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Economy of Ragusa, 1300 - 1800 The Tiger of Mediaeval Mediterranean

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CROATIAN NATIONAL BANK

ECONOMY OF RAGUSA, 1300-1800

The Tiger of Mediaeval Mediterranean

Oleh Havrylyshyn and Nora Srzentic¹

“There where your argosies 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)*

*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)²

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² For those more used to detailed Encyclopedia Britannica definitions, the 1963 version gives: “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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I. INTRODUCTION AND MOTIVATION

While the Republic of Ragusa was one of the smallest Mediaeval city-states in the Mediterranean, it is widely considered by historians as 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 political regime, of republicanism that may not have been democratic but relatively fair and benevolent, providing pioneering social provisions like education, health care and quarantine systems, and provision of grain reserves in times of shortage. To this was coupled a generally liberal, open economy, with prudent state finances, limited market intervention, and indeed a climate encouraging private enterprise. The Croatian economic historian Vladimir Stipetic captures this nicely in a recent article (00,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 their 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 to hypothesize further that, in analogy to the current consensus about what it takes to minimize the impact of external crises,³ these strengths also allowed Ragusa to mitigate the effects of the many external shocks and financial crises in Medieval Europe. The above **resilience hypothesis** was the central motivation of our research, testing of which can in theory be done using the very rich primary sources of the Dubrovnik Archives going back at least to the 14th century- an excellent opportunity for “cliometric” research.⁴

That Medieval Europe experienced many economic crises, including financial ones not unlike the current global one, is very clear in the economic history literature-and the popular work of Reinhart and Rogoff (2009) provides a stark reminder of this. While modern banking systems and the network of globalization far exceeds in extent and complexity that seen five centuries ago, there are substantial similarities in kind. In the Eastern Mediterranean in particular, where “banking” was born in Florence and other Italian city-states, financial crises are recorded as early as the XIV.century and trade interruptions due to these crises and other causes such as wars or treaty arrogations were frequent. The well-known Cambridge volume “ Economic History of Europe , Postan (52-p.340) write 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.”

³ Recent analysis of what makes for greater resilience can be found in Ghosh *et.al.*(09), *Backem gramard and Hartmann*(10), and *IMF, SPDR* (10).

⁴ 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 Stipetic(04) and Ravancic(10) give in Croatian an excellent summary of cliometrics.The essential distinction with 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. The uses and limitations of quantitative data in history are noted in Fogel (75).

Illustratively, one can point to the bankruptcy of the big Florentine banking houses in the 1340's (Bardi, Peruzzi-) or the bankruptcy of the in 1570's led by the Ricci Bank, as broad analogues to Lehmann Brothers today. Cipolla (89) describes the boom of excess credit boom followed by a policy-induced credit squeeze entirely similar to modern credit boom-bust cycles.

Analyzing how the prosperous Ragusan economy fared during one or more such crises would be an interesting contribution both to the economic literature on crises, as well as to the historical literature on Ragusa and the Mediterranean mediaeval economy. However, compiling the primary data needed to test the **resilience hypothesis** is a very time-consuming process hence this first paper will be limited to two tasks. First we will compile a set of statistical data approximating standard economic variables or reasonable proxies for them culling the fragmentary and often uncertain information found in secondary sources, that is the vast historical literature on Ragusa, Second, we will use these data as far as they will carry us to test several common economic hypotheses found in this same literature, concerning the evolution of its economy, degree of prosperity, and reasons for it.

A subsequent step in the research plan would be to collect in the Dubrovnik Archives primary data, such as budgets, export and import flows through Customs, to use in the fuller cliometric exercise focused on selected economic crisis episodes, their impact and the policy reactions of Ragusan governments.-i.e to test the resilience hypothesis. We also hope that this first paper may be of sufficient interest to other scholars who could undertake the same or similar studies.

In this paper, we first describe in Section II the economic development of Ragusa from its foundation in 7th-8th century, with more emphasis on the period starting about 1300 through its "golden years" (15-16th.c), to its end as an independent city-state when occupied by Napoleon's forces. In 1806 Standard economic variables like output, trade, government budgets, monetary indicators are of course not available, but we attempt to gather the best available quantitative proxies culled from secondary literature to give some quantitative affirmation or rejection of the views commonly found in the largely-qualitative historical literature. As imperfect as the proxies are, 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 III then considers what factors explain this prosperity, as well as the reasons for the eventual decline. Finally Section IV will draw some tentative conclusions about hypotheses that can be confirmed by our new data set (see Appendix),, which ones are not supported by the data, 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 II.(i) briefly discusses the history of these two names. Second, we do not argue that Ragusa was the only and unique example of a prosperous city state based on

sensible policies—indeed we accept the view of some that a lot of Ragusa’s wise policy was an emulation 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 elaboration⁵.

II. EVOLUTION OF MEDIEVAL RAGUSA ECONOMY

The literature on Ragusa is voluminous, but almost entirely the work of historians, 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., comparisons, but generally use them only for illustration. We have tried to cull any statistical data that is used by the many different works on Ragusa, and systematize them as much as possible. 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 (04), 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 (07), uses archival data to analyse for 1520-1623 the extent and nature of private credits issued⁶. 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, the explanatory factors Section II.(i) 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 II (iii), using both the qualitative literature and our time-series data, then provides an interpretation of the economic story line, proposing a periodicity reflective of 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.

II(i) Timeline of Ragusa’s Political-Historical Evolution

The first “records [of] Dubrovnik’s arsenals (*shipyards*) date from the year 782,”⁷ 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 Avar invasions

⁵ We offer our apologies to historians for having too few footnotes and to economists for having too many.

⁶ A fourth is the much narrower but extremely novel socio-economic exercise in cliometrics by Ravancić (10) which analyses archival data on court cases related to tavern disputes, finding they are highest on weekends and in low-work seasons!

⁷ Nicetić (02.P.11)

dated 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 (96) try to sort this out , addressing also the various stories of the origin of the name⁸. Whatever the mysterious realities of the early years, the fount of modern digital knowledge⁹,Wikipedia , affirms that “from the 11th century Ragusa emerged as a maritime and mercantile city”¹⁰, a view that is widely shared by many contemporaneous writers be they Byzantine , Arab (Idriss the geographer), or Italian.

By the 15th century contemporaneous writers even more emphatically refer to the prosperous republic of Ragusa. Giustinani (1553) notes its nobles had fortunes certainly far in excess of other Dalmatian cities, and comparable to the Venetian elite, with “many individuals having [wealth] of 100.000 ducats and more “. ¹¹Stuard (81.p.808) compares the average size of dowries in Venice and Ragusa; about 1350 they were respectively 650 and 600 ducats; about 1375 they were 1,000 and 800, and mid-15thc. 1,000 and 700. .-that is broadly very comparable ! By the 17th c, despite Ragusa’s relative decline which we try to quantify in Section.II, not only did Shakespeare use the term Argosy in several of his works, but other English writers of the time more explicitly note its greatness thus Samuel Pepys in his *Diary 1660-69* notes it was “ a small country, but it is said older than Venice, and called ‘the mother’ of Venice.”¹²More recently,the renowned 20th. century economic historian of capitalist development , Fernand Braudel , pointed to the special case of Dubrovnik naming it “the jewel of the Adriatic”.

Most observers agree that 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 a suzerainty , tributary, or protectorate status under one or another of the larger regional, powers. Historians vary

⁸ The Slavic name Dubrovnik has a reasonably clear explanation —by the 9th. C successive waves of Slavic settlers accounted for a large part of the Balkan population including in Ragusa, and reflecting the oak (dub) forests in the area, began to use the name Dubrovnik alongside the Latin Ragusa. The latter is often said to be a distortion of Lausa (cliff. Rocky promontory) to Ragusa, but many other interpretations exist as Carter notes. Intriguingly, we found no formal reference to the Greek Sicilian colony of Ragusa –*BUT...*,an informal marginal scribble in the University of Toronto library copy of Carter hints at this: “*Ragusa=Sicilian name ,you dope!*” While the last word may suggest this was a student, one must recognize the possibility of how vicious “high” academic high jealousies can be ! . On a serious note, this attribution is consistent with the accepted “fact” that Epidaurus was founded by Greek-Italian colonists from Sicily, which is mentioned in the very thorough scholarly analysis of Putanec (93).

⁹ www.wisdom.com (i.e. Wikipedia)

¹⁰ Wikipedia.org/Maritime_Republics, accessed 8/1/2011

¹¹ As cited in Krekic (1997), II ,p.193

¹² Reference given by Basic(06,p. 152)—he also cites Pepys a t length on frequent changes of officials, guards.

¹³ Since Ragusa was almost always in a *de jure* state of fealty to a large power, LIBERTAS had a very special meaning, indeed Kuncevic (10) makes a compelling case tht “this great Ragusean myth” had many meanings and uses dependent on the context.

slightly 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, Hungarian kings, Normans in Naples, and even some years of legal independence as the frequent regional wars were being fought between bigger powers. It is further commonly accepted that in this turbulent period, Ragusans learned their first lessons of using both strong fortifications against sieges and constant diplomatic efforts to play off one power against another 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 perhaps 15-20 times its population and with a far bigger portion of its fleet being military vessels. It also had to accept Venetian Counts resident in Ragusa as formal heads of state. Nevertheless, 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 ones), but the rights and privileges of intermediating in 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 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, 1358-1526.. In the middle of the 14th.century , Ludovik, King of Hungary and Croatia, began to strengthen its regional power, and undertook to drive the Venetians from the coastal areas of Croatia, succeeding in its conquest 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. No Hungarian representative was sited in Ragusa, the head of state, 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.c Balkan pushback ended victoriously 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 well-remembered

defeat of Serb forces at Kosovo Polje in 1389, and saw its crowning achievement with the fall of Constantinople in 1453 (henceforth Istanbul)> Final stges of this dominance came as from 1460 to 1482 the ottomans gained in sequence control of the Peloponnesus , Albania, Bosnia, Hercegovina-all of these having been the principal field of Ragusa’s entrepot trade activities for half a millennium already. Thus, economic and political survival depended on good relations with the Ottomans, and the light authority of Hungary plus the adroit diplomacy of Ragusa enabled this. By the time Ottoman dominance began its long decline with consecutive Austrian victories. and the pushback of Ottoman control in the 17thc, the Ragusan glory days of economic prosperity were long over , though this was quite unrelated to Turkish –Austrian conflicts, rather it was due to the great rise of western European naval powers the shift of the centre of economic prosperity from Mediterranean to Atlantic , and Cape Hope circumnavigation for eastern trade. This is explored further later in the paper..

