

Game Theory Analysis of Ottoman Commercial Privileges and Diplomacy: The Ragusa (Dubrovnik) Case Within Rational Choice Framework

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Between the 15th and 17th centuries, the Ottoman Empire established a systematic hegemony over Mediterranean trade, transforming the region into both a competitive arena and a dynamic commercial hub. Its vast domestic market and abundant natural resources ranked among the most coveted privileges in the international commerce of the era. The commercial privileges granted to Dubrovnik (the Republic of Ragusa) positioned it on the periphery of the Empire, while archival evidence highlights its function as an advanced Ottoman outpost and intelligence center. This study is underpinned by an inclusive analytical model rooted in Rational Choice theory, examining the competitive foundations of Ottoman economic policy in the Adriatic basin, particularly focusing on its relationship with Dubrovnik. The model integrates trade, diplomacy, and intelligence dimensions, with Game Theory serving as the principal analytical framework.

Keywords: Ottoman Balkan policies, Republic of Dubrovnik, Ottoman foreign policy, game theory, Nash equilibrium

Introduction

Underlying the economic hegemony is a concept reminiscent of what is today referred to as “Great Power Diplomacy”¹. Rather than a hegemonic structuring model, the system favored by the Ottoman Empire was its Grand Strategy. Gabor Ágoston demonstrated that within the Ottoman Grand Strategy, a complex hegemonic balance was established between the central power and its surrounding buffer states through economic and diplomatic means, which constituted one of the fundamental dynamics of the Ottoman political-economic structure (Ágoston, 2014, pp. 145-147). The cornerstone of the Ottoman system, as articulated in Ágoston’s framework, is its Grand Strategy. In this respect, it can be inferred that vassal states within the Ottoman domain did not possess full sovereignty but were merely required to act in accordance with Ottoman order. The clearest example of this proposition is Dubrovnik. Despite being a relatively weak vassal, this polity was spared conquest and granted numerous privileges and monopolies, indicating its role as an asset within the Ottoman commercial system.

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¹ Following the Congress of Vienna in 1815, a diplomatic framework known as the “Concert of Europe”, led by Austrian Chancellor Klemens von Metternich and other great powers—England, Austria, Prussia, Russia, and later France—was established to maintain political stability and peace in Europe through multilateral cooperation based on congresses. This system persisted until the outbreak of World War I in 1914 and is alternately referred to as the “Congress System” and the “Restoration Era”, institutionalizing the concept of balance of power in Europe (Schroeder, 1994, p. 581; Kissinger, 1994, p. 83).

The position of the vassal within the system is defined by the role assigned by the imperial capital, obliging it to fulfill its duties accordingly. This includes payment of the required tributes and/or taxes and, when necessary, acting in alignment with Ottoman interests within its territory.

Through the granting of commercial privileges and monopolies, the Ottoman state sought to secure the commercial interests of selected states deemed appropriate. It is imperative to underscore that the Ottoman Empire did not provide these commercial privileges as concessions, but rather as integral components of its Grand Strategy aimed at fulfilling the “Ottoman great purpose”. Essentially, privileges granted were revocable. Thus, it would be illogical for a state receiving such privileges to act counter to Ottoman interests in preserving them.

Ottoman Trade and Diplomacy Systematics

The concept of the “revocability of granted privileges” in Ottoman political economy emerges as a fundamental element of a nuanced policy approach. The revocation of a privilege is not merely an action but also a manifestation of regional influence and demonstration of power. Here, power should be understood not solely as direct militant intervention but as a means to preserve and reinforce the hegemonic position of the Ottoman economy over surrounding states and the region. From this perspective, the concept of “influence/power” (potestas/effectiva) highlights not only military or coercive force but also the integrated role of economic and diplomatic effects within the hegemonic strategy (Baykara, 2018, pp. 142-145).

