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Cartels in the Kautiliya Arthasastra

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Abstract This paper examines the legal-economic dimension of collusive manipulation of prices from the perspective of the *Kautiliya Arthasastra*, an ancient Indian treatise on law and statecraft, which is among the oldest sources of information about cartels. It identifies cartels in the treatise, shows that cartels were treated more severely than individuals who manipulated prices, assesses the efficacy of penalties from the perspective of deterrence, and discusses the evolution of relevant laws. The economic analysis presented in the paper throws new light on the controversy surrounding the internal consistency of the *Arthasastra*. The paper also highlights the need to take note of the moral-legal environment within which pre-modern markets operated before studying them with the help of models developed for modern markets.

Keywords Arthasastra, collusion, Dharmasastra, economic history, indology, just price, trade
JEL classification B11, K21, L41, L51, N45

1. Introduction

A perfectly competitive market is the ideal of most modern market regulators. Consequently, regulators are sensitive to attempts to restrict competition. But manipulation of markets is as old as markets themselves. The notion of just prices seems to have played the same role in the pre-modern world that competitive prices play in the contemporary world. For instance, the ideal of market regulators in pre-modern India was a market in which just prices prevailed. Deviation from just prices was considered morally repugnant. This is beautifully captured by the following verses, quoted in several medieval commentaries and digests of laws (Jolly 1889: XXI, 149), from the code of law known as the *Narada-Smrti* or *Narada's Dharmasastra* (4^{th}–5^{th} century CE).

> It is for the sake of gain that merchants are in the habit of buying and selling merchandise of every sort. That gain is, in proportion to the price, either great or the reverse. *Therefore shall merchants fix a just price for their merchandise, according to the locality and season*,[1] and let them refrain from dishonest dealings. Thus (by adhering to these principles) traffic becomes an honest profession. (Jolly 1889, VIII.11–12, emphasis added)

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[1] Elsewhere Jolly translated the emphasized portion of the verse as: "Therefore let merchants sell their articles *at a fair price, fixed* according to place and season" (Jolly 1876, emphasis in original). Lariviere's (2003) translates it as "therefore a merchant should vigorously fix the price at the proper time and place" and fairness/justness is implied by the complementary injunction to be honest.

While the above verses highlight moral concerns this paper examines the legal-economic dimension of collusive manipulation of prices in ancient India from the perspective of the *Kautiliya Arthasastra*, an ancient treatise on law and statecraft, which is among the oldest sources of information about market regulations. This paper relates to three streams of economic literature. First, it adds to the literature on market competition in the pre-modern world. Liebermann (1985) throws light on the issue of competition in consumption from the Jewish perspective while Raskovich (1996) discusses monopolies in the market for religion in the ancient Middle East. De Roover (1951, 1958) throws light on market regulations in pre-modern Europe. In addition, there is a fairly large literature on competition within and among medieval and early modern Churches (Ekelund 2006; Kumar 2008). Second, it adds to the growing literature that analyzes ancient Indian traditions of knowledge from the perspective of economics (Sihag 2009; Kumar 2011, 2010). For want of space we will not be able to reflect upon the near complete lack of attention to economic analysis of texts like the *Kautiliya Arthasastra*. Even a cursory examination of this issue would require a considerable digression into the history of Indology and colonial and post-colonial India. Last but not the least this paper relates to economic analyses that contribute to exegesis, chronological ordering, etc. of pre-modern texts, e.g., Raskovich's (1996) ordering of Biblical texts based on the analysis of monopolies in markets for religion and Miller's (1993a, b, 1994, 1996) legal-economic analyses of Biblical texts.

Rest of the discussion is organized as follows. Section 2 introduces the *Kautiliya Arthasastra* and locates it within the web of ancient Indian traditions of knowledge. The next section throws light on trade from the perspective of the *Kautiliya Arthasastra*. Section 4 identifies cartels in the treatise and shows that collusive manipulation of prices was treated more severely than individual manipulation. It also discusses the problem of detection of cartels and the efficacy of the penalties with regard to deterrence. Section 5 reviews studies at the interface of history and economics and discusses how the preceding analysis throws new light on the controversy surrounding the internal consistency of the *Kautiliya Arthasastra*. The last section concludes.

A few words on the translations used are in order before we move to the main body of the paper. We will refer to Kangle (1986a, b) for the text and translation of the *Kautiliya Arthasastra*. In a few instances translations by Shama Sastry (1988 [1915]) and Rangarajan (1992) are also referred to. But unless otherwise specified Kangle (1986b) is the source of translations. Sources for other texts referred to in the paper are as follows: Dutt (1978–1979), and also Ganapati Sastri (1922), for *Yajnavalkya's Dharmasastra*, Olivelle (2006) for *Manu's Dharmasastra*, Olivelle (2009) for *Visnu's Dharmasastra*, and Doniger and Kakar (2003) for *Vatsyayana's Kamasutra*. Passages from these texts will be referred to as, say, II.4.6 (Book II, Chapter 4, Passage 6). Unless otherwise specified the text of the *Kautiliya Arthasastra* is being referred to. Note that Shama Sastry's (1988 [1915]) translations are referred to by page numbers as he does not organize his translation according to the sub-divisions of chapters mentioned in the manuscripts of the *Kautiliya Arthasastra*. Also, note that the phrases *Kautilyan state*, etc refer to hypothetical rather than historical entities.

2. The Kautiliya Arthasastra

Ancient Indian thinkers proposed three complementary goals for human life—*dharma* (spiritual),[2] *artha* (material),[3] and *kama* (sensual).[4] Balanced consumption—not necessarily simultaneously—of spiritual, material, and sensual goods resulted in *moksha*, i.e., release from the cycles of birth and death, the ultimate desiradatum of human life. But in the event of conflict between different goals *dharma* prevailed over *artha* that in turn prevailed over *kama* (Kane 1968; Rocher 1985; Kangle 1986b; Doniger and Kakar 2003). According to exceptions to this rule, *artha* was the foremost goal for kings (*Kautiliya Arthasastra* I.7.6–7, VIII.1.47–49, IX.7.60–63, 81) and courtesans (*Kamasutra* I.2.15).[5] Expert traditions of knowledge (*sastras*) emerged around each of these goals—*Dharmasastra*,[6] *Arthasastra*,[7] and *Kamasastra*.[8]

Economic issues were discussed as part of law and statecraft in the *Arthasastra* and *Dharmasastra* traditions. Between the two the former is not only chronologically prior, but also provides a more elaborate discussion on markets. The latter simply lists laws related to markets and does not provide much information on the context. More importantly, the verses dealing with cartels in Yajnavalkya's and Visnu's *Dharmasastras* are directly inspired by the *Arthasastra* tradition. So, in this paper we will rely

[2] The Sanskrit word *dharma* has many meanings: duty, justice, right, manner, way, morality, law, natural law, ethical law, order, intrinsic property, religion, religious merit, a goal of life, and the name of a god (Doniger and Smith 1991: 312-313; Doniger and Kakar 2003: XIII, 1, 222; Olivelle 2006: 71; Olivelle 2009).

