



Oleh Havrylyshyn and Nora Srzentić

Economy of Ragusa, 1300 – 1800

The Tiger of the Medieval Mediterranean

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DUBROVNIK
ECONOMIC
CONFERENCE

ECONOMY OF RAGUSA, 1300 – 1800

The Tiger of the Medieval Mediterranean

Oleh Havrylyshyn and Nora Srzentić¹

“There where your argosies² with portly sail
Like signiors and rich burghers on the flood
Or, as it were, the pageants of the sea.
Do overpeer the petty traffickers,
That curtsy to them, do them reverence,
As they fly by them with their woven wings.”

(William Shakespeare, *The Merchant of Venice*)

¹ The authors are respectively at the University of Toronto (o.havrylyshyn@utoronto.ca), and Universiteit Gent (nora.srzentic@ugent.be).

² Argosy: A large merchant ship especially one with a rich cargo [1570-80], earlier Ragusy, Italian = Ragusea, a ship of Ragusa (Webster's Dictionary, NY, 2003). Encyclopedia Britannica 1963 gives more detail: “*Argosy*, is the term originally used for a carrack or merchant ship from Ragusa or other Adriatic port, later used poetically of any vessel carrying rich merchandise. In English writings of the sixteenth century, the seaport is variously spelled (Ragusa, Aragouse or Aragosa). The incorrect derivation from Jason's ship, the 'Argo', is of modern origin”.

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Phone: +385 1 4564 555

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Any remaining errors of fact or interpretation are entirely our responsibility. The contribution of the Croatian National Bank has been immeasurable, starting with invitations to participate regularly in The Annual Dubrovnik Economic Conferences, allowing presentation of the first draft of this work in June 2012, and undertaking the enormous tasks of editing, translating and publishing of this book. We thank in particular Governor Boris Vujčić, Vicegovernor Tomislav Presečan, and the publication team of the Croatian National Bank. In the very long-term perspective we must be in some way grateful to the souls of the Ragusans of the past millennium whose visible works, like the majestic city-walls, and their less visible achievements in conducting their governance, commerce and trades and crafts so effectively as to provide the main source of inspiration for our research and this final product. We are not sure how to do this, though perhaps the old Slavic belief that past souls are embodied in the sea-gulls, pigeons, swallows and many other birds that fly around Dubrovnik might help – to them we can each time say, “Hvala Vam”.

PREFACE

As organisers of the Dubrovnik Economic Conference (previously: Dubrovnik Conference on Transition Economies), we have assumed certain responsibilities towards venue of our Conferences during the last twenty years or so. Though it was only once that the Conference was relocated to Cavtat, due to refurbishing of the Hotel Grand Villa Argentina in Dubrovnik, the experience of having the Conference in Cavtat was equally a pleasant one. Therefore it seems to us that territories of the former Republic of Ragusa, or Republic of Dubrovnik, offer unparalleled hospitality, insights into most extraordinary historical heritage and beautiful Mediterranean vistas no matter where you find yourself exactly within these limits.

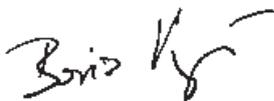
Hence the undertaking to make it our Conference business to get the paper that would provide scientific rigor while pursuing the topic that deals with our Conference venue, that is with Dubrovnik.

Once this task has been accomplished, we have firmed our belief that there is more to Dubrovnik in terms of economic policy lessons than one could imagine, thinking solely on basis of a touristic trip to this jewel of the Adriatic Coast.

Two authors, our long term member of the Conference Scientific Committee, Mr. Oleh Havrylyshyn, and one of our most promising Young Economists Seminar participants, Ms. Nora Srzentić, have shed some additional light on economic policies that were pursued by the Republic of Ragusa throughout centuries of its existence. The findings that they have come up with have been indeed interesting. It also seems that some aspects of the economic policies pursued by policymakers of the distant Ragusan past continue to be relevant even nowadays.

Our thanks are due to these two dear people for providing us with the results of their research, and also to all the dear people of Dubrovnik whose endeavor has contributed to the very existence of our Conference. It is our hope that this project that belongs to us all will successfully continue in years to come.

Boris Vujčić
Governor



Tomislav Presečan
Vicegovernor

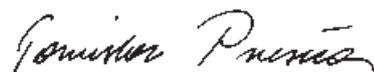


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1 INTRODUCTION AND MOTIVATION

While the Republic of Ragusa was one of the smallest medieval city-states in the Mediterranean, it is widely considered by historians to be one of the most successful, with volumes of shipping and trade, level of wealth, architectural and cultural achievements disproportionate to its size. Innumerable authors over the centuries have attributed its success to effective governance based on a republican political regime of that may not have been democratic but was relatively fair and benevolent, providing pioneering social goods like education, health care, quarantine systems, and grain reserves for times of shortage. To this was coupled a generally liberal and open economy, with prudent state finances, limited market intervention, and indeed a climate encouraging private enterprise. The Croatian economic historian Vladimir Stipetić captures this nicely in a recent article (2000, p. 24): “*Dubrovnik traded like Hong Kong, Singapore, Taiwan ...but did so some five hundred years before... [and like these countries] became prosperous ...because of [its] adopted economic policy.*”

An economist is indeed tempted to think of Ragusa as the “Adriatic Tiger” of yesteryear, an early example of a small open economy with strong fundamentals and outward orientation – this **flexibility hypothesis** is the main focus here. Using a simple “cliometric” approach³ the paper will first demonstrate that Ragusa was indeed a successful economy with available quantitative evidence of economic variables or proxies, and secondly it will analyze the main explanations of this success adduced in the literature; this will be generally more qualitative evidence.

One is tempted to hypothesize further that, by analogy to the current consensus about what it takes to minimize the impact of external crises,⁴ these strengths also allowed Ragusa to mitigate the effects of the many external shocks and financial crises in medieval Europe, which we label the **resilience hypothesis**. That medieval Europe experienced many economic and financial crises not unlike the current global crisis is very clear in economic history literature and has been most recently reviewed in the popular work of Reinhart and Rogoff (2009). While modern banking systems and the network of globalization far exceed in extent and complexity those seen five centuries ago, there are substantial similarities in kind. In the

³ Cliometrics; from Clio, muse of history, and econometrics, use of statistical data to test hypothesis. This is sometimes referred to as the new economic history, as exemplified by Temin and Nobelists North and Fogel. Both Stipetić (2004) and Ravančić (2010) give in Croatian an excellent summary of cliometrics. The essential distinction from earlier economic history is twofold: use of as much quantitative data as is available; and statistical correlation/interpretation analysis of such data to test interpretations, hypotheses in economic history.

⁴ Recent analysis of what makes for greater resilience can be found in Ghosh et.al. (2009), Backé, Gnan and Hartmann (2010), and IMF (2010).

Eastern Mediterranean in particular, where “banking” was born in Florence and other Italian city-states, financial crises are recorded at least as early as the 14th century, and trade interruptions due to these crises (or other causes such as wars or treaty abrogations) were also frequent. The well-known Cambridge volume *Economic History of Europe*, Postan (1952, p. 340) writes thus of the fourteenth century: “It was not one world yet, but there was a sensitive world market and it reacted quickly to crises in distant countries”. Just one example is the bankruptcy of the big Florentine banking houses in the 1340s (Bardi, Peruzzi) or the bankruptcy of the 1570’s initiated by the Ricci Bank, broad analogues to Lehmann Brothers today. Cipolla (1987) describes for the next century an excessive credit boom followed by a policy-induced credit squeeze – quite like modern boom-bust cycles.

Testing the **resilience hypothesis** can in theory be done using primary sources of the Dubrovnik Archives going back at least to the 14th century. As numerous scholars have noted, they are extremely rich, which holds true for economic information as well. However, compiling the primary data needed is a very time-consuming process best left to future research. The present paper relies on secondary-source data culled from the existing historical literature – before more laborious research with primary data, this can provide a useful first step giving a broad overview of Ragusa’s economic evolution.⁵

Section 2 quantifies this evolution as much as possible, from Ragusa’s foundation in the 7th-8th century, with emphasis on the period starting about 1300, through its “golden years” (15-16th century), to its end as an independent city-state in 1806 when it was occupied by Napoleon’s forces. Standard economic measures like output, trade, government budgets, monetary indicators are of course not available, but we attempt to gather the best available quantitative proxies to give some quantitative affirmation or rejection of the views commonly found in the largely-qualitative historical literature. As imperfect as the proxies are, (the data compiled, explanation of sources’ and assumptions made are in Appendix 2) they do bear out the central consensus view – that Ragusa was a very prosperous economy, reaching its peak towards the end of the 16th century. Section 3 then considers what factors explain this prosperity, as well as the reasons for the eventual decline. Finally Section 4 will draw some tentative conclusions about hypotheses that can be confirmed by our new data set, those that are not supported by the data, and which others merit future cliometric research.

Three clarifications are in order. First, we will generally use the Latin name Ragusa as our analysis is for the late medieval period when today’s Dubrovnik was so known to most outsiders. In the modern literature, writers sometimes use one or the other, and where appropriate, especially in later years, we will employ the Slavic name. Section 2.1 briefly refers to some writings on the history of these two names. Second, we do not argue that Ragusa was the only and or a unique example of a prosperous city state based on sensible policies – indeed we accept the view of some scholars that a lot of Ragusa’s wise policy was an emulation of – and perhaps improvement upon – that of its main rival, Venice. Third, while the analysis here is based on numerous sources shown in the bibliography, detailed referencing is not attempted, with only selected citations and footnote elaboration⁶.

5 The data we compile is presented in Appendix 2 with source details, assumptions used, and comments on apparent relative quality of the statistics.

6 We offer our apologies to historians for having too few footnotes and to economists for having too many.





2 EVOLUTION OF THE MEDIEVAL RAGUSAN ECONOMY

The literature on Ragusa is voluminous, but almost entirely the work of historians and it generally contains limited statistical data with most of the interpretations based on written evidence in archival works or contemporaneous writers. Even when data are cited, many studies do not present such data in a systematic way, do not show tables or charts, trends over time or comparisons, but generally use them only for illustration. We have tried to cull any statistical data used in the many different works on Ragusa, systematize them as much as possible, and use them in a cliometric approach to analyze this important historical case. It should be noted that some recent works by Croatian scholars do fall nicely into the category of cliometric and quantitative research, attempting at a minimum very careful data collection, sorting out the unreliable estimates, and presenting the most solid possible ones to complement historical interpretations. One such example is the time-series population estimate in Vekarić (1998). Second is the work of Stipetić (2004), a partial but careful and very useful estimate of GDP (total and per capita) from 1500 on, in regions of Croatia, compared to Maddison's European estimates. The third Zlatar (2007) uses archival data to analyze for 1520-1623 the extent and nature of private credits issued⁷. We hope with the present paper to add to this embryonic cliometric research on Ragusa and begin here by systematizing data culled from secondary sources to test the key interpretations/hypotheses about Ragusa's economic evolution, its ups and downs and the explanatory factors. Section 2.1 gives a brief timeline of Ragusa's main political and historic events, the main phases, reflecting what we believe is the received, broad consensus of the historical literature. Section 2.3, using both the qualitative literature and our time-series data, then provides an interpretation of the economic story line, proposing a periodicity reflecting economic rather than political phases, which differs somewhat from the conventional timeline of the historical literature. Closer analysis in this section attempts to either confirm the received wisdom about Ragusa or suggest revisions, or at least in some cases posit new hypotheses for future research.

2.1 Timeline of Ragusa's Political and Historical Evolution

The first "records [of] Dubrovnik's arsenals (*shipyards*) date from the year 782",⁸ a factoid broadly consistent with the consensus that Ragusa was founded as a significant settlement about the middle of the 7th century, probably – as most but not all authors agree – by Greek-Italian denizens of Epidaurus (Cavtat) fleeing from the Avar invasions of 639. As usual for "histories" of early periods, there is a mixture of myth and fact: Among others Carter (1972, pp. 39-42), and Stuard (1992) try to sort this out, addressing as well

⁷ A fourth is the much narrower but extremely novel socio-economic exercise by Ravančić (2010) using archival data on court cases related to tavern disputes and finding they were highest on weekends and in low-work seasons!

⁸ Ničetić (2002, p.11)

the various stories of the origin of the name⁹. Whatever the mysterious realities of the early years, the view in Wikipedia that “from the 11th century Ragusa emerged as a maritime and mercantile city”¹⁰, was widely shared by many contemporaneous writers (Byzantine, Arab, Italian) and modern historians. Thus, in 1553 Giustinian notes its nobles had fortunes certainly far in excess of other Dalmatian cities, and comparable to the Venetian elite, with “many individuals having [a wealth] of 100,000 ducats and more”.¹¹ Stuard (1981, p. 808) shows the similarities of dowry sizes in Venice and Ragusa; about 1350 they were respectively 650 and 600 ducats; about 1375 they were 1,000 and 800, and in the mid-15th century 1,000 and 700. By the 17th century, despite Ragusa’s relative decline, not only did Shakespeare use the term Argosy in several of his works, but other English writers of the time more explicitly noted its greatness, such as Samuel Pepys in his Diary 1660-69: it was “a small country, but it is said older than Venice, and called ‘the mother’ of Venice.”¹² More recently, the renowned 20th century economic historian of capitalist development, Fernand Braudel, referring to the uniqueness of Dubrovnik, called it “the pearl of the Adriatic”.

Most observers agree that for over a millennium, from its foundation until the Napoleonic occupation of 1806, Ragusa/Dubrovnik was *de facto* largely free or autonomous in its governance, and its motto LIBERTAS was fully appropriate.¹³ It was indeed an independent republic with a very high degree of autonomy in its internal administration and external commercial activities, and was most often neutral in the numerous military conflicts of the period. But *de jure*, it was usually in some suzerainty, tributary, or protectorate status under one or another of the larger regional powers. Historians vary in their classifications, but a broad consensus exists about the following periods:

- The Byzantine period to 1204, during which Ragusa was mostly under Constantinople’s suzerainty, with many short periods of forced or voluntary submission to Venice, the Hungarian kings, the Normans in Naples, and even some years of legal independence while the frequent regional wars were being fought between bigger powers. It is further commonly accepted that in this turbulent period, the Ragusans learned their first lessons in how to use both strong fortifications against sieges and constant diplomatic efforts to play off one power against another so as to retain as much neutrality as possible, and treaty rights to trade with all sides.
- The Venetian period, 1204 to 1358, required Ragusa to accept not only formal submission to Venice, a city-state of perhaps 15-20 times its population that had far bigger proportion of military vessels in its fleet. It also had to accept Venetian counts resident in Ragusa as formal heads of state. Nevertheless,

9 The Slavic name Dubrovnik has a clear explanation reflecting the oak (dub) forests in the area; as the successive waves of Slavic settlers came to dominate the Balkans, they began to use the name Dubrovnik. Ragusa is often said to be a distortion of Lausa (cliff, rocky promontory). But other interpretations exist and are thoroughly analyzed in Putanec (1993).

10 Wikipedia.org/wiki/Maritime_Republics; accessed 8/1/2011

11 As cited in Krekić (1997), p.193

12 Reference given by Bašić (2006, p. 152) – he also cites Pepys at length on the frequent changes of officials, guards, registrars, reviewers – an early hint of the financial prudence we discuss later.

13 Since Ragusa was almost always in a *de jure* state of fealty to a large power, LIBERTAS had a very special meaning. Kunčević (2010) makes a compelling case that “this great Ragusan myth” had many meanings and uses dependent on the context.

a great deal of autonomy was practiced – sometimes transparently allowed, sometimes opaque – particularly in trading activities. Small financial contributions were paid, a minor participation in naval battles was exacted (one Ragusan galley per thirty Venetian ships), but the rights and privileges of being an intermediary in the trade between the Balkan hinterland and Venice were worth a great deal. It has often been argued that the good governance institutions developed in Ragusa emulated those of Venice, where the nobility also recognized their value to trade and economic prosperity. At the same time, no keener rivalry in maritime trade was seen than that between Venice and Ragusa, before, during and after the Venetian domination.

- Hungarian suzerainty, 1358 to 1526. In the middle of the 14th century, Ludovik or Louis, King of Hungary and Croatia, began to strengthen his state's regional power, and undertook to drive the Venetians from the coastal areas of Croatia, succeeding in taking them with the 1358 treaty of Zadar, whereby Venice gave up most of the Dalmatian coast including Ragusa. Its status was in most ways analogous to that in the preceding period with small tributes and contributions of naval forces as needed. There was perhaps even greater autonomy openly granted since the Hungarian Kings were not that interested in Mediterranean trade. There was never any Hungarian representative in Ragusa, and the head of state, the Rector henceforth, was a local noble. Trade was freely allowed with little interference from Hungary.
- The Ottoman period began formally in 1526 when Ragusa became a protectorate of the Porte after the Hungarian defeat at Mohacs. It lasted until Austria's protracted 17th century Balkan pushback ended in victory and Ragusa became in 1684 a formal protectorate of Austria. In fact however, formal relations and a sort of semi-protectorate status under the Ottomans began much earlier, with first official diplomatic relations in 1392, a guarantee of free trade in Ottoman regions in 1397, and yet another treaty in 1459 after the complete Turkish occupation of Serbia. The reason for these earlier relations was of course the fact that Ottoman expansion into and control of the Greek and Balkan regions began in the mid-14th century, was considerably advanced by the time of the well-remembered defeat of Serb forces at Kosovo Polje in 1389, and saw its crowning achievement with the fall of Constantinople in 1453. The final stages of this dominance came during 1460-1482 as the Ottomans gained in sequence control of the Peloponnesus, Albania, Bosnia, Herzegovina – all of these having been the principal field for Ragusa's entrepôt trade for half a millennium already. Thus, economic and political survival depended on good relations with the Ottomans, which was enabled by the light authority of Hungary plus the adroit diplomacy of Ragusa. By the time Ottoman dominance began its long decline with consecutive Austrian victories, and the pushback of Ottoman control in the 17th century, the Ragusan glory days of economic prosperity were long over, though this was quite unrelated to Turkish – Austrian conflicts, being due rather to the great rise of the western European naval powers, the shift of the centre of economic prosperity from the Mediterranean to the Atlantic, and the rounding of the Cape of Good Hope for the eastern trade.
- The Austrian period, 1684 to 1806, was a faint echo of the earlier tributary periods, with lots of room for autonomy and diplomatic maneuvers, including with the Ottoman rulers, for trade in areas they still controlled for another two centuries or longer. However this diplomacy gave less significant results, as the economic strength such policies yielded earlier had been sapped by the overall economic decline of the eastern Mediterranean. Indeed some interpretations suggest Austrians did not seek firmer authority over Ragusa (by now mostly called Dubrovnik) partly because its relative commercial importance

was much reduced.¹⁴ As noted in Section 2.2, the population (and aggregate GDP) fell sharply, though the level of prosperity for the remaining in-town population may have remained quite high.¹⁵ Already from the early 16th century, considerable efforts were made to diversify Ragusa's trade to the new western European powers (for a while Spain, then more so to England, France, Netherlands, and even the Americas. The depth of these efforts is symbolized by the establishment of a trading colony and representation in Goa as early as the first half of the 16th century¹⁶, but Dubrovnik's earlier importance was never reestablished. The gradual economic decline was exacerbated by a second blow, the 1667 earthquake, which destroyed a large part of the city and killed many people.