The Ottoman statecraft was obliged to consider not only its direct sphere of influence but also the strategic power elements located in surrounding rings, as emphasized by Halford Mackinder (Mackinder, 1919, p. 728). Moreover, in line with Alfred Thayer Mahan’s model focused on naval power and maritime trade within the concentric ring framework, it is understood that Ottoman trade and privilege policies were not confined solely to the domestic market but extended to form regional economic apparatuses through dependent states and privilege holders (Mahan, 1890, pp. 55-59). Within this framework, Ottoman commerce—organized by the state—constituted the foundation of a multilayered political economy involving both central authority and peripheral power elements.

Dubrovnik emerges as the most suitable case for analyzing sets of policies in relation to a state. It was not only a vassal state at the Ottoman border but also regarded as a communication hub due to its administrative convenience and proximity to other Christian states.

Dubrovnik was a Catholic state in the Adriatic Sea, surrounded by Orthodox kingdoms but maintaining maritime contact with the Catholic center, Rome. The theory of the “Advantage of Small States”² in international trade served to strengthen Dubrovnik’s position. From the perspectives of medieval political and trade thought, Dubrovnik represented an opportunity for the Ottoman Empire; the reasons why the Ottomans retained Dubrovnik as a vassal instead of conquering it—and granted it significant customs and mining privileges—remain subjects of debate today, with various theories proposed on the issue (Kunčević, 2012, p. 178).

In the Ottoman administration, the relationship between the center and the periphery was of paramount importance. The Empire governed diverse sanjaks by granting various privileges to local dirliks (landholdings),

² As an International Economics Theory, the “Advantage of Small States” posits that openness to foreign trade, swift policy implementation, and specialization in niche sectors enable small states to gain competitive advantages in the global economy. However, these advantages are closely linked to high institutional quality and the effectiveness of strategic policy choices (Easterly & Kraay, 2000).

thereby accommodating both their sociological characteristics and unique conditions. For each *dirlik*, meticulous registers were kept to produce documents facilitating central planning. Ömer Lütfü Barkan elaborated on this administrative approach in his work titled “Forms of Organization in Land Tenure in the Ottoman Empire” (Barkan, 1939). Since land management and revenues derived from cultivated land became quantifiable, differentiated administrative systems were implemented according to the sociological and strategic features of each region. For instance, following Barbaros Hayreddin’s incorporation into the Ottoman realm, the sanjak that initially covered only the city of Algiers expanded to form the Algiers Sanjak of the White Sea (*Bahri Sefid*), encompassing all of North African territories up to Tunisia. This sanjak, with broad authority over the islands of the Mediterranean and North Africa, conferred a wide operational scope to Barbaros under the rank of Kapudan Pasha (Grand Admiral) (Oflaz, 2019, pp. 58-59). A similar approach was applied to Dubrovnik, where instead of conquest and direct governance, the city was transformed into a vassal state, integrating its internal and external dynamics into Ottoman foreign policy and broader imperial objectives.

The Ottoman Empire’s annual tribute imposed on Dubrovnik indicates that it did not overlook the city’s economic value. Situated on the Orthodox frontier as a Catholic state and on the Islamic frontier as a Christian entity, Dubrovnik was viewed with suspicion by both the Catholic and Orthodox worlds, and concerns frequently arose regarding its dual political stance (Kunčević, 2013, pp. 37-68).

At the beginning of the 15th century, Dubrovnik faced pressure from both Bosnian and Serbian feudal lords as well as the rapidly expanding Ottoman Empire. While the city frequently strengthened its defenses against incursions by Bosnian and Serbian nobles seeking control over its hinterland, it simultaneously gathered intelligence on the Ottoman military presence in the region and sought to maintain its existence through diplomatic maneuvers. As part of its geopolitical necessity, Dubrovnik pursued a combined strategy of defense, intelligence, and flexible diplomacy (Bećir, 2025, pp. 20-21). This strategy rendered Dubrovnik relatively autonomous and advantageous compared to other states in the region.

Dubrovnik’s politicians consistently portrayed the state as a protector of the Catholic frontier to the Catholic world, while simultaneously positioning themselves as a state safeguarding Ottoman interests in Europe and providing the Ottoman Empire with intelligence regarding political and economic developments in the region.