[3] *Artha* is also polyvalent: goal, meaning, money, purpose, pursuit, reason, wealth ("in all its forms including money, moveable and immoveable assets but many other things as well"), legal case, profit, self-interest, power, a goal of life, and the name of a god (Kangle 1986a, b; Doniger and Smith 1991: 303-4; Doniger and Kakar 2003: XIII, 1, 219; Trautmann 2012: 2–3).

[4] *Kama* also has many meanings: pleasure, love, sex, desire, lust, intention, a goal of life, and the name of a god (Doniger and Smith 1991: 326; Doniger and Kakar 2003: XI, XIII, 1, 224).

[5] For want of space we cannot discuss the conditions under which these exceptions were valid.

[6] Briefly, the *Dharmasastra* tradition deals with "the privileges, duties and obligations of a man, his standard of conduct as a member of the Aryan community, as a member of one of the castes, as a person in a particular stage of life" (Kane 1968: 3). It educates one about the right conduct, punishment for transgression, and penances. Translating *Dharmasastra* as "Science of Law" or "Code of Law" is inappropriate because modern law relates to a sub-set of the issues discussed in the *Dharmasastras*. *Narada-Smrti*, quoted in the introduction, is an exceptional *Dharmasastra* insofar as it largely deals with law in the modern sense.

[7] The *Arthasastra* outlines its scope and purpose as follows: "The source of the livelihood of men is wealth, in other words, the earth inhabited by men. The science which is the means of the attainment and protection of that earth is the *Science of Politics* [*Arthasastra*]" (*Kautiliya Arthasastra* XV.1.1–2). Elsewhere Kautilya says, "The means of ensuring the pursuit of philosophy, the three Vedas [sacred texts] and economics [vartta] is the Rod [sceptre, justice] (wielded by the king); its [the Rod's] administration constitutes the *science of politics* [*Arthasastra*], having for its purpose the acquisition of (things) not possessed, the preservation of (things) possessed, the augmentation of (things) preserved and the bestowal of (things) augmented on a worthy recipient. On it is dependent the orderly maintenance of worldly life" (*Kautiliya Arthasastra* I.4.3–4, also see I.5.1–2, I.15.52). These outlines remained the cornerstone of Indian political philosophy/statecraft till late medieval period and were quoted or rephrased by a number of teachers of different schools of thought. (Also see fn. 9.)

[8] Vatsyayana the best-known exponent of *Kamasastra* notes the following regarding its purpose: "A man learns about pleasure from the *Kamasutra* and from associating with the circle of men-about-town . . . Because a man and woman depend upon one another in sex, it requires a method, and this method is learned from the *Kamasutra*" (*Kamasutra* I.2.13, 18–19). *Kamasutra* can be translated as "textbook of erotic love" or "treatise of desire/love/pleasure/sex" (Doniger and Kakar 2003: XI).

on the *Arthasastra* (i.e., *Science of Political Economy*[9]) tradition, which provides a rich discussion on markets as well as laws related to markets. We will use the *Kautiliya Arthasastra* (Kautilya's *Arthasastra*) as an exemplar of the *Arthasastra* tradition because none of the pre-*Kautiliya Arthasastra* texts have survived. The *Kautiliya Arthasastra* is, in fact, the most important source of information about earlier texts (Kangle 1986c). Also, post-*Kautiliya* texts, for instance, the *Kamandakiya Nitisara* (Dutt 1896), are derived from the *Kautiliya Arthasastra* and have very little to say about legal and economic issues because they are largely focused on war and diplomacy. Henceforth, we will refer to the *Kautiliya Arthasastra* as the *Arthasastra*.

The *Arthasastra* is a manual of statecraft and law meant for practitioners.[10] It consists of 150 chapters unevenly distributed across 15 books. 14 chapters in Book I deal with issues directly managed by kings like appointment of ministers, envoys, etc. Books II through IV, which contain 69 chapters, deal with internal administration, legal system, and economy. The *Arthasastra* takes note of 17 grounds for litigation ranging from marital and property disputes on the one hand to verbal and physical injuries on the other. Two books (V and XIV) containing between them 10 chapters, and another seven chapters outside these books, deal with secret operations. The discussion on foreign policy and war and impact of natural calamities on policy-making occupies 49 chapters (Books VI–XIII). The sections of the *Arthasastra* related to diplomacy and war, which earned Kautilya notoriety, have been analyzed elsewhere from a game-theoretic perspective (Kumar 2010). In this paper we will confine ourselves to sections dealing with market regulation.

The *Arthasastra* has been dated to the period between 4$^{\text{th}}$ Century BCE and 4$^{\text{th}}$ Century CE. But there is consensus that the bulk of the text was in circulation before 2nd Century CE (Kangle 1986c; Olivelle 2006; McClish 2009). The treatise is widely attributed to, or at least related to, Kautilya (circa late 4$^{\text{th}}$–3$^{\text{rd}}$ Century BCE), the legendary preceptor and minister to the first Mauryan Emperor. The "author" is variously known as Chanakya (son of Chanak), Kautilya (*gotra*—roughly, family name), and Visnugupta (personal name) (Kangle 1986c: 112–113; Shama Sastry 1988 [1915]: V–VI, Kane 1968: 166–168). The text, however, refers to him as Kautilya all throughout and only once is he referred to as Visnugupta at the very end in what seems to be an interpolation.

Kautilya purportedly wrote the treatise—*Kautiliya Arthasastra*—to regenerate the *Arthasastra* as well as political institutions, both of which were in decline in his times (XV.1.73). He seems to have been successful on both fronts. On the one hand, his disciple consolidated the northern and western parts of India in the aftermath of Alexander's invasion and ascended the throne as Chandragupta I (c. 324–300 BCE) of the Mauryan

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[9] *Arthasastra* is commonly translated as *Economics*, which is incorrect. The ancients referred to key economic activities like agriculture, cattle-rearing and, trade by the term *vartta* (Kane 1968: 151–152; Kangle 1986c: 166–167), "the closest Sanskrit term we have for the word 'economics'" (Trautmann 2012: 3; Kangle 1986b: 9). Likewise translating it as *Science of Politics* is inappropriate because it also deals with the legal-economic foundations of a state and public administration rather than just political manoeuvring. So, *Science of Political Economy* is the most appropriate translation (Kumar 2010: 294; also Trautmann 2012: 8; Doniger and Kakar 2003: XIII, 205).

