# Direct Democracy and Social Contract in Ancient Athens

Nicholas Kyriazis, Emmanouil Marios L. Economou, Jr, and Loukas Zachilas

*Abstract*—In the present essay, a model of choice by actors is analysedby utilizing the theory of chaos to explain how change comes about. Then, by using ancient and modern sources of literature, the theory of the social contract is analysed as a historical phenomenon that first appeared during the period of Classical Greece. Then, based on the findings of this analysis, the practice of direct democracy and public choice in ancient Athens is analysed, through two historical cases: Eubulus and Lycurgus political program in the second half of the 4th century. The main finding of this research is that these policies can be interpreted as an implementation of a social contract, through which citizens were taking decisions based on rational choice according to economic considerations.

*Keywords*—Chaos theory, public choice, social contract, 4th century BC. Athens.

## I. INTRODUCTION

THE discussion of natural rights and a social contract is attributed to the 17th and 18th century Enlightenment philosophers like J. Locke, Montesquieu and J.J Rousseau. In the present essay itis shown that the policy introduced by Eubulus and Lycurgus in 4th century Athens can be interpreted as the implementation of an actual social contract.

Political ideas, and linked to them, political regimes and institutions must be considered to be akin to "living organisms" in the sense of not being static, but evolving and changing in time. One of the major areas of research in the social sciences is to answer how and why this change of structure in societies comes about, the answer being as diverse as those given by Marx and his followers of changing material conditions (mode of production), changing the "political edifice", (überbau) Toynbee [1] with his theory of external challenge and successful response leading to survival and adaptation or collapse, or the New Institutional Economics school initiated by North [2]-[3]-[4] to more recently, the analysis of the emergence of specific macrocultures that are favourable to the creation of democratic forms of government [5]. In the present essay a model of choice by actors is offered to explain how change comes about. Then the model is applied in order to analyse political development in ancient Athens with emphasis on the new political program introduced by Eubulus and Lycurgus.

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## II. A MODEL OF CHOICE

By the middle of the 7th century BC., according to most authors [6] a new battle formation, the "phalanx", linked to a new type of heavy infantryman, the "hoplite", dominated Greek battlefields. Krentz and Hanson offer us a detailed analysis about the function method of the phalanx when it was deployed during war campaigns [7]-[8]-[9]. The phalanx must have been developed by trial and error in battle, as the formation that maximised survival probability for individual participants in it (the hoplites) and collective gain, eg. victory for the city-states soldiers. Each hoplite tried to maximize individual survival probability out of a set of given choices. These choices linked to different battle formations:

$$max\ f\ \{(ev(p),\ ev(l),\ ev(m)\} \qquad (1)$$

Function (1) presents the three choices that the hoplites have to decide upon, with ev: the expected value of survival for each battle formation adopted, with p: the phalanx formation, l: a linear battle formation and m: a mixing (or melee) type of battle, like those of the Iliad.

Through trial and error, the surviving participants would find out that the best (maximizing individual survival) tactical formation of the three was the phalanx, and thus the phalanx would be chosen as the dominant formation, excluding and superseding gradually all other formations. But at the same time as maximizing individual survival probability, the phalanx would be chosen as the strategy (or option) that maximizes collective welfare eg. a common aim at city-state level, which is victory. Thus, in this case, the adoption of the phalanx would at the same time maximize individual and collective welfare.

The introduction of the phalanx and in some cases, such as Athens, of a fleet of triremes, linked to the emergence of a particular set of values, first in the military field, such as discipline, cohesion, trust, courage, equality, self-consciousness of one's individual worth and cooperation and coordination.

These values were then transferred into the political field and were transformed into the values of "isonomia" (equality in front of the law), "isegoria" (equality of the right to speak), "homomoia" (unanimity, consensus), shaping thus a particular democratic macro-culture.