- The French occupation in 1806 ended the independence of Dubrovnik – significantly, not just *de facto*, but also *de jure*. In the Austrian-French wars during Napoleon's reign, Dubrovnik became a casualty, surrendering to overwhelming French forces, unable to use its earlier diplomatic skills to retain its neutrality. Despite some indications by the French they would allow some degree of autonomy, as in earlier centuries, the occupation abruptly ended the LIBERTAS period, and Dubrovnik became an administrative part of the Illyrian Provinces. Even when this short occupation was reversed by Napoleon's defeat and when the 1815 Congress of Vienna gave Austria control over Dalmatia, there was no revival of the city-state privileges, lending truth to the assertion by Luetić (1969 p 107): "Thus... the French occupation... overthrew the 1,000 year historical thread of Dubrovnik's sea-based livelihood, and destroyed the significance of Dubrovnik as a world-class maritime power". Under Austria, there was nevertheless a considerable, albeit short-lived, revival at the end of the 18th century, but by the time of the Treaty of Versailles, railroads had further undermined Dubrovnik's advantage in the Adriatic, and it became part of Yugoslavia in 1918 as a much reduced maritime power, though increasingly an important tourist destination of worldwide cultural importance, designated a UNESCO World Heritage site in 1979. Tourism became perhaps even more important after Croatian independence and the end of the war in 1995.

2.2 Main Economic Periods: Some Quantitative Indicators and Hypothesis Tests

Virtually all the comprehensive histories of Ragusa are structured on historical political models, period classifications being as above dependent on key events: wars, victories, treaties, regime changes. Given this paper's focus on economic evolution we propose in Table 1 a different classification of periods based on the nature of economic development and the underlying basis of the economy's production potential.

14 "Relative" is the operative word here: In Sec 2.2 we show data suggesting the absolute level of economic activity might have been still very large, reviving after the loss of Eastern trade to the Cape of Good Hope route.

15 Stipetić (2004) suggests still high GDP per capita. Related to this, Vekarić (1998) proposes a hypothesis worthy of further cliometric work, that the decline in population from the peak of the early 16th century reflected the underlying carrying capacity of this small and highly infertile territory; in effect the earlier large populations were unsustainable. Unfortunately the estimates of per capita GDP by Stipetić are too broad and intermittent to provide a clear picture of this period, as Appendix 2 explains.

16 Carter (1972, pp. 352-3) cites several references on this as well as the Church of St. Blaise in Goa.

The proposed dates are indicative only and are sometimes shown as an interval to reflect the uncertainty of timing. It is also important to understand that the period label is intended to reflect the most important and/or new driver of economic activity, and so any actual production of a given type overlaps periods.

In this book we review the economic evolution, showing as far as possible quantitative indicators to complement the qualitative historical evidence, and to test the conventional hypotheses in that literature. The data we have collected covers the years 1300-1800, but the time-series shown are based on fragmentary and variable-quality data, as explained in the Appendix. The tests are meant to be preliminary at this stage, to be made more rigorous in future – and of course by other scholars as well – with the use of primary data from the Dubrovnik Archives. In a few cases, the data are strongly consistent with conventional wisdom, but in most examples the fit is at best uncertain, and many potential avenues for future research are raised. We shall now go on to describe the character of the economy in each period.

a. Foundation Period (~800 to 1250)

The main point on which there is a broad consensus is that while before 1100 the Ragusan economy was very simple, based on fishing, some agriculture, some small ship-building this was nevertheless an important period in building the foundations of the future dominance in Dalmatia, prosperity with a gradual movement into navigation and the nearby entrepôt trade along the coast, and between the hinterland and blossoming Adriatic cities like Venice, Bari, Ancona.

As noted, the first arsenal is mentioned in 782, indicating that within a century of its legendary “founding” Ragusa was already moving well beyond local fishing into long-distance maritime activities. Consistent with this, an early documentary mention of Ragusa’s shipping prowess concerns Charlemagne’s 783 campaign to drive the Saracens out of Apulia; it was Ragusan ships that transported Croatian and Serbian mercenaries to Bari.¹⁷

TABLE 1 CLASSIFICATION OF ECONOMIC PERIODS

ECONOMIC PERIOD	YEAR	NATURE OF ECONOMIC ACTIVITY
Foundation Period	To 1250	Subsistence agriculture, fishing, short-distance maritime trade, small-ship building, Balkan trade (including slaves)
Silver Period	1250–1400	All the above continues; plus with strong growth in hinterland trade of Balkan raw materials. This period saw a boom in the trade of silver and other minerals, to Northern Italy, as well as a gradual increase in the long-distance entrepôt trade beyond Adriatic
Golden Years	1400–1575/1600	All the above plus: and significant increase of long-distance maritime trade between the Levant and Europe, initially through Venice, Ancona, later directly. Some historians suggest the maritime trade was more important than Balkan trade.

¹⁷ Carter (1972, p.53), based on writing of the Byzantine Constantine Porphyrogenitos – though, as Carter warns in many places, such early writings probably had many confusions.

ECONOMIC PERIOD	YEAR	NATURE OF ECONOMIC ACTIVITY
Cape of Good Hope Route: Gradual Decline of Ragusa	1575/1600–1750	The Levantine trade gradually lost ground to new West European competitors (Portugal, Spain, Netherlands, England) Ragusa reacts with efforts to trade more directly in West Mediterranean and even Atlantic
Revival Interlude	1750–1806	Balkan trade continues, maritime trade to the west and Atlantic expands. As new naval powers in the West dominate, Ragusa turns to a new activity: building for or leasing ships and supplying sailors to Spain, the Netherlands England., etc.
Post-Independence	1806–1900	Decline sharpens, maritime advantages undermined by railroads in late 19 th century. However small beginnings of the tourism-economy, the eventual new source of prosperity.

Source: Authors' classification

Another indicator of early economic development comes from the Saracen siege of Ragusa, apparently in 866-7 (see the caution in footnote 17) which it withstood for 15 months – indirect but strong evidence that: 1) Ragusa was *worth* seizing, but also that 2) Ragusa was strong enough to withstand a siege. However the siege was not repelled and ended only when a request to the Emperor in Constantinople was met, (Ragusa was a protectorate of the Empire); Byzantine ships came to the rescue, and the Saracen forces departed. One of the earliest statements of praise for Ragusan achievements came in 1153 by a renowned contemporary observer, the Andalusian geographer Idrisi: “*Ragusa was a large maritime town whose population were hard-working craftsmen and possessed a large fleet which traveled to different parts.*” (Carter, 1972, p.74)

There is in many accounts clear evidence of a caravan trade between the Balkans and Italy through Ragusa well before 1100, with resources like cattle, leather, wood/timber, honey, wax, coming from the Balkans, and textiles, metal products, and “luxury” goods for Balkan elites from Italy. The role of this Balkan-European trade through Ragusa varied in importance as the products changed, and the other entrepôt trade with the Levant and elsewhere became at times far more important. However, it is notable that throughout Ragusan history, the Balkan trade persisted in a significant way, as elaborated below.

b. The “Silver” Period (1250 to 1400)

From the second half of the 13th century mineral exploitation in the Balkans provided the Ragusans with huge new economic opportunities, as they became the major investors and intermediaries in newly re-opened Roman mines such as that of Brskovo in Serbia.¹⁸ King Uroš I of Serbia played a major role by bringing in Saxon (German, Austrian) miners to do this, but Ragusan merchants' fame by this time led him and other leaders to realize that the exploitation and sale of minerals to Europe was best done by Ragusan investors and intermediaries. The big boom came in the 14th-15th centuries as more and more mines re-opened and

18 The original version of our paper (2012) used a date of 1100, which we now accept, was too early. We are grateful to Susan Mosher Stuard and Rowan Dorin whose personal communications clarified that the start of silver and other mining was not earlier than 1250, and that even then it was relatively unimportant until sometime in the 14th century.

expanded in the hinterland (Srebrenica, Novo Brdo, Rudnik). The main item was silver, but other minerals (gold, lead, iron, etc.) also played a role,¹⁹ as did salt exports. The details of this period are the focus of the many works of Stuard (1975-76, 1981, 1992). Ragusa quickly became a principal conduit meeting the high demand for silver in Europe; Stipetić (2000, p. 26) states that Balkan silver production about 1400 was almost one-third of the European total, and of this almost one half (*i.e.* about 16% of the European total) was exported through Ragusa. He also contends that the required sales to the Ragusa mint provided the basis for a considerable amount of seigniorage profits for the state treasury. The silver from the hinterland was brought by caravans to Ragusa and then shipped for sale to Italian city states, Florence, Venice, Genova and so on. The return voyages would bring textiles, luxury clothing for Balkan nobles, jewelry, glass, and other manufactures. This is most comprehensively analyzed by Stuard (1975-76). It is significant that the earlier Balkan trade in raw materials continued, though silver and other minerals proved much more profitable, providing a big boost to the Ragusan economy, including the local development of silver and goldsmithing.

A less pleasing side of Ragusan history was the slave trade, though at this time the same was true in all other big trading cities. Ragusa itself apparently did not rely on slave labor as much as the other city-states, with slaves being mostly household servants, and it was among the first to abolish it in 1416. Nevertheless it continued to be significant conduit for the trade in Slav slaves from the Balkans and further east, sold on in Italy, and Western Europe. The trade gradually diminished until it was ended when Venice and others also outlawed it about 1470-75.

Most histories of “the Adriatic Jewel” focus on the late 14th to late 16th century as the period of greatest prosperity, the “Golden Years”, but some of our quantitative evidence is consistent with the spirit of Stuard’s work suggesting this prosperity came on the back of a very strong buildup in the Silver period.²⁰ It is possible to paint a crude quantitative picture of the economic dynamism of different periods using a chart in Carter (1972) which lists the major monumental buildings in the city from the 9th century to 1877. Table 2 shows for each of our economic periods, Carter’s numbers, the share of the total, and a crude index of building intensity (= number of buildings per 100 years). This last may underestimate the number in later periods since it shows only buildings within the city walls, and territorial expansion over time most likely meant more major building projects outside as well.

With all this necessarily taken at face value, the numbers do confirm that the Golden Years were the most prosperous with the largest number of buildings, the highest share by period and the highest per century-intensity. The foundation period shows a start but still very modest. However, perhaps most interesting in this chart is how large a share of the major structures were put in place in the Silver period, with an intensity of building far greater than the late periods and second only to the Golden Years. The Carter inventory probably underestimates building in later periods because it includes only those within the city walls. But by 1600 the population and wealth of the city, notwithstanding several episodes of the Black Death, had expanded considerably beyond the walls and territories. There were surely many similar structures built outside in these later periods, thus the decline and revival periods were probably more prosperous than this indicator suggests.

19 Often the location names define the mineral: e.g. Srebrenica for silver, Olovo for lead, and Rudnik, Kopaonica simply mine.

20 Those who have studied the Industrial Revolution will recall the later partial revision by Ester Boserup showing that it was preceded – and made possible – by an earlier agricultural revolution and the attendant growth.

TABLE 2 PRINCIPAL BUILDINGS IN RAGUSA/DUBROVNIK BY ECONOMIC PERIOD
9TH CENTURY TO 19TH CENTURY

ECONOMIC PERIOD	NUMBER OF BUILDINGS	% SHARE OF TOTAL	BUILDINGS PER CENTURY
Foundation Period 800–1250	8	16	1.45
Silver Period 1250–1400	11	22	7.3
Maritime Golden Years 1350–1575	21	41	10,5
Cape of Good Hope and Gradual Decline: 1575–1750	6	12	4.0
Revival Interlude 1750–1806	0	0	0
After Loss of Independence 1806–1900	5	10	5.0
TOTAL	51	100	-

Source: Authors calculations based on Table XII, p. 484, Carter (1972)

Another quantitative indicator of this period's dynamism was the big jump in territory of the Republic as seen in Figure 1, with the addition of Pelješac and the northern coastlands in 1350, though the maximal extent came in 1425 with the addition of fertile Konavle. Population numbers are very uncertain as Vekarić (1998) warns and hence Figure 1 shows values before 1450 in dashed line. It is likely there was growth, but also the first episodes of plague led to reversals; the addition of Pelješac certainly did increase population, though the numbers are very soft.

This period also saw the awareness of Ragusan elites and authorities that greater benefit would come from the Balkan-Italian trade if not only land caravans were used but also the two-way transportation of goods in Ragusan ships. Thus one sees a big jump in the size of the commercial fleet, (Appendix 2, Table 3), with a probable doubling from about 22 long-distance ships in 1300 to 40 by 1325. These figures are less certain than for later periods (hence the dashed-line in Figure 3), and no reliable estimates are available for earlier years, but the trend and dynamism seems clear.

While Stuard is not quite so explicit in stating as a thesis the great importance of the Silver Period, we suggest the evidence supports this, and points to **a new cliometric hypothesis**:

In the Silver Period Ragusa was not yet as prosperous as in the Golden Years of maritime trade, but it provided a very important prior build-up of wealth, trading connections and experience.

There are also many qualitative signs of greatly increased prosperity in this period. Thus Carter (1972, p. 470) notes how after the 1292 fire had destroyed much of the city – since most buildings were still of wood – it was quickly rebuilt, with greater use of stone, bricks, roof tiles – partly instigated by a 1310 decree

regulating the excessive use of timber. At this time many other improvements are recorded (*ibid*): streets widened and straightened, stone steps built on either side of Stradun, and by 1355 most streets were paved with brick.

Of historical interest but not yet of significant economic weight, were the precursors of the many-centuries later tourism. Kužić (10) notes the first instances of German pilgrims on the way to the Holy Land stopping in Ragusa to see the many sacred sights, churches, monasteries.

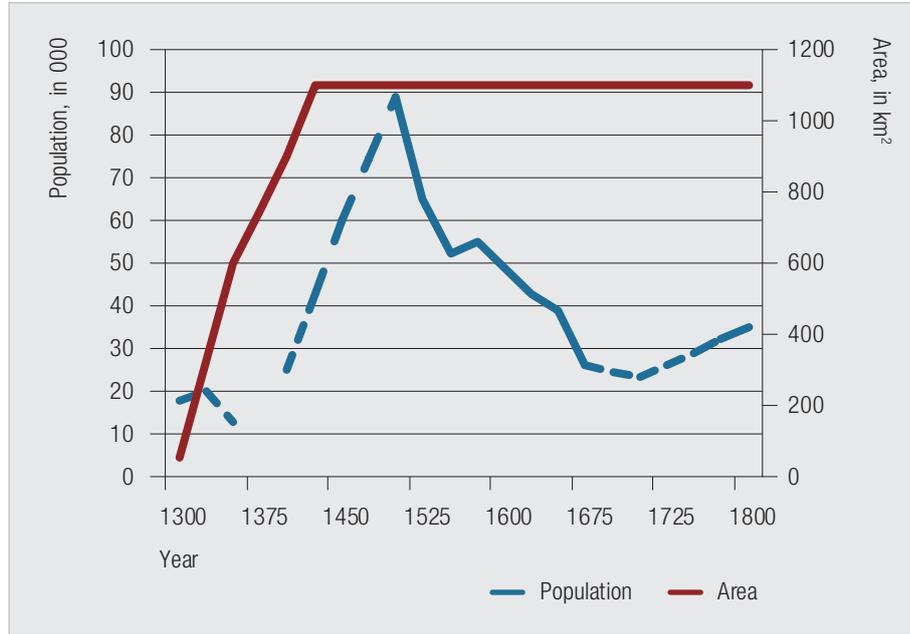
c. The “Golden Years” of Maritime Prosperity (1350 – 1575)

This period is almost universally recognized by scholars as the apogee of Ragusan economic prosperity. The Republic’s population reached its maximum in 1500 of about 90,000, (Figure 1), as did per capita GDP (Figure 2) – though we raise some doubts about this later. The fleet size grew sharply (Figure 3 and Appendix Table 3), from the 40 noted in 1325 to 200 by 1575, and tonnage even more substantially (Figure 4), with a sharp increase being seen in average ship size.²¹ While most authors refer approximately to the two hundred years from 1350 to 1550, and others, like Zlatar (2007), count the golden years from the early 1400s through the first quarter of the 1600s, we use 1575 as the end-date based on the peak value of shipping tonnage, which we show later is probably the best available proxy for GDP.

On population, Vekarić (1998) argues that much of the expansion to 1500 was due to Balkan-Slavic refugees fleeing the advance of the Ottomans. However, economic attraction also played a role; there is little doubt the level of per capita income in Ragusa was well above that of the immediate Croatian hinterland (Figure 2). A more intriguing hypothesis stated in Vekarić (1998) concerns the strong decline from 1500 notwithstanding the strong growth of shipping activity. He attributes some of this to renewed episodes of the plague, but also to the “correction” of the earlier refugee boom, arguing that the peak population was far beyond the very infertile territory’s carrying capacity. We suggest in Section 4 that future research might address this hypothesis, taking account of the increase in population capacity potentially attributable to a declining share of GDP in agriculture and a rising proportion for trading activities. More trade and shipping meant more demand for sailors, shipbuilders, chandlers, silversmiths, stone-masons and carpenters. At a minimum, there is merit to resolving the puzzle of the economic boom continuing to 1575 or so, and population declining from 1500: how much of this is due to the various factors noted?

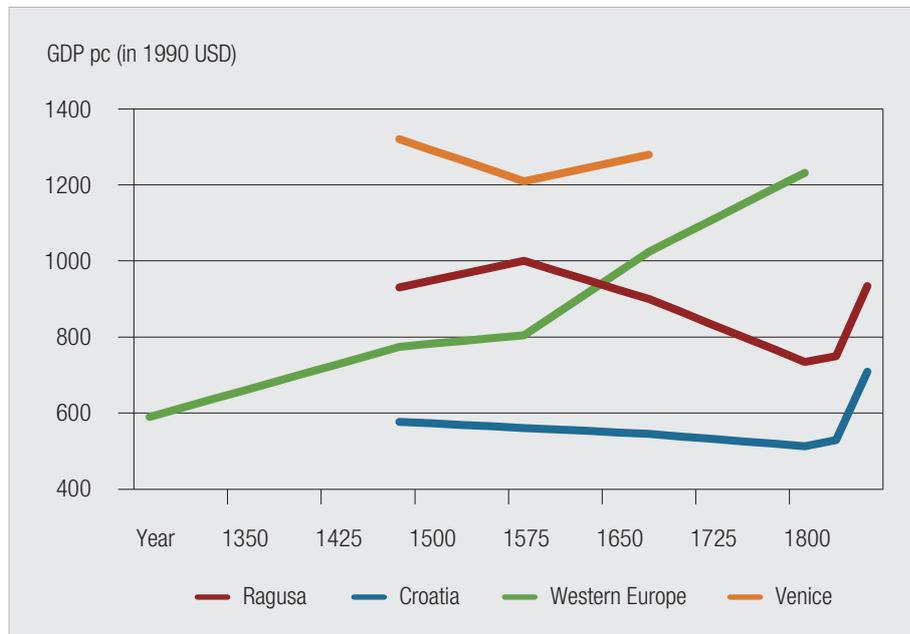
21 Luetić (1969), Vekarić S. (various years), and Ničetić (2002) all emphasize the constant expansion of capacity over this period.