- The Austrian period, 1684-1806 was a faint echo of the earlier tributary periods, with lots of room for autonomy and diplomatic maneuver including with the Ottoman rulers, for trade in areas they still controlled for another two plus centuries. . 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 below in the economic evolution sections, there was a much reduced population and aggregate GDP, though the level of prosperity for the remaining in-town population 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 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.
- French occupation in 1806 ends independence of Dubrovnik , not just *de facto*, but also *de jure*. In the Austrian-French wars during Napoleon’s reign, Dubrovnik became a victim, surrendering to overwhelming French forces, and unable to use its earlier diplomatic efforts to retain neutrality. Despite some indications by the

¹⁴ “Relative” is the key word here: In sec II we show data suggesting its absolute level of economic activity might have been still very large , reviving after the loss of Eastern trade to Cape Hope circumnavigation

¹⁵ Stipetic (04) suggests still high GDP per capita. Related to this, Vekaric (1998) proposes a hypotheis worthy of further cliometric work , that the decline in population from the peak of early 16th century reflected an 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 Stipetic are too broad to provide a clear picture of this period.-the Data Appendix explains why.

¹⁶ Carter (72.pp.352-3) cites several references on this as well as the Church of St. Blaise in Goa.

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 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 Luetic (1961, p107) : "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.c, but by the time of the Versailles Treaty 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 as a UNESCO World Heritage site in 1979.. Tourism became perhaps even more important after . Croatian independence in 1994.¹⁷

III.(ii) 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 a different classification of periods based on the nature of economic development and the underlying basis of the economy's production potential .The proposed dates are indicative only..

- The Foundational period (up to 1100)
- The "Silver " period (1100- 1350)
- The "Golden Years " of maritime prosperity (1350-1550)
- Cape of Good Hope and the (gradual) decline (1550-1750)
- The Revival period (1750-1806)
- The Post-Independence period (1806-present)

Here we review the economic evolution showing as possible quantitative indicators to complement the qualitative historical evidence , and to "test" conventional hy pottheses in that literature. The data covers years 1300-1800 , but time-series shown are based

¹⁷ We will not be able to test the hypothesis that this started with the establishment of the Annual Dubrovnik Economic Conferences in 1995.

on fragmentary and variable-quality data, as explained in the Appendix. The tests are meant to be preliminary at this stage, to be potentially made more rigorous with use of primary data from Dubrovnik Archives. In a few cases, the data is strongly consistent with conventional wisdom, but in most it is at best uncertain, and raises many potential avenues for future research –both for ourselves , and we hope others who may be stimulated by the puzzles found.

a. Foundational period to 1100

The main point on which there is broad consensus, is that while before 1100 the Ragusa economy was very simple , based on fishing, some agriculture, some small ship-building but this was an important period in building the foundations of future dominance in Dalmatia, prosperity with a gradual movement into navigation and nearby entrepot trade on 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 Saracens out of Apulia; it was Ragusan ships that transported Croatian and Serbian mercenaries to Bari.:¹⁸

Another indicator of an early economic development comes from the Saracen siege of Ragusa , apparently in 866-7 (see caution of fn, 18) , , which it withstood for 15 months —indirect but strong evidence that :1) Ragusa was *worth* seizing, but also 2) : that Ragusa was strong enough to withstand it, though 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, 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.’72.p.74)

There is in many accounts clear evidence of caravan trade between Balkans and Italy through Ragusa well before 1100, with resources like cattle, leather, wood/lumber, honey , wax, 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 other entrepot trade with 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.

¹⁸Carter (72-p.53), based on writing of the Byzantine Porphyrogenitos-though Carter warns in many places such early writings probably had many confusions.

b. The “Silver “ period (1100- 1350)

The 13th century saw a boom in minerals trade as mines opened and expanded in 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 (1980, 1997) . Ragusa quickly became a principal conduit meeting the high demand for silver in Europe ;Stipetic (00,p.26) states Balkan silver production about 1400 was almost one-third of European totals, and of this almost one half(*i.e* about 16% of European total) was exported through Ragusa. He also contends that required sales to the Ragusa mint provided the basis for a considerable amount of seigniorage.profits for the state treasury.The silver from hinterland was brought by caravans to Ragusa and then shipped for sale to Italian city states, Florence, Venice, Genova etc. The return voyages would bring textiles, luxury clothing for Balkan nobles, , jewelry, glass, and other manufactures. This is most comprehensively analysed by Stuard (art. on silver)However , the earlier Balkan trade in raw materials continued, though minerals proved much more profitable., provided a big boost to Ragusa economy., including the local development of silver and gold smithing.

A less pleasing side of Ragusa history was the slave trade- though at this time the same was true in all other big trading cities . While Ragusa itself apparently did not rely on slave labour 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 was a significant conduit for slave trade of Slavs from Balkans and further east , sold on in Italy, and western Europe. The trade continued even after 1416, but in a much diminished volume, 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 (72, p.484, Table XIII) listing the major monumental buildings in the city from the 9th century to 1877. Table 1 shows these numbers for each of economic periods, the share of Carter’s total , and a crude index of building intensity , number of buildings per 100 years; this may underestimate the number in later periods since it shows only buildings within the city walls, and territorial expansion over time (see below) surely increasingly meant such building projects outside

¹⁹ Often the location names define the mineral: *e.g.* Srebrenica for silver, Olovo for lead

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

TABLE 1; PRINCIPAL BUILDINGS IN DUBROVNIK BY PERIOD 9th.c to 19th.century

ECONOMIC PERIOD	NUMBER OF BUILDINGS	%SHARE OF TOTAL	BULDINGS PER CENTURY
Foundational Period To 1100	5	10	1.25
Silver Period 1100-1350	13	25	5.2
Goden Years 1350-1575	20	39	8.9
Cape Hope ,Gradual Decline:1575-1750	8	16	4.6
Revival Interlude 175-1806	0	0	0
Post-Independence 1806-1900	5	10	2.5
TOTAL	51	100	n.a.

Taking this at face value-as we necessarily do for all the statistics in the paper- these numbers confirm that the golden years were the most prosperous with the largest number of buildings, the highest share by periods and the highest per century intensity. Also the foundational period shows a start but still very modest. What is perhaps most revealing in this quantitative picture is how large a share of the city infrastructure was 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. Of 50 key monumental structures, 17(34%!) were already built before 1350—of which up to 4 in the foundational period -- the golden years another 20 (40%) were built.. The decline period still saw an additional 8 buildings (some reconstructed after the 1667 earth quake), none in the brief revival , but again 5 more in the Austrian , post independence period.

Another quantitative indicator of this period's dynamism was the big jump in territory of the Republic as seen in Fig.1., with addition of Peljesac and northern coastlands in 1350- though the maximal extent came in 1425 with addition of fertile Konavle. Population numbers are very uncertain as Vekaric (98) warns-hence Fig.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 Peljesac certainly did increase population, though the numbers are very soft.

This period also saw awareness of Ragusan elites and the authorities that greater benefit would come from Balkan-Italian not only with land caravans, but also transporting the goods in both directions by Ragusan ships. Thus one sees a big jump in the commercial fleet size, (Appendix 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 a dashed-line in Fig. 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.(72. .p470) notes how after the 1292 fire destroys much of the city-since most buildings were still of wood- it was quickly rebuilt, with greater use of stone, bricks, roof tiles-partly enhanced by a 1310 decree regulating 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 future in tourism many centuries later Kuzic(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 .

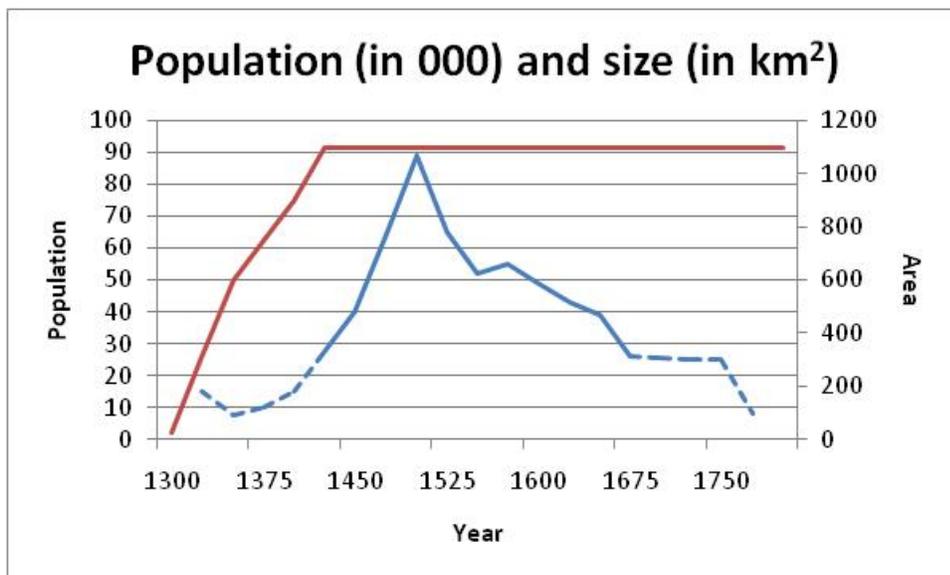
The “Golden Years” of maritime prosperity (1350-1575)²¹

²¹ .

This period is almost universally recognized by scholars as the apogee of Ragusean economic prosperity. The Republic's population reaches its maximum in 1500 of about 90,000 (Fig.1), as does per capita GDP (Fig.2)—though we raise some doubts about this later. The fleet size grows sharply (Fig. 3 and Appendix Tab.3), from the 40 noted in 1325 to 200 by 1575, and tonnage even more substantially (Fig. 4), with average ship size seeing a sharp increase.²² While most authors refer approximately to the two centuries 1350-1550, though some as Zlatar (07) count the golden years also from early 1400's though first quarter of 1600's., 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 Vekaric(98) argues much of the expansion to 1500 was due to Balkan-Slavic refugees fleeing advance of 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 (Fig.2). A more intriguing hypothesis stated in Vekaric (98) 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 Sec.IV. 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 one for trading activities. More trade and shipping meant more demand for sailors, shipbuilders, chandlers, silversmiths, stone-masons, carpenters etc. At a minimum, there is merit to resolving the puzzle of economic boom continuing to 1575 or so, and population declining from 1500: how much of this is due to the various factors noted? .

