War, disenfranchisement and the fall of the ancient Athenian democracy

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Abstract

The ancient Athenian democracy emerged in 508 (all dates BCE), became a dominant naval power, fought a multitude of external wars and ended in 322 after it was defeated by Macedon and was replaced by oligarchy. The paper employs a political economy framework to examine the demise of democracy. It illustrates that war was a means of redistribution, benefiting the majority of poorer Athenians at the expense of the rich elite, who bore a disproportionate burden of its cost. A model of conflict is set up to study the incentives of the poor majority to go to war. After analyzing a dynamic setting it also investigates the circumstances when after defeating Athens her enemy chooses to impose oligarchy that disenfranchises the poor. As victory at war is probabilistic it is concluded that the fall of the democracy was neither unavoidable nor inevitable.

JEL Classification: D7, H3, N4

Key words: Democracy; Ancient Athens; redistribution; conflict; disenfranchisement

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1.   Introduction

Contrary to the foundation and institutions of the ancient Athenian direct democracy of the 5th and 4th centuries (all dates BCE), its fall in 322 has not attracted the attention of political economy scholarship. The present paper begins such an inquiry by exploring how defeat in war may explain the end of the Athenian democracy. The direct democracy of ancient Athens emerged in 508 with the Cleisthenes reforms that transferred policy making power from the landed aristocracy to the Athenian demos. During her life span the Athenian democracy achieved extraordinary successes and overcame catastrophic failures. Athens won the Persian wars, established herself as the supreme naval power in the Mediterranean Sea, recovered from the defeat against Sparta in the Peloponnesian war in 404 and prospered again in the second half of the 4th century. After fighting several wars with mixed success, she finally succumbed to the might of Macedon in 322, who then established a government run by the rich elite that ended the democracy by disenfranchising the majority of middle and low income earners. Drawing on the economic literature of conflict the paper presents a parsimonious model to examine an abstract picture of a complex phenomenon, which focuses on how wars against foreign powers were used as a means for redistribution in favour of poor Athenians and defeat in war led to the fall of democracy.

The study is part of a growing and distinct literature that uses economic analysis, and especially collective choice and game theory, to explore the political institutions of ancient Greece. Amongst others, Fleck and Hanssen (2006) focus on the ability of democratic institutions, and especially the enfranchisement of the demos, to mitigate time inconsistency problems and encourage investment. In Fleck and Hanssen (2009) they use notions of gains from division of labour and incentive theory to explain why the women of Sparta, a militarist society whose agricultural production was based on occupied land and a captive labour force, uniquely among Greek city–states were granted secure land ownership rights. In a recent contribution (Fleck and Hanssen, 2013) they argue that by ending intra–elite conflicts and adopting growth–promoting policies, archaic period (8th – 6th century) tyrants, rather unwittingly, advanced the formation of a population of citizens with common interests about rules of government that after the (often violent) overthrow of the tyranny led to the emergence of democracy. In a series of studies Lyttkens (2006), (2010) and (2013) employs the framework of institutional economics to study the formation of the city–state (polis) as a

political and judicial unit, intra–elite competition, the institution of governance of ancient Athens and the nexus between institutional changes and economic performance. Pritchard (2007) supports a closer integration of ancient history and political science to gain a greater understanding of the effect of democracy on war. Ober (2008) argues that the power and wealth of ancient Athens was built on democratic institutions, which along with a civic culture, led to the organization and distribution of knowledge among citizens. Kyriazis (2009) uses a public choice framework to examine the Athenian public finances during the 4th century and especially the bargains struck between rich and poor in financing civilian and navy expenditures. Bitros and Karayiannis (2010) and Karayiannis and Hatzis (2012) dwell on the moral norms of Athens including virtue, moderation, honour, respect of the liberty of others, defence of the Athenian way of living and aversion towards the acquisition of undue individual power, and argue that the economic success of Athens was based on market– friendly, growth–promoting institutions administered by men motivated by such moral norms. Pitsoulis (2011) discusses the origins of the majority voting rule. Tridimas (2011), and (2012a) argues that the Athenian institutions of direct democracy, absence of political parties and appointment to office by lot were inextricably linked and mutually reinforcing so that none could operate without the simultaneous presence of the other. Lyttkens (2013) aptly summarises the gains from applying economic methodology to the Athenian democracy; namely, it helps to explain the ancient world, it allows application of the intuition gained from historical societies to the institutions and policies of the modern world, and it offers a better understanding of the use and limitations of economic theory. None of the aforementioned studies however deals with the question of the fall of democracy.