[10] Kautilya himself differentiates between "theoretical [*read* teachers/authors of treatises] and practical [*read* practitioners] exponents" of *Arthasastra* (I.5.8, 16).

dynasty, which ultimately ruled most of the Indian Subcontinent. On the other, his *Arthasastra* continues to be the most respected Sanskrit text on statecraft. Soon after its first English translation (Shama Sastry 1988 [1915]) it won instant recognition as "perhaps the most precious work in the whole of Sanskrit literature" (Thomas 1922: 467; also Kane 1968: 154) because it "throws more light on the cultural environment and actual life in ancient India than any other work of Indian literature" (Maurice Winternitz quoted in Trautmann 1971: 3; also see Sternbach 1967: 202; McClish 2009: 1, 3, 20). The *Arthasastra's* discovery in 1905, in fact, transformed the ancient Indian from an otherworldly stranger in the secular world to a calculative this-worldly being (Gowen 1929: 174, 178; Weber 1946: 123–124; Trautmann 1971: 2; Brekke 2004: 41).

3. Trade in a Kautilyan economy

We will begin the discussion by noting that according to the *Arthasastra* accumulation of material wealth should be the first priority of a king (I.7.6–7, IX.7.60–63, 81). But this, as Trautmann (2012: 140, 145) points out, also means that "the *Arthasastra* gives us a king-centred perspective on wealth and power". With this caveat in place we can proceed to discuss the nature of economy discussed in the *Arthasastra*. The *Arthasastra* offers a tripartite definition of wealth (*artha*). Wealth is defined "first as the human production of livelihood, then, as the earth inhabited by human beings engaged in such production and finally, as the acquisition and protection of the inhabited, productive earth—by a king" (Trautmann 2012: 3; also XV.1.1–2). Agriculture, cattle-rearing, and trade were the three important economic activities and sources of livelihood (*vartta*) in ancient India in that order (I.2, I.4). While trade seems to be the oldest branch of *vartta* (Trautmann 2012: 118), it was not the most important from the perspective of the *Arthasastra*. Agriculture employed most of the people and yielded "the most important part of revenue" (Kangle 1986c: 173; Trautmann 2012: 117). More importantly, as Trautmann (2012: 117) rightly notes, surplus from the agricultural sector was extracted through taxation rather than "buying and selling". Other sources of livelihood like "arts and crafts", which are also among the sources of income to the state (II.6.2), were explicitly distinguished from *vartta* (I.3.8). This can most likely be attributed to their relatively negligible contribution to the economy and/or the pre-Kautilyan origin of the concept of *vartta* in a period "when arts and crafts did not play a significant role in the economic life" (Kangle 1986c: 166; see Rangarajan 1992: Appendix 6 for an exhaustive list of occupations in the *Arthasastra*). The territory of a kingdom was partitioned into different zones mirroring the above classification of economic activities. Other economic activities were "assigned to land not taken up for farming" (Trautmann 2012: 113; see VIII.4.37–40 for a deviation from this and Rangarajan 1992: 62 for a list of land uses). Farmland and pasture land corresponded to the first two sources of livelihood. Workplaces for rest of the economic activities were primarily located "near the sources of raw materials, in different economic zones, due to the high cost of transport" (Trautmann 2012: 85).

Important features of the Kautilyan economy that affected trade include "the comparative scarcity of capital and the very high degree of risk and uncertainty" and "sudden and dramatic changes of price". For instance, the *Arthasastra* prescribes that "one half" of the royal granary should be set apart to meet food shortages in the state (II.15.22–23), which can be seen as an indication of severe uncertainty of food supply in ancient times (Trautmann 2012: 54–55, 119). Another important feature was the participation of the state in all branches of economy either alone or in partnership with others. Four observations regarding state involvement in economy are in order: (i) not only did the state participate in production of livelihood as an entrepreneur, and was one of the major, if not the biggest, player in each sector of the economy, but it also taxed as well as regulated all economic activities; (ii) the state tried to monopolize a few economic activities, e.g., mining and salt production (II.12.19, 28–31, 35–36) and brewing liquor (II.25.1–2) (also see Kangle 1986c: 192; Scharfe 1993: 250; Trautmann 2012: 142); (iii) the involvement of the king in the economy, as an entrepreneur, seems to have promoted "enlightened self-interest, and not the unlimited extraction of wealth and taxes" (Trautmann 2012: 119, 141–143);[11] and (iv) involvement in the economy helped the state to shield people from extremes of market forces and also help people in distress (II.17.3, II.23.2, II.29.7).

With the above general introduction to a Kautilyan economy we can now discuss trade in greater detail. Trautmann's (2012) discussion on the role of trade in the Kautilyan economy is quite revealing and hence quoted at length below:

> [T]he *Arthashastra* discussion of economic topography connects trade with routes and not marketplaces [also see Kangle 1986c: 176] ... trade is thought of not in terms of *selling* in marketplaces but in terms of *transportation* of goods from workplaces to buyers in markets (99, emphasis in original) ... it was often the practice to separate long-distance trade from local trade, each being conducted by a different bodies of traders ... Long-distance traders brought goods in bulk to the [city] gate, where they were bought by local traders to sell at retail inside the city. Long-distance traders were not allowed to sell at retail. The city gate is the location where wholesalers and retailers meet and transact business. It is also the place where the king imposes taxes in the form of custom duties (126) ... while the import of goods is considered advantageous, exporting to foreign lands should be permitted only for those goods that are in abundant supply within the kingdom. This thinking is oriented towards goods rather than money profits (132).

Traders were indispensable to a Kautilyan state for provisioning the population and procuring supplies for the state (and the king) and its buffer stocks. The state, therefore, provided traders with exemptions when it found that they were trading in desirable commodities but unable to make profit (II.16.11–12) or had suffered losses

[11] But in some cases, e.g., the need to raise resources to wage a war, Kautilya's king misuses his market power presumably because he cannot be tried (V.3.42–44). But this does not mean that the king's power was unchecked because such misuse of power was permissible to a limited extent and that too only in emergencies (V.2, Kangle 1986c: 189–191). Moreover, according to Kautilya, if a king is unjust his subjects, family members, or neighbouring kings are justified in dethroning/slaying him (Kumar 2010: 301–302, 310–313).

(II.28.26, IV.2.32). It also provided traders with protection against robbers and corrupt officials (II.1.38, II.8.24–25, II.21.25, II.34.12, IV.13.7–12) and allocated appropriate space to traders in fortified cities (II.4) and villages (IV.13.7). In return, traders were expected to pay custom duties, road cess, gate tolls, port duties (II.21-22, II.28.4, 25), and special taxes (V.2.17–22). But the state's right to tax was contingent on successful fulfillment of the duty to protect traders (I.13.5–10). In the event of failure, the state was supposed to compensate traders (II.8.25, II.21.25, II.28.26, IV.13.8–10). But more than anything else the state sanctified and enforced private contracts (III.1, 15). It also sanctified a profit of five (ten) per cent as just in case of indigenous (imported) commodities (IV.2.28, also *Yajnavalkya* II.255).

