Understanding settlement-landscape interaction with literary records and geoinformatics:
The case of Homer's Late Bronze Age Southeast Aegean

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Background

Advances in Digital Humanities provide rich research material for understanding:

(1) environmental and locational **attributes** of ancient settlements,

(2) the **regional structure** of systems of settlements,

(3) social-cultural **drivers** of human-landscape interaction.

Sustainability research: **long-shot** objectives

Can we get a glimpse into the **hierarchy of values**?

Can we reasonably conclude about the connection between modern settlement-environment markers/values and the **inherent sustainability of ancient settlements**?

Can we reasonably assume what **original** settlement-environment markers/values are the most relevant for settlement sustainability?

Case study from Late Bronze Age SE Aegean

Catalog of Ships, *Iliad* 2.494-759

- We present a georeferenced version of the record of cities and their sociocultural and environmental descriptions.

- We combine with data on the spatial and temporal context of those settlements.

- We present **first steps** in using such methods to answer our long-shot questions.

Case study from Late Bronze Age SE Aegean

In the *Iliad*, Book 2 494-759, Homer lists:

- the names of Mycenaean cities that attacked Troy (`N=183`)
- clustered by leader and agglomeration (or region, territory)
- the number of ships that each city brought to the Mycenaen alliance
- qualitative description of prominent features, associations of cities (`N=66`)

[…] Of the Boeotians Peneleos and Leïtus were captains, [495] and Arcesilaus and Prothoënor and Clonius; these were they that dwelt in Hyria and **rocky** Aulis and Schoenus and Scolus and Eteonus with its **many ridges**, Thespeia, Graea, and **spacious** Mycalessus; and that dwelt about Harma and Eilesium and Erythrae; [500] and that held Eleon and Hyle and Peteon, Ocalea and Medeon, the **well-built citadel**, Copae, Eutresis, and Thisbe, the **haunt of doves**; that dwelt in Coroneia and **grassy** Haliartus, and that held Plataea and dwelt in Glisas; [505] that held lower Thebe, the **well-built citadel**, and holy Onchestus, the **bright grove** of Poseidon; and that held Arne, **rich in vines**, and Mideia and **sacred** Nisa and Anthedon on the **seaboard**. Of these there came **fifty ships**, and on board of each [510] went young men of the Boeotians an hundred and twenty. […]

Georeferencing

1. Projects **Topos Text** (by Brady Kiesling) and **Pleiades** (Ancient World Mapping Center, Stoa Consortium, Institute for the Study of the Ancient World) were used to derive/validate the coordinates of each settlement.

2. The **Pleiades** project was additionally used to append information on the known (or postulated) lifespan of each settlement, based on the minimum and maximum chronologies of the settlement.