The present paper is structured as follows. Section 2 presents a short historical account of the Athenian democracy, her wars and eventual demise. Section 3 reviews selectively two relevant strands of literature on the change of suffrage and the relationship between domestic political institutions and international conflict. Section 4 presents a static model of war. Dividing the society into two groups, the rich elite and the poor majority of citizens, it identifies when the latter decide to go to war that may be won with a probability that depends on the wealth of Athens relative to that of her enemy and provide them with significant material gains. Section 5 examines whether the Athenian poor choose to go to war in a two– stage game when defeat in the first stage may precipitate the victorious enemy to impose on Athens oligarchy bringing in the end of democracy. Section 6 puts the model in context and discusses how a combination of naval defeat, reliance on agricultural wealth and inherent

structural aspects of direct democracy may have conspired to end the Athenian democracy, while Section 7 concludes.

2.　Historical overview of the Athenian democracy

(i)　5th century

(i)　5th century

Table 1 presents the timeline of institutional and military developments of ancient Athens. The birth of direct democracy, its decision making bodies, their jurisdiction and functions, and the methods of appointing public officials by election or by lot, and their evolution over the span of two centuries have been analysed in several scholarly publications and a short review will suffice here.[1] Briefly, direct democracy rose with the Cleisthenes reforms of 508 and subsequent institutional changes which reconstituted the rules for citizenship, established the assembly of (male) Athenian citizens as the principal decision making body, and set up the Council of Five Hundred selected annually by lot, with responsibilities to prepare the agenda of the assembly and carry out the day–to–day administration. Ten generals elected annually served as commanders of the army and navy, while the *Heliaia* or 'People's Court' of 6,000 jurors selected annually by lot, took responsibility for trying civil and penal cases, checking the eligibility and conduct of public officers and trials for treason and corruption.[2]

The political transformation of Athens was matched by impressive successes in the battlefield. First, in the 490 land battle of Marathon the hoplites army of landowner–farmer citizens defeated the invading Persians. Second, following an extensive shipbuilding programme, the Athenian fleet triumphed against the Persians in the 480 sea battle of Salamis.[3] The Salamis victory marked the transformation of Athens to a sea power which was

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[1] The original account is given in Aristotle (1984). For a short review of the establishment of democracy in ancient Athens and its principal institutions of governance, see Tridimas (2011) and the literature therein. For extensive reviews of the operation of democracy see amongst others Hansen (1999) and Ober (2008). The volume by Raaflaub et al. (2007) offers a lively debate about the origins of the Athenian democracy. Lyttkens' (2013) economic analysis of the causes and consequences of institutional change in ancient Athens, is closest to the intellectual approach of the present paper.

[2] For political economy accounts of the Athenian justice system see D'Amico (2010) who applies the theory of public goods to examine the establishment of public prisons in Ancient Greece. Similarly, McCannon (2010) and Guha (2012) apply political economy and game theory to analyse various procedural and substantive aspects of the trial of the Socrates, the famous philosopher, where, interestingly, they reach contrasting conclusions on the institutional efficiency of the justice system. Fleck and Hanssen (2012) focus on the advantages and disadvantages of the legal system that by relying on large, randomly chosen, juries of non–specialists limited opportunities for rent seeking but eschewed professional legal expertise.