However, traders were widely perceived to be unscrupulous, "thieves who are not known as thieves" (IV.1.65), and the state was expected to keep "watch over traders" and cause goods to be sold "so as to favour subjects" and "avoid even a big profit that would be injurious to the subjects" (II.16.5–6, IV.2.26–27) because "in the happiness of his subjects lies the king's happiness and in what is beneficial to the subjects his own benefit" (I.19.34, XIII.5.4).[12] The Kautilyan state seems to have been concerned with market manipulations for three reasons. One, it was ultimately responsible to "maintain" among others "persons in distress when these are helpless" (II.1.26) and grant tax exemptions to those in distress (II.1.36, II.24.17). Two, a population impoverished by unscrupulous agents could be easily instigated by rebel princes/vassals or even foreign powers (VII.5.27; see Kumar 2010: Example 2). Three, inter-state traders could serve as spies to foreign kings (I.12.22). We can add that manipulation of markets could be used to foment trouble and raise resources to challenge the state. Even otherwise trade was a factor to be accounted for in foreign policy (VII.4.7). In short, markets were too important to be left to the discretion of traders.

The Superintendents/Overseers of Trade (*panyādhyakṣa*) and Markets (*samsthādhyakṣa*) protected the interests of the state. The Superintendent of Trade controlled prices by announcing just prices[13] and by penalizing deviations.[14] The discussions in the *Arthasastra* as well as Yajnavalkya's *Dharmasastra* clearly suggest that the announced prices were decided so as not to hurt any of the stakeholders—sellers, buyers, and state (*qua* recipient of taxes and trader of royal goods). *Yajnavalkya* (II.256), in fact, explicitly states that the prices fixed by the king should harm neither the seller nor the buyer. So, contrary to the widely held belief that just prices were meant to protect common people, just prices also protected sellers from being ruined. For instance, on

[12] Kautilya also prescribed regulation of money-lending (III.11) and land transactions (III.9), which are beyond the scope of this paper.

[13] To my knowledge, there is no phrase in the *Arthasastra* that translates exactly as *just price*. A wide range of closely associated expressions are used in the contemporary literature. For instance, Trautmann (2012) uses at least nine different expressions to describe the idea of fairness in transactions involving goods or land: fair (99, 129, 130, 140), true (99, 124, 125, 127), just (112, 124), proper (116, 124, 127), reasonable (129), stable (129), steady (130), customary (112, 124, 127), and commonly accepted (124). A similar variation is also found in translations of other ancient Indian texts. See, for instance, Footnote 1 and the adjoining text for Jolly's translation of the *Narada-Smrti*.

[14] A refereed asked if prices were indeed the key instruments for decision-making in a Kautilyan economy. Kautilya clearly states that officers should keep an eye on prices and regulate quantity coming into market to ensure agreement between actual and announced prices (II.16.2–3, IV.2.33–34). Also, *Manu* (VIII.402) explicitly states that announced prices should be publicly reviewed "every five days or fortnight".

the one hand, if buyers bid up prices then the excess profit made by sellers was liable to be confiscated by the state (II.21.9, 13, III.9.5). On the other, in the event of glut in the market the state stepped in to stabilize prices (II.16.2–3, 7, IV.2.33–34). However, Kangle (1986c: 176) suggests that in normal times the interests of buyers were prioritized (II.16.6, IV.2.27, 35).

The announced price was iteratively fixed on the basis of production (supply), investment, transportation cost, duties, interest, rent, risk, and demand (II.16.1–7, IV.2.36, also *Manu* VIII.398, 401, *Yajnavalkya* II.254–256). Trautmann (2012) gives an interesting insight into the mechanism of price determination that aimed to attain the ideal of just price:

> [T]he text has an underlying idea of the fair or true price of things sold in markets (99) ... But unlike the sale of land in the village, where villagers who know the customary value of land are present as expert witnesses, at the city gate there are no such expert witnesses. Here that function belongs to the overseer of trade. Consequently, knowledge of prices figures largely in the duties of this overseer (127) ... The notion of fair profit is implied in the advice that the overseer of trade should fix a profit of five per cent above the permitted purchase price of local goods, and ten per cent for foreign goods. This links profit with the cost of bringing things to the market, by making it proportionate to the distance, virtually a charge for transportation (129) ... The *Arthashastra* shows an understanding of supply-demand forces, but treats them as a problem to be solved, or contained within tolerable limits, by royal action (130).

Two observations on the above excerpt from Trautmann (2012) are in order. One, given that the state sought to enforce just prices and by implication profits, Kangle (1986c: 192) suggests that "traders were concessionaires of government". But this is not entirely true. Two, in addition to Trautmann's transportation-cost based reasoning it can be argued that a share of five/ten per cent was in general justified for one handling someone else's goods, etc. For instance, cultivators, cowherds, and traders dealing on behalf of others were entitled to ten per cent of goods dealt in by them (III.13.27–28, Kangle 1986c: 177). Similarly, five per cent was a surcharge in many kinds of transactions (e.g., II.12.30).

The state ensured that the announced prices were in agreement with market conditions by promoting beneficial imports, limiting competition—*spardhā* (III.9.5) or *sangharṣa* (II.21.9, 13)—in markets, imposing requisite import and export controls, and criminalizing trade at non-designated locations (II.16.4, II.16.11–13, 19, II.21.7–13, II.21.22–23, 31, II.22.8–14, III.9.5) and monitored violations through the Superintendent of Trade. Note that by criminalizing trade at non-designated locations (II.22.9–14) Kautilya tries to ensure transparency in transactions through publicity. For instance, goods were sold at the city gate under the watch of the Superintendent of Trade (II.21.7) through a process akin to auctioning (II.21.7–8 for market for goods, III.9.3–4 for market for land, also Trautmann 2012: 123, 127). Contracts that were not made in an appropriate public forum were deemed invalid and attracted a fine in the range of 48–96 *Panas* (III.1.2–5), which compares with the annual salary of lowest attendants (see Section 4.4). The state also criminalized counterfeiting, adulteration, use of improper weights and measures, and collusion in market (IV.1–2) and monitored violations through the Superintendent of Market. In addition, the state actively participated in economic activities including trade (II), maintained buffer stocks (II.5, IV.3.17, VIII.4.46), and checked corruption through secret investigations (II.21.14, II.35.11–13).

Trautmann (2012: 138–139, also 129) notes that "overall, the attitude of the king toward trade and commerce was favourable but mixed, compared with the unalloyed enthusiasm for increasing the extent of farmed land and farmers". This ambivalence is beautifully captured by the following rule in the highly influential code of law Manu's *Dharmasastra* (*c.* 2$^{\text{nd}}$–3$^{\text{rd}}$ Century CE): "[t]rade is the "truth-cum-falsehood" [Doniger and Smith 1991 translate this as *simultaneously good and unlawful*]" for householders belonging to the highest caste, but "he may sustain himself *even* by that" (IV.6, emphasis added; also see Narada's *Dharmasastra* I.42, Visnu's *Dharmasastra* LVIII).