3. Programmatic georeferencing with available gazetteers using Python language is still under testing and currently not as good as manual geocoding.
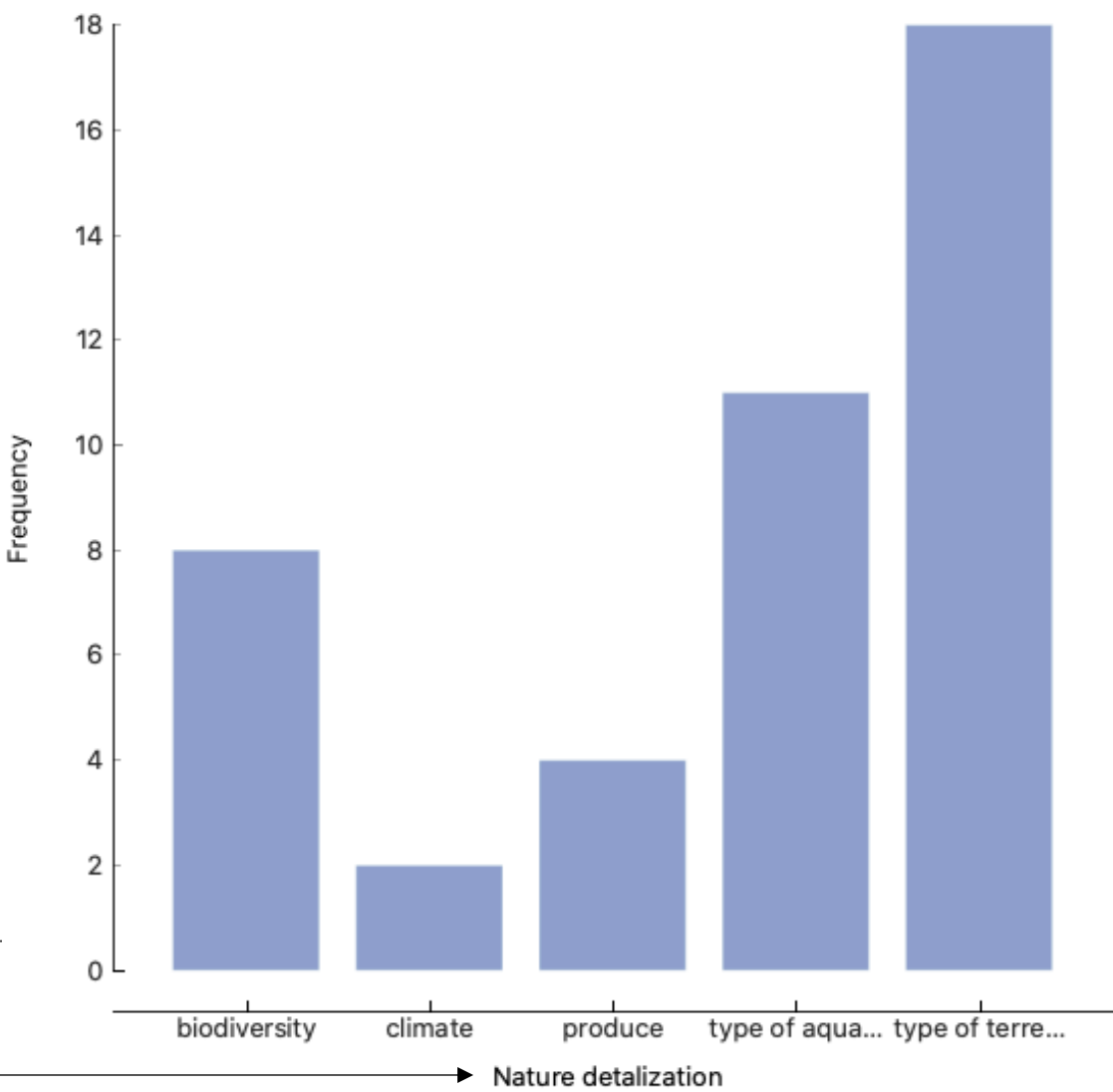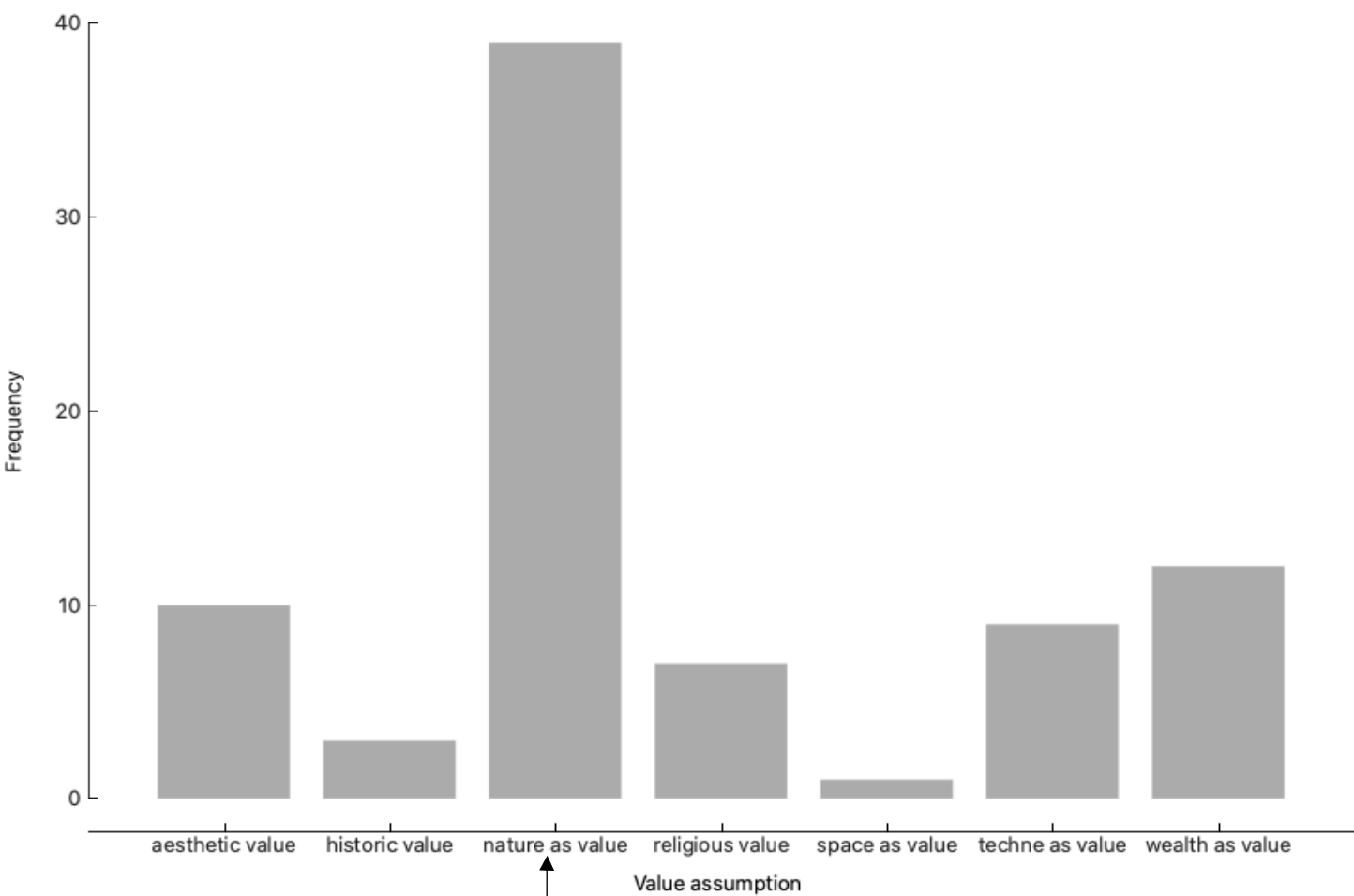
A. Votsis & D. Babushkina (2020)
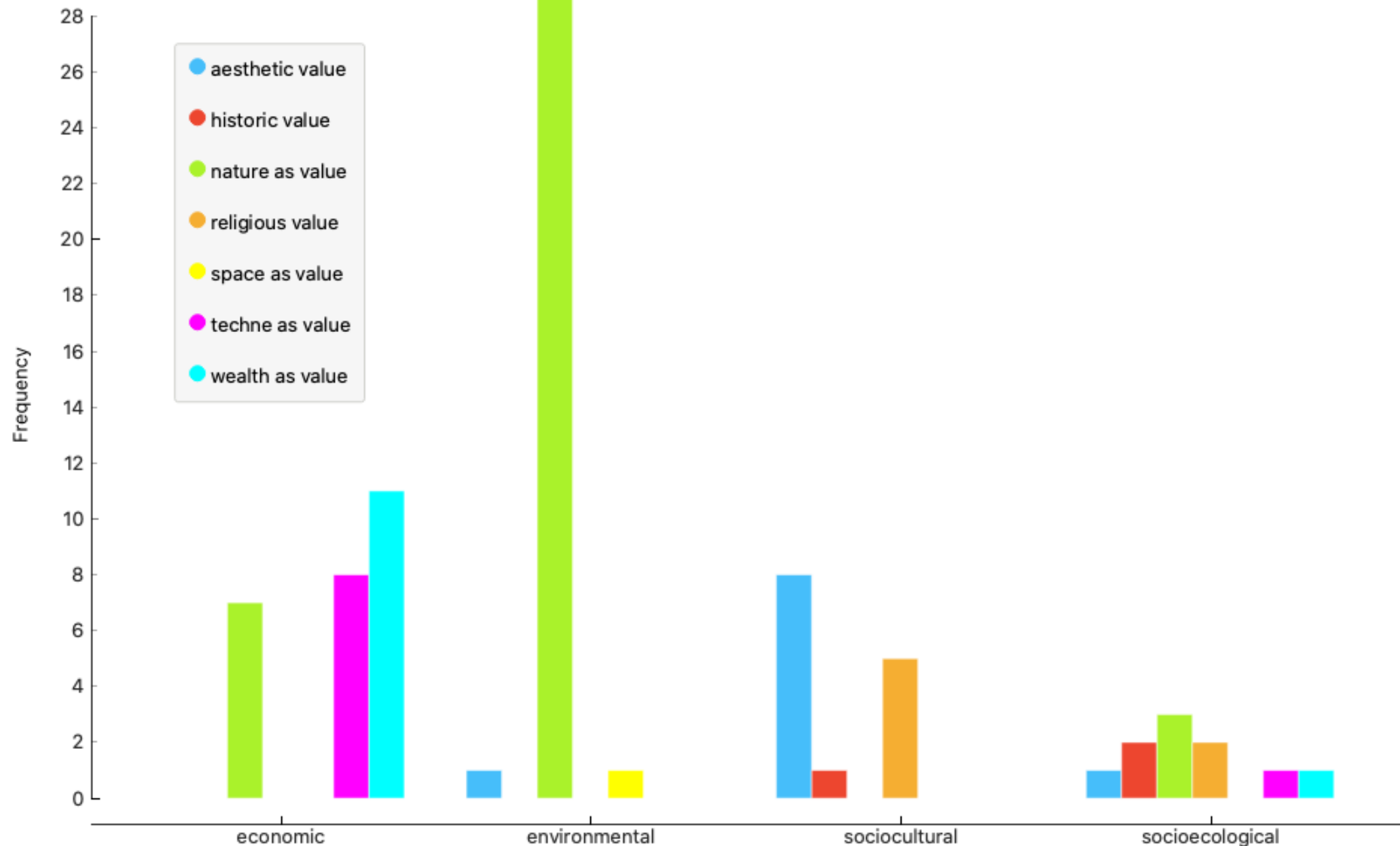
Cities & their combined contributions

