the King's son or an enemy, that protects this world and the next. (3.1).

The above statement indicates that Kautilya emphasized the critical role of punishment in deterring crimes and understood that to be effective, the punishment must be certain, impartial and in proportion to the severity of the crimes. Kautilya (p. 108) elaborated on this theme,

> Some teachers say: "Those who seek to maintain order shall always hold ready the threat of punishment. For, there is no better instrument of control than coercion." Kautilya disagrees [for the following reasons]. A severe king [meting out unjust punishment] is hated by the people he terrorizes while one who is too lenient is held in contempt by his own people. Whoever imposes just and deserved punishment is respected and honored. A well-considered and just punishment makes the people devoted to *dharma, artha* and *kama* [righteousness, wealth and enjoyment]. Unjust punishment, whether awarded in greed, anger or ignorance, excites the fury of even [those who have renounced all worldly attachments like] forest recluses and ascetics, not to speak of householders. When, [conversely,] no punishment is awarded [through misplaced leniency and no law prevails], then there is only the law of fish [that is, the law of the jungle] (1.4).

According to Kautilya, punishment up to a point helped the law and order situation, but beyond a certain level it was likely to hurt it. He believed that judicial fairness was absolutely essential to the survival of a state. It means that the implication of Becker's model that "catch a few and hang them" may not reduce crimes. Almost all the studies on crime and punishment assume that social and political stability are unaffected by the level of punishment. However, both Kautilya and Adam Smith questioned this assumption.

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[17]Drekmeier (1962, p 254) remarks, "Kautilya: holds that danda must be applied with justice if authority is to have the respect of the people—which amounts to saying that justice is what transforms power into "authority." *Danda* means punishment.

Adam Smith holds a similar view. He states, "Justice is the main pillar that upholds the whole edifice, if it is removed, the great, the immense fabric of human society must in a moment crumble into atoms."

Kautilya on Balance between Rules and Discretion

Kautilya provided a detailed list of sanctions matching the severity of different crimes. However, the judges were permitted some discretion. He (p. 493) suggested, "The special circumstances of the person convicted and of the particular offense shall be taken into account in determining the actual penalty to be imposed (3.2). Fines shall be fixed taking into account the customs (of the region and the community) and the nature of the offense (2.22). Leniency shall be shown in imposing punishments on the following: a pilgrim, an ascetic, anyone suffering from illness, hunger, thirst, poverty, fatigue from a journey, suffering from an earlier punishment, a foreigner or one from the countryside (3.20)." According to Kautilya, a judge should take into consideration both the mitigating and the aggravating (egregious) circumstances and the characteristics of the defendants in the determination of the punishment.

The current debate on rules versus discretion is mostly about the polar cases, that is, whether to have rules or to have discretion. In Kautilya's scheme of things, rules were like focal points (or guide posts) around which discretion had to be tailored. Too many rules and strict adherence to them might deny gains from changed circumstances or other unexpected opportunities and similarly, too much discretion might lead to substantial abuses[18] and opportune behavior that might result in erosion of credibility.

V. KAUTILYA ON OTHER RELATED ISSUES

Kautilya's Preference for a Monetary Punishment

Kautilya recommended monetary punishment over non-monetary ones as well as the "penal slavery." In fact, at that time imprisonment as a punishment did not exist. Prisons were used simply to hold the defendants temporarily for the duration of the trial. Kautilya proposed long lists of different kinds of physical punishments or monetary fines. However, if the convicted person wished, he could substitute monetary fines for the physical punishments prescribed for non-serious crimes. For example, according to Kautilya (p. 495), a convicted person could pay 54 panas to spare the mutilation of his thumb and forefinger or the tip of his nose. Kautilya (p. 490) suggested that convicted persons were released from prison only "if they had paid off, by their work,[19] the amount owed by them" or "after receiving a payment for redemption" or redeemed by charitable persons (2.36).

[18]Recently, Jennifer F. Reinganum (2000, p. 63) discusses the establishment of the United States Sentencing Commission to develop the sentencing guidelines for achieving certain social goals. These are very similar, as mentioned above, to those specified by Kautilya. She states

> The motivation for such guidelines included at least the following arguments. First, the then-current system of indeterminate sentencing with parole made it difficult for either the offender or the state to form a reasonable estimate of the actual sentence; definitive sentencing guidelines were believed to provide honesty in sentencing. Secondly, the sentencing guidelines were intended to reduce observed disparity in sentencing across apparently similar cases. Finally, the sentencing guidelines would build in proportionality in sentencing by conditioning the prescribed sentence on offense and offender characteristics.

[19]Becker (1968) reaches the conclusion that monetary fines are merely transfers and do not use real resources and, therefore, are preferable. However, Becker's suggestion has been found to be impractical and the society has to

Crime Deterrence through Parading the Thieves

Kautilya (p. 221) recommended:

> When thieves and robbers are arrested, the Chancellor shall parade them before people of the city or the countryside [as the case may be] and proclaim that the criminals were caught under the instructions of the King, an expert in detecting thieves. The people shall be warned to keep under control any relative with criminal tendencies, because all thieves were bound to be caught [like the ones paraded before them]. Likewise, the Chancellor shall parade before the people forest bandits and [criminal] tribes caught with stolen goods as proof of the King's omniscience (4.5).