In the Ottoman Empire’s policy toward the Republic of Dubrovnik, a vassal relationship is prominent, wherein a small and relatively weak state is protected so as to serve the Empire’s economic and strategic interests. Machiavelli identifies one reason for France’s failure in its Italian campaigns as the act of “weakening the weak further”. He argues that making a dependent state weaker and thus more controllable ultimately leads to a loss of power over the long term (Oflaz, 2017, p. 227). Through this argument, Machiavelli emphasizes that weakening and subordinating a small state can destabilize the regional balance of power and complicate governance for major powers after conquest. His view of the Ottoman Empire being ruled by a strong sovereign as a vulnerability within power dynamics is particularly noteworthy in the context of this article’s main theme (Machiavelli, 2021, pp. 52-53).

A critical perspective directed at the Ottoman administration and decision-makers’ policy implementations cannot be considered an effective analysis, at least with regard to the Dubrovnik policy. The policies implemented by the Ottoman Empire toward Dubrovnik align with Machiavelli’s proposed “balance” strategy, as the Empire chose to maintain Dubrovnik’s autonomy under taxation rather than abolish it, ensuring the continuity of regional trade and sustained economic benefit. Through this approach, the Ottomans both consolidated their economic

power in the region and established a buffer zone against the advance of powerful rivals. Prior to and during the peace negotiations following the Venetian-Ottoman War (1499-1502), the Ottoman military power was wielded within the context of a balance of power among European and Italian states. This balancing element, and even alliance systems, evidently functioned as significant strategic tools. It is clear that the Ottoman Empire deliberately employed the policy of “Balance” in a manner serving its own interests (İnalçık, 1997, p. 167). In light of these findings, the Empire appears to have avoided the act of “weakening the weak further”; instead, it protected and thereby strengthened its vassals.

Analysis of the Ottoman Empire’s Economic, Political, and Geopolitical Policies: The Case of “Dubrovnik”

An examination of Dubrovnik state archives reveals that the Ottoman Empire maintained close relations with Dubrovnik both locally and centrally. The rapid and expansive spread of Ottoman influence in the Balkans compelled Dubrovnik (one of the key commercial centers of the region) to remain in constant contact with the Ottomans and their administration. Ottoman-Dubrovnik commercial relations began in the late 14th century, with the earliest documents related to these relations dated to 1396 and 1397. According to existing sources, the first official commercial privilege granted to the citizens of Dubrovnik by the Ottomans was issued in Edirne on December 6, 1430, by Sultan Murad II, and this document was written in the Serbian-Croatian language using Cyrillic script. From this date until the dissolution of the Dubrovnik Republic in 1808, continuous political and commercial interactions were maintained between the Ottoman central administration, regional authorities in Rumelia, and Dubrovnik (Šabanović, 1966, pp. 391-437).

The Republic of Dubrovnik held a unique position between the Ottoman Empire and Venice. Due to its geographical location, it served as a bridge between civilizations. Its position had significant implications for its commercial relations. The city became one of the most critical crossroads of Latin (Catholic) and Eastern (Orthodox and Muslim) civilizations, thus playing a pivotal role in the East-West politico-economic nexus. Dubrovnik’s multifaceted border identity made it central not only in cultural and religious transitions but also in the secure passage of trade routes, information flow, and financial capital. Various epithets have been attributed to Dubrovnik, such as “the gateway to the East for Christians and to the West for Turks”, “the loyal daughter of the Roman Church and friend of Catholic Spain”, “the Sultan’s vassal”, “a neutral messenger to friends and foes”, and “a double spy for Turks and Christians” (Preto, 2016, cited in Dedijer, 2000, p. 130).