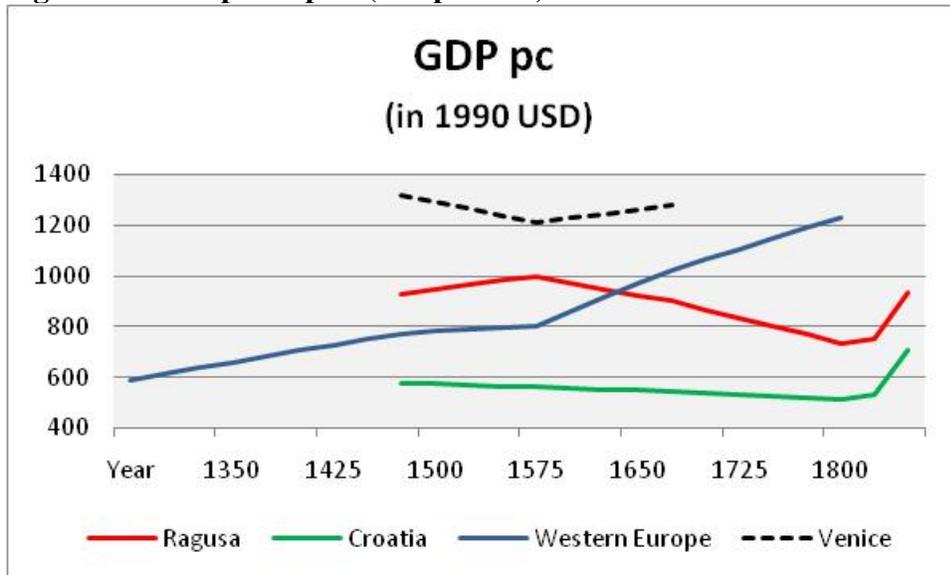
Figure 1: Population and size



²² Luetic (61), S. Vekaric (???) , and Nicetic(02) all emphasize the constant expansion of capacity over this period.

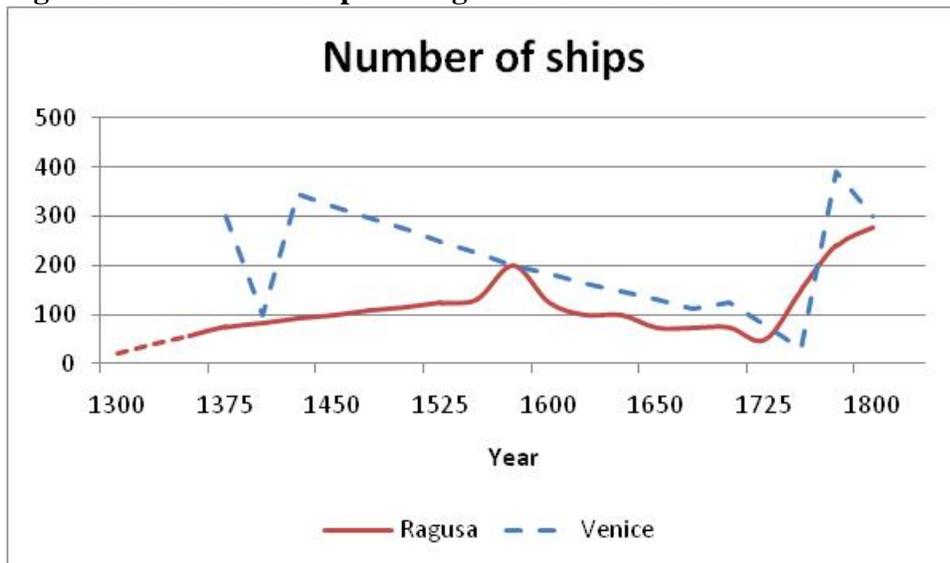
Source: see Data Appendix

Figure 2.: GDP per capita (comparison)



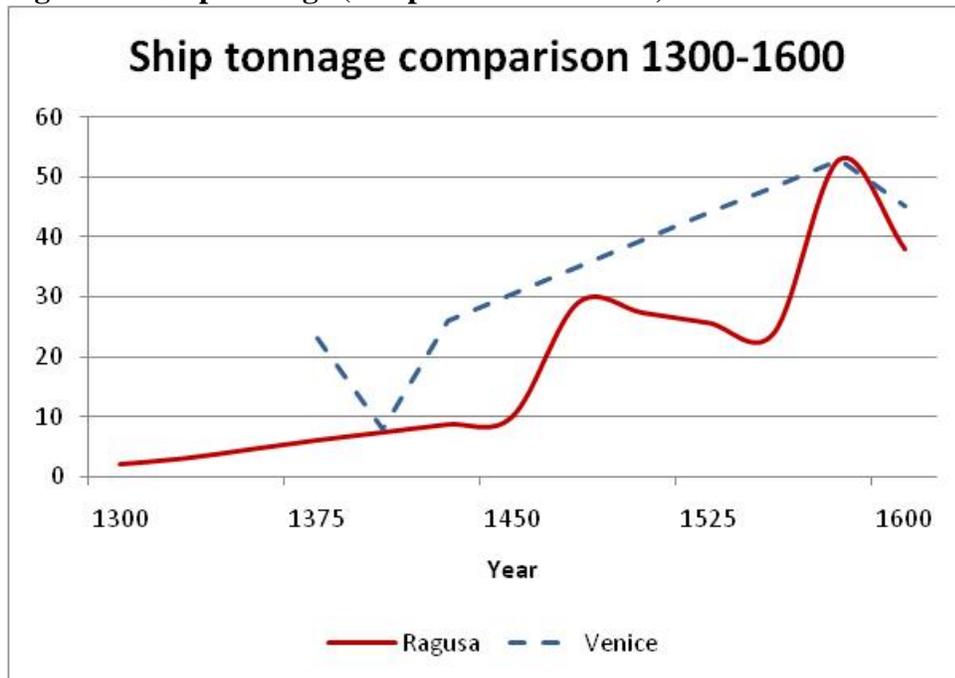
Source: see Data Appendix

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 Levant 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 slavification 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 entrepot trade services including shipping profits and value of the 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(72.p.425) notes that as Venetian dominance declines in 18th c. “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 late 18th c.- but the qualitative analyses make clear it was so. Apart from very small amounts of grains (at best 1/3rd of needs) some wine, olive

oil and market garden products, salt exports, there were but a few manufacturing activities. The only important ones were ship-building gold and silversmithing with jewelry exports to Balkans increasingly coming from domestic production not just imports from Italy. Shipbuilding had always been largely local (recall 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 Sec. III(ii).c, 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-statesWe also explore in Section III.(v) the role played by diplomacy which was aimed at ensuring Ragusa’s “neutrality “ and allowed it to be a major entrepot for 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 traties and firmans- , and at the same time Papal dispensation to trade with “ the infidels” – a key document being the Papal Bull of 1434..

This was the period in which Ragusa became as an American prominent historian of Venice Lane (72.p.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.”²³ 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 with a population more nearly 20 times larger.²⁴ The values in Figures 3, 4a, 4b, do support this contention on the face of it, and also incidentally show that the English fleet was only slightly larger and only that of the Netherlands was much larger. However, the prideful 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 c, falling sharply with 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 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

²³ 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” 9as cited in Stuard (96)

²⁴ Lane,(73.p.424) , gives approximate values for Venice in 16th.century of 150,000 in the city and 1,500,000 in the Mainland. Even at the historical peak in 1500 Ragusa had 90,000-Fig.1 -1/18th.

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..

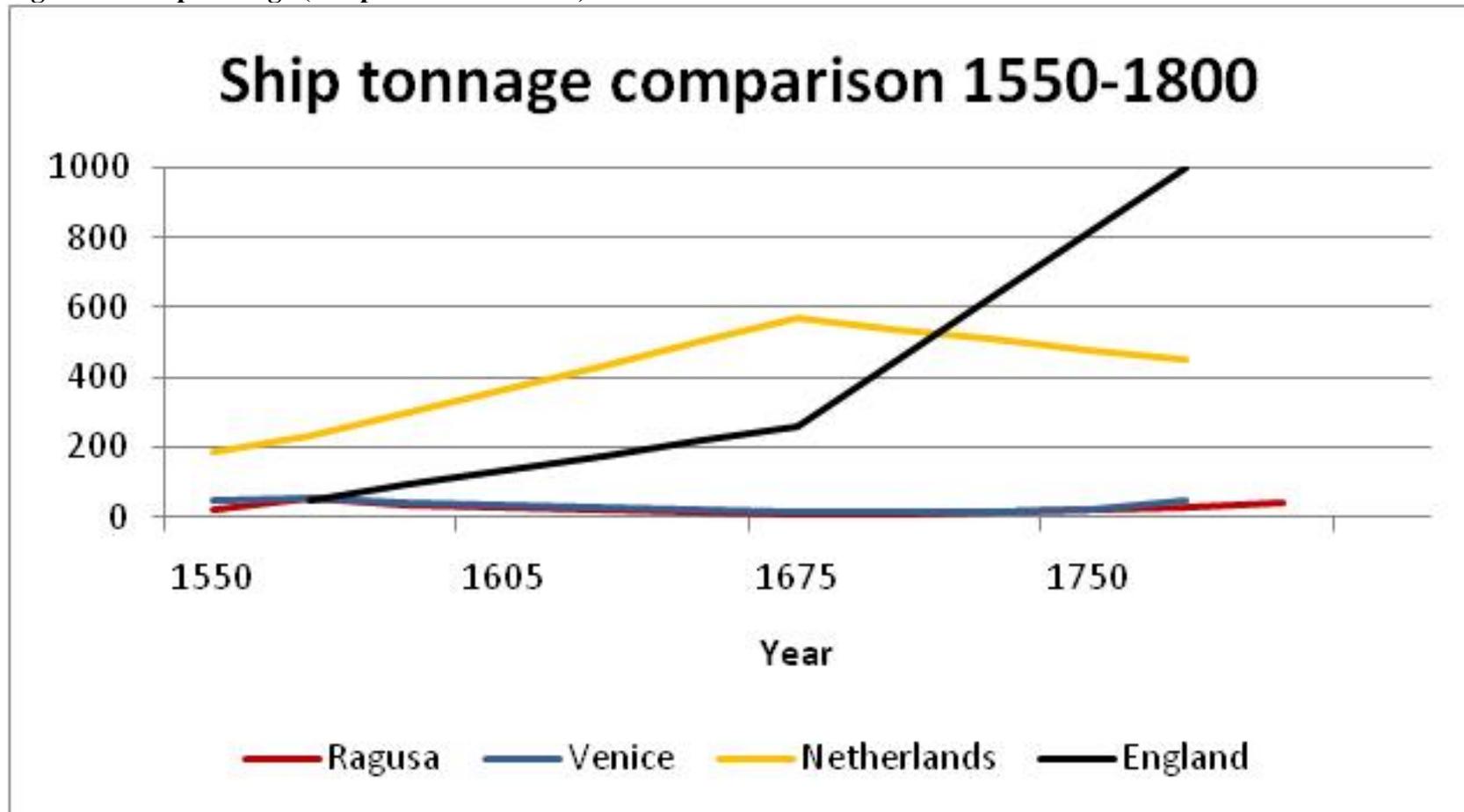
Our data set thus permits a preliminary test of the “equality ‘ hypothesis and suggests::

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

d.Vasco da Gama,rounds 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 c, 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 (Fig.1), GDPpc(Fig.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(72.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 establishes a colony in India in 1503, and the first spices being brought to Europe by Portuguese ships in 1506, it is clear in Figures 3 and 4a. that Ragusan shipping capacity continues to expand for 70 some years beyond this time.

