**RECONSTRUCTING LAETANIAN ROMAN WINE ECONOMY USING AGENT-BASED MODELLING (1ST CENTURY BC-3RD CENTURY AD)**

Antoni Martín i Oliveras\*, Víctor Revilla Calvo\*, Simon Carrignon\*\*,Jean-Marc Montanier\*\*, Iza Romanowska\*\*, Xavier Rubio-Campillo\*\*and José Remesal Rodríguez\*[[1]](#footnote-1)

Viticulture (winemaking and trading) has played an important role in the economy of the Mediterranean coast of *Hispania Citerior* *Tarraconensis* between the 1st century BC and the 3rd century AD. This economic phenomenon is associated with a population increase reflected in the intensification of occupation and rapid urbanization which saw the population structure changing from sparse evenly distributed settlement pattern to one characterised by small agro-cities and secondary settlements of a different legal status than XXX. Its significance is conveyed by the number of archaeologically attested facilities used for winemaking and manufacturing containers used for wine transport and storage - amphoras. The vineyards, wineries and pottery workshops are usually found clustering in specific regions in *Hispania Citerior*, such as the Laetanian region located in the northeast coast of the Iberian Peninsula. Their spatial and temporal distribution has been previously interpreted as a proof of the existence of intensive and specialized winemaking economy, associated with large-scale trading of wine in bulk quantities targeting predominantly overseas markets, such as *Gallia*, *Germania*, *Italia* and Rome itself. This interpretation is further supported by the wide geographical distribution of amphora forms, known as *Tarraconensis*, which appear in the archaeological record of Roman ports, cities and *limes* military camps throughout the western part of the Empire between the DATE START and DATE END.

Despite the significance of winemaking in the region’s economy and its role in the empire-wide trade, the processes involved in production, trade and consumption of Laetanian wine and its evolution over time, have not been qualitatively evaluated or modelled using formal methods. The dominating qualitative narrative argues that the Laetatnian wine economy went through a boom-and-bust cycle driven predominantly by changes in inter- and extra-regional trading dynamics. The focus on the archaeologically visible container, the *Terraconensis* amphoras, means that the debate is limited to only one phase of the phenomenon:the “amphoric” trading period when the mass production and dissemination of a specific, durable container made the economic interactions easily identifiable in the archaeological record. Another simplification concerning this case study of a provincial viticulture economy is its interpretation as a single production cycle in which regional differences are ignored.

Here we present explanatory data analysis coupled with an agent-based model simulating economic processes involved in the production, consumption and trade of the Laetanian wine. This combination of formal, computational methods enables us to follow the complex evolution of regional wine economy over time and to quantify the impact of global changes on its dynamics. The model evaluates the strategies that this economic system could adopt in response to the competition from other provinces and the evolution of the wine consumption in the Roman society. We then compare the outcomes of such strategies with two source of data: the changing dynamics of winemaking *ab origine*, i.e., in the Laetanian region and the changes in the frequencies of the *Tarraconensis* amphoras *ad destinum,* that is, in the port of Ostia (Italy).

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   \* CEIPAC-UB-*Universitat de Barcelona-*Centre for the Study of Provincial Interdependence in Classical Antiquity

   \*\* BSC-CNS-Barcelona Supercomputing Center-*Centro Nacional de Supercomputación* [↑](#footnote-ref-1)