Analysis of implicit values

Subcategories of nature as value in Homer's descriptions

Distribution of implicit value assumptions in Homer's descriptions
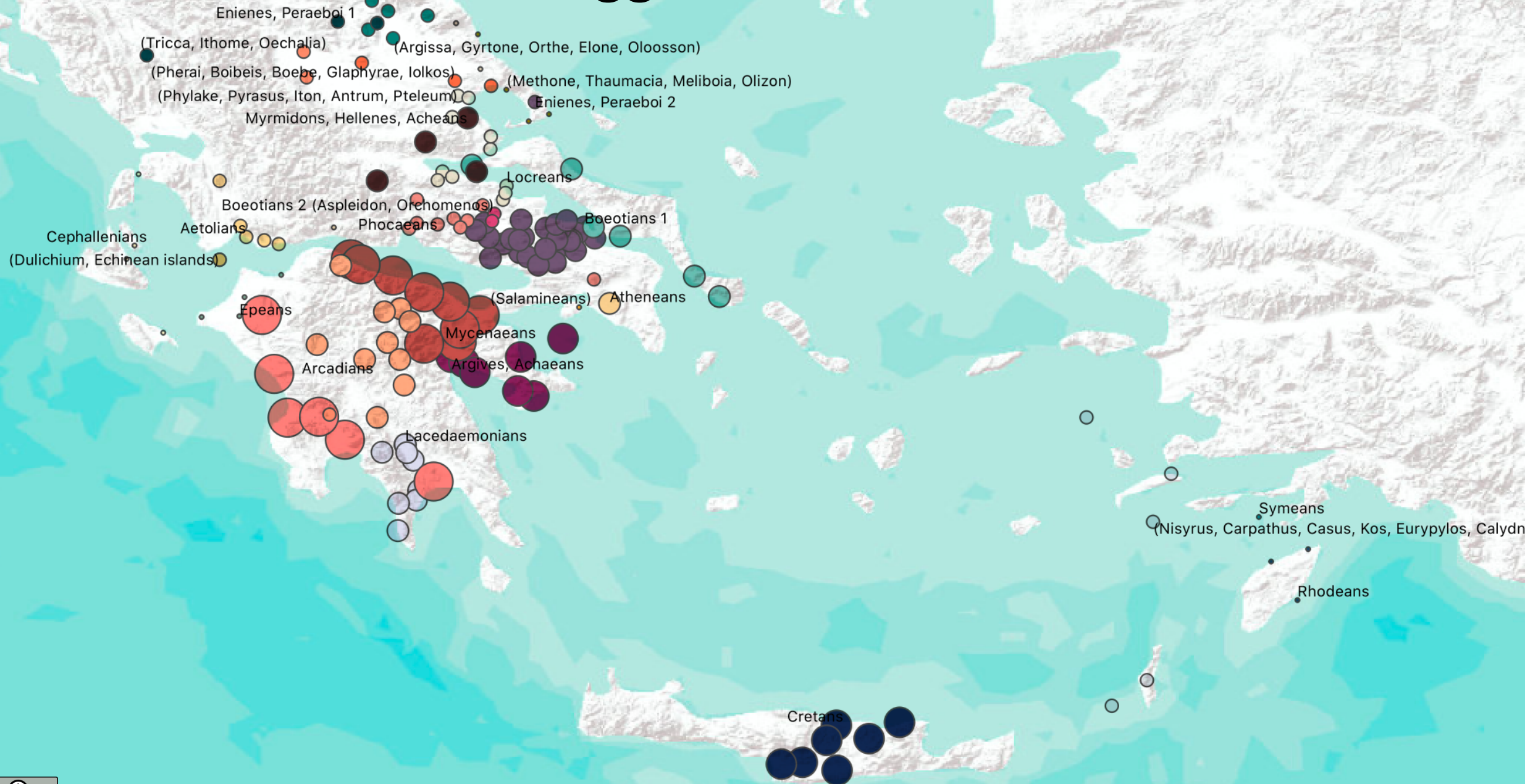
Relation between modern sustainability