Dubrovnik (Ragusa) was a city-state of considerable strategic importance on the Ottoman frontier. Due to its location and commercial relations, it was utilized by the Ottoman Empire as an actor in the field application of intelligence gathering and informal diplomatic relations. It is understood that Dubrovnik’s diplomats did not provide these services exclusively to the Ottoman state, but this was not perceived as problematic by the Ottoman administration. Stevan Dedijer characterizes Dubrovnik’s foreign policy approach as the principle of “serving one’s own interests without being friend or foe”. In this context, P. Ricault’s work “History of the Ottoman Empire” (1670) describes Dubrovnik as “the follower of seven flags” and it is further suggested that the phrase “nonsiamo Christiani non siamo Giudei, ma poveri Ragusei”, attributed to Dubrovnik and possibly fabricated by the Venetians, means “We are neither Christians nor Jews, but poor Ragusans” (Dedijer, 2000, p. 130). The complex relationships vital to Dubrovnik were frequently exploited as tools of discredit by rival powers.

The advantage of being a small state was a key factor in Dubrovnik's diplomatic success and deserves special emphasis. Small states can benefit from the rivalries of great powers through their flexibility in decision-making processes, easier consensus-building in domestic politics, and the ability to form multi-actor coalitions in foreign relations (Long, 2016, pp. 3-4). Strategic concentration of limited resources, rapid adaptation in foreign policy, and specialization in niche areas facilitated Dubrovnik's rise as a neutral and reliable intermediary between both Venice and the Ottoman Empire. The support derived from social cohesion enabled the city's elite to adopt a pragmatic approach in managing external threats. The capacity of small states to participate in coalitions, rely on international institutions, and sometimes act as balancing or complementary forces against great powers reinforced the sustainability of Dubrovnik's political economy.

It is noteworthy that Dubrovnik is one of the rare examples that transformed its marginal status, both politically and economically, into an advantage. Through broad and flexible diplomacy among empires, the city became an indispensable trade and intelligence corridor between East and West. Economically, intensive trade and brokerage relations established with the Ottoman hinterland yielded high profitability while enabling Dubrovnik to survive in the competitive environment of the West, particularly against Venice.

The strongest emphasis in the city's foreign relations was on the sustainability of its role as a mediator and balancing actor. Dubrovnik frequently pursued a kind of balancing policy (double game) amid tensions between Western Christian powers and the Ottoman Empire. It secured commercial privileges and intelligence advantages from the Ottomans while managing the interests of the Catholic world in a balanced manner that avoided erosion. This multilayered balancing strategy demonstrates that the decision-makers of the Republic of Dubrovnik possessed not only commercial pragmatism but also advanced diplomatic acumen and multi-actor interest analysis. Indeed, this policy set became proverbial in Dubrovnik: "To those who threaten us with iron bullets, we respond with golden bullets", and "Polite to everyone, sincere to none", reflecting the sociological embedding of its political tradition (Dedijer, 2000, p. 136).

The economic-political success of the Republic of Dubrovnik is a refined example of the art of transforming the "risks of border existence" into advantages. The city was both an indispensable threshold for the West and the East and a commercial republic that survived through innovative diplomacy amidst cycles of mutual trust and suspicion. The flexibility and diplomacy enabled by being a small state formed the foundation of this dominant role.

Between the 14th and 17th centuries, the Republic of Dubrovnik developed an exceptionally intelligent and realistic set of policies within the power rivalry between Europe and the Ottoman Empire. As a city-state consolidating its diplomatic independence, it became a focal point for intelligence and commerce. Dubrovnik functioned as a multilayered "intermediary power" between East and West, closely monitoring developments in both spheres and designing intelligence-based diplomatic relations. Intelligence from Dubrovnik was informed by consuls, trade colonies, and embassy missions, enabling the city to serve as an indispensable hub of information and commerce for both blocs. Archival documents reveal that the intelligence delivered was carefully scrutinized and esteemed by Ottoman administrators and the sultans themselves (Biegman, 1963, p. 242).

Within this framework, Dubrovnik's relationship with the Ottoman Empire demonstrates parallels with the classical realist theory prevalent in the international relations literature. Consequently, it is structured around mutual interests, power equilibrium, and strategic negotiation dynamics (Morgenthau, 1948, pp. 18-26). The survival and prosperity of the Republic derive from the advantages created by this strategic "game" established with the great powers of the period, which is based on collective security and intelligence.