4. Market collusion

Kautilya makes an interesting observation regarding collusion among traders, which is generally regarded as rhetorical.

> [T]raders, *joining together* and raising or lowering the (prices of) goods, make a profit of one hundred *panas* on one *pana* or of hundred *kumbhas* on one *kumbha*. (VIII.4.36, emphasis added) (*Pana*, a silver coin, was the basic unit of money, whereas *kumbha* refers to a measure of weight (II.29.32))[15]

The above *sutra* (aphoristic sentence) suggests that successful cartels could make profits in the range of 10,000 per cent! Kangle (1986b: 399) observes that "this is an exaggeration," as pointed out in Madhavayajvan's Sanskrit commentary *Nayacandrika*. This exaggeration presumably counters an unrealistic position of some of Kautilya's predecessors, who argued that traders always promoted social good (VIII.4.34). But perhaps it is not an exaggeration because as shown later in Section 4.4 Kautilyan penalties seem to have been designed to deter even extraordinarily lucrative cartels. In any case, in addition to VIII.4.36, the following two *sutras* also deal with cartels.

> For artisans and artists who by *conspiring together* bring about a deterioration in the quality of a work or (increase in) profit or hindrance to purchase or sale, the fine is one thousand *panas*. (IV.2.18, emphasis added)[16]

[15] Shama Sastry's translation follows:

> [T]raders *unite* in causing rise and fall in the value of articles, and live by making profits cent per cent in *panas* or *kumbhas* (measures of grains). (Shama Sastry 1988 [1915]: 364, emphasis added; the phrase "cent per cent" does not correctly translate the original.)

[16] Shama Sastry's translation follows:

> For traders, too, who by *conspiring together* hold back wares or sell them at a high price, the fine is one thousand *panas*. (IV.2.19, emphasis added)[17]

Six observations are in order here. One, neither of IV.2.18 and IV.2.19 are interpolations (Kangle 1986b: 260, Kangle 1986c: 27–30, 78–79, Scharfe 1993: 249–250). Two, the translation of IV.2.19, based on the critical edition (Kangle 1986a, b), quoted above refers to only groups of traders manipulating the price at which goods are sold. However, the Sanskrit text in one of the key manuscripts (known as G1) suggests that the injunction covered collective manipulation of prices both at the stage of buying and selling (Kangle 1986a: 132, see Footnote 17 for Shama Sastry's translation and also for a related confusion in the translation of Visnu's *Dharmasastra*). Three, none of the Sanskrit manuscripts explicitly refers to a *conspiracy*. Modern translators have inferred conspiracy because of the illegality of the activity under consideration.[18] Four, Kautilya does not distinguish between cartel (public agreement) and collusion (secret agreement). Five, the *Arthasastra* differentiates potential attempts to influence price by hoarding (IV.2.26) from actual instances in which an economic actor is successful in manipulating prices (IV.2.18–19). Last but not the least the *Arthasastra* identifies both traders and producers (artisans/craftsmen) as potential colluders and suggests that

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> Those who *conspire* to lower the quality of the works of artisans, to hinder or raise their income, or to obstruct their sale or purchase shall be fined 1,000 panas (Shama Sastry 1988 [1915]: 235 emphasis added).

Shama Sastry's translation seems to treat artisans as passive agents affected by collusive activities of others, whereas the text clearly identifies them as prospective colluders. It seems that Shama Sastry has translated IV.2.18 in light of IV.2.19. But this confusion is not unique to Shama Sastry's translation. Dutt (1978–79) similarly mistranslated Yajnavalkya's *Dharmasastra* (II.252), which is borrowed from the *Arthasastra*.

> The highest form of pecuniary punishment [1000 monetary units] is laid down for them, who, knowing the standard value (of a thing) settled by the king, *in a body* so increase or decrease its value *as is painful to the artist or artisan*. (II.252, emphasis added; referred to as II.249 in Kangle 1986c and Olivelle 2009)

According to Patrick Olivelle this misunderstanding can be traced back to medieval commentaries (personal communication).

[17] Shama Sastry's translation follows:

> Merchants who *conspire* either to prevent the sale of merchandise or to sell or purchase commodities at higher prices shall be fined 1,000 panas. (Shama Sastry 1988 [1915]: 235, emphasis added; this translation is based on the manuscript known as G1)

Dutt (1978–79) translates a comparable verse in Yajnavalkya's *Dharmasastra* (II.253) as follows:

> The highest form of pecuniary punishment [1000 monetary units] is laid down for those merchants, who *in a body* obstruct the sale of foreign articles, (i.e., do not purchase them at the price fixed by the king, in order to buy them cheap) and those who sell them [at a higher price]. (II.253, emphasis added; referred to as II.250 in Kangle 1986c and Olivelle 2009)

Olivelle translates a comparable verse in Visnu's *Dharmasastra* (V.125) as follows:

> [The highest fine for forcible seizure, i.e., 1000 monetary units, applies - see IV.14, V.121] as also to *traders who conspire* to hinder the sale of merchandise by offering a price below their value. (V.125, emphasis added; this verse covers collusive deviation in either direction, see Olivelle 2009: 169)

[18] Incidentally, medieval European discussions on market manipulation often presumed conspiracy (de Roover 1958: 426–427).

cartels could manipulate price and/or quality.

4.1 Identifying cartels

Kangle (1986c: 78–79), the foremost authority on the *Arthasastra*, refers to the economic actor being referred to in IV.2.18–19 as 'cartel'. But none of the translations referred to above uses the word 'cartel'. Instead a variety of phrases are used: "conspiring together" and "joining together" (Kangle), "unite in" and "conspire to" (Shama Sastry), "in a body" (Dutt), and "conspire to" (Olivelle), which relate to the word 'sambhūya'—collectively. The word 'cartel(isation)' occurs only in Rangarajan's (1992: 220) translation. But even there it occurs only in a heading introduced for better readability. So, we need to ensure that what is being widely interpreted as cartel is indeed that.

The identification process involves two steps. The first involves recognizing that the text distinguishes among individual traders/craftsmen/artisans (II.16, IV.1–2, also see Yajnavalkya's *Dharmasastra*, Book II, Visnu's *Dharmasastra*, V.125–126), legitimate partnerships (III.14.18–36, IV.2.31, also see Yajnavalkya's *Dharmasastra*, II.262-268), and guilds (*sreṇi*, IV.1).[19] However, the *sutras* cited above refer to none of these, i.e., a different kind of economic actor is being referred to. The second involves noting that manipulation of prices by individuals acting alone is discussed separately (IV.2.29-30, also see Visnu's *Dharmasastra* V.126), whereas the *sutras* of interest (IV.2.18–19, VIII.4.36) relate neither to legitimate partnerships nor guilds. So, the *sutras* of interest, indeed, refer to manipulation of prices by an illegitimate collective of traders/artisans (producers). Now we can proceed to examine the punishments for those guilty of collusion.