markers and values implicit in Homer's descriptions
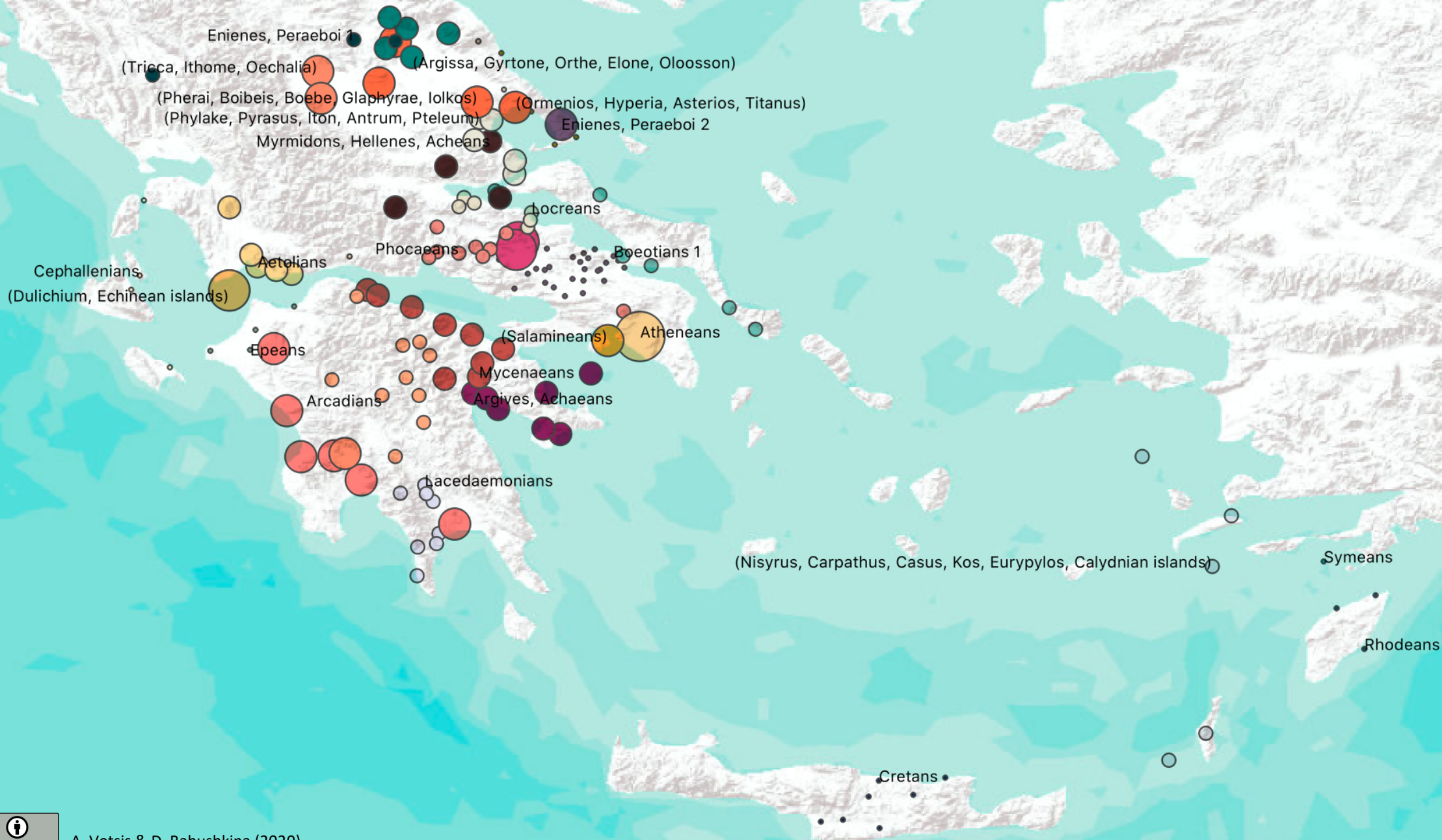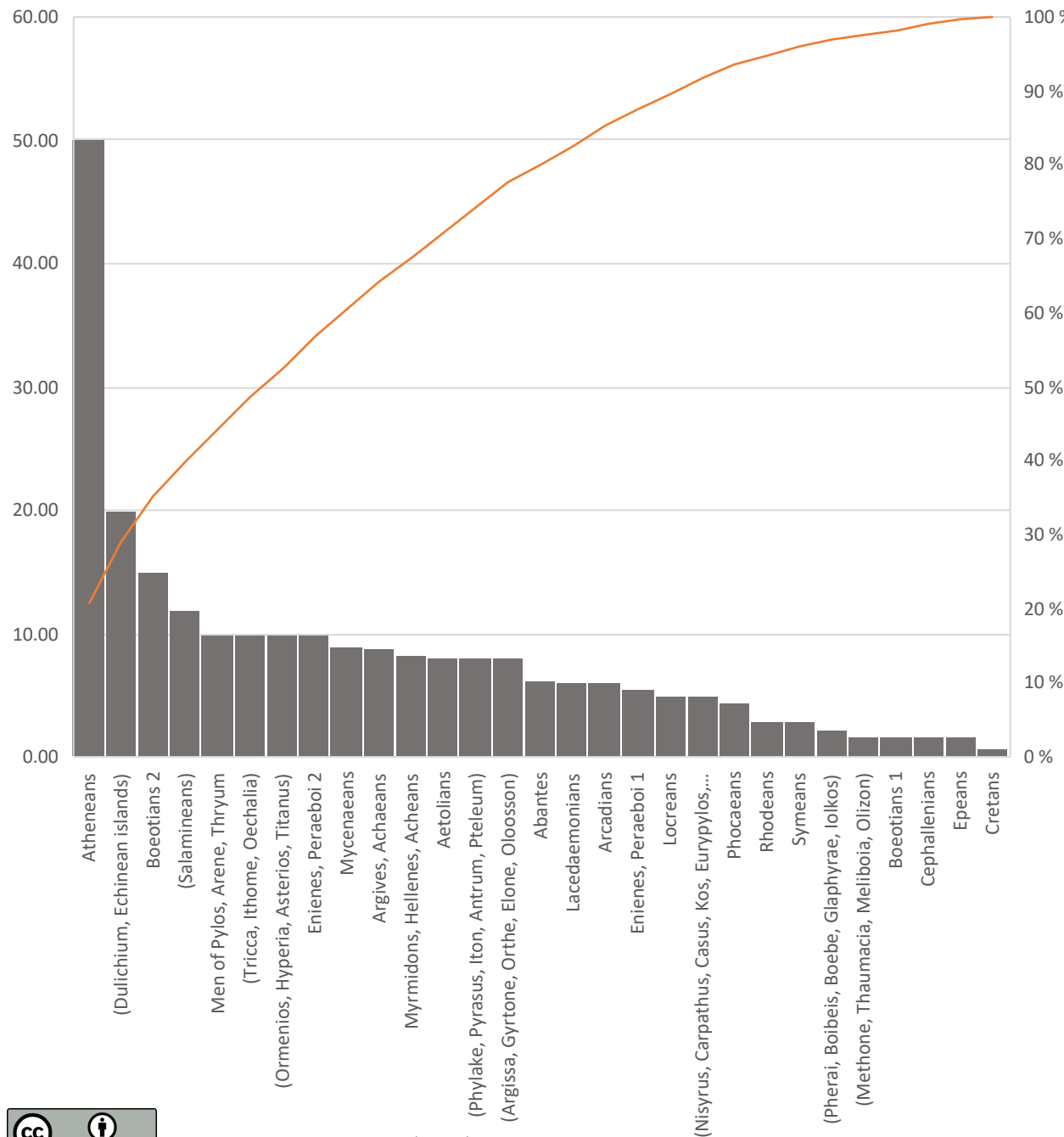
Regional structure
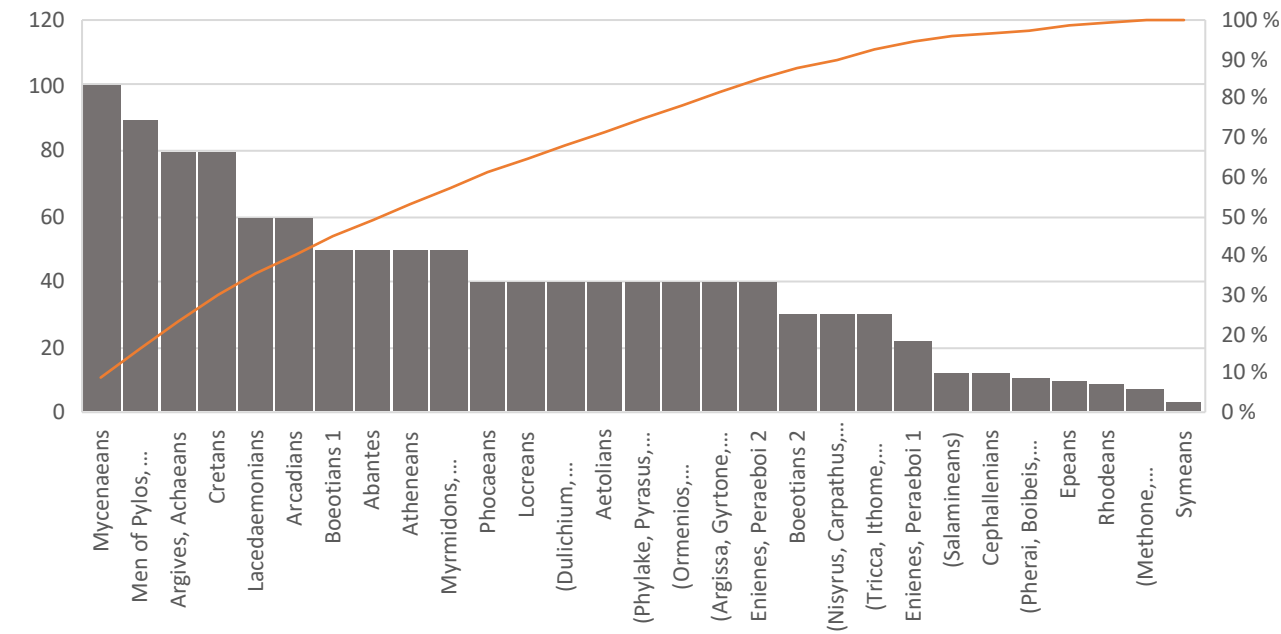
Agglomerations & their contribution