FIGURE 1 POPULATION AND SIZE



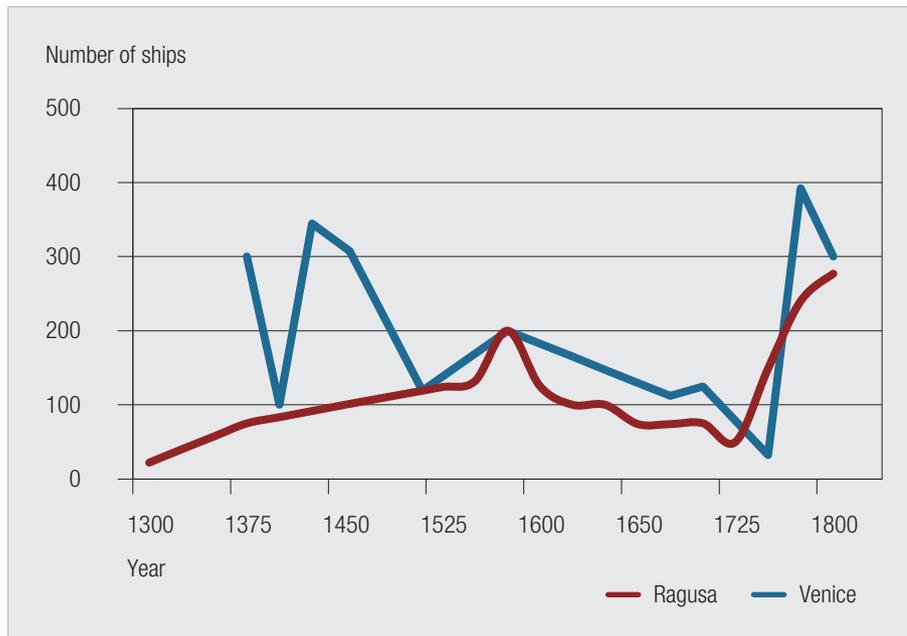
Source: see Data Appendix

FIGURE 2 GDP PER CAPITA (COMPARISON)



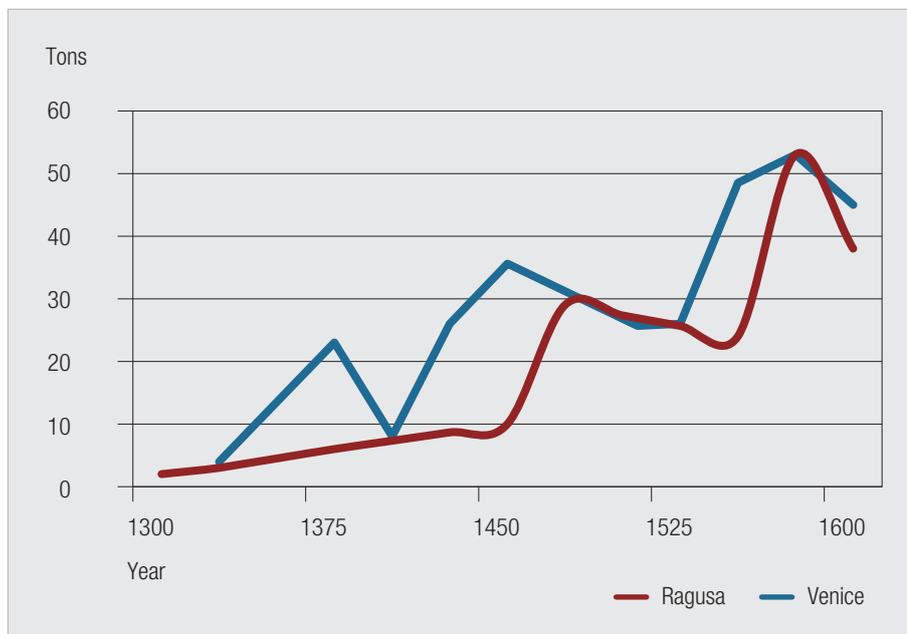
Source: see Data Appendix

FIGURE 3 NUMBER OF SHIPS IN RAGUSA AND VENICE



Source: see Data Appendix

FIGURE 4a SHIP TONNAGE (COMPARISON 1300 – 1600)



Source: see Data Appendix

The new, additional basis of prosperity in this period now becomes maritime trade intermediation not only throughout the Adriatic but increasingly with the Levantine territories under Ottoman rule, bringing goods from the Far East, such as spices, silks, oriental perfumes, grains, and other raw materials. But the commodity structure of trade with the Balkans continued to be quite similar to that in earlier periods and there is little doubt that the strong preceding experience, the by-now extensive Slavization of Ragusa/Dubrovnik, provide a critical comparative advantage – it is a tribute to the governing elites of Ragusa – both nobility and merchants – that early on they leveraged their economy on this comparative advantage, which provided the capital, skills and experience to capture so much new maritime trade in the 15th and 16th centuries. Thus the economy in this period was based largely on these *entrepôt* trade services including shipping profits and the value of direct and indirect labor services. One also begins to see Ragusan sailors and officers hiring out to foreign powers – though this becomes much more important in the decline period; thus Lane (1973, p. 425) notes that as Venetian dominance declines in the 18th century “shipmasters were no longer Venetian ... [but] mostly Dalmatians with Slavic names.”

That domestic production probably accounted for a quite small portion of value-added cannot be verified quantitatively – even for England and western Europe, GDP estimates only go back to the late 18th century – but the qualitative analyses make clear this was so. Apart from very small amounts of grains (at best one third of needs according to Carter and others) some wine, olive oil and market garden products, salt exports, there were few manufacturing activities. The only important ones were ship-building, goldsmithing and silversmithing with jewelry exports to the Balkans increasingly coming from domestic production as well as from imports from Italy. Shipbuilding had always been largely local (recall the reference to first arsenal in 792) but in this period it becomes very significant and includes sales outside Ragusa, as in this period it gains fame for the quality of its shipbuilding as referenced by many contemporaneous and later writers.

We elaborate in Section 3.2 an effort – eventually unsuccessful – at import-substitution, subsidizing textile manufacturing to replace Italian imports in exports to Balkan and the east starting about 1450 in reaction to Italian supplies being interrupted by conflicts within and between the major city-states. We also explore in Section 3.5 the role played by diplomacy aimed at ensuring Ragusa’s “neutrality” and allowing it to be a major *entrepôt* for the Ottoman-European trade. The central tenet of this diplomacy was to ensure this non-believers’ Christian outpost trading rights from the Ottomans–there are many instances of such treaties and *firmani*. At the same time there was a Papal dispensation allowing the city to trade with “the infidels” – a key document being the Papal Bull of 1434.

This was the period in which Ragusa became, as a prominent American historian of Venice, Lane (1973, pp. 379 and 381) notes “Venice’s most damaging competitor...bidding cargoes away from the Venetians on all seas, even in the Adriatic...[as] their ships were increasing in number and size”.²² These accolades include claims of Ragusan equality with Venice. In the peak years about 1575, innumerable historians note that the size and capacity of the fleet equaled that of the Venetian Republic, which had a population more nearly 20 times larger.²³ The values in Figures 3, 4a, 4b, do support this contention on the face of it, and

²² This is also reflected in the work of Fernand Braudel who writes of Ragusa’s ability to “snatch away goods from under the eyes of Venetian merchants” as cited in Stuard (1992)

²³ Lane (1973, p. 424), gives approximate values for Venice in the 16th century of 150,000 in the city and 1,500,000 in the Mainland. Even at the historical peak in 1500 Ragusa had a population of only 90,000 – Figure 1 – the 1/18th of the Venice figure.

also incidentally show that the English fleet was only slightly larger²⁴ and only that of the Netherlands was much larger. However, the proud comparison many authors make with Venice is perhaps exaggerated, for over these centuries, this equivalence only occurred when Venice had lost numerous ships during wars. It is clear in the figures the Venetian fleet had far larger numbers in the 14th century, falling sharply during the many wars with Genoa, both in defeat and victory; many ships were destroyed, then the fleet was rebuilt to even higher levels about 1425 (over 300 ships), then once again declined as many wars – now with the Ottomans – again decimated the fleet. Ragusa’s neutrality and Ottoman privileges which we discuss below, spared its fleet, so that at its peak in 1575 with about 200 ships and a peak historical capacity of 33,000 tons it was technically “equal” to Venice – as was also true about 1400. Of course, to affirm that over the long-term Ragusa did not quite “equal” Venice should not be a surprise or a negative commentary. Given its much smaller size and territory (with poor fertility compared to the Venetian hinterland north of the lagoons) the fact that Ragusa (*La Città Felice*) could even be compared to “La Serenissima” is already a strongly positive characterization.

Our data set thus permits a preliminary test of the “equality” hypothesis and suggests:

Ragusa become in the 16th century a very strong competitor of Venice, but not its equal, except in one or two periods when the latter’s fleet was at a low-point after war-related losses.

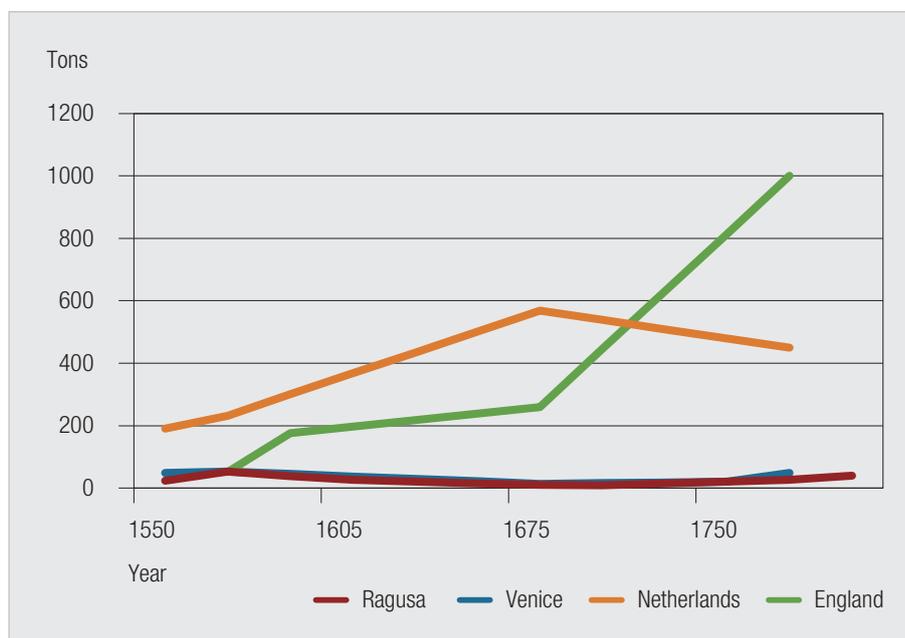
d. Vasco da Gama Rounds the Cape of Good Hope, Ragusa (Gradually) Declines

(1575 – 1750)

Historians almost universally agree not only on the peak of Ragusa’s importance coming in the second half of the 16th century, but also on the causes of the decline: a shift of economic dynamism to Western Europe (Portugal, Spain, Netherlands England, France), and the related opening of the Cape of Good Hope route to eastern markets. The gradual decline is reflected in values for population (Figure 1), GDPpc (Figure 2), number and capacity of ships (Figures 3 and 4). This affected not only Ragusa, but the Italian city-states as well, and can be in the same figures. For Venice, Lane (1973, pp. 384-6) refers to this as ‘The Collapse’. However, we suggest tentatively, and based partly on our data, that this decline was not so immediate; indeed, during the early development of western fleets’ trading in the East, after Vasco da Gama had established a colony in India in 1503 and the first spices had been brought to Europe by Portuguese ships in 1506, it is clear from Figures 3 and 4a that Ragusan shipping capacity continued to expand for 70 some years beyond this time.

24 Some historians assert that before about 1550, Ragusa’s fleet was larger than England’s – we did not find enough hard data to test this.

FIGURE 4b SHIP TONNAGE (COMPARISON 1550 – 1800)



Source: see Data Appendix

The enormous growth of Western European naval powers (Portugal, Spain, then Netherlands, England) is particularly clear in Figure 4b; while in 1575 England's fleet tonnage was about the same as that in Venice or Ragusa and that of the Netherlands was a "mere" 3-4 times larger, after 1600 both of these moved into exponential growth, with the Adriatic cities virtually invisible on the chart. This creates an eventually unbeatable competitive force for Ragusa, unlike the earlier rivalry with the also-huge naval power, Venice, which it was able to outcompete because of its advantages in the Slavic lands and its playing-both-sides diplomacy with the Porte and the Pope. Why was the new competition unbeatable? Two reasons are adduced and probably correctly so: the growing economic size and prosperity of Western Europe surpassed that of Italian markets, and the value of Balkan trade had little meaning there. Ragusan authorities and merchants made many different efforts to move into these markets, with some success for a few decades, but not enough to prevent the decline.

The second reason is that even with the privileges granted by the Porte, the eastern trade via the Levant by sea and then overland became far too costly compared to the new sea route around the Cape. It does not require much imagination to understand that ships going from Ragusa out to the Atlantic to India and China, then returning to Europe, suffered the simplest of geographic-distance disadvantages. In this trade too, Ragusans made efforts to compensate, provide shipping services to western powers when theirs fell short, (the ships simply were re-based, at first mostly to Spain) and perhaps most important individuals hired themselves out to the new western fleets – perhaps the first significant episode of the Dalmatian's famous quest "truhom za kruhom" (loosely translated as following your stomach in a quest for bread). In

addition some attempts were made to engage in the trans-Atlantic trade, but again with limited success.²⁵ All this helped mitigate the decline, but in the end was not enough to keep the glory days alive.

But it also seems clear that these factors played out quite gradually. That Ragusa's shipping tonnage (Figure 4a) is perhaps the best available proxy for economic activity seems reasonable on the face of it and is further supported by the evidence in Figure 5 showing values for tonnage, population and GDP and in Table 2 by the correlation matrix for these variables. Taking tonnage as an approximate indicator of economic value-added, one sees indeed a slight decline from 1475 (29 tons) to 1550 (24 tons), but a strong rebound to its peak value in 1575 (53 tons), after which it declines quickly. Note that the same trend is seen for Venice, which also suffered from these two new competitive factors during the 16th century. Carter (1972, pp. 352-3) discusses an argument as to why the decline was delayed for 50-75 years, made by Libyer and Lane for Venice and the same by Marinković for Ragusa: "the trade of Dubrovnik and Venice was not halted at the Levantine ports...but was carried by merchants of these Republics as far as Goa and possibly even Malacca and Batavia... at a period when Portugal was supposed to have a 'monopoly' of the spice trade." Thus, the efforts by Ragusans (and Venetians) to continue competing – e.g. by establishing a trading colony in Goa as mentioned, diplomatic efforts with the Ottomans to maintain the monopoly on the spice trade in Alexandria – succeeded for some time to offset the advantage of the Cape route and the growing naval power of Western Europe.

Put in cliometric jargon, our preliminary test of the Cape of Good Hope decline hypothesis points to the need for future research with fuller primary data and perhaps more detailed estimates of GDP or GDP-proxy trends (both aggregate and pc) to test the following hypothesis:

The rounding of the Cape of Good Hope did not immediately lead to Ragusa's decline, though with a long lag it was an important factor.

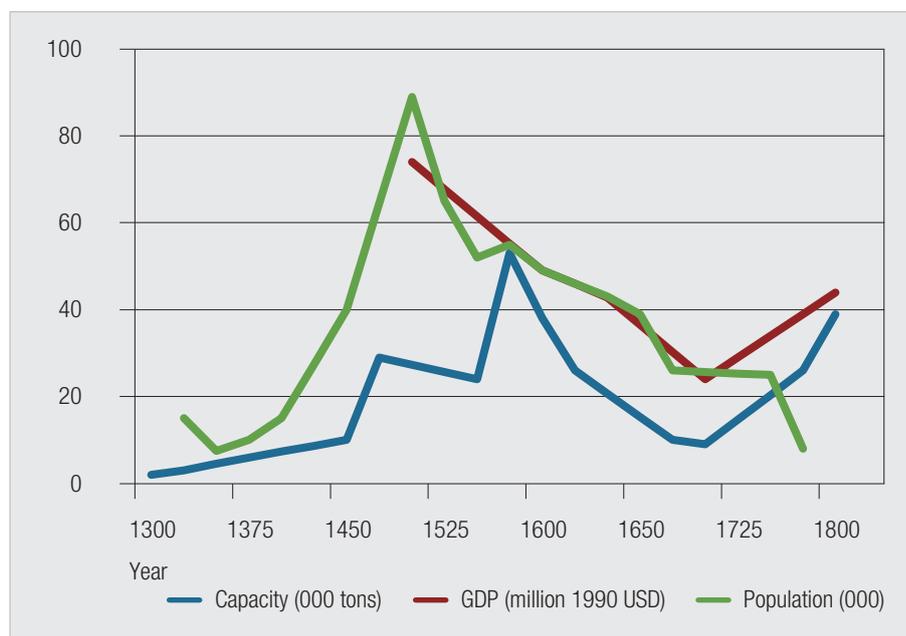
Arguably, this can be thought of as an indirect test of our **resilience hypothesis**, as the reasons for the lag were largely the actions of Ragusan traders and authorities. With primary data, it should be possible to investigate this period more thoroughly and clarify both the impact of the Cape Hope route and Ragusa's reactions.

e. The Short Revival Period (1750 – 1806)

After the decline from 1575-1750, a short revival, did occur, not in population, but in the size of the fleet, but of much smaller capacity, as seen in Figure 3 and Appendix Table 3. In our limited reading of the historical literature so far, this revival does not seem to be given much attention by historians, either because it is not clearly understood, or perhaps because by this time the uniqueness of Ragusa/Dubrovnik has long passed and, academic interest in the later periods is not as great. It is a puzzle why this shipping and trading revival is not reflected in a revival of population – as seen in Figure 1 it seems to decline steadily. This fact suggests there could have been a rise in per capita income – the hypothesis is not easy to test, but would surely be an interesting follow-up of the fragmentary time-series estimates made by Stipetić (2004).

²⁵ Several articles in Filipović and Partridge (1977) discuss this, including: Lucić, Luetić, Partridge, and Živojinović

FIGURE 5 COMPARISON OF GDP AND A GDP PROXY (SHIP TONNAGE)



Source: see Data Appendix

In Figure 5 and Table 2 it is shown that the correlation between aggregate GDP, shipping tonnage, and population is quite strong. Nevertheless this also clearly points to puzzles as to why population continued to fall, and raises some questions about what was happening to per capita income, and aggregate GDP, in these periods of decline then revival and then again decline.

TABLE 2 CORRELATION MATRIX: GDP, TONNAGE AND POPULATION

	GDP (IN MILLION 1990 USD)	TONNAGE OF RAGUSAN SHIPS	POPULATION (IN 000)
GDP (in million 1990 USD)	1	0.536123899	0.884454481
Tonnage of Ragusan ships	0.536123899	1	0.643546931
Population (in 000)	0.884454481	0.643546931	1

*The correlation analysis has been done with interpolated values at hand.