4.2 Fines

Kautilya classifies participation in cartels along with other serious crimes (*sāhasa*) like violent robbery, forcible enslavement, murder, etc and accordingly prescribes the highest fine, i.e., 1000 *Panas* (Table 1), for each member of the cartel irrespective of the extent of price manipulation and size of cartel.[20] Also, the fine for cartelization is higher than fines for other economic crimes related to trade (Table 2). However, the effective fine on cartel members must have been higher than the monetary fine (1000 *Panas*) due to the possibility of confiscation of excess stock of goods held (IV.2.26).

Now recall that the *Arthasastra* makes a distinction between collusive and in-

[19] In passing note that guilds were responsible for their members' conduct (IV.1). The real threat from guilds was possibly that of insubordination (VIII.4.27–30) rather than collusion.

[20] The stringent punishment reminds of a Diocletian edict (301 CE), which criminalized "any attempt to bring about artificial scarcity of commodities, especially victuals" and stipulated "death penalty" for those found guilty (de Roover 1951: 493).

[21] At least, three exceptions to the above ceiling on fines can be found in the *Arthasastra*: (a) the fine for a courtesan employed by state refusing to attend on someone (5000 *Panas* or 1000 strokes with a whip, II.27.19), (b) the fine for causing the death of a courtesan working for the state (three times the ransom amount, i.e., 72,000 *Panas*, II.27.6,16), and (c) fine for instigating others to commit serious crimes (as much as four times the basic fine for the crime concerned, III.17.11–14). The fines for offences related to courtesans working for the state seem to be exorbitantly high. But the modern scholarship does not seem to have made an attempt to reconcile these figures.

Table 1. Standard fines in the *Kautiliya Arthasastra* (III.17.6–10, III.20.19)

Level	Amount (in *Panas*)
Highest fine for violence (causing forcible enslavement/bondage)[21]	500–1000
Middle fine for violence (stealing gold, fine cloth, large animals, etc)	200–500
Lowest fine for violence (stealing copper, bronze, ivory articles, etc)	48–96
Other 2 (stealing iron articles, cloth, small animals, etc)	24–48
Other 1 (stealing leather goods, flowers, etc)	12–24

Table 2. Fines for economic crimes related to trade in the *Kautiliya Arthasastra*

Crime	Fine (in *Panas*)
Collusive manipulation of prices (IV.2.18–19)	1000
Individual manipulation of prices (1% additional profit above just profit) (IV.2.29)	40
Violation of state monopoly (II.12.19, 28–31, II.25.1–2)	600
Misrepresentation of the type/origin of article (IV.2.16)	200 (maximum)
Miscounting (for 1 less out of 8) (IV.2.14)	96
Manipulation of weights (deviation allowed is to the extent of $1/400^{\text{th}}$) (IV.2.3–13)	24 (maximum)
Under-counting/weighing by sleight of hand (1% loss in value terms) (IV.2.20)	16
Adulteration (IV.2.22)	12
Official concealing trader's offence (II.21.14)	8 times trader's gain

dividual attempts to manipulate prices. In line with that distinction, the *Arthasastra* prescribes different fines for manipulation of markets by individuals. For individuals it prescribes penalties at the rate of "200 *panas* for (an additional profit of) five *panas* in 100 *panas*" (IV.2.28-30), whereas cartel members were individually fined 1000 *Panas* irrespective of the level of profit and the size of cartel. The text does not provide an upper limit of fine for individuals found guilty of manipulating markets. However, 1000 *Panas*, the highest fine for any kind of non-violent crime in the *Arthasastra*, must have been the upper limit. The Kautilyan distinction between cartels and individuals is sensible because cartels have a greater capacity to distort prices and, therefore, need to be deterred using a stricter punishment. Otherwise the expected gains even from a short duration cartel can be high, which brings us to the issue of the rate of detection of cartels. But before we discuss detection note two things. One, Kautilya's punishment scheme discussed above is not burdened by moral considerations, unlike the *Dharmasastras* that prescribe the same fine for individuals as well as cartels (for instance, Visnu's *Dharmasastra* V.125–126). Also, it bears noting that Kautilya does not appeal to the moral integrity of potential offenders. He simply uses fines to check financial misdemeanor. Two, we noted that individuals were fined proportionate to the level of price manipulation, whereas a flat fine of 1000 *Panas* was imposed on cartel members. If contrary to our claim a proportional fine (IV.2.28–30) supplemented the flat fine (IV.2.18–19) in case of cartel members, then the fines for cartelization would indeed be astonishingly high. Neither the treatise nor any medieval or modern commentary supports this alternative reading.

4.3 Detection of cartels

Kautilya does not specifically discuss the issue of detecting cartels. But we can infer that he would have recommended the use of secret agents because elsewhere in the *Arthasastra* he suggests their use to keep an eye on traders (II.21.14, 17, 27–30; II.35.11–13). It is not unreasonable to expect a high detection rate in a Kautilyan state since espionage was one of its core competencies (Kangle 1986b: *passim*). Members of a cartel could, however, try to get away by bribing officials. But the officials would have been deterred from accepting bribes due to steep penalties and the fear of fellow officials reporting their financial misconduct. "Informers" were, in fact, guaranteed protection and financial rewards (II.8.29–32). In a Kautilyan state strewn with undercover agents, where king's omniscience—capacity to successfully detect others' moves—was given wide publicity (II.21.27–29, IV.5.13–14, 18 for domestic contexts, also X.3.33, XIII.1.1–2 for international contexts),[22] the *perceived* rate of detection of official misconduct must have been high. But there is also another way in which Kautilya seems to be limiting the scope for official corruption that is by demanding all market transactions be conducted in public (recall our discussion in Section 3).

4.4 Efficacy of fines

We will begin by comparing the fine against cartel members (1000 *Panas*) with incomes and prices in the *Arthasastra*. Three observations are pertinent in this regard. One, daily wage labourers were entitled to 15 *Panas* per annum and food for dependents (II.24.28, also see Table 3 for a comparison of salaries of a few categories of state servants). Two, the smallest unit of money was 1/2 *Kakani* (= 1/128 *Pana*) (II.12.24, also Kangle 1986c: 181). Three, among the goods generally sold in market those priced 2 *Panas* were considered to be high value goods (IV.2.16). So, to earn 1000 *Panas* a trader has to sell, say, 5,000 (10,000) units of an imported (domestically produced) high value good, a really big figure for the ancient world with its low population density. In other words, 1000 *Panas* must have been a severe penalty, particularly, because of a high *perceived* rate of detection and the additional threat of confiscation of stock of goods. Note that Trautmann (2012: 130, 138) argues that severity of penalties is indicative of structural inability "to enforce the policy in practice" because "surveillance of the market was never complete". But Trautmann's discussion completely ignores espionage and belief manipulation discussed in Section 4.3.