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 Fig. 4b,; while in 1575 England's fleet tonnage was about the same as in Venice and Ragusa and that of the Netherlands a "mere" 3-4 times larger, after 1600 both of these move 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 slavic lands and its playing-both-sides of 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 surpasses that of Italian markets, and the value of Balkan trade has little meaning there.. Ragusan authorities and merchants undertook 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, eastern trade via the Levant by sea then overland, becomes 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 Dalmatian 's famous quest of "truhom za kruhom" (loosely translated as crawling on your stomach for bread.) . In addition some attempts was made to engage in 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 Fig. 5 showing values for tonnage, population and GDP, and Tab.2 the correlation matrix for these variables. . Taking tonnage as an approximate indicator of economic value-added, one sees indeed a slight decline from 1475 (29tons) to 1550 (24 tons), but a strong rebound to its peak value in 1575 (53 tons)., after which it declines quickly. Note the same trend is seen for Venice, which also suffered from these two new competitive factors during the 16th century Carter (72.-p352-3) 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 Marinkovic for Ragusa : " 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 Malaca 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. establishing a trading colony in Goa as mentioned,

²⁵ Several articles in Filipovic and Partridge (77) discuss this, including :Lucic, Luetic,Partridge, and Zivojinovic

diplomatic efforts with the Ottomans to maintain the sole rights of 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-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 :

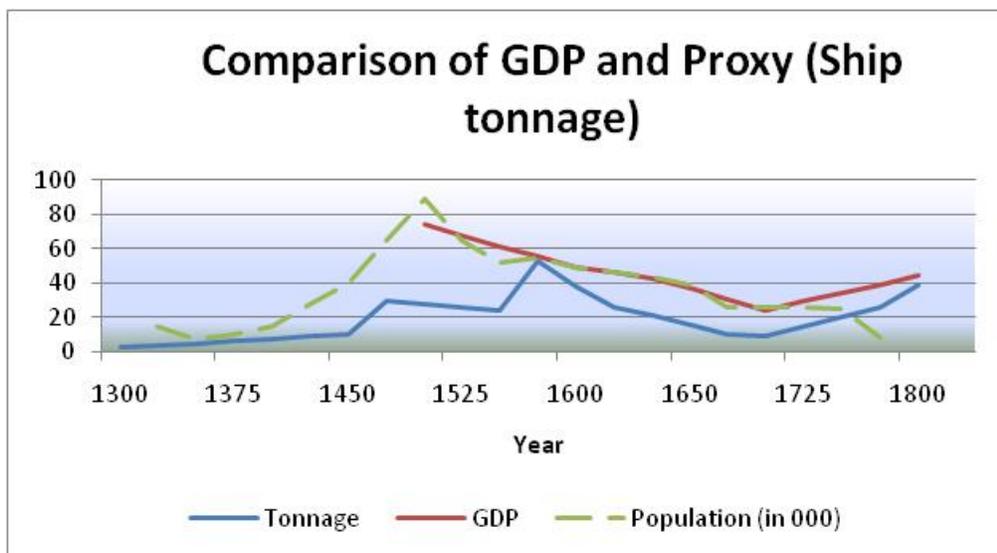
The rounding of Cape of Good Hope did not immediately lead to Ragusa's decline, though with a long-lag it was an important factor

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. It goes without saying that our present secondary-data set is far too weak for a satisfactory test, and primary data re-testing would be needed.

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 Fig. 3 and Appendix Tab.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 Stipetic (04).

Figure 5.: Comparison of GDP and a GDP proxy (ship tonnage)



Source: see Data Appendix

Figure 5 and Tab.2 show that the correlation between aggregate GDP, shipping tonnage, and population is quite strong. Nevertheless this also clearly points to puzzles as to why population continues to fall, and raises some questions about what was happening to per capita income, and aggregate GDP, in these periods of decline then revival, 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 Stipetic,(04) 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,.

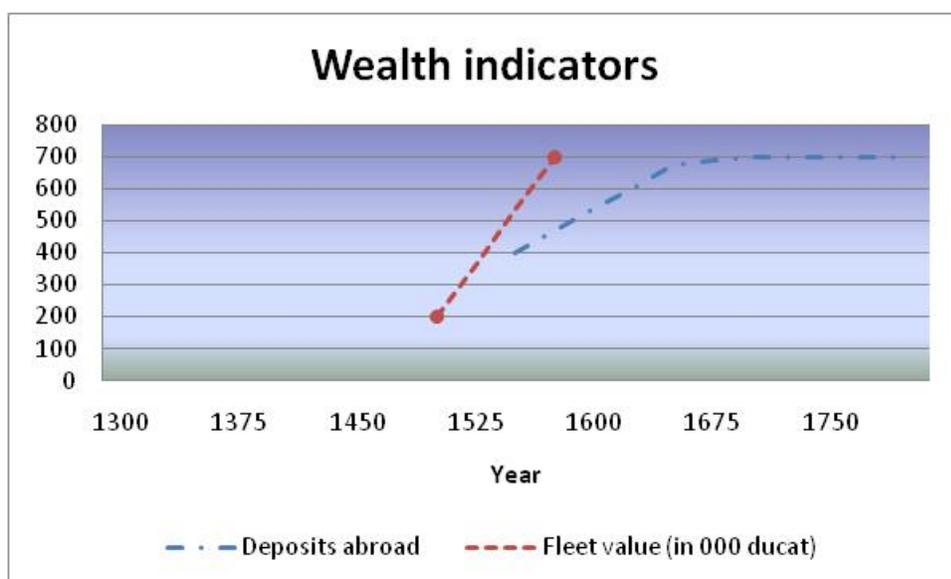
Stipetic does show a modest rise between 1500 and 1575 - from \$900 to \$930 (1990 base.).The possible continuation of growth in level of per capita income after 1500 seems also to be suggested by the trends in Figures 6 on wealth indicators and Figure 6 showing a wage index.²⁶ After 1700 he gives values for all of Dalmatia including Ragusa, and our Fig.2 simply maintains his proportions between the two from 1700—

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

which may be incorrect There are certainly a number of cliometric puzzles to solve here. We suggest tentatively a hypothesis for future research

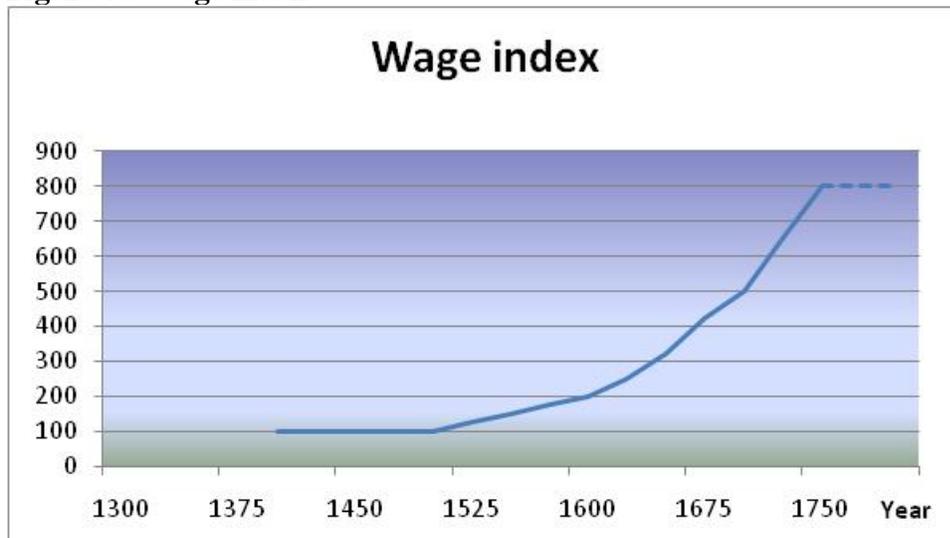
Hypothesis : Conceptually, a cliometric analysis of the decline might be just as interesting as analysis of prosperity. A part of this would be inquire what happened to the population , why did it decline (the plague explains earlier periods, but may not be enough to explain the 18th century); is the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

Figure 6.: Wealth indicators



Source: see Data Appendix

Figure 7.: Wage index



Source: see Data Appendix

f. The post-independence period (1806-present)

After French occupation, Ragusa –by now known widely as Dubrovnik- becomes simply a very small seaside city in Illyrian province, the long-term decline trend resumes. . Shipping advantages are lost even regionally to cities on the northern coast, (Rijeka , Split , Trieste) which have now in the steam-age better connections to the Balkan hinterlands, and much closer connections to the important land centres 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 undermines any location advantages for hinterland trade.

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

III.EXPLAINING RAGUSA'S PROSPERITY AND DECLINE

III.(i) 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 in the wealth of its elite and the extent of its trading activities much larger Italian city-states like Venice, Florence , Bari, Ancona While on this there is little dispute , what makes the literature interesting is differences about what explains this: **how could such a tiny entity do so well?** The book of Carter (72-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 different reasons given in the literature, which we have grouped into the following main themes :

- Location, location, 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 labour force; the ruling nobility avoids oppression and provides 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 (hospitals, pharmacies, schools).
- Minimal military expenditures with maximum diplomacy aimed at maintaining Ragusan “LIBERTAS” and keeping open trading channels

We will discuss the first two points briefly here, and the others in subsections III.(ii), (iii) , (iv), and (v) respectively

Some 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 Thus , Carter (72,p.135) discusses but disagrees with such views. Miovic

(2010) reviewing the 1440 book on Ragusa by Filip de Diversis notes his extensive discussion “De bono situ Ragusii” –the good location of Ragusa , - its favourable geographical location, with respect to both sea and land, natural advantages, and ample water resources. Most historians emphasize much more the other factors noted above. This seems reasonable, as Ragusa was not the only possible intermediary on the Adriatic Coast, and probably had far poorer “natural’ advantages in terms of productive lands, 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 larger quiet harbors . All were trade intermediators, but never attained the prosperity of Ragusa. One must look for other explanations deeper explanations: how did Ragusa leverage its good location to such great success?

Stavrianos (66) underlines the anti-westernism of Balkan culture in the mediaeval period, noting “the one exception...Ragusa...[where] we find an entirely different civilization-secular, sophisticated, individualistic , and maintaining close ties with the West.”²⁷ While a fair characterization, this falls short of an explanation of the greater openness and diversity of Ragusan society compared to the Balkan hinterland , at the very least because some of the other coastal cities to the north (Split, Zadar) were equally western-oriented and relatively urbane., yet less prosperous.

III.(ii)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 Krekic (80), V,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 .”*

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

(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

²⁷ De Diversis is far more colourful describing Ragusa’s openness and sophistication : “Raguseans, 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 beloved ones, enslaved by the Turks .”

Epidaurus.²⁸ The “voice” of commoners was therefore not manifested in voting rights or participation in government—though rich merchants and skilled professionals over time gained an increasing role.. Rather it was compared to most other states/nations in this period, manifested in the fact - widely agreed by historians contemporaneous and modern- , that the nobility ruled with a relatively soft hand and even provided considerable support to meet the needs of the populace. . Thus Grubisa (11) argues Ragusa was perhaps less open than the Florentine system of “democratic republicanism:” (but 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 political form might be characterized as a benevolent oligarchy.