The analysis now focuses to a model of choice under direct democracy. In direct democracy every citizen has one vote and has the right to vote on any proposal brought by any citizen in front of the supreme body of governance of the city-
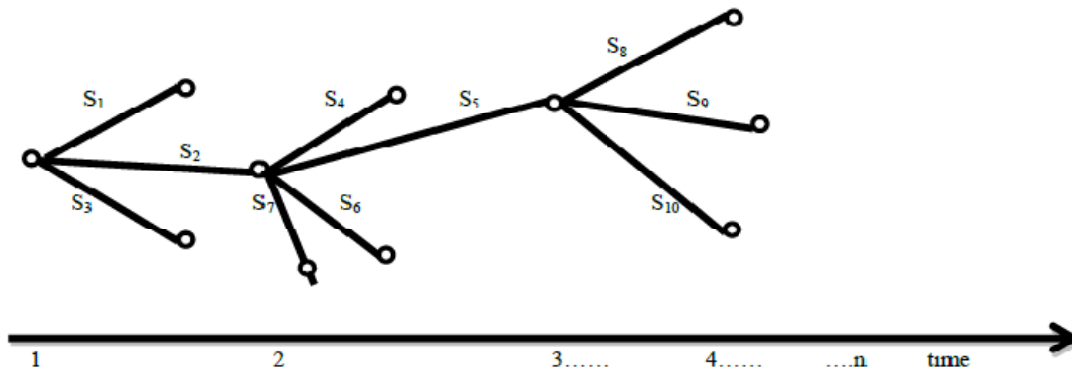
Fig. 1 Decision Tree probabilities and new strategies

state, the Assembly. Each citizen has an individual welfare (or utility) function and when he votes on particular proposals brought in front of the Assembly, he chooses the proposal that he expects it will maximize his individual welfare.

If at time period 1 strategy $S_2$ is chosen (to the exclusion of strategies $S_1$ and $S_3$), then at time period 2 the strategies $S_4$, $S_5$, $S_6$ and $S_7$ are given, and if $S_5$ is chosen, then at time period 3 strategies $S_8$ to $S_{10}$ are given, etc. The rate of change of the political framework depends thus on two factors: i) How many strategies are introduced into the choice set of the Assembly (to be decided upon) at each time period, and ii) How often new strategies are being adopted. Thus, in theory these may be two extremes: In the one, many new strategies are being introduced, and new ones are being adopted with high frequency, older ones being discarded. This could lead to a political system that is very adaptable, but also too fickle and variable, with a high degree of uncertainty, and low predictability. On the other side, with very few new strategies being introduced and even fewer being adopted, this would lead to a system with great stability and predictability.

The most known example of such systems is the chaotic ones. Their predictability usually deteriorates with time. To quantify predictability, the rate of divergence of system trajectories in phase space can be measured (Kolmogorov-Sinai entropy, Lyapunov exponents). The main characteristic of a chaotic system is the sensitivity to initial conditions. A political system that has many strategies to choose from resembles to a mathematical model which is close to a chaotic one. Thus the following function (2) is maximized:

$$max \ (S_1, S_2, ...., S_n) \qquad (2)$$

eg. he chooses the strategy among the various strategies $S_1$, $S_2$,.......$S_n$, in his choice "set", that he expects to maximize his welfare.

The introduction, selection and adoption of new strategies through the procedure described above, means that new laws, institutions and policies are adopted through time, sometimes changing or abolishing old ones. This again shapes political development and its rate of change, as illustrated in Fig. 1.

In such a state the predictability of the next step or the choice of the new strategy is rather impossible. Limitations on predictability could be caused by factors such as a lack in information or excessive complexity. Two close strategies, in a chaotic system, may lead to two totally different results, two totally different political decisions (Fig. 2). The one can be peace, but the other can be warfare.

On Fig. 2 the famous logistic map bifurcation diagram is presented. Parameter r is varied in the interval [2.4, 4.0]. In the beginning (for r < 3) there is only one equilibrium state (i.e. only one strategy). As r is getting bigger (towards the right), there exist 2, 4, 8, 16,… equilibrium states (strategies). For r = 4, there is an infinity of possible states (strategies), thus the political system has high degree of uncertainty and low predictability. On the other hand, a political system that has few strategies as alternative solutions resembles to a deterministic model with perfect predictability in future steps, i.e. a non-chaotic system. This, is a central issue of all democracies old and new, to find an optimal rate of change, not too sudden and fast, not too slow and inadaptable. A system of check and balances, in modern terminology, would thus be considered as successful, if it comes close to the ideal benchmark of an optimal rate of change.

It is of course obvious that it is very difficult to specify in actual terms such an optimal rate of political change, thus offering it as a theoretical benchmark, inspired by neoclassical growth theory.
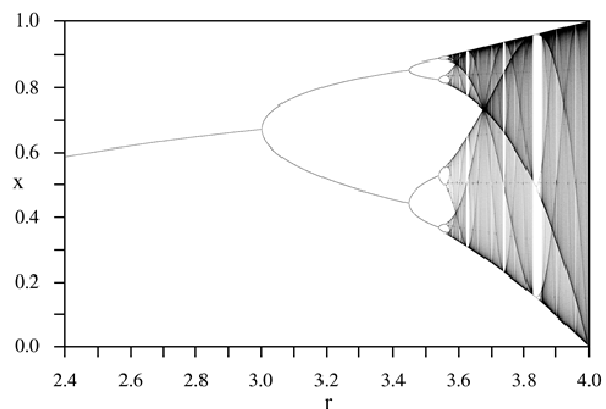