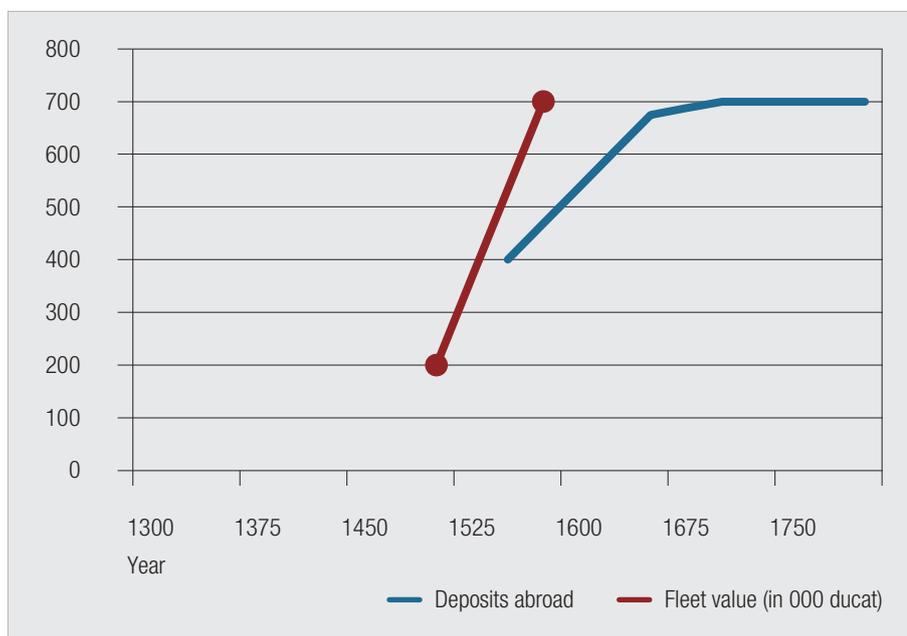
GDP had already been declining from 1500 according to Stipetić (2004) as was population, even though shipping tonnage, probably the best available proxy of economic activity in the data we compiled, saw a strong increase from 1500. This may be made consistent with a strong rise in per capita income.

Stipetić does show a modest rise between 1500 and 1575 – from \$900 to \$930 (1990 base). The possible continuation of growth in level of per capita income after 1500 seems also to be suggested by the trends

in Figures 6 on wealth indicators and Figure 6 showing a wage index.²⁶ After 1700 he gives values for all of Dalmatia including Ragusa, and our Figure 2 simply maintains his proportions between the two from 1700 – which may be incorrect. There are certainly a number of cliometric puzzles to solve here. We suggest tentatively a hypothesis for future research

Hypothesis: Conceptually, a cliometric analysis of the decline might be just as interesting as analysis of prosperity. A part of this would be inquire what happened to the population, why it declined (the Plague explains earlier periods, but may not be enough to explain the 18th century); is the revival reflected in a rise of per capita income?

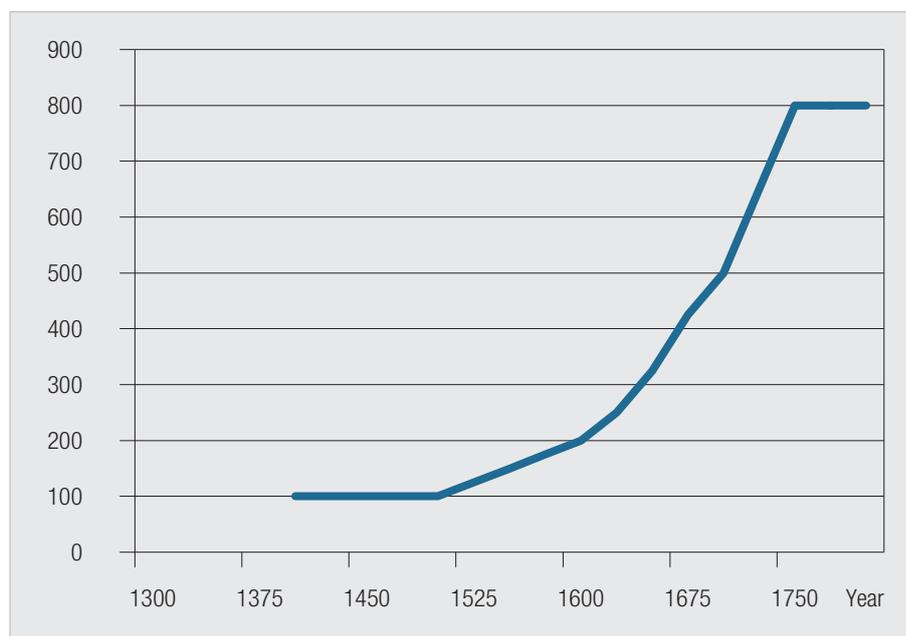
FIGURE 6 WEALTH INDICATORS



Source: see Data Appendix

²⁶ As the data Appendix explains, these last are very uncertain and only given in a couple of sources for a fragmentary period.

FIGURE 7 WAGE INDEX



Source: see Data Appendix

f. The Period After the Loss of Independence (1806 – present)

After the French occupation, Ragusa – by now known widely as Dubrovnik – became simply a very small seaside city in the Illyrian Provinces and the long-term trend of decline resumed. Shipping advantages were lost even regionally to cities on the northern coast, (Rijeka, Split, Trieste), which had now in the age of steam better connections to the Balkan hinterlands, and much closer connections to the important land centers in Central Europe (Vienna, Budapest) and better steel-based shipbuilding possibilities. The short-lived French period is followed by Austro-Hungarian dominance, after the 1815 Congress of Vienna. From mid-century the expansion of railroads finally undermined any location advantages for the hinterland trade.

Dubrovnik became until WWI a quiet, dormant and pleasant southern town, increasingly popular as a summer-villa location for rich Viennese Hungarians, Croats and Italians. With the formation of a Yugoslav state, the role of tourism continued to expand slowly, with a first boomlet of mostly European tourists in the 1960s after Communist Yugoslavia broke with Stalin and opened up to the West. This was interrupted by the 1990s independence war with Serbia-Montenegro, but was revived strongly after stability was achieved. It is generally believed that this tourism was given a great boost by the UNESCO designation in 1979. After the short interruption, tourism rebounded in late nineties, with a new form of tourism developing as Dubrovnik was added as a standard port-of-call in Mediterranean cruise-ship visits, now including not just Europeans but many North American and Asian tourists.





3 EXPLAINING RAGUSA'S PROSPERITY AND DECLINE

3.1 Luck of Location, Naval Power, or Wise Policies?

There appears to be a strong consensus in the historical literature that Ragusa was indeed economically very successful in these centuries, rivaling or at least approaching the prosperity of much larger Italian city-states like Venice, Florence, Bari, Ancona, as measured by the wealth of its elite and the extent of its trading activities. While on this there is little dispute, what makes the literature interesting is differences about what explains its success: **how could such a tiny entity do so well?** The book of Carter (1972, p. 550) is typical in its aim to show “how a small republic with few natural advantages could grow and develop mainly through her function as a trade and political intermediary between the underdeveloped regions of the Balkans and Levant, and the more developed regions of western Europe”.

This section will discuss and assess the many different reasons given in the literature, which we have grouped into the following main themes:

- Luck of location
- Openness and secularism
- Good governance – including, rule of law, property rights effectively applied, investment in physical infrastructure (roads, water supply, shipbuilding) and political stability
- Prudent fiscal and monetary policies, a relatively stable currency and a good “business climate”
- A “sufficiently fair” social policy: to ensure social stability and reliable labor force; the ruling nobility avoided oppression and provided various benefits for the wider populace, including public health measures, safety regulations for housing, fire, sanitation, provision of food reserves for periods of regional famine, and social infrastructure like hospitals, pharmacies, and schools.
- Minimal military expenditures with maximum diplomacy aimed at maintaining Ragusan “LIBERTAS” and keeping open trading channels

The first two points will be discussed only briefly, with more elaboration on each of the others.

Many historians emphasize Ragusa's location at the edge of the Christian and Muslim worlds, noting that by sea it was close to thriving Italian cities and kingdoms, but by land immediately adjacent to Balkan lands occupied by the Ottomans starting in the 14th century. Carter (1972, p. 135) reviews but disagrees with these arguments. Miović (2006) reviewing the 1440 book on Ragusa by Filip de Diversis notes his extensive discussion "De bono situ Ragusii" – the good location of Ragusa, its favorable geographical location, with respect to both sea and land, natural advantages, and ample water resources. But most historians, even if they note location as a factor, emphasize much more the other explanations noted above. This seems reasonable, as Ragusa was not the only possible intermediary on the Adriatic Coast, and had far poorer "natural" advantages in terms of productive lands and easy water supplies. Indeed many coastal areas like Kotor, Ulcinj to the south, Split, Zadar to the north had similar location, probably better natural resources, including even larger sheltered harbors. All were also trade intermediators, but never attained the prosperity of Ragusa. One must look for other, deeper explanations. It is perhaps best to rephrase the question as follows: **how did Ragusa leverage its good location to such great success?**

On the greater openness and secularism of Ragusa Stavrianos' treatise on the Balkans (1958) underlines the anti-westernism of Balkan culture in the medieval period, noting "the one exception...Ragusa...[where] we find an entirely different civilization – secular, sophisticated, individualistic, and maintaining close ties with the West."²⁷ This is doubtless a fair characterization, but still falls short of an explanation of the greater openness and diversity of Ragusan society compared to the Balkan hinterland. Why was it more open and western-oriented? Further, Stavrianos does not explain why other coastal cities mentioned above, which a were equally western-oriented and relatively urbane, remained less prosperous than Ragusa.

In the rest of Section 3 we argue that the deeper explanations lie in the wise use of policies by the Ragusan governing elites to leverage the good but not exceptional geographical advantage.

3.2 Good Governance

If the World Bank's Governance, and Doing Business surveys were being done in the Middle Ages, arguably, Ragusa would rate quite high in their rankings. The now widely known concept of good institutions as an explanation of democratic and economic success, in fact has great relevance to understanding the prosperity of Ragusa. A typical assessment in the literature is that of Krekić (1980, p. 38):

- *[Dubrovnik]...remained always vulnerable [to] Ottoman occupation...This is why the government felt even more the urge to resolve the daily problems and to improve the functioning of institutions. They knew that internal stability and economic prosperity were the only way to strengthen the international position of the city.*

27 De Diversis is far more colorful describing Ragusa's openness and sophistication: "Ragusans, commoners and patricians, the sumptuous appearance of their wives, friars, government office-holders, domestics and servants, peasants from surrounding villages and their livestock, merchants from afar, Turks, Morlacs and pilgrims unroll before us ... Hungarian Kings, archbishops, famous people...but also desperate individuals in search of their loved ones, enslaved by the Turks".

We focus here on three aspects of good governance, using the modern-day jargon: voice, (VO), rule of law (ROL), and a favorable business climate (EDB).

a. Voice: Not Formally Democratic, but Nobility Attentive to Social Well-Being

Ragusa was by no means a democracy, government activity being almost entirely in the hands of a hereditary nobility mythically based on the “original” settler families from Epidaurus, though in fact many rich merchants and Balkan “nobles” were often quietly “ennobled” in return for the benefits they could bring Ragusa.²⁸ The “voice” of commoners was therefore not manifested in voting rights or participation in government – apart from some rich merchants and skilled professionals –²⁹ but their concerns were considered by the nobility. It is widely agreed by historians, contemporaneous and modern, that compared to most other states/nations in this period the nobility ruled with a relatively soft hand and even provided considerable support to meet the needs of the populace. Thus Grubiša (2010) shows Ragusa was perhaps less open than the Florentine system of “democratic republicanism”: (and thereby more stable, he contends), but it was far more concerned that the basic needs of the populace were met, than was the case in most regimes of that period such as the very narrowly-based republicanism of Venice. The Ragusan political regime might be appropriately characterized as a benevolent as opposed to a rapacious oligarchy.

Most importantly, the governing class generally meted out justice not arbitrarily, in a feudal fashion, but on the basis of laws, legislation, judicial process, as attested to by the very early “Statut” of 1272 which was in effect a constitution codifying the laws of Ragusa. While shortcomings in practice are noted by historians, numerous instances of well-applied justice are found in the literature.³⁰ Reflecting the nobility’s self-serving but “reasonable” treatment of the lower-classes, extensive social services and welfare supports can be enumerated, as detailed in 3.4. Šišak (2011) typifies the literature’s consensus when he argues this rule-based governance of the populace helped contribute to the long-term stability of the Republic, with virtually no significant peasant uprisings as seen frequently elsewhere, and even very few internecine revolts within the elite (the short-lived and futile insurrection by Lastovo island nobles being one major exception).

For some historians even the extensive investments using Ragusan state finances to build churches and monasteries were a sign of good governance; certainly, in an age where spending on religious institutions mattered much more, it could well have contributed to social stability. Marinković (2007) details many such projects and emphasizes a point relevant to this paper: the hagionomy, or naming of these churches, followed “a strategy of spreading the cults of the city’s patron saints from the implicit demarcation

28 Vekarić (2011), Vol.1 shows in Table 7 the roots of the noble families; it is clear that a large proportion were not from Epidaurus. Illustratively, and indicatively of name roots is the case of one of the most powerful, the Sorgo family (Sorkočević). They were rich merchants from Cattaro in Albania, rewarded by the Grand Council for bringing large amounts of sorghum and other victuals to Ragusa, at the time of the great shortages in the year 1292 (see p.68 for Italian original text).

29 Many writers note that in very early years before about 1200, in fact “Agora democracy” did exist with assemblies of all citizens, the *Laudo Populii* making key decisions. See e.g. Carter (1972, p. 500)

30 We note an example using a quantitative review of 2,440 court cases, Lonza (2002). She concludes large numbers of cases were settled out of court, a practice authorities encouraged.

(defence) towards a more symbolic sign of governing (control) reflect[ing] a tendency towards a more finely structured Ragusan government”.

The legitimacy of the nobility was to a large extent a myth but the other side of this coin was that it was not nearly as rigid in practice as in the law. Vekarić (2011) and earlier others – Krekić (several works) Kedar (1976), Carter (1972) – document the shifts of noble lineage, the impoverishment of many noble families, and the rapid growth of wealth of non-noble merchants who were gradually and *volens-nolens* “absorbed” into the upper classes, the ruling elites, government officialdom. A quantitative indicator of informal upward mobility is the increase over time in the share of loans issued by commoners. Thus, Krekić (1980) estimates for the years 1280-1440 this was about one third, while Zlatar (2007, p. 139) gives a value of 42%. An imperfect but striking statistic suggesting continued upward mobility is in Luetić (1969, p. 101), stating that by the mid-18th century, of 380 registered ship-owners, only 80 were of the noble class.³¹

b. Rule of Law

Many writers emphasize the rule-based governance of Ragusa and its relevance for the prosperous economic development; a good recent summary is to be found in Stipetić (2000), who also gives a vivid history of Ragusan writings on economic theory. The central thesis is captured in a quotation he gives from the 1440 work of Diversis (*op. cit.*) (Book 3, Ch. 5):

among the permanent institutions ... the first is that responsible for preserving justice and order among the wholesale and retail merchants, customers, irrespective of whether they are foreigners or citizens.

There were already numerous laws and regulations in the 1272 Statut and in less codified and preserved earlier versions,³² and, just as importantly the codex of commercial laws continued to expand and be modernized.

It is beyond the scope of this paper to provide much more detail, but one aspect is worth noting: Historians agree ROL did not consist simply of laws on paper but was quite effective in its implementation. A fairly strong “acid-test” is that in a historical period of great rivalries among states and nations, there exist numerous instances of Ragusa authorities enforcing claims by foreigners on citizens of Ragusa. Thus, the Pabora family of Ragusa was bankrupted in 1315, and over the coming years Ragusan courts ruled in favor of claims by many creditors from Venice, and the well-known Peruzzi bankers of Florence,³³ to whom Ragusan courts conveyed Pabora family assets. (Krekić, 1997, p. 13). The Ragusan noble and merchant Bunić – whom we met above as Bona – a “tax-farmer” in the Balkans on behalf of the Porte – became in 1471 a fugitive from

³¹ This is not the actual share of the value just the number of people, hence it may overstate the role of commoners. In the Zlatar data, the size of holdings was higher for nobles; we have not found evidence for later years.

³² A tourist to Dubrovnik today taking a day-trip and picnic on one of the local “Carracks” will be shown by the guide a copy of the section from the Statut on the rights of sailors and obligations of the captain, prominently displayed inside.

³³ Bankruptcies of the Peruzzis and the Bardis in the 14th century were episodes of shock that could be investigated under the resilience hypothesis.

the Sultan after an alleged embezzlement of 55,000 ducats to his own account.³⁴ The Ragusan courts seized his local assets to cover the claim, and years of litigation followed, with Bunic, the Porte, and the Ragusan courts coming to an eventual settlement. (Bojović, 1998, pp. 114-117). Bojović goes on to cite many other court claims, noting further that “cases of a similar sort were repeated numerous times”.

c. Ease of Doing Business and Openness to Trade

It is generally agreed that Ragusa's government provided a good “business climate” with limited state interference, which fostered a flexible and adaptable merchant class quickly able to react to changes in demand and external shocks, seek new markets, adapt trade routes, change products; the earlier citation from Kotruljević on institutions is quite representative. A potential future research project can be envisaged to confirm the existence of such a favorable climate by reviewing archival records on registration, taxation, tariffs, and “translate” them into currently popular measures of ease of doing business. But even without this, the secondary literature already provides a large amount of fairly specific evidence, of which we note a few instances.

Well-functioning notary and registration procedures and records for business contracts are referenced by many writers, and according to Stipetić (2000, p. 18), existed from as early as 1200, with formalization in the 1272 Statut; and further economic details were established in 1277 in the Customs Book. The archival records are so large that it required 61 pages for Carter (1972, Appendix 3) merely to list the names of documents under 40 categories such as Council Proceedings, Miscellaneous Notary Documents, Manufactures, Customs, Administration Receipts, Expenditures, Acquisitions, and so on. Earlier the economic contents were reviewed by Tadić (1961), clearly indicating the vast possibilities for research on economic questions about Ragusa using primary source information and data.³⁵

Many other early institutional elements that today would be labeled “a favorable business and rule-of-law climate”, can be pointed out. Thus Luetić (1969 p. 107), and Carter (1972, p. 157) note that the beginnings of maritime insurance policies were organized as early as the 14th century, while Doria (1987) discusses how thoroughly this had become elaborated by the 16th century. A revealing description of bankruptcy procedures in the 14th-15th centuries by Palić (2008) further attests to the favorable business climate. He emphasizes that – unlike the “debtor's prison” practices elsewhere – “the ultimate aim of bankruptcy... was not just settling [with the] lender but also... helping the debtor overcome the inability to pay... [thus creating] an atmosphere for further co-operation and doing business together.”

The early and pioneering development of modern accounting by Kotruljević is described by Stipetić (2000, p. 32,) as well as by Krekić and several others. There is now solid scholarly evidence that this was the first formalized “handbook” on how all good merchants/traders should maintain balances in accounting books,

34 This was a very large fortune; in comparison, the annual salary of Diversis as teacher in the local gymnasium in 1440 was 180 ducats plus housing and living costs; Luetić (1969) notes well paid sailors in the 16th century received 2-4 ducats per day, working half a year typically, which gave them 200-300 ducats per year, while shipmasters would have about three times this amount, i.e. 600-900 per year.

35 Nenad Vekarić, Director of the History Institute in Dubrovnik, confirms to us in private communications the existence of huge amounts of economic information, but with a strong caution about the large investment of time needed to collect systematic data sets.

use double-entry bookkeeping,³⁶ employ for their trade banking instruments such as bills of exchange and letters of credit. Kotruljević also expounded economic philosophy views that were very radical for the times, such as interest being the price of capital; credit being critical to fuel commerce and only usurious if excessive (5-6% was his proposed limit). His 1458 treatise “*Il Libro dell’Arte di Mercatura*” argued all these were requirements to achieve prosperous commerce, and not least important he noted the need for the state to ensure an open mercantile and trading environment conducive to making money, creating wealth, minimal interference of state in commerce, prudent state finances. Kotruljević anticipated by six centuries today’s received wisdom about ROL and a good business climate. He would well deserve honorary mention in the World Bank’s Governance and Doing Business Report.