Figure 1. The Republic of Dubrovnik in the 17th century (map; Madunić, 2013).

Ottoman-Dubrovnik relations reveal a pragmatic policy by the Ottoman Empire towards this small yet strategically significant city-state. Dubrovnik served as an important trade hub and a gateway to Ottoman markets and Europe, thereby functioning as an economic bridge for the empire.

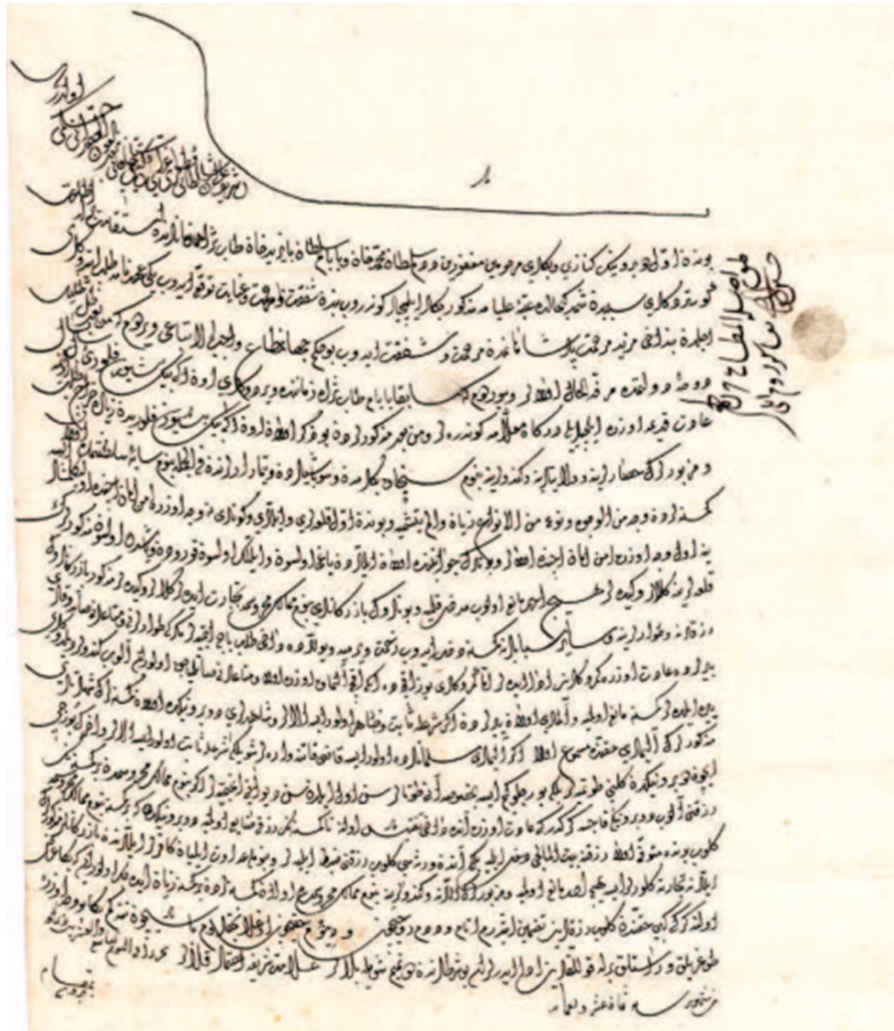


Figure 2. Charter granted to Dubrovnik during the Reign of Sultan Selim I (Facsimile and translation of the document; Katırsız, 2024, p. 465).