Fig. 2 The famous logistic map bifurcation diagram

Going back to Ancient Greece, the two extremes are Sparta and Athens. Sparta, had in modern terminology, a political system of very strong checks and balances, with political power and decision making diffused among the five "ephors", two kings, the "gerousia" (the 30 elders, which included the two kings) and the popular assembly, called "Apella". This amalgam of political institutions made Rhodes to conclude that Sparta was "a peculiar kind of oligarchy" [10]. The purpose of the system was to guarantee stability and this it did for about three centuries. On the other hand, it was ill adapted to facilitate necessary change and external challenges, with the result of not being able to face the crisis of the 4th century, after which Sparta became a backwater and second rate power.

Athens during the fifth century was characterized by fast political change and institutional innovation, as for example through the reforms of Themistocles, Ephialtes and Pericles, introducing election by lot, extension of the right to be elected and to vote to all citizens, changes in the judicial system ("popular" courts by jurors elected by lot), redistribution of wealth through the introduction of "liturgies", (among which the "trierarchy" was the most costly), introduction of pay for "eklesiastika" (public offices) and for attending the theatrical plays-contests, the "theorika" etc [11].

This made the system very adaptable and changeable, but also very volatile and unpredictable. Especially during the death of Pericles and his moderating influence, the system became perhaps too volatile, especially concerning "foreign policy" and the war issues leading to wrong decisions (like the Sicilian expedition and the recall of Alcibiades) bringing about Athens downfall in 404 BC.

### III. The Emergence of a Theory of Social Contract in Ancient Greece

The central idea of the "social contract" is that society and its institutions, are based on an agreement among its individual members. The "modern" theory and discussion of a social contract and the "natural rights" of man, is based on the works of Grotius, Pufendorf, Hobbes, Montesquieu and especially J.J. Rousseau, who published his Du Contract Social in 1762. What it is shown here, is that the idea of individual ("human" and "civic") rights and a social contract was explicitly proposed in ancient Athens during the 5th century BC.

The first explicit formulation of a theory of social contract is to be found in the mid-5th century BC writings of the orator Antiphon, who thus preceded Rousseau by about 2200 years. More specifically, we do not have complete extant works by the orator (sophist) Antiphon, but fragments from his books On truth and On concord ("PeriHomonoias"). A fragment found on a papyrus during the 19th century from On Concord, contains his thesis on natural rights and a social contract [12]. Antiphon's work contains a declaration on a natural law, as against the then prevailing conventional man-made law. He, a member of the sophist movement, posed a strong criticism on the ways of implementing justice regarding them as ineffective [13]. By making a distinction between what is natural and unchangeable ("physis") and the man-made law ("nomos"), Antiphon argued that people create laws which are more or less the result of a human consent or agreement between societies and thus they may be the result of human's self-interest. Thus Antiphon believed that human laws are created artificially while the laws of nature are compulsory. [14].

This made him also believe that the human law could be violated by people in case they could avoid punishment. On the existence of natural law, and thus natural rights, Antiphon based the idea of a social contract as the basis of society, as Rousseau would do again on the 17th century. The ideas for a social contract can also be found in the views of another pre-Socratic philosopher, Protagoras (circa 490-420 BC). In his essay On Truth, he also uses the antithesis of law versus nature ("nomos/physis") to claim, in accordance to Antiphon, that (human) laws are superficially imposed on citizens while those arising from nature ("physis") are unavoidable [15].

Protagoras in his Great Speech, (Plato, Protagoras 320c-324c) clearly identifies his views on a social contract: He believed that each person entered a political community for reason of self-preservation and agreed to "obey" certain regulations designed to promote the survival of himself and the other members of his community [16].

Social contract implications in Protagorean teaching have also been spottedand analysed in detail by Farrar [17]. Similarly, in Plato's Republic Glaucon, Plato's older brother, and like him, amongst the inner circle of Socrates' young affluent students, argues that "men found it beneficial to enter into an agreement in order not to suffer injuries and injustice". Hence they began to enact "nomima" and "dikaia" (which means to behave according to laws and with fairness) in order to fulfill this agreement [16, p. 26].

In other words, for Protagoras, justice can be seen as compromise among people and not as a good in itself [18].