[3] See Tridimas (2013) for an examination of the shipbuilding programme.

accompanied by a shift in the internal balance of political power against the large and mid–size landowners who were the backbone of the land forces, and in favour of the poor class of the *thetes* who before that had been excluded from public office, but gained profitable employment as rowers and proved indispensable in manning the navy. Athens then led the Delian League of Greek islands and coastal city–states to pursue an offensive war against the Persians at the coast of Asia Minor and Egypt. In 478 the alliance was transformed into the Athenian League, where the allies were paying tribute to Athens for protection by her navy. In the mid–5th century direct democracy for the Athenian male citizens was fully functioning. Pay for service in public posts was introduced to allow poorer citizens to take time off their daily work and occupy public office. Being a direct democracy Athens lacked political parties as they are understood today. Appointment to office by lot was a most distinct and significant feature of the Athenian direct democracy, and was considered more democratic than voting, because the latter offered an advantage to the rich elites when contesting elections.[4] At the same time, Athens embarked on an extensive public building programme that included the marvels of the Parthenon, the Long Walls to defend the city and harbour projects.

The expansion of Athenian power and influence opened a deep rift with Sparta, the traditional military powerhouse of ancient Greece, and former ally against the earlier Persian invasions. After various failed attempts to settle their differences, the Peloponnesian War broke out between Athens and Sparta that engulfed not only Greece, but Persia and the Greek colonies of Southern Italy and Sicily. The war was long, lasting from 431 to 404, and multi–phased. Athens was thoroughly defeated by Sparta and Syracuse in the Sicilian expedition of 415–413 where her fleet and troops perished. Following the Sicilian catastrophe, in 411 the democracy was overthrown and an oligarchic dispensation was installed granting political rights to 5,000 men (from the 30,000 male citizens) who could afford hoplite equipment and headed by a Council of Four Hundred. Four months later, in 410, democracy was reinstated by the navy after the latter vanquished the Spartan fleet in Cyzicus. In 406 the Athenians won a further victory in the sea battle of Arginoussai island, but the Spartans destroyed the Athenian fleet in the 405 battle of Aegospotami and blockaded Athens. Threatened by starvation Athens surrendered in 404 and her league was dissolved. A Spartan garrison was stationed and the Long Walls were demolished to diminish Athens' defence capabilities.

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[4] See Tridimas (2012a) and Lyttkens (2013), chapter 5, for an economic analysis of the origins and the advantages of using the lot to fill Athenian public posts.

Table 1: Timeline of the Athenian Democracy	
750 – 500	**ARCHAIC ATHENS** Principal bodies of government: Nine archons selected from the aristocracy, and Areopagus Council consisting of former archons, oversaw laws and magistrates and conducted trials
632/631	The aristocrat Cylon mounts a failed coup to establish himself as tyrant
621	Draco compiles a written code of laws
594	Solon the lawgiver introduced a wealth–based political dispensation
546–510	Tyranny of Peisistratus and his son Hippias
510	Hippias expelled
508 – 404	**CLASSICAL ATHENS. 5TH CENTURY DEMOCRACY**
508–507	Democracy established: Cleisthenes reforms of citizenship and Council of Five Hundred
490	Victory against the Persians at Marathon
480	Victory against the Persians at Salamis
487	Selection of nine archons by lot
479	Victory against the Persians at Mycale – end of defensive wars against the Persians
467 ca	Victory against the Persians at Eurymedon in Asia Minor
462	Powers of Areopagus removed. Introduction of pay for court service
460–446	'First' Peloponnesian War ends with the 30 Year peace treaty between Athens & Sparta
454–404	First Athenian League
451	Pericles' law restricts citizenship to those whose both parents were Athenians
431–404	*Peloponnesian War, Athens V Sparta*
421	Peace of Nicias after indecisive campaigns
415– 413	Sicilian expedition of Athenian navy. Athens defeated by Syracuse and Sparta
411	Democracy overthrown by oligarchic coup
410	Democracy restored by the Athenian navy
407	Athens wins the sea battle of Arginoussai
405	Defeat of Athens at Aegospotami
404	Athenian defeat and surrender, Tyranny of the Thirty
404 – 322	**CLASSICAL ATHENS. 4TH CENTURY DEMOCRACY**
403	Democracy restored
403/402	Introduction of pay for attending the assembly
395–387	Corinthian War – Athens unsuccessful
378–355	Second Athenian League
358–355	Social War – Athens unsuccessful
355 ca	*Theoric* (festival money) fund formalised
355–346	Sacred War – Athens unsuccessful
338	Athenian defeat in Chaeronea by Philip II of Macedon
323–301	*Wars of succession to Alexander the Great*
322	End of the Athenian Democracy after defeats by Macedon in Amorgos and Crannon
322 – 229	**HELLENISTIC ATHENS**
319	Athens granted autonomy by Macedonian 'regent' Polyperchon
317	Autonomy revoked by Macedonian General Cassander after defeating Polyperchon. Demetrius Phalereus selected as 'steward'
307	Macedonian General Demetrius Poliorcetes expels Demetrius Phalereus
301	Poliorcetes defeated at Ipsus. Athens ruled by tyrant Lachares
294	Demetrius Poliorcetes regains possession of Athens
287	Athens revolted against Demetrius Poliorcetes
267–261	Chreamonidean war of Athens and Sparta against Macedon. Athens defeated
229	Helped by the Achaean League Athens liberated after paying the commander of the Macedonian garrison. Athens no longer plays any significant role in the affairs of Greece nor the conflicts between Macedon and Rome