Most importantly, the governing class 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 can be noted, numerous instance of well-applied justice in the law in practice are found in the historical literature.²⁹ 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 III.(iv) below. Slsak (10) 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 one by Lastovo nobles being a major exception),

For some historians , the extensive investments using Ragusan state finances to build churches and monasteries, was also a sign of good governance, and certainly in an age where this mattered much more, it could well have contributed to social stability. Marinkovic (07) details many such projects and emphasizes a point relevant to this paper: the hagiography , or naming of these churches followed “a strategy of spreading the cults of the city patron saints from the implicit demarcation (defence) towards a more symbolic sign of governing (control) reflects 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. Vekaric (11) and earlier others –Krekić (several works) Kedar (76), Carter(72)- 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. One indicator of informal upward mobility is the increase over time in the share of credit issued by commoners. Thus ,Krekić(80,p???)estimates for the years 1280-1440 this was about one third, while

²⁸ Many writers note that in very early years before 1200 or so, in fact “Agora democracy” did exist with assemblies of all citizens (The *Laudo Populii*)-making key decisions. E.g. Carter 972-p.500)

²⁹ We note on example using a quantitative review of 2,440 court cases, Lonza(02). She concludes large numbers of cases were settled out of court, a practice authorities encouraged.

Zlatar (07-p.139) gives a value of 42%. An imperfect but striking statistic suggesting continued upward mobility is in Luetic(61-p.101), stating that by the mid-18th.century, of 380 registered shipowners , only 80 were of noble class..³⁰

(b) *Rule of Law*

Many writers emphasize the rules-based governance of Ragusa and its relevance for the prosperous economic development; a good recent summary is to be found in Stipetic ((00)-who also gives a vivid history of Ragusan writings on economic theory. The central thesis is captured in a quotation he give from the 1440 work of Diversis (*op.cit.*) m Book 3, Ch.5):

“among the permanent institutions ... the first one is the one responsible to preserve the 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 less codified and preserved earlier ones.,³¹ but as important 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 ROI was not simply paper laws, but it 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 favour of claims by many creditors from Venice, and the well-known Peruzzi bankers of Florence,³² conveying Pabora family assets to these foreign claimants.. (Krekic97, XI,p.13 ff.).The Ragusan noble and merchant Bunic-whom we met above as Bona- a “tax-farmer “ in the Balkans on behalf of the Porte, became in 1471 a fugitive from the Sultan after an alleged embezzlement of 55,000 ducats to his own account.³³ The Ragusan courts seized his local assets to cover the claim, and years of litigation followed, with Bunic , the Porte ,and the courts coming to an eventual settlement. (Bojovic (98 p.114.-117). Bojovic goes on to cite many other court claims, noting that “cases of a similar sort were repeated numerous times”.

³⁰ 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.

³¹ A tourist to Dubrovnik today, if 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 the rights of sailors and obligations of the captain, prominently displayed inside.

³² As we note in Section IV, bankruptcy of the Peruzzis and the Bardis in 14th century was one of the episodes of shock. Of general interest, a Wikipedia item on this notes that the Peruzzis went on to do business elsewhere, with one descendant now operating a GMC dealership in Trenton New Jersey. ! A Google check confirms there is such a business, but we have as yet to confirm the lineage.

³³ 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; ; Luetic (69) notes well paid sailors in 16th. c received 2-4 ducats per day,, working half a year typically, this gave them 200-300 ducats per year,while shipmasters would have about about three times this amount , ie.600-900 per year.

(c) Ease of Doing Business and openness to trade

It is generally agreed that Ragusa government provided a good “business climate” with limited state interference, which spawned a flexible and adaptive merchant class quickly able to react to demand shocks, seek new markets, adapt trade routes, change products.; the earlier citation from Kotruljevic on institutions is quite representative. It is a potential future research project to review the archival records on registration, taxation, tariffs, and “translate” them into currently popular measures of the ease of doing business. But the secondary literature already provides a large number of specific institutional “facts”, of which we note a few.

Well functioning notary and registration procedures and records for business contracts are referenced by many writers, and according to Stipetic(00-p. 18), existed from as early as 1200, with formalization in the 1272 Statut, and further details established in 1277 for economic rules in the Customs Book. A very extensive listing (61 pages!!) of the kinds archival records available is given by Carter (72 Appendix 3, based on the work of Gelcic 1910). It shows the names of documents under 40 categories such as Council Proceedings, Miscellaneous Notary Documents, Manufactures, Customs, Administration Receipts, Expenditures, Acquisitions, and so on. More recently the economic contents were reviewed by Tadic (1961), with a clear message of the vast possibilities for doing research on economic questions about Ragusa using primary source information and data.³⁴

Many other early institutional elements that today would be labeled “a favorable business and rule-of-law climate”, can be pointed out. Thus Luetic(61-p.107), and Carter (72 –p.157) note the beginnings of the first maritime insurance policies were organized as early as the 14th c, while Doria (87) discusses how this had become elaborated by the 16th.century. A revealing description of bankruptcy procedures in 14th-15th c. by Palic (08) further attests to the favorable business climate. He emphasize that - unlike the “debtor’s prison” practices elsewhere - “the ultimate aim of bankruptcy...was not just settling [with] lender but also... helping the debtor overcome inability of paying... [thus creating] an atmosphere for further co-operation and doing business together.”

The early and pioneering development of modern accounting by Kotruljevic (1440) is claimed by Stipetic (00-p32) (as well as Krekic and several others) –with solid evidence – to have been the first formalized proposal that all good merchants/traders should maintain balance books, use double-entry bookkeeping use of banking

³⁴ Nenad Vekaric, Director of the History Institute at the Dubrovnik Archives, 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.

instruments internationally such as bills of exchange, letters of credit. .Kotruljevic also expounded economic philosophy views that were very radical for the times , such as interest being the price of capital,; credit being a good thing critical to fuel commerce and only usurious if excessive (5-6% was his proposed limit) ; His 1458 treatise “Il Libro dell’Arte di Mercantura” argued all these were requirements to achieve prosperous trading, 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. Kotruljevic presaged by six centuries today’s received wisdom about rule of law and a good business climate. He would well deserve honorary mention by the World Bank’s Governance and Doing Business Reports.³⁵

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 , which still stand today as a commercial-entertainment centre.)Three recent studies by public health specialists explore this world-first:: Frati (00)., Lang and Borovecki (01), and Cliff, Smallman-Raynor and Stevens (10) 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

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 III.(v)). But there was as in other city-states regulation of professions and crafts with guilds as in the rest of Europe (though it is not clear how restrictive they were) . Also common were brotherhoods or fraternities (“bratovsta” in Croatian) which also acted as early forms of commercial , shareholding companies and investment pools.³⁶ Further , the stte 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.c . 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 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 bout 1550. Stuard (92-p.163) explains the government reasoning as a reaction to the external shock in mid 15th century, when scarcity in supply of rough textiles from Florence threatened an important trade-line with the Balkans But she too agrees this

³⁵ Stipetic(00) not only makes these claims, but refers to non-Croatian scholars over the last decade or so who have found clear evidence for his being first, such as e.g. that the 1496 work of Lucca Paccioli which is more broadly thought to be the first to introduce double-entry bookkeeping, , “borrows “ heavily from Kotruljevic’s manuscripts 40 years earlier.

³⁶ Vardic(07) describes in detail the history and functioning of one of the biggest , St. Antunin.; as in much of mediaval and Ragusan life,, a nominally religious connotation was comon for commercial activities.

was not in the end very successful. Carter (72-p. 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 16th.c...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 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. Basic (06-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 are those of Ragusa; Pantera (Rome, 1614) considers the best shipbuilders those of Ragusa, Portugal and England; Sagri (Venice 1574) contends Ragusan ships are the strongest in the world, and of the best wooden materials. Harris (98) also argues that support for shipbuilding in the form of provision of a location (the Arsenal, first at the old central harbour, then in Gruz as of the 16th century) was indeed successful, as evidenced by the strong international reputation for shipbuilding mastery noted above. Harris's reasoning goes beyond that found in other works, concluding -in our view very sensibly- shipbuilding support was successful because it made economic sense, while nurturing a textile industry to compete with the long-standing masters 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 suggest a hypothesis for future research:

.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 Janekovic-Roemer (03), who shows that increasingly during the Golden Years of 15th and 16th century, rules for personal behaviour, and public decorum became more prevalent and restrictive, concerning attire, household maintenance, personal and family behaviour, religious observance etc. She does not however claim that intervention in commercial activities increased, from which one might conclude that in the Tiger anachronism, Ragusa was more like Singapore than Hong Kong. In a similar spirit, the argument of Perlender (05) that the "paternalistic" conservatism of nobility

explains the inability to change and react to new competition in the 17th-16th centuries, 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 mid 15th.century when the population was probably 50,000 or more. However this does not include Ragusans on consular service. Available data in Cartr (72)and Krekic (80), indicates 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 consulate³⁷ the numbers of civil servants may be double Sisak's estimate –but that would still be small, well below 1% of the population.

III(iii) Prudent fiscal and monetary policies

As for the previous explanations discussed , consensus in the literature is strong that Ragusa practiced a very prudent policy with respect to state finances, minting and debasement of currency, and market-encouraging regulations. However , solid statistical evidence of any sort is even more sparse 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 it does seem to confirm the prudence hypothesis, both in the fact that it showed a surplus equal to about 10% of revenues, and in its components. The data is taken from Bjelovucic (70.p44-45), which itself is based on a contemporaneous treatise “ 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% (*sic!*) the total. ³⁸

³⁷ That there were unsurprisingly more in the important trading partners is shown explicitly by Carter (72-p.145, Fig.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).

³⁸ There is reason to accept the total, but question one item as hugely overstated: 66,000 Turkish piastres for missions to 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.