Enienes, Peraeboi 1

(Tricca, Ithome, Oechalia)

(Argissa, Gyrtone, Orthe, Elone, Oloosson)

(Pherai, Boibeis, Boebe, Glaphyrae, Iolkos)

(Methone, Thaumacia, Meliboia, Olizon)

(Phylake, Pyrasus, Iton, Antrum, Pteleum)

Enienes, Peraeboi 2

Myrmidons, Hellenes, Acheans

Locreans

Boeotians 2 (Aspleidon, Orchomenos)

Boeotians 1

Aetolians

Phocaeans

Cephallenians

(Dulichium, Echinean islands)

Epeans

(Salamineans)

Atheneans

Mycenaeans

Arcadians

Argives, Achaeans

Lacedaemonians

Symeans

(Nisyrus, Carpathus, Casus, Kos, Eurypylos, Calydn

Rhodeans

Cretans

A. Votsis & D. Babushkina (2020)

Number of ships per agglomeration size

Enienes, Peraeboi 1

(Tricca, Ithome, Oechalia)

(Argissa, Gyrtone, Orthe, Elone, Oloosson)

(Pherai, Boibeis, Boebe, Glaphyrae, Iolkos)

(Ormenios, Hyperia, Asterios, Titanus)

(Phylake, Pyrasus, Iton, Antrum, Pteleum)

Enienes, Peraeboi 2

Myrmidons, Hellenes, Acheans

Locreans

Phocaeans

Boeotians 1

Cephallenians

Aetolians

(Dulichium, Echinean islands)

Epeans

(Salamineans)

Atheneans

Mycenaeans

Arcadians

Argives, Achaeans

Lacedaemonians

(Nisyrus, Carpathus, Casus, Kos, Eurypylos, Calydnian islands)