The democratic constitution was abolished and Athens was ruled by a cruel 30–member strong oligarchic commission, known as the "Thirty Tyrants". Their rule was based on terror and intimidation, condemning citizens without trial, persecuting and executing opponents and confiscating their properties. The democrats that managed to flee regrouped and in 403 they entered Attica. After winning the battle against the oligarchs, they expelled the commission and restored democracy. The remnants of the oligarchs appealed to Sparta, but the latter decided to settle: the Athenians were left in control of Athens and the oligarchs were allowed to set their own polis in Eleusis in northwest Attica. Two years later the democrats retook Eleusis and the remaining oligarchic leaders were executed.

(ii)   4th century

A number of institutional changes followed. Blaming the 'demagogues' for mistaken choices and defeat in the Peloponnesian War, the powers of the Assembly were restricted. Laws describing "general norms without limit of duration" were no longer to be decided by the assembly but by a special board of legislators, chosen by lot from the same panel of 6,000 jurors of the People's Court. The relative power of the Popular Court against the Assembly also increased, as it was granted the power to nullify Assembly measures deemed contrary to the laws, fine their proposers, and impeach politicians accused for attempting to overthrow the constitution, treason, deceiving the people and corruption (see Hansen, 2010). Funding of a variety of state functions was then fixed by law diminishing the role of the Assembly in deciding public expenditure. The new elected offices of the treasurer of the military fund, the board of the *theoric* fund to manage festival money, and the controller of the finances were also established. Supervision of the administration of the laws was transferred to a different judicial body, the Areopagus. On the other hand, with the restoration of democracy, pay for attending the Assembly at the average daily wage was introduced. Gradually the economy recovered and public revenues burgeoned. Helped by Persian money, Athens rebuilt her fleet and formed new alliances but did not levy tribute. Fighting against Sparta restarted with the Corinthian war, 395–387. A new anti–Spartan naval alliance, the second Athenian League was set up, 378–355, and fought several wars against rival Greek city–states but Athens failed to achieve the earlier supremacy. In the mid fourth century Athens clashes with the rising power of Macedon, whose ample fiscal resources and superior military could not be matched by Athens. Philip of Macedon inflicted a heavy defeat on an Athenian–Theban alliance in the 338 battle of Chaeronea forcing the defeated Greek city–states to join the

Macedonian alliance that led the invasion of Persia under Alexander the Great, but otherwise treated Athens leniently.

Inequality, taxation and political divisions

Athenian citizenship conferred not only political rights but important financial benefits too. Over and above paying those serving in public office, the Athenians received *theorica* – "theatre money" – to attend theatre plays and festivals, while the great majority of the Athenian citizens were excluded from direct taxation.[5] Athenians perceived personal taxation as a sign of servitude. It was Cleisthenes who abolished the tax on produce that had been in place before (Harris, 2002). Only the "rich" were liable to a property tax introduced in 428/7 to pay for the war against Sparta and became permanent in the 4th century, at a tax rate of 1%. Who were the rich is a vexed question. According to Cartledge (2009, p.23) "The criterion of distinction was leisure: what mattered was whether or not one was sufficiently 'rich' not to have to work at all for one's living ... The relationship of rich and poor citizens was conceived as one of permanent antagonism, which too often took an actively politically form". Jones (1958) calculates that 6,000 Athenians had to pay that tax.