TABLE 3. STRUCTURE OF RAGUSA BUDGET ABOUT 1800

Revenue category	Percent of Total		Expenditure Category	Percent Of Total
Dividends on Deposits	25.3	-----	Consular/Represntation Expenses	10.9
Taxes on Shipping Activity	30.2	-----	Tributes,+ "good relations" Expenses	31.9
Levant Consulates Profitsand Property Rents	6.2	-----	Administration, Police, Civic officials	36.6
Consumer Taxes	12.2	-----	Public education	6.8
Producer Taxes (agricultural)	4.4	-----	Interest on Loans	1.7
Customs Revenues	9.3	-----	Army+ Fortifications Maintenance	12.2
Salt Monopoly	12.3	-----	-----	-----
		-----	-----	-----
TOTAL REVENUES	100.0	-----	TOTAL EXPENDITURES	100.0

We adjust this as explained below and calculate percentages by categories, which consider as reasonable approximations of the budget structure, and provide a basis for tentative test of some of the key hypotheses about fiscal policy. Contemporaneous writers like Diversis and Kotruljevic(already noted), first noted the sensible financial stance of the Republic; recently .Recently, Stipetic (00-p26ff) noted how “precise books are kept on the finances [of the state] “.and added that prudence was ensured by “requiring the main officials in charge –registrars, clerks and accountants ...must be foreigners,; [In addition]there was the institution of auditor with power of supervision of communal goods, a duty to investigate whether revenues are collected fully and expenditures are viable, not spent for unintended purposes.” They served five years when new ones were elected.. Table 3, despite the transcription error in the source , is very precise. and confirms that even in its last days when its glory was long past , Ragusa had a surplus budget.. Stipetic recognizes that the system was not perfect, indeed that building barns with doors implies horses do run out, that is corruption did occur. ; Krekic (97-p.32-5) 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 (09) reminds us that the current recession is NOT that different , pointing to the fact that high debts and defaults was very common in European economies over past centuries.. In contrast,the historical literature on Ragusa does not give any instances of government debt defaults, and

.Table 3 seems to support this view. In Dubrovnik about 1800, interest on loans 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 Brotherhoods. In comparison recall Lane's estimate that at this time Venice paid out a third –and even more in earlier years- to service its debt. Kormer (95) analyzing about 25 kingdoms, principalities and city-states (he does not include Ragusa) from 1500 to 1800, 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 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, though fragmentary, which also confirms Ragusan 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 arose. Krekic in his many writings, as well as others (Sisak(10) 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 the notion Reinhartt and Rogoff (09) define as “forced loans.”, and Cipolla (86) describes for Italian city-states of the time as “imprestiti.” This does suggest, if not defaults at least instances of fiscal stress.

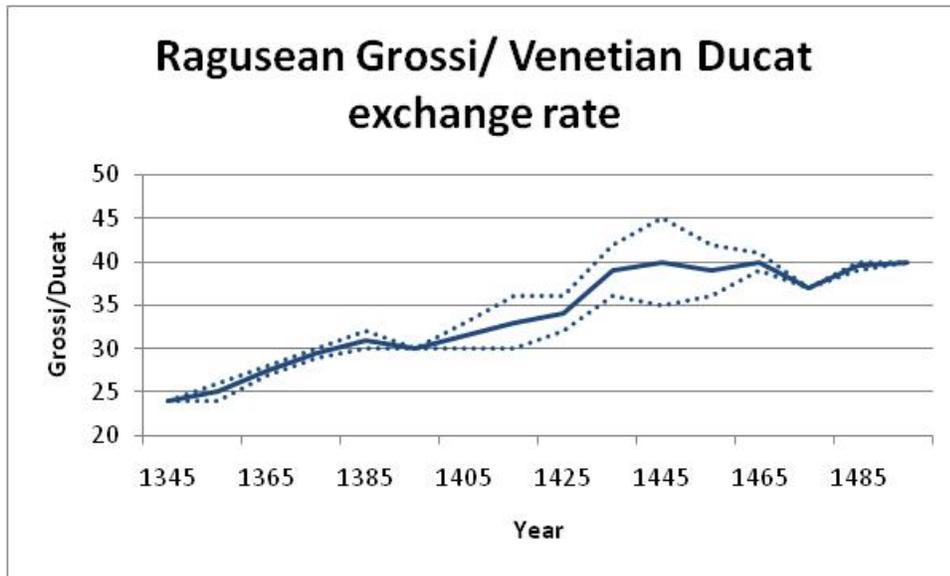
The role of trading activities in providing state revenues is also evident, though customs revenues at 9.3% were far less important than various taxes on shipping –on shipbuilding, on sales of ships, on navigation-totalling 30.2%. The prudence is further seen in the not inconsiderable revenues of 6.2% from “selling ‘ consular services abroad to others: since there were consuls expert in many palces 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 presages confirmation of the common thesis that military expenditures were minimal (12.2%), while diplomatic costs were considerable – the first two categories, which add 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 to strongly confirm that Ragusan finances were generally strong, prudent, able to absorb shocks. Table 3 gives numerical credence to the observation of Carter (72.p.535) about the enduring nature of this financial prudence -that even at the end, in 1806 after French occupation, “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 we have been unable to find sufficient secondary data to confirm these views. Several writers note the “limited” devaluation of the Ragusan Grosso (Fig. 8a) and its minimal metallic debasement (Figure8b,), and infer from this low inflation and sensible monetary policy. Krekic(80-p.252-3) emphasizes the relative stability of the Ragusan grossi, with an annual devaluation of 0.31 % over 220 years from 14th to 16th.century. The grosso was more stable than most others, for example the Florentine lira. Carter (72-p. 566) shows the dinar’s silver content falling from 916.67 grams in 1337, to about one third that in 1600, while Cipolla (86-p. 59) shows a debasement from 1300 to one quarter of the silver content in 1600 . But Venice was even better-as Bachrach (73-p77) 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 “.

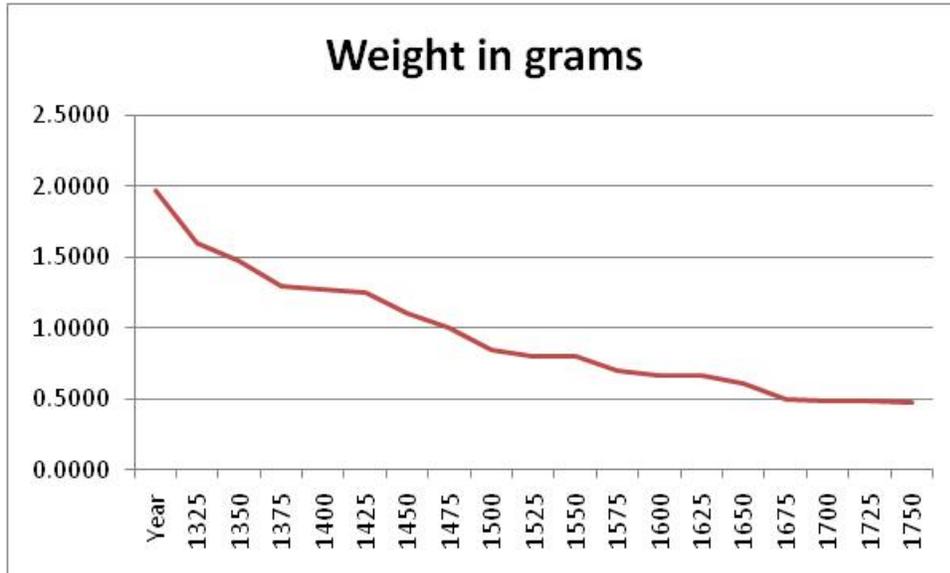
Figure 8.: Ragusean Grossi to Venetian Ducat Exchange Rate



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 Ragusean Grossi (1337-1761)



Source: Carter, p.566

Most historians agree with Krekic(80) that inflation was not high; Stuard (81-p.810) writes of “mild inflation ‘ in this period. Carter (72) also mentions this many times, suggesting (p.577). that until about the 17th .c inflation was low, but in the next century or so, it was much higher . Specifically he states that in latter part of 17th.c wages rose 60-80%, even more in early years of 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 is now collected in the Allen-Unger Global Commodity Prices database at Oxford and UBC . (www.history.ubc.ca/faculty/unger/ECPdb/about.html), however 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 there from inflation is questionable unless one also has a control variable for supply , well-known to be volatile due to weather or wars. Tadic (61) in his review of what 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 Figs 8a

and 8b are not enough to confirm the –probably correct- view of monetary and currency prudence, since the trends are the result of several factors, including: relative price of silver to gold; differential inflation, and policy devaluation attempts for competitiveness. This is an excellent example of the difficulty economic historians have, to deduce from very partial data the underlying cause-effect relations. Testing the hypothesis of low inflation requires further research and more archival data. Following the suggestions of Tadic (61), 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 analysed 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. 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 brotherhood organizations, the State Granary, and others. Loans to them may have been interest-free and perhaps often not repaid. By the 17th c. 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.

Stipetic(00-p.26) states that the Ragusan Mint, to which traders taking Balkan silver to Europe had to sell 6%, was “an exceptionally profitable activity”, suggesting a large importance of seigniorage in state revenues. However, Lane and Mueller(85-p.187) calculating seigniorage for Venice conclude “taxes on turnover seem to be about twice as important as seigniorage”. Table 3 does show various turnover taxes provided a very large portion of revenues, but unfortunately it does not include seigniorage profits (and thus perhaps understates the surplus?). Stipetic may still be correct about 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 (94) 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 give some realism to the fiscal probity picture and

paradoxically give more credence to the balance of positive assessments of the literature.

Banking activity in Ragusa in the 14th and 15th. centuries , unlike 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 (“bratovstva “.), 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 (72.-p.172 asserts that Slav Princes used Ragusa as their banking centre; Kurtovic (10) 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 unclear how much of M2 or other instruments there may have been.

Earlier we noted the availability of some estimates of credits 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, brotherhoods, 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 one or more karats of the share , 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 officially state pawn shop did exist to provide some degree of lending to those with lower income . (Bjelovucic,70,p.67.).

To sum up,, a very broad consensus suggests that Ragusa practiced very sensible prudent finances, conservative minting activity, and apparently avoided excess credit expansion leading to eventual crisis. That this happened elsewhere is well-documented not only recently in Reinhart and Rogoff (09), but in may earlier writings . Lane(66.Chs.4,5,6) gives considerable detail for Venice. Defaults and financial crises are also very . nicely described by Cipolla (86) for Florence in 15th.century, using entirely modern monetary concepts: there was a credit boom, tight monetary policy to contain this, an excessive credit squeeze , an economic bust. As a result of its prudence Ragusa 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 quantitative is very fragmentary, and incomplete. This leaves a very nice field of cliometric research open .for economists and historians, with all indications showing that Dubrovnik Archive contains a still little-explored wealth of harder economic data.

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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.

III.(iv) 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 monopoly role of the nobility in government, and of the existence of a large population at very low levels of income, particularly . in the countryside. However , the nobility showed sufficient concern for the well-being of those who must necessarily be the work force on ships , shipyards and trade-related activities—it may have been a self-serving wisdom and not altruism, but it did the trick to achieve social stability . Furthermore , economic mobility was certainly possible for the most enterprising , many of the rich coming from amongst the “puk” (commoners), as evidenced above. Furthermore, such a positive assessment is historically contextual and not benchmarked by more modern concepts of democracy, economic mobility, social fairness Sisak(10-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.³⁹ Carter(72-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) “[appointed governors of the territories] 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 (00) 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 grains were always in critical shortage, and as Carter (72.p.???) notes the territory could at best provide one-third of needs, it is questionable that peasants who could not produce much surplus would be overly harshly treated, and the view of Diversis makes more economic sense , But it is unlikely one could resolve this even with harder archival data.