A second case showing the advanced state of scholarship, especially of interest to modern economists, is another little-known first by a citizen of Dubrovnik. A recent review of least absolute value regressions (LAV) by Dielman (2005), writes that Ruđer Bošković in works of 1757 and 1760 “explicitly discussed minimizing the sum of the absolute errors as a criterion for fitting a line to observation data. This is the first recognized use of the LAV criteria...and is prior to Legendre’s announcement of the principle of LS in 1805”.³⁷

Numerous writers state that the first quarantine station in the Mediterranean was established in Ragusa in 1377 (the Lazareti were eventually moved to the mainland and still stand today as a commercial and entertainment centre). Three recent studies by public health specialists explore this world first: Frati (2000), Lang and Borovečki (2001), and Cliff, Smallman-Raynor and Stevens (2009). While quarantine stations may be considered a social fairness measure like hospices and government-employed physicians, arguably the 1377 quarantine station was, as is well documented in deliberations of the Great Council, in the first instance motivated by the need to continue doing business after the first waves of the Black Death in the middle of the 14th century (on the last see especially Frati).

Government’s direct role in the economy was indeed not large – including surprisingly less expenditure on military and naval forces than one might expect in this period (we elaborate in Section 3.5). But there was, as in other city-states, regulation of professions and crafts through the guilds, as in the rest of Europe, though it is not clear how restrictive they were. Also common were brotherhoods or confraternities (“*bratovština*” in Croatian) which also acted as early forms of commercial, shareholding companies and investment pools.³⁸ Further, the state did provide direct subsidization and some control in three areas: shipbuilding, maintenance of grain reserves for times of crisis, accumulation, and promotion of textile manufacturing in the mid-15th century. The first two were in place throughout Ragusan history and are considered by most historians to have been fairly successful interventions. The third is an excellent early example of protectionism to encourage an infant-industry, today known as Industrial Policy – IP. This is

36 Stipetić (2000) refers to non-Croatian scholars – presumably less-biased – who have found clear evidence that Kotruljević was the first to develop double-entry book-keeping, in 1440, well before the 1496 work of Lucca Paccioli which had earlier been thought to be the first.

37 We thank Krešimir Žigić for pointing this out. Dielman also suggests that Gauss was aware of the work of Boscovich.

38 Vardić (07) describes in detail the history and functioning of one of the biggest, the Confraternity of St. Antunin. As in much of medieval life, in Ragusa too a nominally religious connotation was common for commercial activities. A very detailed discussion of *bratovština* is given by Vojnović (1899 – 1900).

considered not very successful. Most analysts recognize its failure and note that, sensibly, the government eventually did so too, and ended this policy after a century, by about 1550. Stuard (1992, p. 163) explains the government reasoning as a reaction to the external shock in the mid-15th century, when scarcity in supply of textiles from Florence threatened an important trade-line with the Balkans. But she too agrees this was not in the end very successful. Carter (1972, pp. 294-308) gives a very detailed account of the repeated and futile efforts to support the industry: “Throughout the period 1450-1550 government legislation on cloth manufacture was continually trying to bolster production...[using various measures like] customs duty... incentives for merchants to sell home-made cloth... regulating quality standards...financial support for a central workshop.. [But] competition was being felt with increasing effect in the 16th century...Dubrovnik’s government, on reading this situation, began to invest in alternative industries such as gold and silver working which by the second half of the century had more importance for export trade”.

The consensus that shipbuilding was a relatively successful intervention cannot be demonstrated quantitatively without more detailed primary-source data on the actual subsidy costs, but it is worth considering the main qualitative arguments in the literature and observations by contemporaneous foreign observers. Bašić (2006, p. 153) cites several contemporaneous Italian observers who refer to the excellent craftsmanship and superior quality of Ragusan-built ships: Bartolomeo Crescenti (Rome, 1602) states the best craftsmen and shipbuilders of the Mediterranean were those of Ragusa; Pantera (Rome, 1614) considers the best shipbuilders those of Ragusa, Portugal and England; Sagri (Venice, 1574) contends that Ragusan ships are the strongest in the world, made of the best timber. Harris (2003) also argues that support for shipbuilding in the form of provision of a location (the Arsenal, first at the old central harbor, then in Gruž as of the 16th century) was indeed successful, as evidenced by the strong international reputation for the shipbuilding skills noted above. Harris’s reasoning goes beyond that found in other works, concluding – in our view very sensibly – that support to shipbuilding was successful because it made economic sense, while nurturing a textile industry to compete with the well-established craftsmen in Florence, Bruges, Ghent – did not.

A central argument of our paper is that Ragusan economic policies were generally very wise, prudent and sensible. The above analysis suggests a future research hypothesis:

The relatively low cost-benefit ratio of IP policies for cloth compared to shipbuilding is in principle a quantitatively testable hypothesis, with archival sources providing data from government budgets for at least the costs of these two programs.

A somewhat different view of the non-interventionist government is given by Janeković-Römer (2003), who shows that increasingly during the Golden Years of the 15th and 16th centuries, rules for personal behavior, and public decorum became more prevalent and restrictive, concerning attire, household maintenance, personal and family behavior, religious observance etc. She does not however claim that intervention in commercial activities increased, from which one might conclude that in the Tiger analogy, Ragusa was more like Singapore than Hong Kong. In a similar spirit, the argument of Perlender (2005) that the “paternalistic” conservatism of nobility explains the inability to change and react to new competition in the 16th century after Cape Hope, is in effect also an argument that government interventionism was greater than most believe, and had negative effects.

Finally, that the size of civil service was small is suggested by Sisak (10), estimating it at 160 people in the mid-15th century when the population was probably 50,000 or more. However this does not include Ragusans on consular service. Available data in Carter (1972) and Krekić (1980) indicate approximately that the number of consulates was at least 40 in the Golden Years, and rose to 70 or more in the next period. With several people in each consulate³⁹ the numbers of government employees may be double Sisak's estimate – but that would still be small, not exceeding 1% of the population.

3.3 Prudent Fiscal and Monetary Policies

As for the previous explanations discussed, there is a very strong consensus in the literature that Ragusa practiced a very prudent policy with respect to state finances, minting and debasement of the currency, and market-encouraging regulations. However, solid statistical evidence of any sort is even sparser under this rubric, making the next stage of our planned research analyzing short-term resilience to external crises particularly significant. Nevertheless, one can point to many indicators of prudent policies in secondary sources.

We start with the one available set of complete budget numbers in the literature. Table 3 provides a picture of the budget structure for Ragusa/Dubrovnik, but unfortunately only for the end of the 18th century just before the French occupation. The data may not be fully representative of earlier periods, though they do seem to confirm the prudence hypothesis, both in the fact that it showed a surplus equal to about 10% of revenues, and in the allocation of its components. The data is taken from Bjelovučić (1970, pp. 44-45), which itself is based on a contemporaneous treatise, the “Bara Bettera Memoirs”. The reliability is somewhat uncertain as the author does not specify for which year this is and seems to have made a transcription error, with the sum of expenditures exceeding by 30% the total shown.⁴⁰

TABLE 3 STRUCTURE OF RAGUSA BUDGET ABOUT 1800

REVENUE CATEGORY	PERCENT OF TOTAL	EXPENDITURE CATEGORY	PERCENT OF TOTAL
Dividends on deposits	25.3	Consular/Representation expenses	10.9
Taxes on shipping activity	30.2	Tributes and “good relations” expenses	31.9
Levant consulates profits and property rents	6.2	Administration, police, civil officials	36.6
Consumer taxes	12.2	Public education	6.8

39 That there were unsurprisingly more in the important trading partners is shown explicitly by Carter (1972, p.145, Figure 22). In the mining regions of Bosnia and Serbia the number of permanent resident merchants in the 15th century was as little as one or two (Vrh Bosna = Sarajevo; Borac), and as many as 15-30 in the main trading centres (Fojnica, Visoko).

40 There is reason to accept the total but question one item as hugely overstated: 66,000 Turkish piastres for missions to the Pasha of Bosnia when the tribute to Istanbul and related costs was 48,320. We deduct from the former the amount of the excess in the sum, and calculate percentages as shown.

REVENUE CATEGORY	PERCENT OF TOTAL	EXPENDITURE CATEGORY	PERCENT OF TOTAL
Producer taxes (agricultural)	4.4	Interest on loans	1.7
Customs revenues	9.3	Army and fortifications maintenance	12.2
Salt monopoly	12.3	–	–
TOTAL REVENUES	100.0	TOTAL EXPENDITURES	100.0

Source: Authors' calculations based on Tables of Bjelovučić (1970)

We adjust this as the footnote 41 explains and calculate percentages by categories that we consider reasonable approximations of the budget structure, and provide a basis for a tentative test of some of the key hypotheses about fiscal policy. Contemporaneous writers like Diversis and Kotruljević first noted the sensible financial stance of the Republic; recently Stipetić (2000, p. 26), confirming the point of footnote 12, notes how “precise books were kept on the finances [of the state]” and added that prudence was ensured by “requiring the main officials in charge registrars, clerks and accountants ... to be foreigners; [In addition] there was the institution of auditor with power of supervision of communal goods, a duty to investigate whether revenues were collected fully and whether expenditures were viable and not spent for unintended purposes.” They served five years when new ones were elected... Stipetić recognizes that the system was not perfect, indeed that building barns with doors implies horses do run out, that is, corruption did occur; Krekić (1997, p. 32-35) notes the reality of bribery, but concludes that efforts to curtail it by punishing offenders were generally as effective as can be expected.

The historical evidence in Reinhartt and Rogoff (2009) is meant to remind us that the current recession is NOT that different, pointing out that high debts and defaults were very common in European economies over past centuries. In contrast, the historical literature on Ragusa we have researched so far, does not give any specific instances of government debt defaults, and Table 3 seems to support this view. In Dubrovnik about 1800, interest on public debt was a mere 1.7% of expenditure. Perhaps equally important, it appears that all or most government borrowing was domestic, either from the Zecca (the MINT) or the elites. In Table 3 the loans were said to be from Ragusan Confraternities. By way of comparison, recall Lane's (1973) estimate that at this time Venice paid out a third – and even more in earlier years – to service its debt. Körner (1995) analyzing about 25 kingdoms, principalities and city-states from 1500 to 1800 (not including Ragusa), concludes that “service on the debt varied between 17 and 36% of total expenditures.”

In fact Ragusa's net asset position was strongly positive with large amounts of deposits held in Italian banks and by the 18th century in Vienna. On the revenue side, the dividends on such deposits (by the state only) comprised an amazing 25.3%. Recall Figure 6, which, though fragmentary, confirms that Ragusans held considerable private deposits in the “Monti” or Funds of Italian banks. But while formal defaults may not have occurred, it seems likely that some instances of payment difficulties did arise. Krekić in his many writings, as well as others (Šišak, 2011) discussing the role and obligations of the nobility, note that in this small noble group, it was a “social obligation” that services be rendered to the state not only in the form of time in political and bureaucratic positions, consular activities, but also by “sharing” proportionately in lending to the state when exigencies arise, or accepting less than full payment on previous loans. This is very much like what Reinhartt and Rogoff (2009) define as “forced loans”, and Cipolla (1987) describes for Italian city-states of the time as “*imprestiti*.” This does suggest, if not defaults, at least instances of fiscal stress.

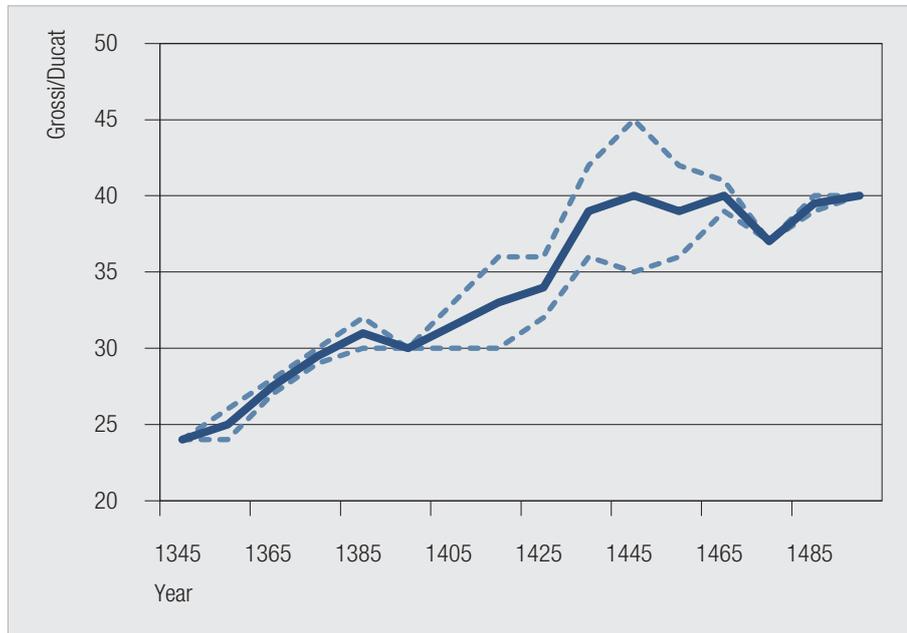
The role of trading activities in providing state revenues is also evident, though customs revenues at 9.3% were far less important than various taxes on shipping – on shipbuilding, on sales of ships, on navigation – totaling 30.2%. The prudence is further seen in the not inconsiderable revenues of 6.2% from “selling consular services” abroad to others: since there were consuls expert in many places and languages, they were expected to sell their services to anyone for a fee.

We discuss below the balance of military and diplomatic efforts, but here Table 3 already indicates confirmation of the common thesis that military expenditures were minimal (12.2%), while diplomatic costs were considerable – the first two categories, which add up to a huge 42.8% of total expenditures.

Thus the qualitative evidence on fiscal prudence is not only very consistent, but the available data of Table 3, seems strongly to confirm the proposition that Ragusan finances were generally strong, prudent and able to absorb shocks. Table 3 gives numerical credence to the observation of Carter (1972, p. 535) about the enduring nature of this financial prudence – that even at the end, in 1806, when occupied by the French, “the state’s finances proved still to be in good condition in spite of all the troubles and the requisitions, and large sums were invested in Italian banks”.

The literature gives a similar positive assessment of monetary and currency policy, low inflation and minimal metallic debasement, but so far we have been unable to find sufficient secondary data to confirm these views. Several writers note the “limited” devaluation of the Ragusan grosso (Figure 8a) and its minimal metallic debasement (Figure 8b), and infer from this a low inflation and a sensible monetary policy. Krekić (1980, pp. 252-3) emphasizes the relative stability of the Ragusan grosso, with an annual devaluation of 0.31% over 220 years from the 14th to the 16th century. The grosso was more stable than most other currencies, for example the Florentine lira. Carter (1972, p. 566) shows the dinar’s silver content falling from 916.67 grams in 1337, to about one third that in 1600, while Cipolla (1987, p. 59) shows a debasement from 1300 to one quarter of the silver content in 1600. But Venice was even better – as Bachrach (1973, p. 77) notes, the “international currency par excellence ... was the Venetian gold ducat [which kept its 1284] weight and fineness remarkably intact up to the end of the Venetian Republic”.

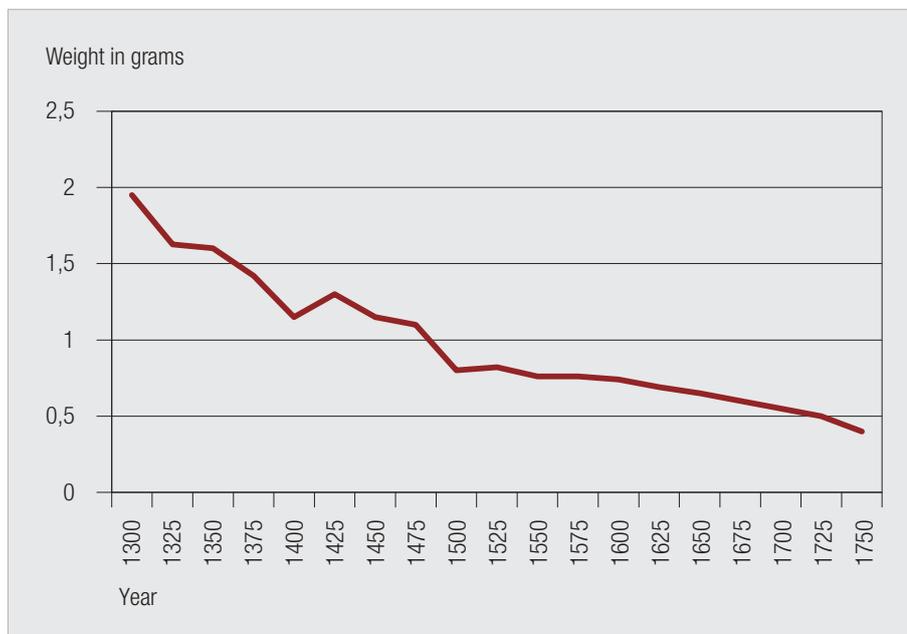
FIGURE 8a RAGUSAN GROSSI TO VENETIAN DUCAT EXCHANGE RATE



Source: see Data Appendix

Dashed lines indicate a range for a particular period, whereas the solid line represents the average of the period.

FIGURE 8b WEIGHT OF THE RAGUSAN GROSSO (1337 – 1761)



Source: Carter, p. 566

Most historians agree with Krekić (1980) that inflation was not high; Stuard (1981, p. 810) writes of “mild inflation” in this period. Carter (1972) also mentions this many times, suggesting (p. 577) that until about the 17th century inflation was low, but in the next century or so, it was much higher. Specifically, he states that in the latter part of 17th century wages rose 60-80%, even more in the early years of the 18th century. But “all the rises were accompanied by a fall in money value, so that real value of salaries had not undergone any great change”. This imprecise information seems to imply at least a tripling of wages in perhaps fifty years or less. Inflation in Dubrovnik, a tiny economy in the region may not have been different from that in Northern Italy, but even that is not easy to know. While for Western Europe, many price and inflation estimates are available, and price data are now collected in the Allen-Unger Global Commodity Prices database at Oxford and UBC (www.history.ubc.ca/faculty/unger/ECPdb/about.html), very little of this is for the Adriatic region. Furthermore, as many have noted, available price data are most often for grain and other food items, and deducing inflation from them is questionable unless one also has a control variable for supply, well-known to be volatile due to weather or wars. Tadić (1961) in his review of what the Dubrovnik Archives contain on economic matters indicates there are many useful volumes of information on price movements. It is a matter for future research to look for such data, and if they provide a broader coverage beyond just staples, this may allow for a better estimate of inflation.

Unfortunately, such qualitative information, and even the hard data of Figures 8a and 8b are not enough to confirm the – probably correct – view concerning monetary and currency prudence, since the trends are the result of several factors, including: relative price of silver to gold; differential inflation, and the policy of devaluing the currency to ensure competitiveness. This is an excellent example of the difficulty economic historians have, to deduce from very partial data the underlying cause and effect relations. Testing the hypothesis of low inflation requires further research and more archival data. Following the suggestions of Tadić (1961), it may be possible to construct inflation estimates using archival price data. Another long shot is the use of interest rate changes to proxy for inflation changes. There are numerous references to the rates of interest earned in the Italian Monti (3-6%), interest on deposits by Bosnian and Serbian prices in Dubrovnik (5%), interest on loans to inland merchants (6%) – all suggesting relatively low inflation. But further testing of this is required.