Clearly, the policy of parading the thieves was intended by Kautilya to increase the perceived probability of catching them.[20] It is interesting to note that in the case of government officials who stole property of any private individual (other than that of the King), Kautilya (pp. 302–303) recommends "shaming" in lieu of monetary fines as punishment. He suggested "smearing with cow dung in public," "smearing with cow dung and ashes in public," "parading with a belt of broken pots and exile" or "shaving off the head and exile" as the amounts of thefts increased in lieu of the monetary fines of 3 panas, 6 panas, 12 panas or 24 panas, respectively. One wonders how he calculated the equivalence between the magnitude of a fine and a particular method of shaming. In any case, Kautilya was clearly aware of the deterrent role of shaming as a punishment.

The Four Strikes and You are Out Rule

Kautilya (p. 493) recommended, "In all cases, the punishment prescribed shall be imposed for the first offense; it shall be doubled for the second and trebled for the third. If the offense is repeated a fourth time, any punishment, as the king pleases, may be awarded (2.27)."

Protection of Whistle Blowers

Kautilya (p. 298) suggested, "Any informant, to whom an assurance against punishment has been given [even if he had participated in the fraud], shall, if the case is

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incur some cost in the collection of fines. Based on an empirical study, Robert W. Gillespie (1988-89) finds "The relatively low enforcement success achieved for large fines, particularly drug fines larger than $1000." Gillespie casts doubt on "the use of fines as a criminal sanction in terms of lower social costs of punishment."

[20]Polinsky and Shavell (2000, p. 68) remark: "The implications of injurers' imperfect knowledge are straightforward. First, to predict how individuals behave, what is relevant, of course, is not the actual probability and magnitude of a sanction, but the perceived levels or distributions of these variables." David M. Levy (1999) points out that approbation and disapprobation figure very prominently in Adam Smith's *Moral Sentiments* and these could have a significant effect on the behavior of potential thieves. (Incidentally, Adam Smith's Katallactic model as presented by Levy might provide a more convincing explanation of the kink in the loss-aversion function than in Amos Tversky and Daniel Kahneman (1991)). On the other hand, in recent years, the U.S. public has been demanding (from their respective state governments) the right to know if any sex offender lives in their neighborhood. This may serve as a warning to the parents so that they keep a close watch on their children. Recently, some states have passed legislation requiring the registration of sex offenders. Doron Teichman (2004, abstract) argues "That such policies have limited preventative value, yet they might be justified as an efficient way to sanction sex offenders."

proved, receive [as reward] one-sixth of the amount involved; if the informant is a state servant, one-twelfth. If the case is proved, the informant [shall be permitted to escape the wrath of the guilty and] may either remain in hiding or attribute the information to someone else (2.8)."

State Representation of the Helpless

Kautilya did show compassion for the helpless. He (p. 385) stated, "The judges themselves shall take charge of the affairs of gods, Brahmins, ascetics, women, minors, old people, the sick and those that are helpless [e.g, orphans], [even] when they do not approach the court. No suit of theirs shall be dismissed for want of jurisdiction, passage of time or adverse possession (3.2)." Thus we find that he proposed a very comprehensive and balanced approach to handle crime and punishment. Kangle (Part III, p. 230) concludes it quite aptly, "This very brief review of the law found in Kautilya will, it is hoped, show how it has been treated by him in the most systematic manner. The treatment is also as full as possible."

VI. CONCLUSION

Kautilya's goal was to attain a crime-free society but the "the removal of thorns" was to be achieved only by resorting to legal means. He proposed a judicial system, which had built-in-fairness and crime deterrence. If a crime was not solved, the king had to compensate the victim. So there was an incentive to prevent a crime from happening and to solve it if it was committed. Similarly, there was an incentive not to commit a Type I error in solving the crime since the king had to pay thirty times the amount of fine imposed on the innocent. Thus there was a built-in incentive to minimize the costly errors of omission and commission. According to Kautilya, monetary punishments imposed in lieu of physical punishments must be collected.

Kautilya pointed out that excessive punishment due to "anger, greed or ignorance" was counterproductive since people lost respect for the law. He believed that fairness was essential for political stability, which was a prerequisite for prosperity. Recently, A. Mitchell Polinsky, and Steven Shavell (2000, p. 45) assert, "The earliest economically oriented writing on the subject of law enforcement dates from the eighteenth century contributions of Montesquieu (1748), Cesare Becceria (1767) and especially, Jeremy Bentham (1789), whose analysis of deterrence was sophisticated and expansive." In light of the above presentation of Kautilya's ideas on crime and punishment, their conclusion needs modification, because, as described above, Kautilya's judicial system was quite advanced and comprehensive—and by two thousand years.

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