In addition, the 1,200 richest Athenians were liable to perform liturgies, by which they rather than the state paid for the provision of public services, like a *trierarchy* (the responsibility to pay for the command, outfitting and maintenance of a trireme for one year), and public festivals (including staging theatrical plays, choirs, and troops of runners for various competitions).[6] Another 4th c. liturgy was the advance payment of the total sum of property tax by the 300 richest Athenians (with estates worth between 3 and 4 talents), who would in turn collect the tax due by the rest liable to pay. Despite their mandatory nature, rich Athenians had an incentive to spend generously on liturgies: Those harbouring political ambitions for elected office had the opportunity to advertise and promote themselves. Equally, in the 4th c. performing a liturgy was a useful defence against court accusations that a rich man avoided his duties to the polis. Lyttkens (1994) and (2013) argues that the 4th c. formalization of liturgical duties including the liturgy of advance–tax–payment, and the

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[5] See Rhodes (2013) for a recent account of the organization of Athenian public finances and Tridimas (2015) for an examination of rent seeking in ancient Athens.

[6] "... to be one of the rich citizens who performed liturgies a man would have to have a property of at least 3 or 4 talents. 1 talent equals what an ordinary Athenian could earn in the course of more than ten years, so that the property of any one of the roughly 1200 liturgists would represent a lifetime's ordinary earnings" (Hansen, 1999, p.115). See also Kaiser (2007) who uses an asymmetric–information, game–theoretic framework, to analyze how the system of liturgies dealt with issues of efficiency, feasibility, and budgetary balance.

associated partial redistribution of powers from the Assembly to the courts and Areopagus (where the rich could be more influential), signified an increase in the political influence of the rich and their control of tax revenues, because their agreement and cooperation became a necessary condition for the operation of the system. In a similar vein, Kyriazis (2009) argues that extensive 4th c. peacetime public expenditure that benefited primarily the poor citizens (*theorica* and employment in public administration) aimed to incentivize them to vote for peace instead of war and its spoils. An additional, but more sinister method of securing revenue from the rich was through confiscation of properties by the courts. It must also be noted that the 4th century marked the rise of anti–democratic thinking. Philosophers like Plato, Isocrates and Aristotle denounced the democracy as a tyranny of the poor over the rich, while Xenophon and Isocrates also exalted the virtues of kingship.[7]

Drawing on the literary sources, Kron (2011) illustrates the inequality of wealth and its concentration in the hands of the rich elite. He estimates that in the mid to late 4th c. total Athenian wealth was 12,661 talents, which with a population of 31,000 adult male citizens implies a mean wealth of 2,541 drachmas (1 talent = 6,000 drachmas). Further, he calculates that median wealth stood at 925 drachmas, the Gini coefficient was 0.71[8], the top 1% of the population (that is the class charged with advance–tax–payment liturgy) owned 30.9% of wealth and the top 10% owned 60.2%, and that there were about 5,000 landless Athenians. Unfortunately, this most informative snapshot of wealth distribution cannot tell us whether it had worsened or improved in comparison to earlier periods.

Thus, like all democracies, Athens too engaged in redistribution from the rich to the poor. Although in the direct democracy there were no political parties to articulate class interests and ideologies or coordinate election campaigns, the division between the rich and the poor was clear and was often manifested in different foreign policy objectives. The rich who preferred not to pay for financing wars, and the farmers who worried that their land would be destroyed when called up for military service (either by neglect or invaders), favoured peace. On the other hand, the poor with less property to lose, the prospect of gainful employment in the fleet and land allotments abroad if victorious, the so–called "*cleruchies*", often voted for war, while also worried about the fate of democracy if overran by Athens' enemies (Jones, 1958, chapter 5). With the poor being the majority, it comes as little surprise that Athens was

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[7] For an informative review of ancient Greek political thinking see Cartledge (2009).