In the rest of this section we go on to discuss only some aspects of monetary and currency policy that can be analyzed with qualitative information: minting activities, banking, and credit.

Minting was done in the Zecca but this institution over time became in fact more than just a Mint (see Appendix 1). By the 16th century it appears to have had some functions closely connected to the State Treasury and bank-like activities. It held official deposits and extended loans to the State, State-endorsed religious and confraternity organizations, the State Granary, and other organizations. Loans to them may have been interest-free and perhaps often not repaid. By the 17th century it appears to have been lending to well-positioned commercial entities under merchandise guarantees, in this case with interest of 8%. What is not yet clear in our research so far is how much retail banking was done for individuals or smaller companies. Appendix I describes what is known of the Zecca; here we note some of the highlights.

Stipetić (2000, p. 26) states that the Ragusan Mint, to which traders taking Balkan silver to Europe had to sell 6% of their commodity, was “an exceptionally profitable activity”, suggesting the large importance of seigniorage in state revenues. However, Lane and Mueller (1985, p.187) calculating the seigniorage for

Venice conclude “taxes on turnover seem to be about twice as important as seigniorage”. Table 3 does show that various turnover taxes provided a very large portion of revenues, but unfortunately it does not include seigniorage profits (and thus perhaps understates the surplus?). Stipetić may still be correct about the “high profitability” of minting even if the share of revenue was similar to that in Venice, but it would require, in follow-up studies, more data on government revenues, the amount minted, cost of silver purchases and value of coinage, to test such a hypothesis. DiVittorio (1994) suggests the Zecca was a source of funds used in emergencies, which may explain its exclusion in Table 3. He points to this as an off-budget item outside the purview of the treasury officials, as was also one item on the expenditure side, under “the Rector’s Law” used by the Minor Council for small purchases.

Incidentally, these two “minor” smudges on the fiscal picture (and others related to sovereign debts, below) are useful to impart some realism to the fiscal probity picture; admission that all was not perfect, perhaps paradoxically, gives more credence to the generally positive assessments of the literature.

Banking activity in Ragusa in the 14th and 15th centuries, unlike in the large Italian city-states, was at first limited to the Zecca minting silver coins, and exchanging currencies. We found no mention of private banks in the historical writings. Over time the Zecca expanded to do some limited lending activities, and explicit references are made in the literature to its credits to the state as well as state institutions, to large influential brotherhoods (“bratovština”), and with goods-collateralization at a then-high interest of 8% to commercial entities. It may also have been the locus of large deposits from Balkan elites. Carter (1972, p.172) asserts that Slav princes used Ragusa as their banking centre; Kurtović (2010) describes the Konavle Bosnian princes’ deposits in the early 15th century. But neither of them refers to any banking houses like those in Italian cities, nor in fact do any of the other studies in our bibliography. These princely deposits could have been held as borrowings by merchants as well as by the Zecca. Until archival data can be collected, it is difficult to make more specific judgments about banking activities and issuance of credit. Clearly there was an M1 process, but it is unclear how much of M2 or other instruments there may have been.

Earlier we noted the availability of some estimates of loans issued by private individuals to other individuals. This reflects the important role in financing of economic activity by private sources, as well as through partnerships, confraternities, or company shares. Ownership of ships and of individual ventures of trading, often for each voyage separately, took the form of share participation; the whole was made up of 24 karats or parts, different merchants – nobles, commoners, foreigners – investing into one or more karats of the property, and of course a proportional profit or loss at the end of the venture. While there does not appear there were deposit banks for individuals, an official state pawn shop did exist to provide some degree of lending to those with lower income. (Bjelovučić, 1970, p. 67).

To sum up, a very broad consensus suggests that Ragusa practiced very sensible prudent finances, a conservative minting activity, and apparently avoided excess credit expansion leading to eventual crises. That excess credit crises occurred elsewhere is well-documented not only recently in Reinhart and Rogoff (2009), but in many earlier writings. Lane (1966, Chapters 4, 5, 6) gives considerable detail for Venice. Defaults and financial crises are also very thoroughly described by Cipolla (1987) for Florence in the 15th century, using entirely modern monetary concepts: there was a credit boom, tight monetary policy (emissions) tried to contain this, an excessive credit squeeze ensued leading to an economic bust. As a result of its prudence Ragusa appears to have avoided both serious budgetary and debt problems, and high

inflation. However, the evidence to support these views is more qualitative than quantitative, and even the latter is very fragmentary, and incomplete. This leaves a very nice field of cliometric research open for economists and historians using the still little-explored wealth of harder economic data in the Dubrovnik Archives.

Hypothesis: Ragusa practiced prudent fiscal and monetary policies. Here we have been able to provide only tentative confirmation with budget data for the late 18th century and fragmentary secondary data for earlier periods.

Future research can in principle test this more precisely with archival data covering a longer period.

3.4 A “Sufficiently Fair” Social Policy

We use the word “fair” and not “equitable“ (in the neo-classical sense of equality of opportunity) as there was no question about the nobility’s monopoly on government, and of the existence of a large population at very low levels of income, particularly in the countryside. However, the nobility paid sufficient attention the well-being of those who must necessarily be the work force on ships, shipyards and trade-related activities to ensure a degree of social stability unusual for the times. This was probably not so much altruism as a self-preserving action, but still quite enlightened in the historical context. Furthermore, economic mobility was certainly possible for the most enterprising, many of the rich coming from amongst the “puk” (commons), as evidenced above. Šišak (2011, p. 182) typifies the literature in contending: “The loyalty of the Dubrovnik population to the social order and hierarchical structure of government was atypical compared to other cities in the Adriatic”. His sketch of this social order may be too positive, but is worth quoting at length:

“political monopoly of the nobility was accepted as the normal state of affairs... the welfare which prevailed in the city... and the possibilities to make profit and, to some extent to climb up the social scale... were also important ... The nobility [had] a privileged position, but they in turn had to ensure the well-being of the rest of the population... The government saw to it that there was no shortage of food or anything else, so it procured grains and kept up the commodity reserves... Moreover the state was mindful of social welfare (assisting the poor who were directly sustained by the government), it secured the material life-conditions (waterworks, sewage, public fountains), it paid the doctors and apothecaries who treated everyone [without charge] from the Rector to the city’s poor...it appointed teachers... {etc.}.”

Other writers agree broadly that social provisions were relatively unique, but are not always so positive.⁴¹ Carter (1972, p.116) concurs that “on the whole, the ‘cittadini’ and peasants were ruled with wisdom and without oppression”, but balances this by noting (p.116) “[the appointed governors of the territories]

⁴¹ Šišak is also more positive than others on concordance of elites (p. 196): “never in the long existence of the Republic, except on rare occasions, did dissent among the nobility come out in public”. True, peasant revolts did not seem to occur, and internecine disputes among the patricians were much fewer than elsewhere, but dissent did occur many times and had to be defeated, sometime brutally. Vekarić (2005) recounts the largest such revolt of the Lastovo Island nobles.

governed despotically... Dubrovnik's ideas of liberty were not only restricted to a limited class, but did not extend a yard beyond the walls." Diversis (1440 as cited in Stipetic (2000, p. 25) was blunter: "many noblemen and merchants have great wealth, but the majority live in sheer poverty... [the best of these] are sailors and peasants". This comment on peasants may be at odds with Carter's judgment of despotic governance in the territories; since cereals were always in critically short supply, and as Carter (1972) notes the territory could at best provide one third of the city's needs, it is questionable that peasants who could not produce much of a surplus would be overly harshly treated, and the view of Diversis on the position of peasants makes more economic sense.

Leaving aside some uncertainty on "just how fair was fair" in Ragusa, we turn to illustrate some of the specific measures aimed at social welfare, starting with the basic infrastructure of benefit to all the population. We have already noted above that for some analysts, given the historical context, the building of churches and monasteries was a form of social welfare. Carter's table of principal buildings (pp. 484-5) used for our Table 1 also notes a synagogue built in the 15th century, though whether it was state-financed like the Catholic churches is not indicated. Not shown in the table, both a mosque and an Orthodox church were approved in later years by the state, but it is unclear how they were financed.

Other infrastructure for the populace included street paving, as early as the 14th century, sanitation infrastructure, limitations on wooden buildings (to minimize fires) provision of water with wells, aqueducts, public fountains – including the famous Onofrio Fountain built in 1437 and still used today.⁴² Hospitals and hospices, homes for orphans and indigents should be included as infrastructural provision for the populace, and a part of the health care system. The provision of health care and facilities is considered by many a pioneering high point of Ragusan social fairness achievements, and many of the historical volumes we have cited (Bojović, Harris, Krekić, Stuard) emphasize this. A recent systematic review, by modern-day specialists on health policies from the National School of Health in Zagreb, Lang and Borovečki (2001), provides many details using archival data and concludes: "it is obvious that Dubrovnik had a high level of health and social care organization (home for foundlings, residential home, [probably a "hospice"] various health regulations)". Similarly, Frati (2000) details the introduction of quarantine, as well as other measures, like seeking the best physicians in Italy, sending talented youth to learn medicine there, and so on. Frati realistically notes that the motivation for the famous first quarantine station of 1377 "originated mainly from the need to protect the safety and quality of the commercial network rather than for medical etiopathogenic purposes", but there is no question this also provided a great benefit to the entire populace of the Republic.

Provision of education for all classes in the city – but not in rural areas – provides additional evidence of "the patricians' enlightened attitude toward talent" (Bjelovučić 1970, p. 62). Even as late as the 16th century, Jesuits were given funds "to teach all youths who wish to attend public schools" and "sending bright boys

⁴² Stuard (1992) also confirms the many efforts at providing water supply by boat, and when this became insufficient the building of an aqueduct from the Ombla River (about 10km distant), with the Onofrio fountain at the city end. She notes that with these projects, a new set of archival books began to be kept, *Libri reformationes* with data on many community projects. Unlike some other authors who attribute much of Ragusa's effective governance to Venetian customs, or make no attribution, Stuard in this chapter mentions several times the legacy from Byzantium for health care and public infrastructure. Janeković-Römer (2006) also gives the Byzantine legacy a lot of credit.

overseas to study at government expense".⁴³ The data of Table 3 suggest education expenses were in 1800 a high 6.8% of total, but some dispute exists on this value, due to the problem we noted of the Bjelovučić data not adding up correctly. If we were to leave all components unchanged and take percentages of the summed value, the education share would be less, at 5.3%. However, some sources indicate the value for this category is half of what Bjelovučić shows, and the share could be as little as 3.3%.⁴⁴ Is this high or low? Unfortunately the Bonney (1995) volume on state finances does not provide comparative values.

The last category we will mention concerns the strategic reserves of grain and other staples, stored in the so-called "rupe [holes]" or granaries, built often as part of the city walls. The largest set of these – which can still be visited today – was built between 1542 – 1590, but earlier, simpler ones started from the first centuries. Related to this were interventions in grain markets such as capping prices in times of shortage to minimize price-gouging, direct sales by the state, and limitations on how much land peasants could plant with vines which gave far greater yields in the rocky, hilly terrains of the Republic than grains. Some of these were for the medieval period arguably justifiable, as transport time and costs precluded quick filling of gaps in basic food requirements.

3.5 Minimal Military Expenditures, Maximum Diplomacy

Berković (2010) provides a comprehensive analysis of Ragusa/Dubrovnik foreign policy and this section is based to a large extent on his work, as well as that of Carter (1972) which devotes several chapters to diplomatic developments over more than seven centuries with each of the main neighbours, trading partners, suzerains, friends and foes; in effect for each of the political phases listed in Section 2.1. Our sub-title refers to the commonly held view that Ragusa, unlike virtually all other nations and states of the period, did not achieve its commercial power by the use of force, using skilful and constant diplomacy instead. This hypothesis merits future quantitative research to confirm or reject the partial conclusion we reach on the basis of Table 3, for 1800, which may be quite unrepresentative of earlier centuries. However considerable qualitative evidence from the literature is strongly consistent with the hypothesis, even if the point may sometimes be exaggerated in degree. We start with a discussion of military/naval forces, then turn to a selective presentation of key diplomatic efforts, most of them successful, but a few less so. We do not include an analysis of the extensive network of commercial consulates, which should surely also be considered as part of diplomacy.

3.5.1 Minimal Use of Naval and Military Forces?

The central thesis of Berković (2010, p. 220) that "foreign policy and diplomatic skills played a key role in the survival and development of the Dubrovnik Republic" represents a virtually universal consensus among historians, though his assertion that it was "a small country with no military force" may overstate the case. We have already noted the treaty obligations with Venice to provide in wars one galley per 30

⁴³ Most historians make reference to this – we cite here only Bjelovučić, partly because she discusses, the late 16th century, suggesting that despite the decline of 200 years, Dubrovnik was still thriving and wealthy – an indication that while its aggregate GDP may have fallen considerably, per capita values may have held up or even increased – a hypothesis that merits further research.

⁴⁴ We thank Rina Kralj-Brassard for these clarifications.

Venetian ships, and given the latter's use of 100 or more in some of its wars as Lane (1973) describes, there must have been a minimum naval force of three to four galleys at the ready.⁴⁵ In fact Luetić (1969) while also emphasizing the very small size of Ragusa's naval force – the title of his chapter on this is “The Most Modest War Fleet” (p. 77) – describes for the 17th century several types of warships: large galleys (galija – two levels of oarsmen), small ones (galica about 30 oarsmen), and other types like frigates, the Neapolitan felucca, barques and some smaller vessels. Unfortunately he is quite imprecise with numbers – one or two of this, some of that type etc. Nevertheless one must infer a total of at least 10 or more war ships – a very small fleet in any comparison but hardly a case of “no military force”. Of interest is the claim by Luetić (1969, p. 78) that such ships were unusually modestly decorated with figures, scrollwork, painting – save for the obligatory representation of Sv. Vlaho – St. Blaise. Verifiable or not, this is yet another indication of the financial prudence of Ragusan authorities.

On the one hand a number of qualitative indicators point to a modest force which at best provided a minimal deterrent defense, mitigated the threats of pirates, and allowed Ragusa to meet its obligations to contribute warships to its overlords. Luetić (1969) emphasizes that the building of specialized warships was generally done by hiring foreign, (e.g. Neapolitan) masters, or even buying ships from Naples. That these ships in fact were not often used for war is suggested by reference to their employment as diplomatic couriers, transporting Ragusan diplomats on legations, or bringing foreign envoys to Ragusa for negotiations. They were also put to use as escorts of commercial convoys protecting against pirates' raids, and often on missions to destroy popular pirate havens in the Neretva region – although if short-term “agreements” were reached with such pirates to attack only, say, Venetian and not Ragusan ships, such missions would be suspended.

On the other hand, several writers emphasize that even the commercial fleet was outfitted lightly with cannon and deck arrangements for armed sailors/soldiers, all of which could be swiftly enhanced for war needs, thus a standing war fleet of 10-12 vessels could and was increased as required. Furthermore, expenditures on the massive fortifications must also be considered a military allocation. Finally, we found so far little discussion on the earlier periods from foundation to about 1200, when one might hypothesize that before Ragusa's commercial and intermediary importance was built up enough to make diplomacy a credible option, military actions and costs may have needed to be much larger. Suggestive of this, Carter (1972) mentions several early attacks and sieges. In 866-7 Ragusa withstood a Saracen siege of 15 months behind its fortifications “of rubble and beams” – note the word is “withstood” not “repelled”. In the 14th century at different times King Uroš of Serbia and Tvrtko of Bosnia are known to have considered capturing Ragusa, but were discouraged by the likely very high cost of breaching the defenses. According to Carter, Tvrtko decided instead to “defeat” Ragusa commercially by founding a competitive trading port in the Kotor region, Sveti Stefan, no need comment on its limited success being required.

We have found only one secondary reference to actual defense costs, as shown in Table 3. There is a little doubt that at this time, unless there were huge off-budget expenditures, Dubrovnik's expenditures on defense at about 12% of the total budget, is far below that typically noted for other states There is an excellent benchmark in the

45 Similar but less specific demands on Ragusan contributions were made under the Hungarian overlordship period. Under the Ottomans, this was not the case, as both Ragusan diplomacy and Ottoman wisdom realized that the most Ragusa could do was to refuse to provide, or provide only peremptorily, naval forces for Christendom's many wars against the Turks in the 16th – 18th century.

literature in the work of Bonney (1995) which has collected a large amount of data on European states' budgets for the 13th – 17th centuries; One of the volume's key conclusions is that for most states military expenditure accounted for a very large share of at least about 20% to as much as 80% in times of conflict. Lane (1973, p. 426) gives us some idea about military expenditures of Venice: in 1736 they were one-third of the total – and that after a sharp decline from preceding periods, when they must have been half or more.

For earlier periods secondary sources give only qualitative judgments that military costs were very low, or at best some fragmentary estimates that so many ducats or dinars were spent in a given year on reinforcement of the walls. For future research, the Archives are very likely to contain considerable information on this and permit a more definitive testing of the hypothesis about low expenditures on military and naval forces, defensive walls, as follows:

Hypothesis: Ragusan military expenditures were small relative to typical expenditures of the period. We are able to confirm this quantitatively only for the late 18th century, while for earlier periods the evidence is strictly qualitative, but the historical literature is virtually unanimous on this. Future research can in principle check this for earlier periods, using the same kind of budgetary data from the Archives as in Table 3.

3.5.2 Diplomacy as Defense

On balance, the literature strongly suggests a limited reliance on military force; this makes a good deal of sense once it is realized that Ragusa was not only very small, but its immediate backyard territory outside the walls was very hilly, had an extensive but very narrow perimeter, and must have been very difficult to defend with small numbers against the much bigger neighboring states and potential enemies. This may have been the main argument in favor of greater reliance on diplomacy, though the relationship should best be thought of as a circular reinforcement: early efforts to provide defensive walls and forces at the least discouraged attacks and/or gave time for negotiations, but the small size and indefensible territory led to emphasis on diplomacy and neutrality; the increasing success of diplomacy over time lessened the need for military efforts.

As with the small role of military forces by Ragusa, its use of diplomacy as a substitute is widely noted, indeed praised, by virtually all historians. Berković (2010, p. 220) typifies this:

“through timely awareness of [its] geopolitical position...Dubrovnik entered into numerous international political and trade relations [and was] able to utilize [this] wisely and skillfully in the defense of [its] independence, sovereignty and economic growth, resorting almost exclusively to diplomatic means and diplomatic skill.”

Berković and Carter both provide very detailed discussions of the many fluctuations in Ragusa's relations with its always-threatening neighbors.⁴⁶ Carter (whose praise is very succinct: “In diplomatic

46 Carter (1972, p. 118 succinctly defined these threats: “The republic was in constant danger from the powerful enemies which surrounded it on all sides. The Venetians who claimed the monopoly of the Adriatic [Venice's version of the US Manifest Destiny doctrine was the “Mare Clausum” – the closed sea]...on the mainland the King of Serbia, the Ban of Bosnia, the Lord of Hum, all watching for an opportunity to occupy Dubrovnik whose splendid harbor they envied”. One might add incidentally that such envy also provides strong circumstantial evidence of Ragusa's success.

affairs Dubrovnik was a past-master”), devotes four long chapters of the book to such diplomacy over the course of the centuries from the Byzantine protectorate until the creation of Yugoslavia after WWI. Here, we draw primarily on these two sources to give a selective representation of the sorts of diplomatic efforts undertaken. It should be added that one side of diplomacy was the purely commercial, consular representation in many states and cities with important trading volumes. We have discussed briefly the available quantitative evidence of such representation in 2.2 above.