I have commanded that the twelve thousand five hundred florins, which my late father used to send annually during his reign according to the old custom, be sent with their deputies to the sublime court. Furthermore, no tribute beyond this mentioned twelve thousand five hundred florins shall be demanded. My sanjak beys, subaşı, and timar holders, as well as all those under the shadow of my sultanate, shall not suffer any loss or harm from any person or group. The fortresses, provinces, and cities that have been in security and peace heretofore shall continue to remain so. From the surrounding regions, whether hostile or friendly, whether in dry or wet climates, none shall dare to enter or intervene in these fortresses, nor shall any obstruction be made to their merchants who trade within my protected lands. These merchants shall come and go freely without anyone impeding them, nor shall they be burdened with taxes on the roads, except customs duties to be paid in the usual manner at places where they sell their goods. The customs fees shall be levied at two akçe for each hundred akçe. (Katırsız, 2024, p. 465)

As can be understood from the translation of the archival document available in the literature, the financial obligations of the Republic of Dubrovnik to the Ottoman Empire were bound by definite responsibilities. Nevertheless, the Ottomans demonstrated flexibility in their policies concerning customs and trade privileges granted to Dubrovnik. The Ottoman stance on regional disputes ensured commercial stability in the area and secured tax revenues. At the same time, by recognizing Dubrovnik's autonomous status and commercial

privileges, the Ottomans established a balance between regional peace and the expansion of their economic influence (Yemişçi & Dursun, 2023, pp. 10-103). This relationship represents a significant example of the Ottoman strategy to strengthen regional dominance not only through military conquest but also by diplomatic and economic means. In brief, the Ottoman-Dubrovnik policy can be interpreted as a model of mutual dependency and pragmatic cooperation that maximized the Empire's economic interests while preserving Dubrovnik's trade freedom and political autonomy. Various archival sources also support the existence of a positive attitude of the Ottoman central administration towards the people of Dubrovnik (Köse, 2011, p. 298).



Figure 3. Regarding the provisions of the charter on preventing the mistreatment of Dubrovnik province merchants in Rumelia Province in relation to customs and excise duties, specifically concerning the collection of 2 akçe on goods bought and sold.³

The following table presents the historical development of Dubrovnik's annual tributes paid to the Ottoman Empire and the corresponding commercial and diplomatic privileges attained:

³ Archive document with location code C.ML/305/12420, accessible via <https://katalog.devletarsivleri.gov.tr/>.

Table 1

Chronology of Diplomatic Relations Between the Ottoman Empire and the Republic of Dubrovnik (Harris, 2006, pp. 165-171; Turan, 2025, compiled by the author)

Date and payment	Privileges and agreements
1442: Annual tribute of 1,000 ducats	Ottoman protection; political autonomy and security guaranteed.
1469: Tribute raised to 1,500 ducats	Officially recognized as an Ottoman vassal; trade rights expanded.
1471: Tribute fixed at 9,000 ducats (during Sultan Bayezid II's reign)	It was announced that for subsequent years, the tribute would be 10,000 ducats. Trade privileges approved; 2% low customs duty; free access to the Black Sea granted.
Post-1476: Annual payment of 12,500 ducats	Low customs tariffs maintained; agreement to keep customs tariffs at 2% with payment of 10,000 ducats tribute and 2,500 ducats prepaid customs. Trade and diplomatic protection secured; trade colony established in Istanbul.
1521: Establishment of separate customs registers by Sultan Suleiman the Magnificent	Customs advantages stabilized; trade privileges became sustainable for Dubrovnik.

Analysis of Ottoman-Dubrovnik Relations Based on Game Theory

The intelligence and trade relations between the Republic of Dubrovnik and the Ottoman Empire represent a significant example illustrating the complexity of multiple strategies and the interdependence of parties when examined from a game theory perspective. This game features a three-strategy dynamic structure that includes cooperate, defect, and war strategies.

The cooperation strategy emerges as a Nash equilibrium providing maximum net benefit to both parties, whereas the inclusion of the war strategy signifies substantial losses for strategies other than cooperation. This dynamic helps explain the elements of stability and fragility within the historical context of Dubrovnik-Ottoman relations.

The model developed to represent the Dubrovnik-Ottoman alliance is based on a mathematical framework drawing from foundational concepts in game theory such as Nash equilibrium (Nash, 1950) and principles of three-strategy dynamic games (Maskin, 1999). While bearing resemblances to the classical prisoner's dilemma and chicken game, the presence of the war option emphasizes how socio-political tension and risk shape the game dynamics. Consequently, this model holistically addresses both economic benefit analysis and the multidimensional nature of diplomacy and intelligence strategies.