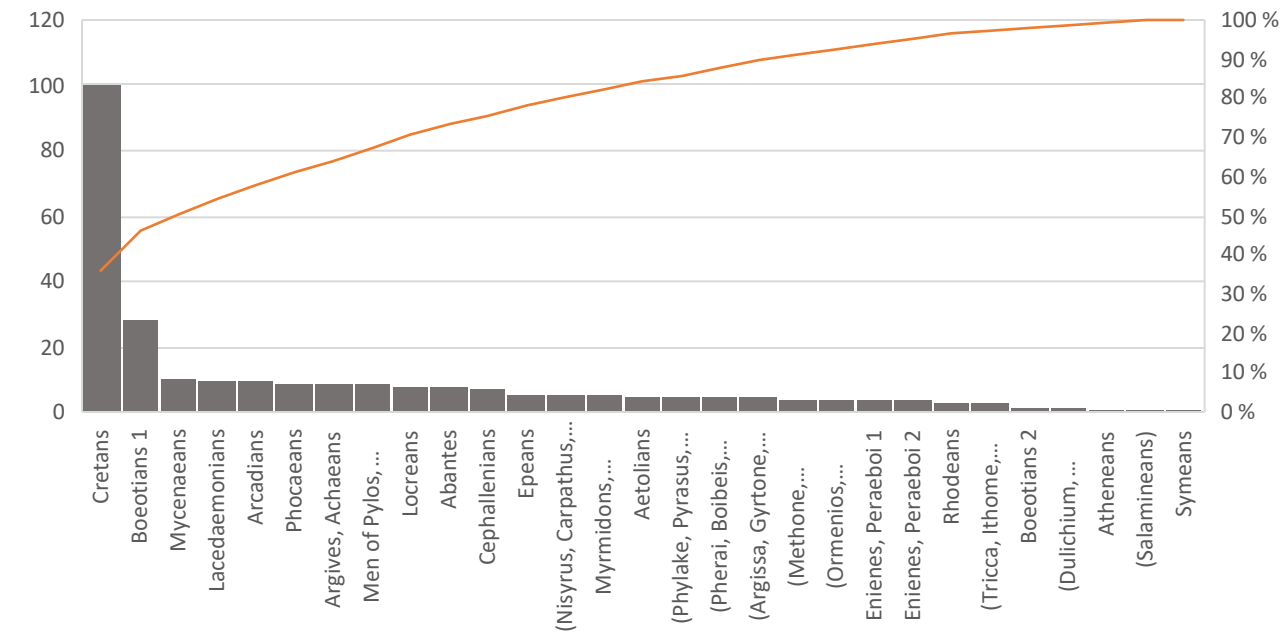Symeans

Rhodeans

Cretans

Number of ships per agglomeration size
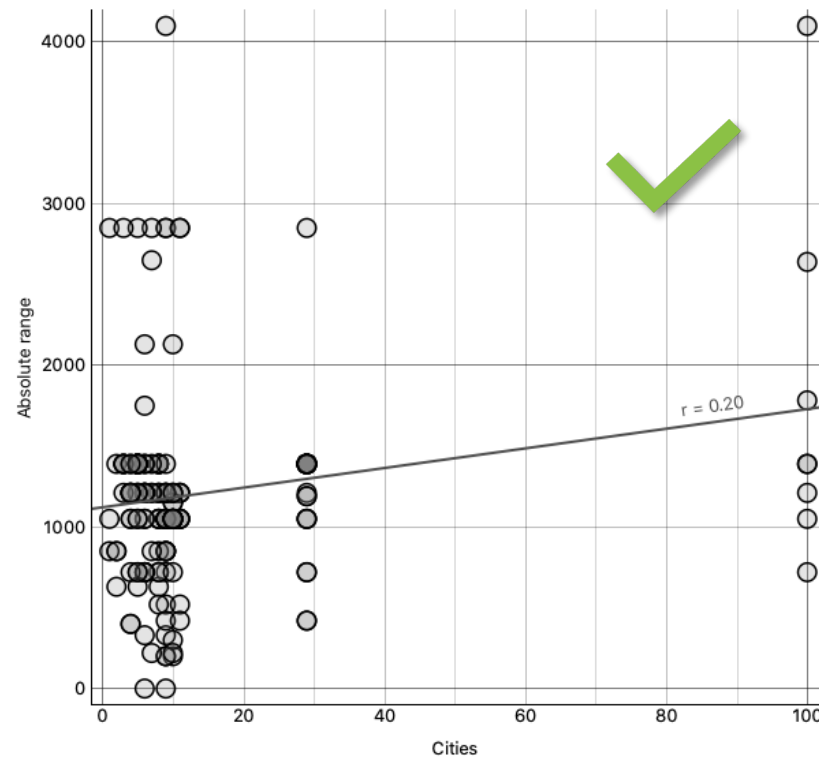
Number of ships per agglomeration

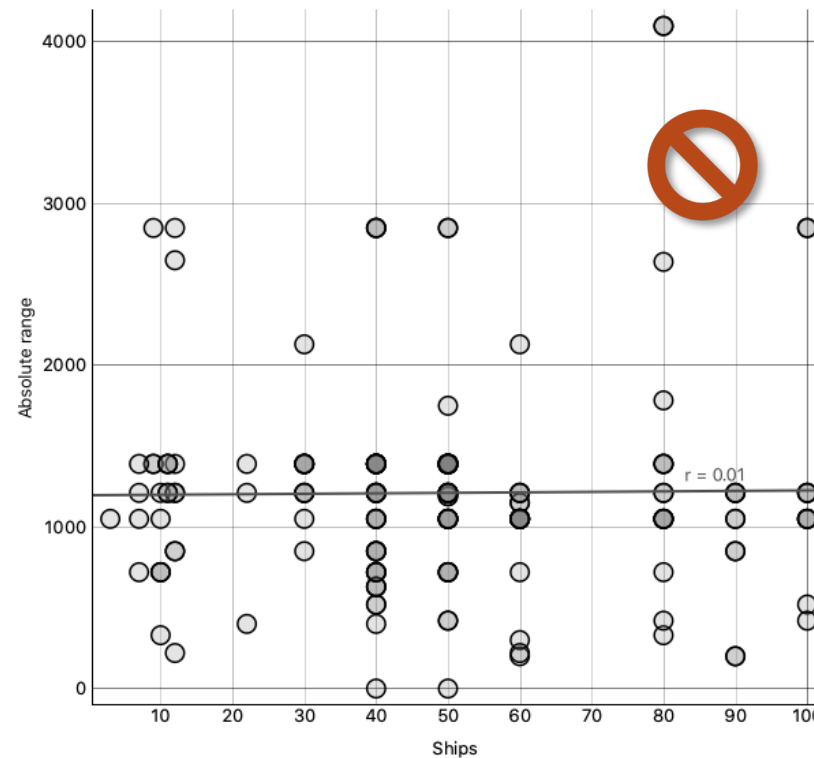## Afgglomeration size (number of cities per agglomeration)

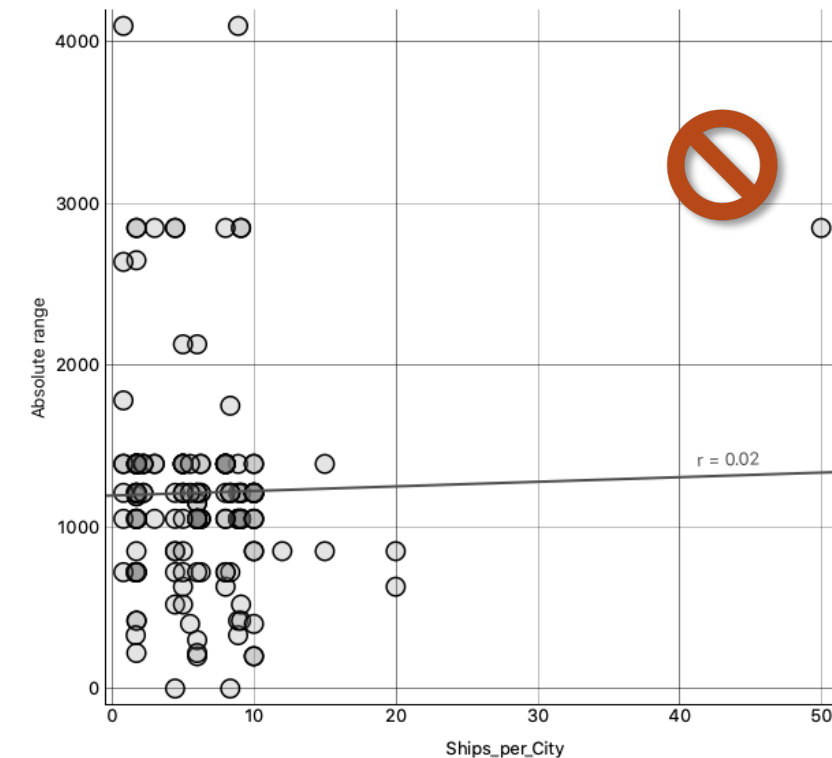# Does regional structure or power correlate with settlement lifespan?

