Agoranomika, the Ancient Greek Trading Game

Basic Instructions

This document is a condensed version of the basic instructions for playing *Agoranomika,* primarily intended for teachers interested playing a version of this game in their own classrooms. For a full discussion of the theory and aims of this game, the phases of play, teacher strategies for guiding play, illustrations, and references, please see: David M. Ratzan, "*Agoranomika*: Playful approaches to teaching the serious economic and institutional history of measurement in the ancient Greek world." In: Gabriel Mckee and Daniela Wolin, eds. 2022. *Re-Rolling the Past: Representations and Reinterpretations of Antiquity in Analog and Digital Games*. *ISAW Papers* 22.7. URI: https://hdl.handle.net/2333.1/3n5tbf7b. This document has been deposited in the New York University Faculty Digital Archive (http://hdl.handle.net/2451/61725) and Zenodo.

Time required for set-up and play

- 30-minute, one-time investment in making a simple DIY beam balance (instructions easily found online)
- 5–10 minutes for set-up before class
- 1 standard 50–75-minute class period for play
- 5 minutes to clean up

Players

- No more than 25 students, broken up into teams of 2-5 students each, depending on the size of your class.
- You need at least 4 teams to play; more than 6 gets unwieldy, unless you have a very large classroom.

Equipment

Commodities

- 1 2-lb. bag of rice
- 1-lb. bag of red beans or kidney beans
- 1-lb. bag of red or green lentils (they should be easily distinguished from the red beans)
- 1-lb bag of small black lentils
- 1 large bag of cotton balls
- 1 pint strawberries, black berries, or raspberries (whatever is cheapest!)

NB. These are minimum suggested quantities.

Storage and measuring

- 2 non-standardized, non-transparent small cups per student group, to be used as "traditional measures"

- A random assortment of three-dimensional objects or figurines, to be used as "counterweights," 1–2 per group, of various shapes, sizes, and weights (to be held in reserve until later stages of play)
- 3 different types of plastic, non-transparent cups to hold rice, beans, and lentils, so that each group has a set of three "silos" for commodities
- For the DIY beam balance
    - 1 coat hanger
    - String
    - 2 identical, plastic take-out containers
    - A sharp knife to cut string and make small holes in the containers

The scenario

Do you have what it takes to trade in an ancient Greek market? Your community is depending on you to deliver the goods. Each team represents either a delegation from a *polis* (a classical Greek city-state) trading in the *emporion* of the Piraeus (the import-export market of the port city of Athens) or the head of an Athenian *oikos* (household) trading in the Athenian *agora*. Each *polis/oikos* produces the staples associated with Greek life, the so-called "Mediterranean triad" of wheat, olives, and wine, in this case represented by rice, red beans, and red or green lentils. However, just as each *polis/oikos* differs in size, terrain, micro-climate, etc., so each produces these staples in different quantities and qualities. Each team therefore begins with a different endowment of rice, beans, and lentils. These staples are stored in unmarked, non-transparent "silos": they are for holding only, not measuring, trading, or transport. Finally, each *polis/oikos* has a set of hand-made, "traditional" measures, idiosyncratic to their community or estate. These, and all subsequent instructions or important facts, are projected on a screen using slides.

Play

Play is organized as a series of trading games, or "phases." The phases gradually add increasing conceptual complexity to the tasks the students are asked to complete, each revealing or isolating a facet of the phenomenon of measurement in the Greek world and its relationship to politics and economics. In order to achieve maximum pedagogical effect, each phase is designed and ordered strategically to build on (and sometimes undercut or nuance) the discoveries, relationships, and norms constructed in previous phases. There is no formal way to "win" this game. The students (being students, after all) naturally focus on success or failure: can they complete the trading tasks or not? By the same token, since winning is not the formal aim of these games, failure does not disqualify a team from advancing to the next phase.

Phase 1: Prices and measures

Each *polis/oikos* begins with three containers or silos with unequal amounts of rice, red beans, and red or green lentils. That is to say that some teams have less rice, but more red beans and/or lentils, or vice versa. Each of the rice silos is marked on the outside with a line that sets a minimum amount required for survival. One cannot go below this line and satisfy the trading requirements. Additionally, the rice of all but perhaps one or two of the teams is admixed with different concentrations of small black lentils. The lentils represent the adulteration one always finds in agricultural products (chaff, dirt, etc.). A balanced diet with complete proteins requires rice and beans or lentils. The task of this first phase is to trade until the *polis/oikos* has (a)

the minimum amount of rice for survival as indicated by the survival line on the silo; and (b) twice the amount of rice as beans or lentils.