Ragusa withstood the aforementioned Saracen siege in 866–7 for 15 months thanks to its strong fortifications and preparedness, but it may not have come to a good end were it not for the appeal to Emperor Basil who sent a Byzantine fleet to relieve the city.⁴⁷ A century later as Venice began to dominate the region *de facto*, Ragusa often yielded to some informal form of “submission”, accepting Venetian counts and archbishops, but formally continued to fly the Byzantine imperial standard, and turned frequently to Constantinople diplomatically to offset the authority of Venice. This may mark the beginning of Ragusa’s skilful game of playing off one side against the other. About 1095, still under formal Byzantine protection, the Ragusans turned to their enemy Venice to help ward off the incursions of King Koloman of Hungary. A hundred years later, in 1186, the Normans of Naples and Sicily occupied Ragusa, but the peace treaty negotiated most favorable and easy terms, with a Norman titular count, according to which all decisions of government were to be made by the Great Council, no significant tribute was required, and other treaties with commercially-important allies like Miroslav Prince of the Serbs co-existed with the Norman one.

The diplomatic skills honed by the Ragusans in this period of many conflicting but no overwhelmingly strong powers, stood them in good stead during the Venetian protectorate, 1204 – 1358. (See Carter, Chapter 3 and Berković, pp. 210-215). The very fact that a formal treaty of submission after the occupation of 1204 was not signed until 1232 implies the rather limited authority of Venice. Furthermore the Treaty was not very onerous, including a titular count from Venice but with great autonomy being retained by Ragusa, the flying of Venetian flag, a token financial and in-kind tribute, (less than a thousand perperi, far less than the annual income of a modest noble merchant). We have already mentioned the fairly soft demand that in war-time, Ragusa was to contribute one galley per 30 Venetian ships – and, at that, numerous instances are cited of Venice grumbling about the galleys coming late, being poorly armed or manned. The obligations of Venice to defend Ragusa and the trading privileges accorded were in contrast quite substantial. While many other states/nations were simply forbidden to bring goods to Venice and buy products for export to the Levant for example, Ragusa was allowed this, with the first four shiploads each year paying a low duty of 5% (20% on Egyptian imports, which Venice wished to dominate), and a somewhat higher one for additional ships – though over time the cap was raised either formally or informally. Merchandise from the Balkan hinterland — which we have seen was in this period a very large part of Ragusa trade – was free of duty.

The multi-vectoral game of Ragusan diplomacy takes on an almost bizarre complexity – Carter (1972, p. 193) calls it “a maze of intrigue and counter-intrigue” during the Hungarian protectorate period, when the authority over Ragusa was even less strong than that of Venice, perhaps because the kings of Hungary did not have the same critical interest in maritime trade. Ragusan authorities explicitly defined the policy in a diplomatic dispatch of the early 15th century: “[the Republic] had to be on good terms with these lords of Slavonia for every day our merchants and our goods pass through their hands”. But the big powers,

⁴⁷ This and subsequent episodes noted in the paragraph are based on Carter, pp. 51 – 74.

Venice, Hungary and increasingly the Ottomans, could not be ignored either, so a constantly shifting web of treaties, explanatory legations in cases of dispute, began to develop in the 14th and 15th centuries. Involved in this activity were Venice, Hungary, Ottomans, Serbian kings (Uroš), Bosnian bans (Tvrtko), and the dissident Bogomil leaders,⁴⁸ the lords of Hum (approximately Herzegovina) and the Balsas, lords of Zedda (parts of Montenegro, Kosovo). To ensure trade with the Levant and the newly occupied Balkan lands, Ragusa arranged a trade treaty with the Ottomans as early as 1397, granting it free trade in the Balkans, and highly privileged terms elsewhere, with a minimal 2% import duty, and annual tribute of at first 500 ducats, increasing over time as needed and negotiated down to the minimum possible.⁴⁹ Stipetić (2004, p. 37) points out the underlying commercial interests of Ragusa in securing such a treaty on one side, and at the same time by the “Basel edict remov[ing] the stumbling blocks from the Christian side”.

The ability to play off both Ottomans and Papal demands of allegiance is nicely shown by two diplomatic feats. In 1439 the Ottomans occupied Bosnia and Serbia and demanded of these tributes of 25,000 ducats – but also “invited” an envoy from wealthy Ragusa to come with a tribute. The envoy came but without a tribute; the Sultan imprisoned all Ragusa merchants on his territory as hostages. Lengthy negotiations resulted in Ragusa proposing a modest tribute of 1,000 ducats, accepted by the Sultan; the merchants were released and trading privileges as per the 1397 treaty were reinstated. (Carter, p. 200)

As the conflicts between Christendom and the Ottomans intensified over the next century, Ragusa was ordered by Pope Paul III in 1358 to support the efforts of the Christian League, sever allegiance to the Sultan, cut trade relations, contribute a large sum to the war-chest as well as five war galleys. Doing so would have surely been the economic death-knell of the Republic given its overwhelming reliance on trade in the Ottoman Empire. Her diplomats argued in Rome that doing this would only result in the complete destruction by Ottoman forces of their vulnerable city ‘with all her precious sacred relics falling into the hands of the Infidel without any advantage accruing to Christendom’ (Carter, p. 330), and hinting further this idea was a plot by Venice to destroy its commercial arch-rival. The Pope relented and exempted Ragusa from joining the League.⁵⁰

The importance to Ragusa of being able to trade with both sides by retaining as much neutrality as possible in conflicts is suggested by the seemingly paradoxical effect of wars on state revenues. Several writers have pointed out Ragusa could actually profit from wars between big powers by filling in the commercial gaps and needs created by diversion of fleets to war. Carter (1972, p. 397) shows a graph of customs revenues

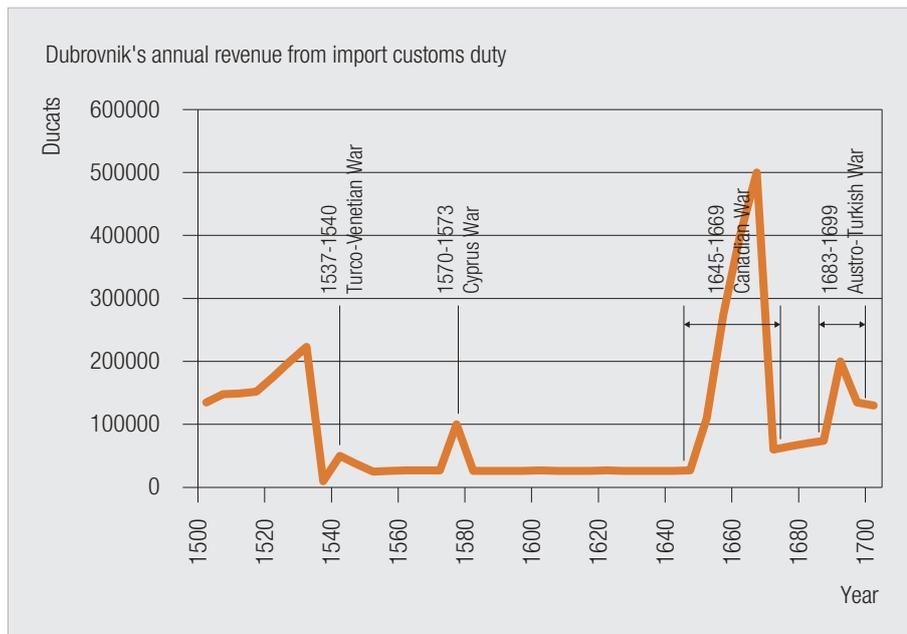
48 A dissident Christian animist-like sect, excommunicated by Rome; one of their leaders, Vuk, brother of King Tvrtko was given refuge in Ragusa in 1366. King Tvrtko was duly received on a state visit with proper pomp, signed a treaty of alliance, but his demand for Vuk’s surrender was not granted, and Ragusa was not punished for this.

49 After Bosnian occupation 1436 this was raised to 1,000; in 1440 Ragusa gave refuge to Serbian Despot George Branković and to appease the Sultan offered to raise the tribute to 1,400; the fall of Constantinople in 1453 resulted in a much higher value of 5,000, but in 1458 it was negotiated down to 1,500, Ragusa arguing that the recent times of troubles had made them very poor.

50 It is of interest that, apparently, the Ottomans did not make similar demands of full loyalty, and military contributions from Ragusa, perhaps more wisely understanding this would mean its destruction by Christian forces, and the loss of a most useful trade and diplomatic intermediary. The latter is sometimes mentioned as a factor, with Ragusa being somewhat like Cold War Vienna (cf. Orson Welles *The Third Man*) – a comfortable and mutually convenient den of spies from all sides.

1500 – 1700 and marks the war periods, which coincide with peaks of revenues. We reproduce this here as Figure 9.

FIGURE 9 CUSTOMS REVENUES



Source: see Data Appendix

The height of complex many-sided diplomacy and intrigue is exemplified by Ragusa's sobriquet in the late 16th century of "Le Sette Bandieri" (The Seven Flags):

"Thus by her successful diplomacy Dubrovnik was under the aegis of seven different powers – Spain, the Papacy, the Empire of Naples, Venice, Hungary, the Turks, and the Barbary Deys ... although they often were in difficulties with some of their protectors, they could always play one off against the other." (Carter, p. 333)

Not all diplomatic efforts succeeded to the same degree. As the economic centre of gravity shifted to Western Europe and the Atlantic, Ragusa attempted to follow this, with increased trade with Spain, France, England, and even the Americas. When the American Revolutionary war led to US independence, Ragusa's ever-cautious diplomacy at first retained close ties to England – which had begun already in 16th century as diversification to the West became imperative (see Ramsay 1977). But in the same spirit of market diversity, Ragusa made a delicate outreach to the new country. This was, to apply anachronistically an American phrase, "a day late and a dollar short". Trade with the USA did eventually take place but in a very limited and certainly not a privileged way. (Berković, 2010, p. 217 and Živojinović, 1977). At the end of its LIBERTAS, Ragusa, or better by now to say Dubrovnik, failed entirely in its demands to maintain some autonomy under French occupation in 1806. The Senate rejected virtually unanimously the possibility of allying with the Russians to avert French occupation, and the majority was against a proposal

of Count Caboga (Kabužić) to “embark our wives and our children and ask of the Sultan an island in the archipelago”. Deciding in favor of the French, they tried to negotiate continuation of *de facto* autonomy as of old, but French “indications” this would be granted came to nought and the Republic was fully disbanded as an entity becoming simply a municipality within Napoleon’s Illyrian Provinces.

Arguably, both of these failures late in Ragusa’s history reflected the sharp decline of its strategic and commercial importance. The earlier success in diplomacy was neither simply a matter of negotiating wisdom and skills nor, most certainly, due as in some other states to military might, but was largely underpinned by a strong economic position.





4 CONCLUSIONS AND FUTURE RESEARCH

Ragusa in the medieval period is widely considered to be a unique case of a very small economy which, despite having virtually no agricultural or other resources, already by the 14th century had become extremely prosperous as a trading port, an entrepôt between the Balkans and Europe – especially the Italian city-states. It leveraged this prosperity to become a major commercial maritime power in the Eastern Mediterranean, competing successfully with the much larger Venice for the carrying-trade not only in the Adriatic, but equally in the Eastern Mediterranean, in the Ottoman lands. Historical accounts give many reasons for its success with a general agreement that its elites strongly supported a business-friendly environment, maintained stability by enlightened social policies, pursued extremely conservative financial policies, and used diplomacy far more than military strength to ensure the greatest trading opportunities for its ships. We will not here summarise the many pieces of qualitative and quantitative evidence assessing such views, rather we conclude by setting out a series of hypotheses about Ragusa's economic evolution that are in principle subject to "cliometric" analysis. The first set of hypotheses are those for which we have been able to undertake at least minimal and tentative quantitative tests (Table 4), and the second are proposed hypotheses for future research testable with data that are likely to be available in the extensive Dubrovnik Archives.

While the data set we have been able to compile from secondary sources is limited, often of uncertain quality, and for most variables an indirect, proxy measure of economic activity, we believe it has allowed a somewhat more rigorous and systematic discussion of the main themes found in the historical literature. In some cases, the "test" is reasonably strong – though all of them could be subjected to more definitive tests with archival data – in others, it is very tenuous, at best suggestive, though this is not unusual given the limitations of economic data for historical periods.

The first historical hypothesis – HH1 – concerns the limited population-carrying capacity of the small Ragusan territory even at its peak. The work of Vekarić (1998) in fact posits this and shows that at its peak the Ragusan Republic, at its full territorial extent in 1500, saw the peak of population, approximately 90,000, which he contends was above its capacity and only reached this level due to large flow of Balkan refugees in the preceding centuries as the Ottoman Empire expanded. Our analysis adds to this and supports such a view by showing that despite the continued and rapid expansion of shipping tonnage and presumably economic power, the population did not increase as one might expect, but actually began its long-term decline.

TABLE 4 QUANTITATIVE TESTS OF MOST COMMON HYPOTHESES ABOUT ECONOMY OF RAGUSA

HISTORICAL HYPOTHESIS	TEST RESULT	ISSUES RAISED BY TEST
HH1: Population capacity limited	CONFIRMED Despite economic growth population falls from 1500	<ul style="list-style-type: none"> • How did population fall occur? Natural? Emigration? Where to?
HH2: Golden Years of prosperity 1550–1575	CONFIRMED Shipping tonnage, best proxy peaks 1575	<ul style="list-style-type: none"> • GDP falls earlier, but estimate too broad to use • GDPpc, wages, wealth consistent with shipping proxy
HH3: Silver Period also very dynamic economy	MAYBE (need better data) The only data is very crude = key construction activity	<ul style="list-style-type: none"> • Most writers focus on golden years, Stuard tries to show silver period important for build-up; not confirmed for lack of good data, but merits more study
HH4: Ragusa fleet equals that of Venice	ONLY SHORT TIME Shipping data do show this about 1425 and 1575, but only due to large war losses of Venice	<ul style="list-style-type: none"> • Somewhat exaggerated contention, but Ragusa less than one-tenth Venice having a fleet that even approached rivalry itself a great achievement
HH5: Ragusa decline due to discovery of better route, rounding Cape of Good Hope	UNCONFIRMED Decline begins almost one century after new route to Asia	<ul style="list-style-type: none"> • A difficult hypothesis to test, makes sense in long-run, but need to understand why Ragusa grows rapidly for 50+ years after Cape Hope
HH6: Ragusa neutrality allows big gains in times of third-party wars	TENTATIVE YES Customs revenue data show sharp peaks in war periods	<ul style="list-style-type: none"> • Needs more verification with other indicators of economic activity (exports, other tax revenues, deflated data, etc.)
HH7: Low military expenditures	YES – but only in 1800 Table 3: mil. exp. = 12% budget, far below the 20-50% range estimated by Bonney in other states	<ul style="list-style-type: none"> • Concrete data on military expenditures only available for 1800, for earlier and more important periods, only fragmentary and qualitative information

The data is also consistent with a second hypothesis – HH2 – that Ragusa’s Golden Years reach a peak in the second half of the 16th century, though shipping data suggests this was closer to 1575 than the 1550 data used by many historians as the end of the “Golden Years”. However, we also find evidence for the hypothesis implied by the works of Stuard – HH3 – that the preceding Silver Period was very dynamic in the sense of growth rates, even if the level of wealth did not yet attain that in the Golden Years.

The very popular thesis that Ragusa’s commercial fleet equaled that of Venice – HH4 – is found to be exaggerated, being literally true only for certain short periods after Venice had suffered large naval losses in its many wars with rivals. Another common view is that Ragusa’s decline was due to the use of the faster route to the East around the Cape of Good Hope by the Portuguese and Dutch, which allowed them to outcompete Ragusa and Venice for the Far East trade – HH5. Our data suggest a slight modification: there was such a cause and effect relationship, but it was not immediate, indeed it took nearly a century to have strong impact. Another important historical hypothesis argues that Ragusan neutrality was very

instrumental in avoiding negative economic impacts during regional wars, and even allowed it to profit from these wars – HH6. Indeed this does seem borne out by the one statistic that is available for short-run periods, the movement of customs revenues. However, it was not possible to measure economic impacts more directly on the level of trade, shipping, or income since the latter are at best available for intervals of 25 years or so. Last, the widespread contention that Ragusa had a very small military with a low share of the budget going to defense – HH7 – could only be tested by comprehensive budget data at the very end of the Republic, about 1800. The comparatively very low share of about 12% is strongly consistent with qualitative assessments for earlier periods, though of course satisfactory confirmation would require collecting more data for these periods.

On balance, even when our attempts to use available data to better understand history have been incomplete the effort has raised many questions about conventional interpretations and thrown up a number of other possible hypotheses for testing by future researchers – seven such questions are noted in Table 5. We do not elaborate any further, as these have all been noted in the body of the paper. Any cliometric work on these is likely to require more direct measures of economic activity, trade, government fiscal position, monetary and credit indicators – that is, data that can only be obtained by laborious archival research. Column 2 of the table indicates the type of data needed and we have tried to restrict the issues and data to those that the literature suggests are in principle available in the Archives.

TABLE 5 TESTABLE HYPOTHESES FOR FUTURE RESEARCH

FUTURE HYPOTHESIS	DATA NEEDED
FH1: Resilience Hypothesis 1; Ragusa with prudent policy stance, was able to minimize impact of external shocks	<ul style="list-style-type: none"> proxies for shock to economy: shipping traffic, exports, imports, customs and ship tax revenues – budget expenditures after shock; grain distribution, infrastructure projects – both ideally annual data devaluation of exchange rate (Zecca data)
FH2: Resilience Hypothesis 2: Ragusan fiscal and monetary stance always strong, in good times as well	<ul style="list-style-type: none"> budgets: both revenues & expenditures average in good times net debt, interest costs, rescheduling forced or otherwise credit issues by Zecca and private inflation, cf. other economies
FH3: Low share of military expenditures in budget	<ul style="list-style-type: none"> as in Table 3 but for earlier periods over longer time special, or off-budget items in times of conflict (e.g.: Zecca profits use in “emergency”)
FH4: Direct estimates of GDP (sum of government expenditures, consumption, net exports)	<ul style="list-style-type: none"> trade and shipping profits wages of crews, shipbuilders, civil servants, infrastructure workers, etc. agriculture incomes (adult rural population)
FH5: Solve apparent puzzle of aggregate declines from 1500 (GDP, shipping, population) but possible continuation of prosperity.	<ul style="list-style-type: none"> any results from FH4 useable here time-series income proxies such as: deflated wages, per capita profits, assets held abroad

FUTURE HYPOTHESIS	DATA NEEDED
FH6: Solve puzzle of “revival period” late 18th century population, GDP decline, shipping booms for short period. Is this correct? What was its cause? Did per capita income rise very rapidly? Why so temporary?	<ul style="list-style-type: none"> • related to above two hypotheses, with more in-depth qualitative analysis of the nature of shipping, directions, goods
FH7: Test HH3 more directly compare growth rates of economic activity, per capita income, wealth etc. in Silver Period and Golden Years (NOT a matter of levels of well-being, but dynamism, growth)	<ul style="list-style-type: none"> • involves calculating and comparing growth rates within each period for various proxies of economic activity like shipping volume, shipping taxes, state expenditures, infrastructure building • BUT would need longer time-series available only from Archives

HH6 in Table 4 is suggestive of this as well, but as noted still very tentative and a very partial test.