Lifespan vs agglomeration size

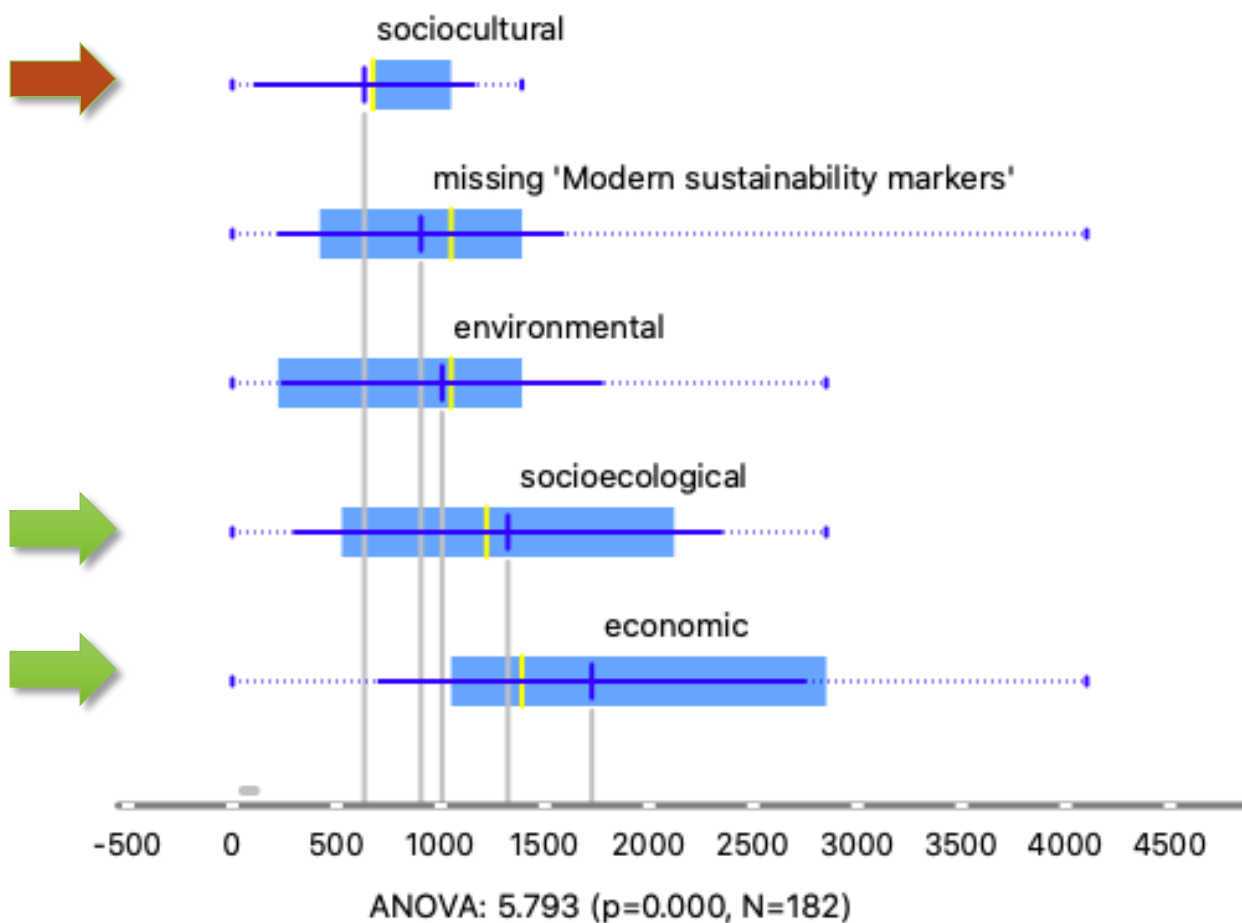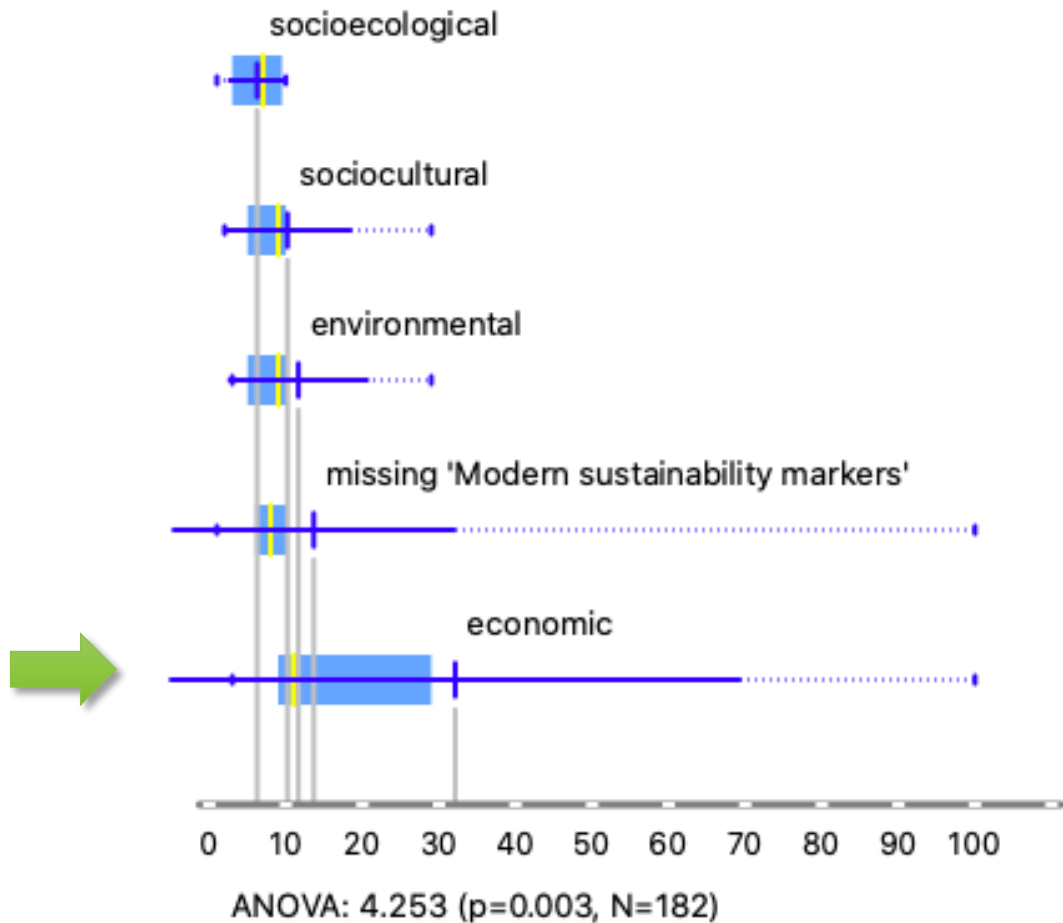Lifespan vs agglomeration power