[22] The king's omniscience was buttressed among other things by stage-managed detections, which is not surprising since manipulation of beliefs of subjects and competing family members and kings was a key concern of Kautilyan kings (Kumar 2010).

Table 3. Annual salaries of state servants in the *Kautiliya Arthasastra* (V.3)

Designation	Salary (in *Panas*)
Highest officials and princes	48,000
Frontier officers	12,000
Magistrates	8,000
Fine for cartelization	1,000
Trained foot-soldiers, accountants, and clerks	500
Valets and attendants	60

In any case, to ensure that manipulative traders did not escape punishment by bribing officials the penalty for "concealing (the trader's offence)" was set at eight times the gain made by the trader (II.21.13–14). Let $d_0 \in (0,1)$ denote the rate of detection of corrupt officials, $s \in [0,1]$ the share of profit offered as bribe by each member of a cartel, and $\overline{\pi}$ the profit accruing to a cartel member. If the official detects a cartel, then he will accept bribes and not report it if:

$$(1-d_0)\overline{\pi}s > d_0(8\overline{\pi}) \tag{1}$$

$$s > \frac{8d_0}{(1-d_0)} \Rightarrow s \begin{cases} \leq 1, & d_0 \leq 0.11 \\ > 1, & d_0 > 0.11 \end{cases} \tag{2}$$

In words, the official accepts bribe and does not report a cartel if the rate of detection is less than 0.11. (Note that 0.11 is, in fact, a recurring decimal, i.e., $\overline{0.11}$.) Otherwise $(d_0 > 0.11)$ each member of a detected cartel has to offer an amount more than the profit as bribe to ensure that the official does not report. Table 4 summarizes the relevant thresholds. Note that for a given rate of detection of corrupt officials (d_0), if the condition specified in (2) is not satisfied in a period then cartel members cannot strike a deal with an official that evens out the stream of bribes and circumvents the condition in the long run because the condition is independent of gains from cartelization.

Table 4. Condition under which officials accept bribes

Case	Perceived rate of detection (share offered to official)	Remarks
A	$d_0 \leq 0.11$ ($\Rightarrow s \leq 1$)	Official can be bribed.
B	$d_0 > 0.11$ ($\Rightarrow s > 1$)	Official cannot be bribed (because each cartel member has to offer as bribe more than the profit made to induce the official to behave favorably).

Notes: $d_0 \in (0,1)$ denotes the rate of detection of corrupt officials; $s \in [0,1]$ denotes the share of profit offered as bribe by each member of a cartel.

Now let $d_c \in (0,1)$ denote the rate of detection of cartels and $\overline{\pi}(\underline{\pi})$ the profit made as a member of cartel (otherwise). The choice problem of a prospective cartel member–

whether to join a cartel—can be expressed as follows:

$$\underline{\pi} \leq \begin{cases} (1-d_c)\overline{\pi} + d_c((1-d_0)\overline{\pi}(1-s) - 1000d_0), & d_0 \leq 0.11 \quad \text{(Case A)} \\ (1-d_c)\overline{\pi} - 1000d_c, & d_0 > 0.11 \quad \text{(Case B)} \end{cases} \tag{3}$$

In Case A, under which the official can accept sufficiently lucrative bribes, assume that the rate of detection is such that the official is indifferent between accepting and not accepting bribes ($s = 8d_0/(1-d_0)$ from (2)). Now (3A) transforms to:

$$(1-d_c)\overline{\pi} + d_c((1-9d_0)\overline{\pi} - 1000d_0) \geq \underline{\pi} \tag{4}$$

Now without loss of generality let us consider the case of a trader who deals in an imported good—ten per cent profit—whose price is “trifling” (i.e., less than 1 *Pana*, say, 0.5 *Pana*), and is able to sell 1000 pieces on his own at a profit of ten per cent (i.e., $\underline{\pi} = 45.45$). Assume $d_0 = 0.1 < 0.11$, i.e., only one in ten corrupt officials is caught, then the additional profit from cartelization that makes a trader indifferent to cartelization can be expressed as:

$$(1-d_c)\overline{\pi} + d_c(0.1\overline{\pi} - 100) \geq 45.45 \Rightarrow \overline{\pi} \geq \frac{45.45 + 100d_c}{1 - 0.9d_c} \tag{5}$$

Similarly, in Case B, the choice problem transforms to:

$$(1-d_c)\overline{\pi} - 1000d_c \geq 45.45 \Rightarrow \overline{\pi} \geq \frac{45.45 + 1000d_c}{1 - d_c} \tag{6}$$

Under the additional assumption that demand is price invariant, the rates of profit as part of cartel that make a trader indifferent to cartelization are given in Table 5. These rates will increase considerably as demand becomes responsive to price and the cost of confiscated stock of goods is accounted for in the analysis. It should be clear that even without these adjustments the rates of profits that are required to tempt a trader to join a cartel are extraordinarily high. In other words, the penalties must have had a strong deterrent effect.

Finally, note that the discussion in this section presumed a five-stage game of complete information—(i) the trader chooses whether to join a cartel, (ii) the official tries to detect cartels, (iii) the trader chooses whether to bribe the official, (iv) the official chooses whether to accept the bribe, and (v) royal spies (assumed to be incorruptible for sake of simplicity) try to detect corrupt officials. (Kumar 2010 has discussed the strategic structure of the *Arthasastra*.)

Table 5. Profit (in %) as part of a cartel that makes a trader indifferent to collusion

Rate of detection of cartel	Case A	Case B
$d_c = 0.10$	13.4	35.6
$d_c = 0.50$	38.2	240.0
$d_c = 0.90$	156.8	2,080.0
$d_c = 0.99$	291.6	22,779.9

Notes: $d_c \in (0,1)$ denotes the rate of detection of cartels.

4.5 Empirical evidence

Most ancient Sanskrit treatises, including the ones referred to in this paper, simply list rules and regulations without giving the slightest hint of the historical context in which they were written, let alone applied. Our sources do not provide any information about how often courts were called to adjudicate upon cases related to cartels and if the fines specified were actually imposed. The problem of lack of evidence can, however, be resolved to some extent through a comparative study of medieval commentaries and digests of laws and also through an exploration of fictional literature and historical sources *a la* Sternbach's (1952) exploration of non-juridical Sanskrit literature and Duncan Derrett's exploration of inscriptions (Lingat 1973: 273–274).

The lack of empirical evidence notwithstanding can we say that the very fact that ancient law-givers discussed market collusion suggests that ancient Indian markets were not perfectly competitive (*a la* Trautmann 2012: 130, 138, who suggests that the mere mention of severe penalties is indicative of inability to apprehend violators)? We cannot answer this question with certainty because the ancients targeted just price. So, even if all the traders were price-takers and the market corresponded to the competitive equilibrium the traders could have attracted punishment for cartelization if the competitive price differed from just price. Furthermore, since competition was strictly discouraged and attracted penalties, models developed to study modern markets may not be appropriate to study pre-modern markets, which functioned within a very different moral-legal framework.