This approach is modeled by relying on cooperation and conflict frameworks within international relations and game theory literature (e.g., Axelrod, 1984; Ostrom, 1990; Myerson, 1991, etc.). The Dubrovnik-Ottoman case offers both a historical and theoretical perspective on how small states establish strategic cooperation and balance among great powers.

Fundamental Constructs From a Game Theory Perspective

Both parties possess three strategic options: cooperation, defection, and war.

Ottoman Empire: In exchange for a fixed annual tribute and intelligence inflows, it secures commercial and legal privileges as well as access to information from the Catholic world.

Dubrovnik: Pays tribute and, in return, receives military protection, low-tax free trade, and access to intelligence resources within the Ottoman Empire.

Simulation of Utility Functions With Annual Gain Estimates

Total utility for the Ottoman Empire: Approximately 20,000 ducats.

(Tribute revenue: 12,500 ducats + intelligence & diplomatic advantage: 4,000 ducats + trade revitalization: 3,500 ducats)

Net utility for Dubrovnik: Approximately 15,500 ducats.

(Trade privileges: 15,000 ducats + military protection: 6,000 ducats + legal status: 3,000 ducats + access to Ottoman intelligence: 4,000 ducats - annual tribute: 12,500 ducats)

Game Matrix

The game theory matrix incorporating the war scenario for Dubrovnik-Ottoman relations is depicted in Table 2. Each cell's parentheses contain the values for (Ottoman benefit, Dubrovnik benefit), representing the annual net gains or losses in ducats.

Table 2

Game Matrix (prepared by the author)

	Cooperation (Dubrovnik)	Defect (Dubrovnik)	War (Dubrovnik)
Cooperation (Ottoman)	(20,000, 15,500)	(12,500, 0)	(-5,000, -15,000)
Defect (Ottoman)	(18,000, 5,000)	(10,000, 0)	(-8,000, -14,000)
War (Ottoman)	(5,000, -8,000)	(3,000, -12,000)	(-20,000, -20,000)

Explanation of moves in the matrix:

- Rows represent the Ottoman Empire's strategies.
- Columns represent the Republic of Dubrovnik's strategies.
- Each cell contains (Ottoman gain, Dubrovnik gain).

This matrix encapsulates the inherent tension and potential stability in Ottoman-Dubrovnik relations, highlighting the payoffs associated with different strategic interactions, including conflict escalation.

Utility Functions for the Ottoman Empire and Dubrovnik

The utility functions for both states are defined according to the strategy combinations as follows:

- $U_O(s_O, s_R)$: Ottoman Empire's net utility function.
- $U_R(s_O, s_R)$: Dubrovnik's net utility function.
- s_O : The strategy chosen by the Ottoman Empire (C = Cooperation, D = Defection, W = War).
- s_R : The strategy chosen by Ragusa (Dubrovnik) (C = Cooperation, D = Defection, W = War).

$$U_O(s_O, s_R) = \begin{cases} \text{if } s_O = C, s_R = C \\ \text{if } s_O = C, s_R = D \\ \text{if } s_O = C, s_R = W \\ \text{if } s_O = D, s_R = C \\ \text{if } s_O = D, s_R = D \\ \text{if } s_O = D, s_R = W \\ \text{if } s_O = W, s_R = C \\ \text{if } s_O = W, s_R = D \\ \text{if } s_O = W, s_R = W \end{cases}$$

$$U_R(s_O, s_R) = \begin{cases} \text{if } s_O = C, s_R = C \\ \text{if } s_O = C, s_R = D \\ \text{if } s_O = C, s_R = W \\ \text{if } s_O = D, s_R = C \\ \text{if } s_O = D, s_R = D \\ \text{if } s_O = D, s_R = W \\ \text{if } s_O = W, s_R = C \\ \text{if } s_O = W, s_R = D \\ \text{if } s_O = W, s_R = W \end{cases}$$

For each strategy combination, the net utility is given in ducats (dukas). When both parties choose cooperation, each player achieves their maximum gain, and the highest values in the payoff matrix occur at this point. It can be observed that the historical cooperation is also optimal from the perspectives of game theory and mathematical modeling.