[8] In comparison, the respective Gini coefficients for England were 0.93 in 1911–13 and 0.83 in 1953–54, and 0.79 for the USA in 1998 (Kron, ibid.).

almost constantly at war. In the 141 year period 479–338 Athens had not had more than ten consecutive years of peace and was on average at war for two out of three years. Without denying the importance of honour and status, emphasised by historians (Cartledge, 2009), war served purely materialistic and redistribution objectives too: gainful employment, spoils, tribute and new lands at a time when in the absence of industrial capital land was the basis of the economy.

(iii)   Defeat and the end of democracy

In 322, following the death of Alexander the Great, Athens revolted against the forced alliance with Macedon. Her navy was soon destroyed in the sea battle of Amorgos[9] and the land forces were overwhelmed in Crannon. The ancient historian Diodorus Siculus who provides the original source of the events writes (18.18.4) that Antipater, leader of the Macedonian victors, changed the government from a democracy to "*timocracy*" limiting the franchise to 9,000 citizens owing property over 2,000 drachmae, expelled those that supported continuing war against Macedon to Thrace, forced Athens to accept anti–democratic political refugees, demanded war reparation payments and established a garrison at the port of Munichia. The new property–based regime abolished the People's Court, ended pay for public service and assembly participation, and reduced assembly meetings to a ceremonial function. The *trierarchy* liturgy was abolished. A reversal of redistribution through the public purse followed. Demetrius Phalereus who ruled under Macedonian guardianship between 317 and 307 abolished about 100 festival liturgies. Each remaining festival was financed by a single individual, the *agonothetes*, who would have the obligation only once in his lifetime and was given public funds to spend to top up his own contribution (Davies, 2008). A series of ultimately failed attempts to regain her previous prominence followed when Athens was often the bone of contention between rival successors of Alexander (see the rows under "Hellenistic Athens" of Table 1). Her power eventually declined ending "her history as an independent city" (Will, 2008).

3   A selective review of related political economy literature

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[9] Historians consider the political importance of the defeat as grave as the Athenian victory at Salamis in 480 BC that inaugurated the rise of classical Athens (see Will, 2008; Ashton, 1977, and the references therein).

The narrative of the rise and decline of Athens relates to at least two strands of contemporary literature, notably, the reasons for the demise of democracy, and second, the effect of domestic political institutions on international conflict.

A rich and expanding volume of work has developed to explain the emergence of democracy and its chances of survival against threats from coups and dictatorship (see Tridimas, 2012b for a recent review). A distinct strand of literature views the struggle between oligarchy and democracy as the outcome of conflicts of an enfranchised rich elite interested in preserving its wealth and privileges against the disenfranchised poor majority that favours redistribution from the rich to the poor. Acemoglu and Robinson (2000), Rosendorff (2001), Acemoglu and Robinson (2006), and Robinson (2006) view the concession of suffrage by the elite to the poor as a credible mechanism of income redistribution to stave off a revolution by the disenfranchised poor that would expropriate the assets of the rich. However, if after the establishment of democracy, the elite are stung by the amount of taxes they pay to finance redistribution to the poor under majority rule, they may mount a coup to overthrow the democracy and reduce redistribution. Rather than looking at the elite against the poor, Bueno de Mesquita et al. (2003), Bueno de Mesquita and Smith (2009) and Lizzeri and Persico (2004) explain democratization as the result of conflicts within the elite, where in order to secure higher public good provision a section of the elite extend voting rights to previously disenfranchised groups that also benefit from those public goods.[10] Redistributive explanations of democratization contrast with the modernization hypothesis of Lipset (1959), where industrialization and economic development increase the volume, complexity and sophistication of transactions resulting in despotic rulers losing control and democracy prevailing. Przeworski (2005) advocates a more nuanced view of the latter maintaining that economic development does not affect the probability of an autocracy transforming to democracy but democracy is more stable in a developed economy.[11] Nor is revolution necessary for democracy. Congleton (2004), (2007) and (2011) emphasizes that successful revolutionary leaders are less likely to establish democracy preferring not to risk their

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[10] External threats may also lead to democratization as noted by Therborn (1977), while more recently Ticchi and Vindigni (2008) argued that the elite offer political rights to the poor in exchange for their willingness to fight against a foreign enemy and extend voting rights to women so that they replace men as the labour force in the industry.