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 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 (p.484-5) used for our Table 1 also notes a synagogue built in15th.c, though if it was state-financed like the Catholic churches is not stated. No reference is found to mosques, which one might have expected given the great efforts to be on good terms with the Ottomans, and the presence of many of their representatives, legations, there may have been some,, but we did not find this in the literature so far.

Other infrastructure for the populace included street paving, as early as the 14th century, provision of water with wells , aqueducts, public fountains –including the famous Onofrio Fountain built in 1437 and still used today .⁴⁰ . Hospitals and hospices,

³⁹ Sisak is also more positive than others on social stability (p196): “ 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 nobility disputes were much less than elsewhere, but dissent did occur many times and had to be defeated, sometime brutally. Vekaric (05) recounts the largest such revolt of the Lastovo island nobles.

⁴⁰ Stuard (92) confirms the many efforts at water supply nearby, by boats , and when this was not enough the 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

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 (Bojovic, Harris, Krekic, Stuard) emphasize this. A recent systematic review, by modern-day specialists on health policies from the National School of Health in Zagreb, Lang and Borovecki (01), 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’ au} various health regulations. Similarly, Frati (00) 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 aethopathogenic 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 patrician;s enlightened attitude toward talent” (Bjelovucic(70.p.62.) . Even as late as the 16th century, Jesuits were given funds “to teach all youth who wish to attend public schools” and “sending bright boys (*sic*) overseas to study at government expense .⁴¹

The last category we will mention concerns the strategic reserves of grain and other staples, storing them in so-called “rupe “ or granaries. built often as part of the city walls .. The largest set of these- which can still be seen 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 in vines which gave far more yield in the rocky, hilly terrains of the Republic than grains. Some of these were for the mediaeval period arguably justifiable, as transport time and costs precluded quick filling of gaps in basic food requirements.

III.(v)Minimal Military Expenditures, Maximum Diplomacy

Berkovic (09) 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 (72)

make no attribution, Stuard in this chapter mentions several times the legacy from Byzantium for health care, public infrastructure. Jenekovic-Rohmer (06) also gives Byzantian legacy a lot of credit.

⁴¹ Most historians make reference to this—we cite here only Bjelovucic, partly because she discusses, the late 16th c., 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..

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 we list in Section II(i). The above title reflects the commonly held view that Ragusa, unlike virtually all other nations and states of the period, did not achieve its commercial power by use of force, substituting this with skilful and constant diplomacy. This hypothesis is in principle subject to quantitative testing in future research, but here we give only tentative, and with exception of Table 3 information, qualitative evidence from the literature which 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. The establishment of extensive commercial consulates should also be considered as part of diplomacy.

III(v).a. Minimal Use of Naval and Military Forces ?

The central thesis of Berkovic (09-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 1 galley per 30 Venetian ones, and given the latter’s use of 100 or more in some of its wars as Lane (72) describes, there certainly was a minimum naval force of 2-3 galleys at ready.⁴² In fact Luetic (61) 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” (p77-ff)—describes for the 17th century several types of war ships: large galleys (galija—two levels of oarsmen), small ones (galica—about 30 oarsmen), and other types like frigates, the Neapolitan filuga, bargues and some smaller ones. 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 ten 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 Luetic(61-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 certainly consistent with the perception of 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. Luetic (61) 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

⁴² Similar but less specific demands on Ragusean contributions were made under the Hungarian overlordship period. Under the Ottomans, this was not the case, as both Ragusa diplomacy and Ottoman wisdom realized that the most Ragusa could do is refuse to provide, or provide only peremptorily, naval forces to Christendom’s many wars against the Turks in the 16th-18th century

diplomatic couriers. transporting Ragusan diplomats on legations ,or bringing foreign ones to Ragusa for negotiations. They were also put to use as escorts of commercial convoys protecting against pirate 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 ships but not Ragusan ones, such missions would be suspended.

On the other hand, several writers emphasize that 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(72) 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 Uros 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 to comment on its limited success. ,

We have found only one secondary reference to actual defense costs, by Bjekovic for late 18th. century, as shown in Table 3. . There is little doubt that at this time , unless there were huge of-budget expenditures, Dubrobnik’s expenditures on defense at about 12% of the total budget, is far below that typically noted for other studies of around 20-50% and more in periods of war. There is an excellent benchmark in the literature in the work of Bonney (95) which has collected a large amount of data on European states’ budgets for the 13th -17th c; One of his 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 (73.p.426:) gives us some idea about military expenditures of Venice: in 1736 they were one-third of the total-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 .Though the Archives are very likely to contain considerable information on this and permit in future a more definitive testing of Ragusan military defense expenditures on naval forces, defensive walls, food reserves for siege periods, and ground forces. We sum-up”

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.c., while for earlier periods the evidence is strictly qualitative, but notably 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.

III.(v). b Diplomacy as Defense

On balance, the literature strongly suggests a relatively 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 was surely very difficult to defend with small numbers against the much bigger neighbouring states and potential enemies. This may have been the main argument in favour of more reliance on diplomacy, though the relationship should best be thought of as a circular reinforcement: small size and indefensible territory leads to emphasis on diplomacy and neutrality, increasing success of diplomacy lessens 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. Berkovic (09-p.220) typifies this:

“

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

Berkovic and Carter (whose praise is very succinct: “In diplomatic affairs Dubrovnik was a past-master”), both provide very detailed discussions of the many to and fro in Ragusa’s relations with their always-threatening neighbours.⁴³ Carter devotes

⁴³ Carter (72-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-au.}...on the mainland the

sequentially 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 W.W.I. 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 II.(ii) 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.⁴⁴ 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, Ragusa 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 , but all decisions of government to be made by the Great Council , no significant tribute 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 Ragusans in this period of many conflicting but no overwhelmingly strong powers in this period , stood them in good stead during the Venetian protectorate, 1204-1358.. (See Carter Ch. 3, and Berkovic pp210-215). 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 , with a titular count from Venice but great autonomy retained by Ragusa, the flying of Venetian flag, a token financial and in-kind tribute, (less than a thousand ipperperi, , 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 ones- 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 nor informally.

King of Serbia, the Ban of Bosnia, the Lord of Hum, all watching for an opportunity to occupy Dubrovnik whose splendid harbour they envied.” One might add incidentally that such envy provides strong circumstantial evidence of Ragusa’s success.

⁴⁴ This and subsequent episodes noted in the paragraph are based on carter pp.51-74.

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 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 by 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 , 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.c, including Venice, Hungary, Ottomans, Serbian Kings (Uros), Bosnian Bans (Tvrtko), and the dissident Bogomil leaders,⁴⁵ Lords of Hum (approximately Hercegovina), the Balsas, Lords of Zedda (parts of Montenegro,Kosovo) , To ensure trade with the Levant and newly occupied Balkan lands , Ragusa arranged a trade treaty with the Ottomans already in 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 to the minimum possible.⁴⁶ . Stipetic (04.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 removes 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 nodes’ tribute of 1,000 ducats , accepted by the Sultan; merchants were released trading privileges as per the 1397 treaty were reinstated. (Carter p.200).

As the conflicts between Christendom and 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 and contribute 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

⁴⁵ A dissident Christian animist-like sect, excommunicated by Rome; one of their leaders, Vuk, brother of King Trvtko was given refuge in Ragusa in 1366 . King Trvtko 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.

⁴⁶ After Bosnian occupation 1436 this was raised to 1,000; in 1440 Ragusa gave refuge to Serbian Despot George Brankovic 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.

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.⁴⁷

The importance to Ragusa of being able to trade with both sides by retaining as much as possible neutrality in conflicts , is suggested by the seemingly paradox 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 (72.p.397) shows a graph of customs revenues 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.c of “Le Sette Bandieri” (The Seven Flags):

⁴⁷ 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 (vide: Orson Welles’ *The Third man* .”) - a comfortable and convenient den of spies from all sides

“ 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 West 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.c 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. (Berkovic (09.p.217ff and Zivojinovic (77). 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 (Kabuzic) to “embark our wives and our children and ask of the Sultan an island in the archipelago. “ . Deciding in favour 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 Dalmatian province..

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 not simply a matter of negotiating wisdom and skills, was most certainly not due as in some other states to military might, but was largely underpinned by a strong economic position.

IV. 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, became extremely prosperous as a trading port, an entrepot between the Balkans and Europe—especially Italian city-states. It leveraged this prosperity to become a major commercial maritime power in the Eastern Mediterranean, competing successfully with much larger Venice for the carry-trade not only in the Adriatic, but equally in the eastern Mediterranean, in Ottoman lands. Historical accounts give many reasons for its success with 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 potentially testable with data that is probably 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. Given the usual limitations of economic data for historical periods, even the latter are worth doing and presenting with due qualification.

The first historical hypothesis—HH1—concerns the limited population-carrying capacity of the small Ragusan territory even at its full extent. The work of Vekarić (98) 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 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	<u>CONFIRMED</u> despite econ .growth pop. falls from 1500	-how did pop. fall occur?natural?emigration ? where to ?
HH2: golden years of prosperity 1550-75	<u>CONFIRMED with ????</u> -shipping tonnage, best proxy peaks 1575	-GDP falls earlier, but estimate too broad to use -GDPpc, wages, wealth consistent with shipping proxy
HH3: silver period also very dynamic econ.	<u>MAYBE: (need better data)</u> the only data is very crude=key construction activity	-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	<u>ONLY SHORT TIME</u> Shipping data do show this about 1425 and 1575, but only due to large war losses of Ven.	-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	<u>UNCONFIRMED:</u> <u>-decline begins almost one century after new route to Asia</u>	-a difficult hypothesis to test, makes sense in long-run, but need to understand why Rag. grows rapidly for 50+ yrs after Cape Hope
HH6: Ragusa neutrality allows big gains in times of third-party wars	<u>TENTATIVE YES.</u> -customs revenue data show sharp peaks in war periods	-needs more verification with other indicators of econ. activity (exports, other tax revenues , deflated data , etc)
HH7: Low military expenditures	<u>YES-but only in 1800</u> Tab. 3 : mil.exp=12% budget,far below 20-50% range estimated by Bonney in other states	-concrete data on mil.exp. 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.c. , 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 works of Stuard-HH3- that the preceding, Silver Period was very dynamic, even if the level of wealth remained far short of 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 use of faster route around Cape of Good Hope by Portuguese and Dutch. which allowed them to outcompete Ragusa and Venice for the Far East trade-HH5..Our data suggests a slight modification : there was such a cause-effect, 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 too 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 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 data for these periods.

On balance ,even when our attempts to use available data to better understand history have been incomplete, use of available data 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. . 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 which 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 suggest are in principle available in the Archives.

The proposed ideas may be quite ambitious-perhaps overly ambitious—as the efforts to compile such primary data are substantial ,and availability 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. .