Phase 1a: Prices, money, and standards

Students will almost immediately ask what the prices of the commodities are. Coins are the commodification of precious metals: their value proposition over bullion is carried by the state's stamp, which signifies that the coin is of a certain, measured fineness and weight. In other words, unlike everything else in the market, coins come pre-measured, thus removing the costs and the opportunism associated with measuring (obviously, this depends on their being genuine and not fakes or imitations). This is the first lesson learned in this exercise: money is in fact part of the solution to the basic problem confronting them, which is to say, measurement. Put another way, they need to find their way to money. So, instead of money prices, suggest a set of relative prices.

- Beans are three times more valuable than rice
- Lentils are half as valuable as beans

Be careful to stress that these are starting prices: teams may, and indeed will likely need to, negotiate higher and lower prices according to their needs and strategies.

Phase 1b: Measures and measuring

Most classes will begin by measuring volume, a natural choice, since the students have several volumetric containers in front of them. They therefore either negotiate on which volume to use in each transaction, or (less frequently) pick a volume as a standard for the entire *agora* (i.e., this particular cup is the "market cup"). Both coordination processes take time, and so serve as excellent demonstrations of some of the transaction costs associated with measuring (i.e., the costs involved in negotiating about measures in addition to measuring). One useful lesson imparted by these interactions is that while one accepted measure is good, a system of measures is even better, which is to say the establishment of a base unit complemented by fractions (1/4x, 1/3x, 1/2x) and multiples (2x, 3x, 4x). While volume may be a natural choice, it nevertheless has its drawbacks. For instance, in the absence of a system of measures, one must estimate fractional amounts of units. More fundamentally, is volume really the most relevant attribute of these commodities to measure? One would presumably want to measure nutritional values directly, if possible. The realization that one is often measuring proxy values represents another foundational lesson about measuring in this game. Considerations like this will also spark another important corollary lesson, namely, that there is no point in standardizing quantity (e.g., volume), if you have not standardized quality.

Phase 2: Quantity and quality

At some point, someone will ask what the deal is with those little black lentils in the rice. So long as the question is asked after they have already learned some of the lessons in Phases 1a and 1b above, you should confirm that they are "inedible": chaff, weeds, dirt, etc. This marks a new phase in the game, since it represents an intervention, adding or confirming a new fact that will have a decisive impact on play. The impact of this fact is most dramatic if one introduces it after teams have completed a transaction or two, since invariably one team will suddenly realize that it had been "cheated" by receiving too little rice, e.g., it paid for 100% rice, but received something like 98% rice and 2% dirt. It does not take long for the market

to begin to demand "clean" or "pure" rice. This in turn imposes varying sifting costs on the teams, as each has a different level of adulteration – and the students feel the cost, picking lentils out of the rice by hand. It is essential to determine quality if one is going to have a standardized base unit: the *agora* "cup" of rice is only really a standard volume if it is a standard volume of a standardized quality. The standardization of quality also allows the class to take another significant step in their adventures in the economics of measurement, which marks this a new phase of play: measuring by weight. In order to weigh the goods, introduce the simple balance. Now students have a second way of measuring goods: they may use the scale to set a standard unit volume, which will also have an equivalent standard weight. They have found their way to money! Using rice as a counterweight is obviously cumbersome, and inevitably involves waste in the form of spillage. It is best to choose iconic objects as counterweights if you intend to show examples of Athenian counterweights after the game (see Endgame).

Phase 3: Packing and stacking

For the final phase, tell the students that Greeks did not live on bread alone. *Oikoi/poleis* also traded in other raw materials, like linen (cotton balls) and luxury items (berries), since the aim of human life (at least according to Aristotle) was not merely to survive, but to thrive and live a fully civilized life. They therefore have a new task: each *oikos/polis* needs resources to engage in cultural activities, in this case organizing a ritual festival for the gods, like the Great Panathenaia. A team may put on a festival once it acquires at least 2 strawberries and 5 cotton balls for each team member. Neither commodity is sold individually, i.e., teams must buy what they need in bulk and by volume. 1 cup of cotton balls is worth ½ cup of rice, and 1 cup of strawberries is worth 1 cup of rice. After giving these instructions, distribute the strawberries and cotton balls, making sure that teams have sufficient quantities of at least one resource in order to induce selling. If you see that no team is packing cotton balls or heaping strawberries, quietly suggest that they do so and see what happens. In the aftermath, ask whether packing cotton balls is cheating or not; or why one might pack cotton, but not berries (and vice versa). By way of comparison, you might ask those who have any baking experience in the class why one packs brown sugar, but not flour, or why one levels off measures of baking powder – situations in which we measure foodstuffs differently, but without any suggestion of cheating.

Endgame

After the students finish the game, one can show examples from ancient texts and archaeology of how people and communities from the classical and Hellenistic Greek world responded to some of the challenges that they encountered in their trading. Some of these examples have been collected in the Appendix to "*Agoranomika*: Playful approaches to teaching the serious economic and institutional history of measurement in the ancient Greek world." *ISAW Papers* 22.7.