The proposed ideas in Table 5 may be quite ambitious – perhaps overly so – as the efforts to compile such primary data are substantial, and the availability is not guaranteed. There is a basis for some optimism that is the widely-held view of writers on Ragusa that the Dubrovnik Archives provide a huge potential for primary-data research, and have probably been very little exploited for economic data. We have little doubt that further cliometric research on the economy of Ragusa/Dubrovnik provides numerous opportunities for historians, economists, and other social scientists, and that quantitative testing of the many hypotheses raised here, is possible. An important aspect of such research should be drawing lessons from history for current issues, with only one example being a test of the **resilience hypothesis**: does Ragusa show that openness, prudent finances, and an encouraging “doing-business” climate help to mitigate the effects of external shocks on small economies?

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APPENDIX 1 THE ZECCA (MINT) OF RAGUSA

The activity of the “Zecca di Ragusa” (Mint of the Republic of Ragusa), which was basically the only body resembling a financial/banking institution throughout the Republic’s history, played a fundamental role in its economic life. The first documents on the Mint’s activity date from as early as 1327, at which time its main activity was minting currency, primarily silver. From 1421, it obtained a full monopoly over all silver processing, and in 1683 a monopoly over the exchange of silver and gold money. As it was the issuer of currency it can be considered the “Central Bank” of Ragusa. Over time its functions expanded, with it becoming more like a banking institution. It began to issue loans to the state, to state-sponsored institutions, and by the 17th century, it began making loans to commercial groups, collateralized with commercial goods, but also so-called personal guarantees. Besides its credit activity, it had many other diverse functions, and one of the most important ones was providing financial funds in the times of crisis. One source suggests that any seigniorage profits were used only for such emergencies, but this is not certain.

The economic development of Ragusa was strongly dependent on commercial relations in the Balkans, as the Republic became a centre of a booming business of intermediation, which in turn was a stimulating environment for various investments in maritime ventures. This had to be complemented by considerable financial support to compete with other big powers in the region. The support came directly from the Mint, which was the only institution able to meet the rising private and public demand for “denaro”. Hence its main purpose was lending to commercial customers and providing financial support to the institutions.

The City of Ragusa had a Treasury, which was supplied by the Zecca on many occasions – indeed the connection between the two was so close one could almost consider them one institution. For example in the years 1774 – 1776, the Mint successively approved significant sums of golden and silver money to the Treasury, without interest, and as the reimbursement cannot be tracked in the books, this implies that the Treasury was able to obtain interest-free funds without a repayment obligation. However the possible profits the Mint could realize probably consisted of the discounts applied when approving the “loans”.⁵¹ By contrast, the loans taken in the years 1795 – 1800 were mostly fully repaid, and had short maturities of a few months. However, the amounts were rapidly increasing, perhaps simply in an inflationary sense, as this coincides with the period of rapid depreciation of Ragusan money. The first documented loan to the Treasury with interest and installments was recorded in 1780. Some of the amounts correspond to the Treasury’s costs for health services and soldiers’ wages, other times it was a construction of a Conservatorium, or an aqueduct.

51 Charging no interest by taking an up-front discount was a common way to appear to be in compliance with Vatican usury restrictions.

Besides the Treasury, other institutions were also being granted money by the Mint, e.g. the Grascia (provisions-managing institution – this was in effect the State Granary). It too reimbursed only part of the borrowed funds, but at issuance the Mint made some profits applying discounts. There was also La Cassa Pubblica della Navigazione and la Cassa dei Consolati di Levante, which were also getting loans at some discount, but did not repay fully at maturity. This all contributed to the deteriorating financial position of the Mint. Additionally, there was an interruption in the production of silver money between 1781 – 1791, which decreased the profits made on the silver coins being withdrawn from the market due to wear.

A more conventional banking function became the granting of loans to “highly positioned people” and even more often to fraternities and religious institutions. An interesting function in the Republic’s economic life was surely the Mint’s making funds available to religious institutions, such as monasteries and fraternities, and to parishes for church construction - funds that were mostly not reimbursed and paid no interest, The Mint also had a statutory obligation to give some of its profits to the hospital Domus Christi.

Essentially, the only credit product on which the Mint was charging interest (around 8%) were the loans guaranteed by commercial goods collateral, presumably for ventures such as voyages.

The banking activity of the Mint in the second half of the 18th century became even more considerable, but its most prominent function remained the monetary one, such as the exchange of currencies, trading precious metals and custody of the “denaro”. In the last two centuries of the Republic’s existence, the Mint had the sole emission authority and the resulting profits represented an important source of income for the Republic’s government. In 1725 it started a production of a new currency unit, called the silver “taller”.

Many aspects of the Zecca remain unclear in the historical literature, and merit further research from the angle of modern monetary-banking economics. Thus, the first important question to address is whether the Zecca or any other institution took in deposits. A second question is whether there any private institutions that acted to some extent as retail banks, even if they did not have the name. Historically, it is somewhat of a puzzle that with the close connections to the Italian city-states, Ragusa did not also have private banks. A third question concerns the calculation of actual net balances of the Zecca’s operations, including seigniorage profits, revenues from any interest earned, discounts, repayments, losses from non-repayments etc. Related to this is the issue of whether the Zecca had any independence in policy-making, or was simply some kind of financing arm of the State? Given the very rich resources of the Dubrovnik Archives, it would seem theoretically possible to address such question in future research, though of course collecting the data would be very laborious. A large potential for researchers and Ph.D. candidates seems to exist in this area.

APPENDIX 2 DATA TABLES AND COMMENTS ON QUALITY

TABLE 1 RAGUSA POPULATION AND SIZE ESTIMATES

Reference year	Population (000) (Vekarić)	Population (other)	Area expansion ¹	Grain cons. ²	Population ³ Croatia/Venice	Number of sailors
1300	–		Astarea + Elaph + Lastovo [25]		– /660	
1325	–	[15] ⁴				
1350	–	[7.5]	+ Pelješac + Cavtat + 375sk + 200 = [600]	10		
1375	–	[10]		20		
1400	–	[15]	+ Slano Territory(300) [900]		1,200/ –	
1425	–		+ Konavle(200) = [1,100]			
1450	–	[40] ⁵				
1475	–					
1500	89		[1,100]		928/1,700	
1525	65		[1,100]			
1550	52		[1,100]		– /2,141	
1575	55 53 (88)		[1,100]			
1600	49		[1,100]			
1625	43		[1,100]			
1650	39		[1,100]			
Reference year	Population (000) (Vekarić)	Population (other)	Area expansion ⁶	Grain cons. ⁷	Population ⁸ Croatia/Venice	Number of sailors
1675	26		[1,100]			
1700			[1,100]		645/	
1725			[1,100]			
1750			[1,100]			
1775		[25]	[1,100]			2400 (Carter, 433)
1800		[8]	[1,100]			3000
1825			[1,100]		1782/ –	

1 Carter Figure 18; the **values** are very approximate estimates of land area –sq. km. – except for the last one from 1500 onwards, which is a more accurate value (1,092) given by sources for present day area.

2 Krekić (1980) p. 38: in 000 Staria; Stipetić notes authorities planned for 216k/person/year.

3 Stipetić (2004), pp.138,155 and 156

4 Very approximate estimates by authors for 1325 – 1400 based on Carter, pp. 16-17. It is variously stated by historians that in early 14th century city had 5,000 – 10,000, and the outside territory of Astartea (see col. 3) perhaps another 3-5 thousand, hence our estimate of 15,000 in 1325. The first bubonic plague episode of 1348 is estimated to have taken at least one third of the population, some say over 50%: we assume 50% to avoid overestimates of population, hence 7,500 in 1350. Carter p.16 refers to “one estimate” of about 6,500. As population recovered and large new territories of Cavtat and Peljesac, then Slano were added, we give notional estimates of 10,000 for 1375 and 15,000 in 1400. Carter gives values shown for 1775 (p. 433) and 1800 (p.15, 1807 census). We use the former for tentative trend charting but not that for 1800, since the sharp decline is not explained, is inconsistent with Carter’s and other’s estimates for shipping revival in this period, hence we consider it very uncertain.

5 Vekarić shows this figure as estimated by others, (p. 22) but does not consider it reliable, and therefore does not include it in his summary Table 14, p. 26. We use it in our charts to indicate tentatively a possible trend prior to 1500. The implied large growth from 1450 is not implausible, as the very fertile and territory of Konavle with large carrying capacity was added, the economic boom reflected in shipping growth, and as Vekarić notes, a large inflow of Slavic refugees fleeing from the expanding Ottoman occupation of the Balkans throughout the 15th century. It may also be we were too conservative in the 1400 estimate.

6 Carter Figure 18; the **values** are very approximate estimates of land area – sq. km.– except for the last one from 1500 onwards, which is a more accurate value (1,092) given by sources for present day area.

7 Krekić (1980) p. 38: in 000 Staria; Stipetić notes authorities planned for 216k/person/year.

8 Stipetić (2004) pp. 138, 155 and 156

TABLE 2 DIRECT OUTPUT ESTIMATES GDP, GDPpc: Ragusa and Comparators¹

Reference year	GDP Mil.1990\$	GDPpc 1990\$	GDPpc Croatia	GDPpc West. Europe	Venice estimate ²
1300				590	
1325					
1350					
1375					
1400					
1425					
1450					
1475					
1500	74	930	577	774	[1320]
1525					
1550					
1575					
1600		[1000+?] ³		805	[1210]
1625					
1650					
1675					
1700	24	900	545	1024	[1280]
1725					
1750					
1775					
1800					
1825	49 ⁴	735	513	1232	
1850	63	750	529		
1875	96	934	709		

1 Sources: For Ragusa and Croatia, Stipetić (2004) using same methodology and benchmark year of 1990 dollars as Maddison (2001), which is the source for other regions; 1300 values are interpolated between those of 1000 and 1500.

2 Economic history literature widely recognizes Venice was among the richest republics in the late-medieval era. Stipetić assumes GDPpc =120% of Italy (from Maddison), hence 1320 for both 1500 and 1700. For 1500 this is 1.75 x WE. We start with this, but given consensus on gradual loss of Venetian superiority 1500, we assume a ratio of 1.5 in 1600, and 1.25 in 1700.

3 Stipetić does not show a value but in conformance with the literature consensus states, p. 166, “1500 does not represent [the apogee] of power...which would be realized only [after 1550]”. We assume a value of 1000+.

4 After 1700, Stipetić shows values for Dubrovnik + Dalmatia together. Table 1 uses ratio of Dubrovnik to the sum in 1700 to estimate numbers in col.1 & 2. There is no clear basis for this assumption, indeed qualitative historical accounts may suggest Dubrovnik lagged the Croatian hinterlands after 1700, hence these estimates may be upward biased.

TABLE 3 RAGUSA OUTPUT PROXY: SHIPPING DATA

Reference year	NUMBER OF SHIPS ¹ Luetić (other)	TONNAGE Luetić (other) 'th.(kara/[Tons]) ²	VENICE #ships/tons ³	NETHERLAND tons ⁴	ENGLAND tons	Number of workers ⁵
1300	(22) St.	– /[[2]]auth.est				
1325	(40) St.	– /[[3]]auth.est				
1350						
1375	75	– /[[6]] auth. est.	{300}/[23]			
1400			{100}/[8]			
1425			345/[26]			
1450	(100) Bojović	– /[[10]]				
1475		– / [29]sti		60	n.a.	
1500						(3,000)
1525		{.5Neth=60T??}		[120]		
1550	132 (132K/180V) + 50	15.5/[24]		[190]		(7,000)
1575	200 (180.K/180V) + ??	33/[53] (35k.SV/Sti(63))	{[200/53]}	232	51 (76 C)	(7,000)
1600 1605	125 (112.K/112.V) 100 (68K/68V)	25 /[[38]] (23.7.K/23.7V) {1/6Neth=50T??} 17.3/[26] (17.3K)		[300]		(5,000)
1625	75 - 100	–				
1650	70 + (74.K)	–				
1675	74 (78V)	6.7[[10]] (6.7V//10t.k)	112/[[14]]	568	260	
1700	75 75.k/75.v)	6.1/[9] (6.1.V)	125/[[16]]			(2,000)
1725	50 (auth. est.)	–				(4,000)
1750	149	–	60('57)/ – 32('60)/ – 155('66)/[[20]]			
1775	240	17[[26]]	392/[[49]]	450	1000	
1800	277	26/[39]	300/[[38]]			(5,000)

1 Luetić (1969) provides large amounts of information based on primary sources in the Dubrovnik Archives, though precise archival references are not given. Also, the numbers are NOT provided systematically, with tables or charts for a specific year. Sometimes he gives range of times, total numbers and tonnage, sometimes lists numbers by type of ship hence we add these up, and define “nekoliko” = a few, as 5. Some data is for officially registered and/or taxed ships, and Luetić may then estimate total including unregistered; he is clear that tax avoidance was common, but unfortunately does not give explanation for his upping of estimates. We show this as +X. We exclude small fishing vessels, which he often mentions but does not enumerate. There are some internal inconsistencies within Luetić, and a lower estimate will be used in analysis. He also gives fragmentary data on numbers engaged in navigation-related activities, in the last col. (Other) sources data: B = Batić; Boj = Bojović; C = Carter; K = Krekić; M = Maddison; S = Stuard; V = Stjepan Vekarić. These are referenced in the Bibliography. N.B. many of them appear to rely on Luetić as one source, but also two other important writers S. Vekarić and J. Tadić.

2 In [], values in metric tons, in some cases converted from kara = 1.5 tons. The conversion ratio is from Vekarić and Vekarić (1987), p.11, fn. 5. Luetić has the longest series of information, in 000 kara capacity, but starting only in 1550 and no capacity estimate given to correspond with number of ships he shows in 1375. For earlier years other sources are used, shown in light font, in later years these same sources are generally broadly consistent with Luetić, with one large deviation: for 1575 Stipetić gives 63 tons, while Luetić, S. Vekarić give values about 33-35 kara, or ton equivalent of 50-53. We use 53. For 1300 – 1375, very rough approximations are made by authors as follows: average tonnage per ship is calculated for 1550 – 1600, with values of 180, 250, 305, which is consistent with the qualitative consensus that the size of ships increased considerable over the centuries reaching a maximum in the late 16th century. Luetić, incidentally refers to the largest ship at this time of close to 1,000 kara + 1,500 tons. Taking the 1550 value of 180t., we assume average capacity in 14th century of 75t., by 1450 of 100t., and estimate tonnages as shown [{}].

3 Lane (1973) p.337 makes clear the Chioggia wars with Genoa 1377 devastated the Venetian fleet, by 1423 rebuilt to 345 ships. We assume 300 ships before the war, 100 after, and for tonnage we take same average value as for Ragusa, 75/ship. Virtually all historians agree that at Ragusa’s peak, 1575, its merchant fleet equaled that of Venice – we use the same values for that year. Later years: Luetić gives number of ships, we estimate tonnage again assuming average same as Ragusa in that period, about 125t/ship.

4 Maddison (2001), p. 77. Values in [brackets] are straight line interpolations. For England, Stipetić (2004), p.164

5 Luetić give several estimates of workers engaged in shipping, but very unsystematically, without precise years or periods. Here we show this only in (light font) to symbolize its low reliability for statistical analysis. Usually it is only number of sailors, but in places indicative values for others like shipbuilders, chandlers, ropemakers, dock loaders etc. are also noted. His qualitative evidence suggest number on shore about half that on ships. Totals estimated are shown. N.B.: our “guess” for 1500 based on 100 master shipbuilders, assumed total shipbuilders are 10 x masters = 1,000; these comprise half of land-workers in shipping (2,000), and with sailors a total of 3,000.

Further explanation for 1725-1800: Luetić gives clear numbers with precise dates only for 1750 (p. 94) and 1805 (p. 106), as shown in the table. For 1725 we estimate a value of 50 from his description, p.91, that from 1700 – 1734 there was a sharp decline in fleet, and then 1734 – 1744 a strong revival. For 1775 we estimate based in his numbers of 190 ships of beyond Adriatic type with 15,000 kara capacity, to which we add conservatively 50 ships, probably unregistered medium and small ones, and an additional 2,000 kara. (for other years he suggests small-medium unregistered ships were at least one third more). The 1805 values are more definite and are assigned to the 1800 period.

TABLE 4 RAGUSA OUTPUT PROXIES

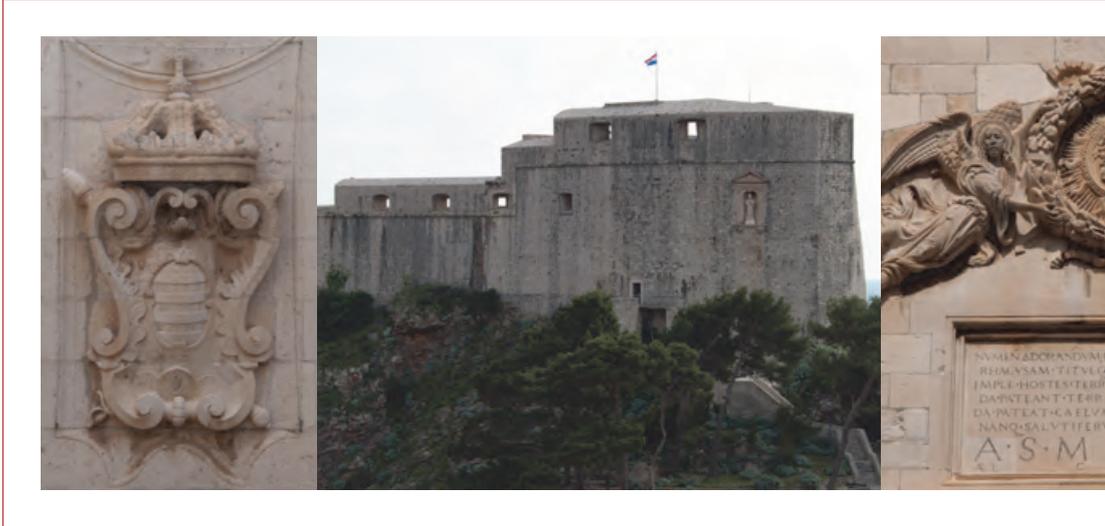
Reference year	Value of the fleet ('000ducat) ¹		Wage index ²	Investment value ³	Deposits abroad ⁴
1300					
1325				116	
1350				"	
1375				"	
1400			100	"	
1425			100	527	
1450			100	"	
1475			100		
1500	200		100		
1525			125		
1550			150		–/[400]
1575	700		175		262/–
1600			200		
1625			250		
1650			325		–/[675]
1675			425		
1700			500		600/[700]
1725			650		
1750			800		
1775			800		
1800			800		–/[700]

1 Bojović 1500, 1575

2 Our approximation using text references of % increases in different parts of these centuries, in Carter (1972, p. 577), [undeflated].

3 Krekić (1961, p. 75), ducats average for periods 1321 – 1430, and 1431 – 60

4 First number: Carter (1972), p. 578): deposits held in Italian banks by Ragusa entities, '000 ducats. It is not stated if these were Venetian or Ragusa ducats. Second number: DiVittorio (2001), pp. 37–78), in Ragusa ducats. It is not clear that the two sources are consistent – If Carter uses Ragusan ducats, 1575 value far lower. If he uses Venetian, then exchange values on p. 576 with dinars and ducat/ dinar rates on earlier imply values giving a similar value of 327 in 1575, but very different value of about 1,500 in 1700. We will use for now the values of DiVittorio.



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