The thesis above is also verified by Kerferd, [19, p. 147] who argues that "political obligation flows from actual or implied contractual agreement". Parallel views on Plato's Republic are also expressed between Socrates and the sophist Hippias and are mentioned in Xenophon's Memorabilia (IV.4). [20] In this dialogue Hippias asks for Socrates to interpret the meaning of justice and Socrates responds by connecting justice with obedience to the laws as well as to "homonoia" (concord) among the citizens.

The idea that the Greek society during classical period (circa 510-322 BC) was familiar to the values and principles of a social contract is also corroborated by Plato, who in his Kriton clearly gives us a picture of a society where every young Athenian, who was at the age of citizenship (in ancient Athens, only males who were 18 years old and more, owned land, and were free, had the right to become citizens with full political and voting rights) had the right to "choose" to accept and conform to the laws and the customs of his city-state, (and thus signing and accepting a social contract of values, ethics and rules of behavior), or otherwise, to reject them. In case of a rejection, he should abandon the city. However, he could keep his belongings and search for another settlement in a colony or in another Greek city-state of his preference. De

Romilly [21] believes that the terms of acceptance or not of a contract are clearly specified here.

De Romilly also provides us with another relevant example, that of Demosthenes, who during a political trial he rhetorically asks the jurors about who guarantees their personal safety when after the end of the trial they return to their homes. The answer to Demosthenes is obvious: It is the "law".

IV.  The Implementation of a Theory of a Social Contract in 4th Century Bcathens

Athens developed the most advanced system of direct democracy in ancient times under which any citizen, called "ho voulomenos" (he, who wishes to propose) could introduce

in front of the decision making body, the Assembly ofcitizens, (requiring a quorum of 6000 present) proposals on any subject, as external policy, (war and peace), public choice for example, the famous naval law of Themistocles [22]-[23] and monetary-currency policy, eg. Nicophon's monetary law of perhaps 376 BC. on the parallel circulation of all good coins and the state's guarantee for their acceptance [24]-[25]. A detailed analysis of this working of direct democracy, and the initiator ("ho voulomenos") as enriching the exiting choice set of strategies, is offered by Kyriazis and Karayannis [26].

During the second half of the 4th century, two "politicians" Eubulus and then Lycurgus used the institutional setting of direct democracy to introduce for the first time ever, a social contract in practical terms. At the beginning of the 4th century, Athens attempted to reconstruct the Athenian League which had been abolished after their defeat in the Peloponnesian War. The League was successful for some years, so long as some city-states felt threatened by Spartan power and thus needed Athens' protection. After the sudden decline of Sparta through two decisive defeats by the Thebans (at Leuctra 371 and Mantinea 362), many allies felt that they did no more need Athenian protection (and wanted to get rid of the burden of payments to the Athenian war treasury linked to this).

Athens tried to prevent them to break away and this led to the so called Social War (circa 357-355 BC). This created severe strains in Athenian finances, revenues falling to 140 talents per year (due in part to much lower custom duties from trade, since war inhibited trade) whereas expenditure soared. Still, the majority of the poor Athenian citizens voted for the continuation of the war, one of the main (if not the principal) reason for this being economic self-interest. Many poor citizens found a stable and not very dangerous employment as rowers in the fleet, which during wartimes comprised between 50 to a maximum of over 100 ships (for all out short term efforts) giving employment from 8.500 to 15.000 rowers (out of a total citizen population of perhaps 30.000 in the 4th century). This statement that employment in the war time Athenian navy was relatively safe may sound strange, but during the 4th century, it was so.

After the battle of Naxos in 376 BC, in which the Athenian navy reestablished its supremacy for the next half century to its final defeat of Amorgos in 322 BC, the Athenian fleet fought numerous skirmishes but no major losses comparable to those of the Peloponnesian War. For estimates of the cost of war see Pritchard [27] and Arvanitides and Kyriazis [28]. Middle-class hoplite Athenians, who could not cultivate their farms when being absent in foreign expedition and rich Athenians losing revenue from a reduction of trade, banking, exports and being burdened by "trierarchies" and "eisphora", had opposite interests.

Thus Eubulus, the leading orator and politician of the 350's proposed a compromise between the different interest groups which can be interpreted as a social contract, implemented by a vote in the Assembly. In exchange for voting for peace, (to the benefit of the rich and the middle classes), the poor would be compensated for their loss of wages as rowers by receiving an increase of "theorika" payments and also employment in a public works program by the city. Increased theorika payments would be financed through increased state revenue (increase of the sums of custom duties 2% on the value of exports and imports) due to an increase in trade, and more intensive exploitation of the state's property like the Laureion silver mines).