TABLE 5. Testable Hypotheses for Future Research

FUTURE HYPOTHESIS	DATA NEEDED
FH1:ResilienceHypothesis 1;Ragusa with prudent policy stance, able to minimize impact of external shocks⁴⁸	-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 ER(Zecca data)
FH2: resilience Hypothesis 2: Ragusa fiscal and monetary stance always strong, in good times as well.	-budgets: both rev.& exp’ average in good times -net debt, interest costs, reschedulings forced or otherwise -credit issues by Zecca and private -inflation, <i>cf.</i> other economies
FH3:Low share of military expenditures in budget	- as in Table 3 but for earlier periods over longer time -special, or off-budget items in times of conflict (<i>e.g.</i> .Zecca profits use in “emergency”
FH4: Direct estimates of GDP (sum of gov. exp, consumption, net exports) VERY AMBITIOUS –MAY NOT BE DOABLE esp. early centuries	-trade and shipping profits -wages of crews, shipbuilders,civil servants, infrastructure workers,etc. -agriculture incomes(adult rural pop.x ½ sailors wage??)
FH5: solve apparent puzzle of aggregate declines from 1500 (GDP, shipping, population) but possible continuation of prosperity.	-any results from FH4 useable here - time-series income proxies such as: deflated wages , percap. profits, assets held abroad
FH6: Solve puzzle of “revival period” Late 18thc. 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 ?	-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 econ. activity, per cap. Income, wealth etc in Silver Period and Golden Years (NOT a matter of levels of well-being, but dynamism, growth.)	- 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.

⁴⁸ HH6 in Tab.4. is suggestive of this as well, but as noted still very tentative and a very partial test.

In combination with the preceding analysis in the paper, Table 5 is largely self-explanatory, and requires only a last qualifier. The proposed research directions may be quite ambitious—perhaps overly ambitious—as the primary data needed would at best require considerable work to compile, always remain subject to uncertainty, and at worst simply unavailable for longer time-series compilation. We hope to continue future work on the two parts of the resilience hypothesis as time and resources permit, but certainly would be delighted to see other researchers take up the challenge, be they economists, historians, participants at this XVIIIth DEC. readers of DEC papers, graduate students with some interest in economics or history. Indeed, any hopes for further work on confirming the hypotheses in Table 4, or testing those in Table 5, lie in the hope that this paper stimulates such interest amongst a wider group of economists and historians, Croatian, Europeans, American.—citizens of Asian Tigers even? In this hope we have a very strong ally

– just look behind you at Mighty Ragusa.!

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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 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 the monopoly over the exchange of silver and gold money. As it was the issuer of currency it can be considered as the “Central Bank” of Ragusa. Over time its functions expanded , 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 approving loans to commercial groups , collateralized with commercial goods, but also so-called personal guarantee Besides its credit activity, it had many other diverse functions , and one of the most important ones was providing the financial funds in the times of crisis. One source suggests that any seignorage profits were used only for such emergencies, but this is not certain.

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 catered 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 possible profits the Mint could realize probably consisted of the discounts applied when approving the “loans”.⁴⁹ 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 the Ragusean money. The first documented loan to Treasury with interests and installments was recorded in 1780. Some of the granted amounts correspond to Treasury’s costs for health and soldiers’ wages, other times it was a construction of a Conservatorium, or an aqueduct. Besides the Treasury, other institutions were also being granted money by the Mint, e.g. Grascia (provisions-managing institution, - this was in effect the State Granary). It too reimbursed only part of the borrowed funds, but at the issuance the Mint made some profits applying discounts. There was also La Cassa Pubblica della Navigazione and la

⁴⁹ Charging no interest by taking an up-front discount was a common way to appear to be in compliance with Vatican usury restrictions.

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 retreated from the market due to the weariness.

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 approval of funds to religious institutions, such as monasteries and fraternities, and to parishes for church construction.-funds which were mostly not reimbursed and paid no interest The Mint also had a statutory obligation to give away some of its profits to the hospital Domus Christi- these were also without any interest charged, and mostly not fully repaid at the maturity.

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 ship 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 silver “taller”.

Many aspects of the Zecca remain unclear in the historical literature, and merit further research from an 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 seignorage 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.

DATA APPENDIX-TABLES COMMENTS ON DATA QUALITY

TABLE 1. RAGUSA POPULATION AND SIZE ESTIMATES

Reference Year	Population (000) (Vekaric)	Population (other)	Area expansion ⁵⁰	Grain cons. ₅₁	Population ⁵² Croatia/Venice	Number of sailors
1300	-		Astarea+ Elaph+Lastovo [25]		---/660	
1325	-	[15] ⁵³				
1350	-	[7.5]	+Peljesac+Cavtat +375sk+200 =[600]	10		
1375	-	[10]		20		
1400	-	[15]	+SlanoTer.(300) [900]		1,200/---	
1425	-		+Konavle(200) =[1,100]			
1450	-	[40] ⁵⁴				
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]			

⁵⁰ Carter Fig. 18; the [bold] 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.

⁵¹ Krekic(80) p.38:’000 Staria; Stipetic notes authorities planned for 216k/person/year.

⁵² Stipetic(04),pp.138,155.156

⁵³ Very approximate estimates by authors for 1325-1400 based on Carter,p.16-17.it is variously stated by historians that in early 14th.c. city had 5,000-10,000, and the outside territory of Astarea (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.

⁵⁴ Vekaric 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 Vekaric notes , a large inflow o Slavic refugees fleeing from the expanding Ottoman occupation of the Balkans throughout the 15th.c. It may also be we were too conservative in 1400 estimate.

Reference Year	Population (000) (Vekaric)	Population (other)	Area expansion ⁵⁵	Grain cons. ⁵⁶	Population ⁵⁷ Croatia/Venice	Number of sailors
1650	39		[1,100]			
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/---	

⁵⁵ Carter Fig. 18; the **[bold]** 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.

⁵⁶ Krekic(80) p.38: '000 Staria; Stipetic notes authorities planned for 216k/person/year.

⁵⁷ Stipetic(04),pp.138,155.156

TABLE 2. DIRECT OUTPUT ESTIMATES GDP, GDPpc: Ragusa and Comparators⁵⁸

Reference Year	GDP Mil.1990\$	GDPpc 1990\$	GDPpc Croatia	GDPpc West.Europe	Venice estimate ⁵⁹
1300				590	
1325					
1350					
1375					
1400					
1425					
1450					
1475					
1500	74	930	577	774	[1320]
1525					
1550					
1575					
1600		[1000+?] ⁶⁰		805	[1210]
1625					
1650					
1675					
1700	24	900	545	1024	[1280]
1725					
1750					
1775					
1800					
1825	49 ⁶¹	735	513	1,232	
1850	63	750	529		
1875	96	934	709		

⁵⁸ Sources: For Ragusa and Croatia, Stipetic ('04) using same methodology and benchmark year of 1990 dollars as Maddison (2001), which is the source for other regions.;1300 values is interpolated between those of 1,000 and 1500.

⁵⁹Economic history literature widely recognizes Venice was among the richest republics in late-mediaeval era. Stipetic assumes GDPpc =120% of Italy (from Maddison), hence 1320 for both 1500 and 1700.For 1500 this is 1.75 xWE . 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.

⁶⁰ Stipetic does not show a value but in conformance with literature consensus states p. 166 “1500 does not represent [apogee] of power...which would be realized only [after 1550]”. We assume a value of 1000+.

⁶¹ After 1700, Stipetic 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 ⁶² Luetic (other)	Tonnage Luetic (other) 'th.(kara/[Tons]) ⁶³	Venice #ships/ tons ⁶⁴	Netherland tons ⁶⁵	England tons	Number of workers ⁶⁶
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) Bojovic	-/{[10]}				
1475		----/ [29]sti		60	na	

⁶² Luetic(61) 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 time, 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 Luetic 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 Luetic, -lower estimate will be used in analysis. He also gives fragmentary data on numbers engaged in navigation-related activities, in last col. (Other) sources data :B=Batic; Boj=Bojovic;C=Carter’ K=Krekcic; M=Maddison ; S=Stuard; V=Stjepan Vekaric. These are referenced in the data Appendix. N.B. many of them appear to rely on Luetic as one source., but also two other important writers S. Vekaric and J. Tadic.

⁶³In [], values in metric tons, in some cases converted from kara=1.5 tons. Luetic has the longest series of information, in ‘ooo 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 Luetic, with one large deviation: for 1575 Stipetic gives 63 tons, while Luetic, S. Vekaric 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.- consistent with the qualitative consensus that the size of ships increased considerable over the centuries reaching a maximum in the late 16th c. Luetic, 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 c. of 75t., by 1450 of 100t., and estimate tonnages as shown {[]}.

⁶⁴ Lane p.337 makes clear Chioggia wars with Genoa 1377 devastated 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 : Luetic gives number of ships, we estimate tonnage again assuming average same as Ragusa in that period, about 125t/ship.

⁶⁵ Maddison (01), p.77.. Values in [brackets] are straightline interpolations. For England, Stipetic ,p164

⁶⁶ Luetic 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 10xmasters=1,000, these comprise half of land-workers in shipping (2,000), and with sailors a total of 3,000.

Reference year	Number of ships Luetic (other)	Tonnage Luetic (other) 'th.(kara/[Tons])	Venice #ships/ tons	Netherland tons	England tons	Number of workers
1500						(3,000)
1525		{.5Neth=60T??}		[120]		
Reference year	Number of ships Luetic (other)	Tonnage Luetic (other) 'th.(kara/[Tons])	Venice #ships/ tons	Netherland tons	England tons	Number of workers
1550	132 (132K/180.V) +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	125 (112.K/112.V)	25 /[38] (23.7.K/23.7V) {1/6Neth=50T??}		[300]		(5,000)
1605	100 (68K/68V)	17.3/[26] (17.3K)				
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)

Further explanation for 1725-1800: Luetic 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 at least one third more). The 1805 values are more definite and are assigned to the 1800 period. As usual.

TABLE 4. RAGUSA OUTPUT PROXIES

Reference year	Value of the fleet ('000ducat) ⁶⁷		Wage index ⁶⁸	Investment value ⁶⁹	Deposits abroad ⁷⁰
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]

⁶⁷ Boj. 1500,1575

⁶⁸ Our approximation using text references of % increases in different parts of these centuries , in Carter (72), p. 577.[un-deflated for now: discuss deflator]

⁶⁹ Krekic(61), p.75, ducats..average for periods 1321-1430, and 1431-60

⁷⁰First number : Carter(72) 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(01) pp.37-78, in Ragusa ducats. It is not clear the two sources are consistent—If Carter uses Ragusan ducats, 1575 value far lower.If uses Venetian, then exchange values on p. 576 with Dinars and ducat/ dinar rates on p.??? earlier imply values of gives similar value of 327 in 1575, but very different value of about 1,500 in 1700. We will use for now values of DiVittorio.

THE END---FOR NOW!!