Interpretation of Nash Equilibrium

- The “cooperate” strategy for both parties yields the individual maximum net returns. Dubrovnik pays tribute in exchange for high trade volume, security, and access to information. The Ottoman Empire gains tribute revenue, an information advantage regarding the Catholic World, and regional stability.
- If one player unilaterally defects: for example, the Ottoman Empire terminates trade privileges or military protection, or Dubrovnik defaults on payments, both sides suffer losses: Dubrovnik remains unprotected and trade is obstructed, while the Ottoman Empire loses both tribute and information/economic advantages.
- The war strategy results in significant losses for both players. The war option represents the lowest or negative utility for both sides, regardless of other strategies chosen. The equilibrium where both actors behave rationally to achieve the highest feasible net benefit is sustained by “mutual cooperation”, whereas the war option leads to instability and destruction.
- The Nash equilibrium is established at this mutual cooperation configuration: Neither party can achieve a better outcome by changing their strategy unilaterally. Long-term stability and maximum benefits are secured by choosing cooperation. The equilibrium state is where both parties choose the “cooperate” strategy, yielding payoffs of (20,000, 15,500).

This model demonstrates that the reciprocal benefit relationship Dubrovnik established with the Ottoman Empire constitutes a stable, profitable, and sustainable “equilibrium point” (Nash equilibrium) among rational actors.

Negative Aspects and Risks in Game Theory Literature

- A single Nash equilibrium does not necessarily imply “Social Optimum”: The Nash equilibrium is a rational point for both parties; however, literature documents the possibility of suboptimal or Pareto-inefficient outcomes

(where better outcomes exist but are not equilibrium) (Holt & Roth, 2004). Thus, Dubrovnik's relinquishment of sovereign rights must be seen under this constraint.

- Risk of stability collapse: Studies indicate that if the incentive to “defect” increases over time, cooperation can collapse (Stewart & Plotkin, 2014). External shocks or incentives that damage cooperation or cause deviation from agreement can lead to rapid system failure.
- Asymmetric power/small state dilemmas: Smaller dependent actors like Dubrovnik must invest extra diplomatic and intelligence resources to preserve privileges. If the major power (Ottoman Empire) finds alternative interests or power balances shift, the risks for the smaller player increase.
- Destructive war option: Introducing “war” into the game tends to reduce total social welfare in the payoff matrix below that of classic two-strategy models; a mismanaged crisis or misread intentions can destabilize the system excessively.

Conclusion

This study demonstrates that the Ottoman Empire's commercial privilege policies constituted an integral component of its regional hegemony strategy in the early modern period. It emphasizes that these privileges were not merely economic benefits but effective instruments sustaining and strengthening the Ottoman political influence over surrounding smaller states. The revocability of these privileges enhanced the Ottoman State's economic and diplomatic maneuverability, enabling it to reinforce hegemonic control without direct military intervention.

As observed in the case of the Republic of Dubrovnik, small-scale actors survived within this hegemonic structure through flexible and rational diplomacy, striving to maintain commercial privileges at reasonable costs. In this context, Dubrovnik's intelligence network, trade colonies, and politically pragmatic approach were decisive. The game theory model demonstrates that mutual cooperation strategies yield sustainable advantages for both parties, whereas undesirable war scenarios result in net losses for both actors. Consequently, a peaceful cooperation framework was established through the coordination of economic incentives and diplomatic concessions.

The Ottoman-Ragusa relationship presents a significant example in economic history, illustrating how early modern international relations were shaped by economic instruments. This specific case shows how an asymmetrical yet mutually rational relationship between a great empire and a small state affected regional stability and economic development. The study confirms that the economic and political strategies analyzed through a game theory lens fall within rational decision-making frameworks. The outcomes based on Ottoman policymakers' competency provide a foundational perspective.

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