In order to safeguard his proposal against future proposals favouring a war strategy, he proposed a law forbidding the use of "theorika" payments for any other purpose on pain of death. This proposal was also adopted. Also, he proposed that the "eisphora" (a tax on property paid by the rich up to them during times of war) should become permanent, as an additional source of revenue for the state's budget, out of which "theorika", "eklesiastika" (payment for the poor so that they would attend the Assembly) and the public building program could be financed [11].

The "eisphora" paid by the rich now, also in peacetime is exactly the compensation which guaranteed to the poor that they would be at least as well off during the peace situation, as during the war situation. Eubulus compromise lasted for about twelve years, up to 340 BC., and improved dramatically both the economy and the public finances of Athens. State revenue increased from a law of 120 talents to 400 talents. Only the threat of the Macedonian expansionism under Philip coupled the speeches of Demosthenes and reversed the peace policy.

That the Macedonian threat was real was realized by almost every Athenian, when King Philip seized in a surprise move, a fleet of 240 Athenian merchant ships carrying grain. Athenian population was dependent on the imports of cereals, since it was not self-sufficient in grain products [29].

After the defeat of the Athenians, the Thebans and their allies by the Macedonians at the battle of Chaeronea in 338 BC., Lycurgus, a former collaborator of Eubulus, (who probably had died before 340 BC) took over and proposed a similar compromise-social contract to the one implemented by his forerunner. This was adopted by the Assembly, and brought about the lightest period of peace in the history of the Athenian democracy, which lasted to 322 BC (Lycurgus died in 323 BC, the same year as Alexander the Great).

The period 338-322 BC is almost a second Golden Age for Athens. Public revenue soared at 1200 talents per year, which permitted Lycurgus to implement a vast public works

program, second only to that of Pericles, which it may regarded, in modern terms, as a program of expansionary fiscal policy of Keynesian inspiration. This provided with stable employment and revenues a majority of the poorer Athenians. This program provided among others, public utilities (for example a new sewage system for Piraeus) and monuments, such as the theatre of Dionysius beneath the Acropolis, which was finished in marble and the extension of the Pnyx. [11].

The total of 1200 talents revenue for the period of Lycurgus is amazing since it came from Athenian "own" sources, without contributions by allies. Athens did no more have an empire. This revenue was higher than the 1000 talents revenues of Athens during the 440's BC. Burke [30] and Humphreys [31] offer a detailed analysis of the Lycurgus political program.

## V. CONCLUSION

It has been already posed above the question of an optimal rate of change in a democratic system, being fine-tuned between stability and volatility. Modern representative democracies with their checks and balances seem to enhance stability to the detriment of often necessary change and adaptation to new conditions.

The Athenian democracy had achieved a good balance between these two extremes, combining during the fourth century sufficient institutional change (both political and economic) with increased stability, avoiding thus cases of extreme change that rendered the system sometimes too volatile and unpredictable, especially during the period of the Peloponnesian War. This article has firstly presented a model of choice by individual rational actors-citizens in a direct democracy setting, showing the possibility of Pareto improving solutions if compensatory payments were allowed. Then this model of choice was applied to the political programs of Eubulus and Lycurgus showing that they may be interpreted as the implementation of a social contract between different groups of citizens, the poorer "thetes" who had a preference for a war strategy and the better-off middle class ("hoplite" farmers, artisans etc) and the rich (bankers, ship-owners, entrepreneurs) who preferred a peace strategy.

The programs of Eubulus and Lycurgus were a social contract i) in the sense of balancing out the various contradictory interests through the introduction of compensatory payments by the rich to the poor to convince them to change preferences, thus bringing about a Pareto better outcome for the state-society as a whole and ii) in the sense of being actually adopted through voting in the Assembly. The vote in favour of the policy revealed the actual and real preferences of the majority of the voters "sealing" thus the contract and giving it legitimacy and validity.

Direct democracy solves thus a major problem: that of revealing the actual preferences of citizens on particular issues. Representative democracy fails to do so, because under it, citizens-voters have to decide upon a "bundle" of all-encompassing proposals made by each political party, without having the possibility to decide on separate issues.

Another major problem is the time factor. Under representative democracies, voters express, even though indirectly, their preferences only periodically, every four or five years at the elections. In some situations, four to five years may be a too lengthy a period to wait to decide upon pressing issues that many have become acute in the meantime. Thus we tentatively conclude that the implementation of a practical social contract under representative democracy is almost impossible.

This essay may give an impetus to the further research on the theoretical conditions of democracy and on the actual conditions under which social contracts may be implemented in practice in modern democracies.

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