Lifespan vs power distribution

A. Votsis & D. Babushkina (2020)

Sustainability and value hierarchy

Sustainability markers: lifespan, regional footprint
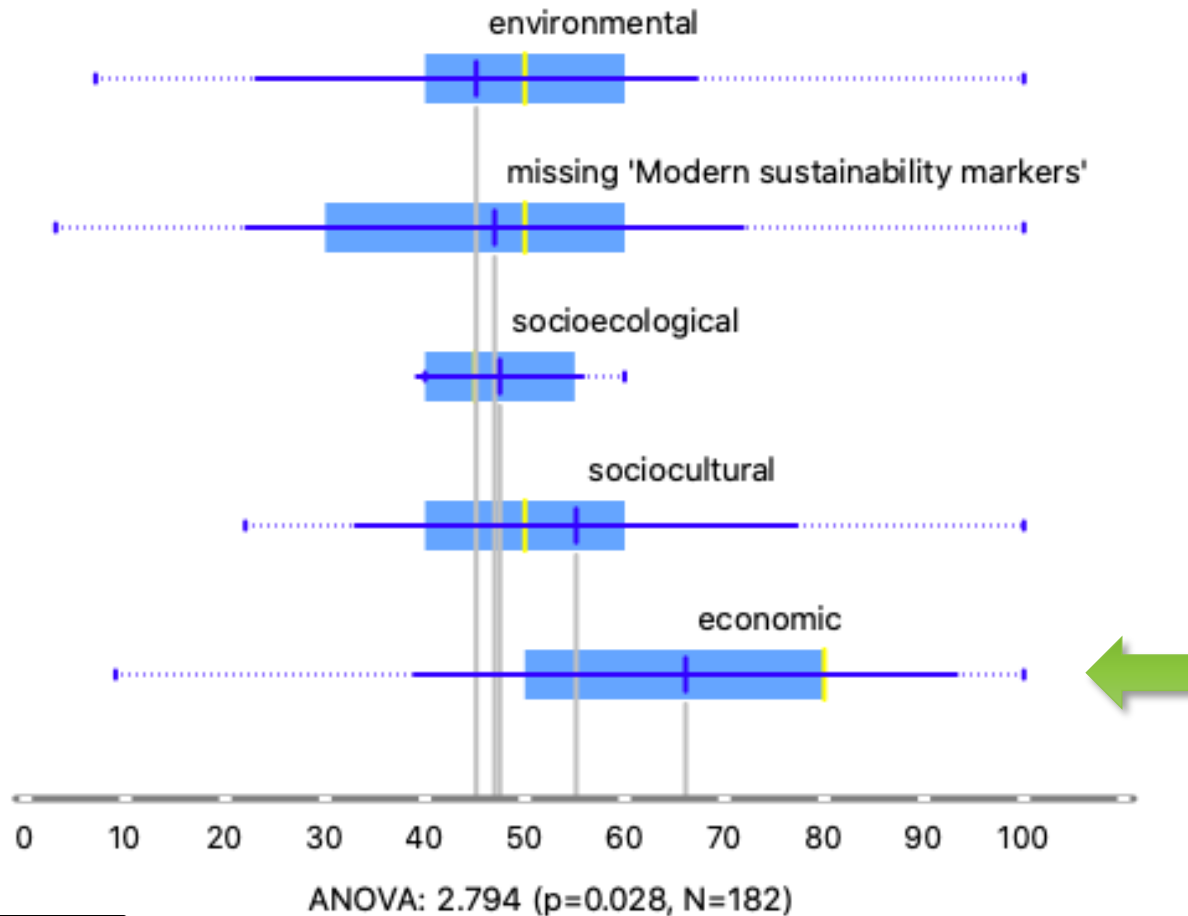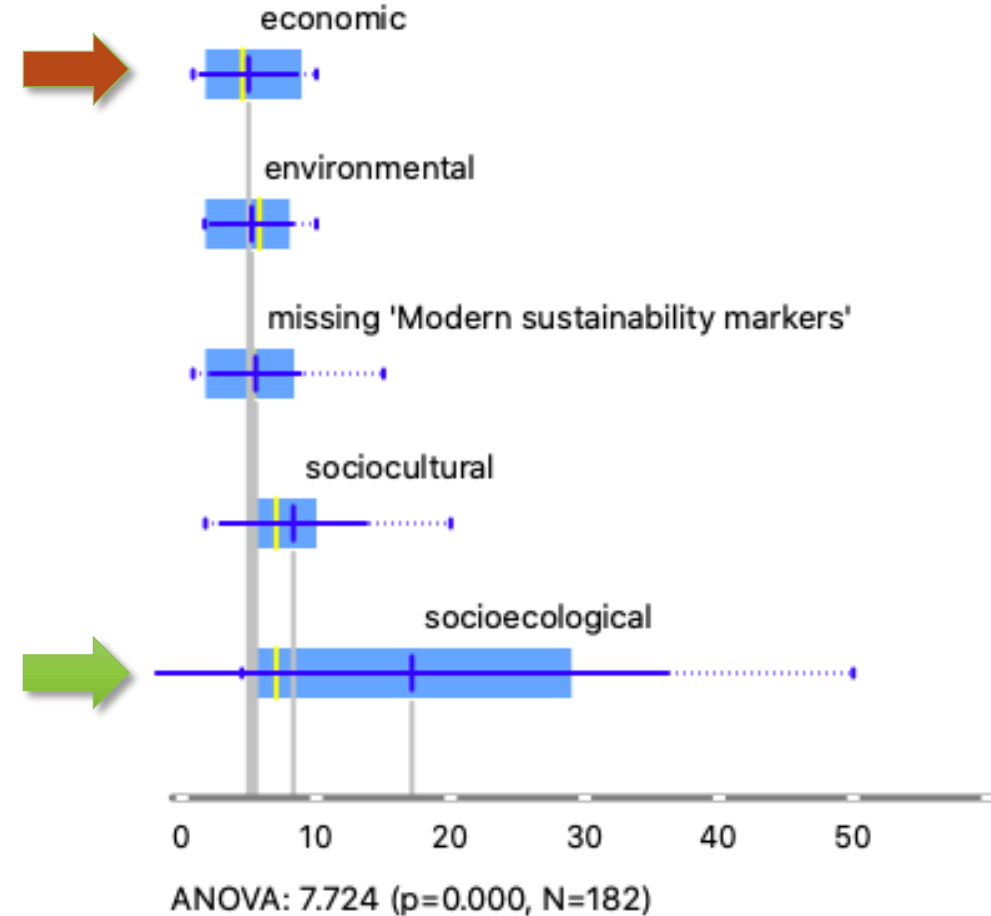

Influence on lifespan of settlement

ANOVA: 5.793 (p=0.000, N=182)

Influence on agglomeration size

ANOVA: 4.253 (p=0.003, N=182)

Sustainability markers: power, power distribution

Influence on power

environmental

missing 'Modern sustainability markers'

socioecological

sociocultural

economic

ANOVA: 2.794 (p=0.028, N=182)

Influence on power distribution

economic

environmental

missing 'Modern sustainability markers'

sociocultural

socioecological

ANOVA: 7.724 (p=0.000, N=182)

Elements of landscape: lifetime

(insignificant influence on regional footprint, power, and power diversity)

Influence on lifespan of settlement

ANOVA: 3.128 (p=0.002, N=187)

Prospects & Limitations

Such research does provide valid and valuable knowledge (based on our first results) for understanding human-environment interaction as well as settlement sustainability, **but**:

- Informing our sustainability research by the analysis of the historic material confirms the need to re-think the very concept of sustainability, which appears to be goal-oriented and value-loaded. What do we want to achieve when setting sustainability goals and what markers should be used to evaluate our progress?

- The dataset should be well-prepared, e.g. based on the original text (translations introduce ambiguity and errors).

- Results should be cross-checked with research in relevant disciplines (e.g. historical evidence, other literature).

- Ensure that modern meaning is not read into ancient terms, and where necessary ancient terms must be placed into their context.

- All this highlights the importance of interpretative work done by an expert in the studied topic/field.

Can we get a glimpse into the hierarchy of values?

Can we reasonably conclude about the connection between modern settlement-environment markers/values and the inherent sustainability of ancient settlements?

Can we reasonably assume what original settlement-environment markers/values are the most relevant for settlement sustainability?

Thank you ☺

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more information & questions:

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