4.6 Evolution of law

A full-fledged study tracing the evolution of laws related to market collusion in ancient India is impeded by the inaccessibility of the numerous medieval commentaries and digests of laws, which are available mostly in Sanskrit manuscripts. However, we can discuss the evolution of the ancient Indian "competition law" on the basis of the primary texts, even though they deal with the issue very tersely. The treatises belonging to the *Arthasastra* and *Dharmasastra* traditions used in this paper cover a very long period in the Indian history. The *Kautiliya Arthasastra* has been dated to the period between 4$^{\text{th}}$ Century BCE and 1st Century CE whereas Yajnavalkya's and Visnu's *Dharmasastras* have been dated to the period 4$^{\text{th}}$–6$^{\text{th}}$ Century CE and 6$^{\text{th}}$–8$^{\text{th}}$ Century CE, respectively. A comparison of these treatises tentatively suggests the following. One, the problem of market collusion continued to attract attention till the very end of the ancient period, with the *Kautiliya Arthasastra* being the template for injunctions on identification and penalties in later treatises. Two, the *Dharmasastras* did not build upon what they borrowed from the *Arthasastra* and, in fact, confounded a few issues (like treatment of producer cartels) clearly dealt with in the latter. Three, the *Dharmasastras'* treatment seems to be morally biased insofar as individual and collective attempts to manipulate prices were treated alike. Four, the attitude of law-givers toward traders seems to have hardened over the centuries because the *Dharmasastras* or at least their medieval commentators single out traders for market manipulation and ignore artisans. Five, an additional, even though entirely speculative, point can be raised in light of the fact that competitive and announced prices were not necessarily the same and deviation from announced prices was criminalized. It can be argued that by meddling with prices the Kautilyan state must have engendered adulteration, manipulation of weights, hoarding, counterfeiting, smuggling, etc, which in turn necessitated additional laws. In other words, the first round of market regulation necessitated the second round of regulation. If this is true then we should be able to chronologically order market regulations in the ancient treatises. But such an exercise is hampered by the fact that adulteration, etc are not absent from competitive, free markets.

5. Economic exegesis

When George Stigler discussed research concerns of common interest to economics and history he had in mind economic history and social phenomena influenced by economic factors. In addition, history was a source of empirical evidence (Stigler 1984). But economic exegesis of pre-modern texts can also lead to a meaningful engagement between economics and history. Brams (2011), for instance, has been using game theory for "strategic exegesis" of Biblical texts since early 1980s. But he has not systematically developed strategic exegesis as a tool to, say, distinguish among different strata of thought in texts or to detect interpolations contrary to the overall strategic structure of the text. His exegesis falls between two stools because on the one hand he does not engage with the socio-economic aspects of the problem under consideration and on the other his discussion is theologically thin and culturally and historically uninformed (Kumar 2012).

Gordon (1994) has argued that Judaeo-Christian texts can be classified on the basis of the economic injunctions embedded in those texts. He argued that the divide within the tradition could be traced back to differences in periods of composition and/or theological differences. Miller's (1993a, b, 1994, 1996) legal-economic exegesis of Biblical texts, Beck's (2007) analysis of Pelagian controversy, and Smith's (2002) exegesis of Book of Revelation follow this line of inquiry. But it is in Raskovich (1996) that one finds a formal analysis supporting suggestions for resolution of an exegetical problem. He argued that Biblical texts can be chronologically ordered based on the study of the underlying structure of market for religion. He exploits the economic component of theological differences between texts to order them. However, our interest is in a non-theological text and we are interested in the mutual consistency of entries related to a specific economic issue spread across sections of a given text, which are assigned different origins on the grounds of stylistic differences.

Our analysis shows that given the fines for traders/producers found guilty of cartelization (IV.2.18–19) and officials found guilty of shielding traders violating laws (II.21.14), traders/producers in the Kautilyan world would opt for cartelization if the profits are of the order of 1,000 - 10,000 per cent, which is comparable to the range of profits mentioned in VIII.4.36. But the medieval as well as contemporary scholarship has interpreted VIII.4.36 as purely rhetorical (Madhavayajvan's Sanskrit commentary *Nayacandrika* cited in Kangle 1986b: 399). Our analysis challenges this understanding by showing that the idea of cartel in Book VIII is in agreement with the conception of cartel that informs the legal provisions of Book IV.[23] By implication, it challenges the scholarship that questions the coherence and therefore the unity of authorship of the *Kautiliya Arthasastra*. For instance, Trautmann's (1971: 117–119, 130–131) statistical analysis of distribution of commonly-used words and sentence and compound lengths suggests that Books II, IV, and VIII are associated with different hands/authors/sources. We need to check if conclusions based on style of writing, which is not the only touchstone of coherence of a text (particularly, one handed down to us through a long tradition of scribes, whose writing styles must have varied over time), agree with other analyses. Our analysis of cartels shows that the remarkable correspondence between the idea of cartel in Books IV and VIII cannot be a mere coincidence particularly if the text is, as McClish (2009) argues, a redaction of sources separated by decades, if not, centuries.

Two general remarks are in order before we conclude. One, the acceptability of economic exegesis is likely to be lesser than that of, say, statistical analysis of writing style, regarding which literary analysis has itself generated hypotheses. One of the reasons for this is that statistical analysis is seen as a neutral technique, while economic analysis carries with it a certain way of looking at the problem. Two, economic exegesis is proposed here as a complementary analytical tool rather than as a competitor to literary analysis (cf. Kumar 2011: 496–497).

6. Conclusion

In this paper we began by observing that deviation from the ideal of just prices was morally repugnant in ancient times and then discussed how the *Arthasastra*, an ancient Indian treatise on law and statecraft, and other associated treatises dealt with restrictive trade practices like market collusion. Our discussion reveals that the ancients built their market regulations around just prices, which were influenced by extra-market, ethical considerations and state's responsibility to take care of the destitute. However, the design of actual regulations in the *Arthasastra* was not burdened by moral considerations. We showed that cartels were treated more severely than individuals who deviated from just prices. We compared the fines for cartel members with incomes and prices and argued that the fines must have been a significant deterrent even with a relatively low probability of detection. We then discussed if, the lack of empirical evidence notwithstanding, some minimalist empirical claims could be made merely on the basis of references to cartels in the treatises. We also discussed the evolution of law regarding cartels. Last but not the least we argued that the economic analysis presented in this paper challenges the conventional scholarship that questions the internal coherence of the treatise on the basis of literary analysis. Our analysis suggests that sections dealing with cartels from books attributed to different sources are mutually consistent.

[23] In work in progress, I show that contrary to extant doubts regarding internal consistency of the *Arthasastra* (i) the strategic structure of arguments is similar across books and (ii) the entitlements of officials are not only comparable across books, attributed to different authors/sources, but also compare favorably with the scale of kingdoms and the geographical reach of armies.

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