[11] Empirical findings in support of the hypothesis are presented in amongst others Barro (1999), Boix and Stokes (2003), Papaioannou and Siourounis (2008), but more recently Aidt and Franck (2013) find only limited support for the hypothesis. For the extension of suffrage to women and how this is related to war see Hicks (2013). See also Jung and Sunde (2014) for a synthesis of how the size and distribution of income may affect the evolution (and breakdown) of democracy.

dominance. He shows that during industrialization universal suffrage was the result of changing economic interests, ideology against earlier illiberal norms, electoral objectives of political parties and threats of industrial unrest. He also points out that democratization is not inevitable and reversals to autocracy do occur.

The above explanations of democratization focus on the interplay of domestic factors. Reversing the arguments, democracy may fall because the elite which in the face of extreme income inequalities chooses to suppress the majority instead of allowing redistribution to take place via democratic institutions (as in the account of Acemoglu and Robinson), or because the economy is not sufficiently developed and sophisticated (as per Lipset and Przeworski), or because the economic, electoral and ideological incentives of the elite to grant the franchise are absent (as in Bueno de Mesquita et al, Lizzeri and Persico, and Congleton). However, none of the above accounts examines military defeat as the cause of the end of democracy.

Turning to the issue of how domestic institutions may affect the incentives of a country to go to war, research has explored the "democratic peace", that is, the observation that democracies are less likely to fight against each other than non–democracies, and the related issue that democracies tend to win wars that they fight; see amongst others, Lake (1992) and Reiter and Stam (2003). Garfinkel (1994) demonstrates that because in a democracy the government risks losing an election if it diverts resources away from civilian causes that benefit all citizens, military spending in democracies is less than in non–democracies, which in turn decreases the likelihood that democracies engage in conflict. Similarly, Bueno de Mesquita et al. (2003) focusing on the support that a leader receives from the members of the society with the right to select the political leader, the so–called selectorate, argue that democracies which are characterized by large selectorates impose more stringent constraints on their leaders to go to war, so that in general they are less prone to fight against each other, they tend to fight against non–democracies, and they pick fights that they expect to win. Using an analogous calculus of costs and expected benefits, Jackson and Morelli (2007) show that when the ruler of a country expects a net–of–cost gain from war that is greater than that of the representative member of the society, the country is more likely to go to war. They conclude that since the ruler is closer to the median voter in democracies than in dictatorships, democracies are less likely to fight against each other.[12] This however does not

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[12] See also Tangeras (2009) for a similar conclusion using a principal – agent framework.

preclude democracies fighting against non–democracies. On the other hand, Hess and Orphanides (2001) are less sanguine about democracies avoiding war. In a general equilibrium model they show that even democratically elected incumbents with poor records of managing the economy are probable to start a potentially avoidable war because it offers them an attractive diversion that if successful can secure re–election. They contend (pp.801–802) that "Another way to sustain democratic peace would be to alter the domestic institutional framework underlying foreign policy decisions so as to involve voters directly … (i.e., a direct democracy)". However, as we saw above the argument was not upheld in the case in ancient Athens. On the other hand, it was also true that Athens was typically allied to Argos, another democratic city–state.

Finally, investigating post–war settlements in the light of the logic of political survival, Bueno de Mesquita et al. (2003) model the leader of a war victor as having three options against the defeated country, namely to take her resources, install a puppet government or to change her political institutions. The purpose of the latter is not so much to obtain material benefits, but to secure that the foreign policy of the defeated country will serve the policy interests of the victor. Noting that the different options imply different costs, they predict that in order to increase his chances of domestic survival a leader of a small ruling group in a large selectorate (as in dictatorships) will choose to take resources rather than the other options.

4   A model of democracy and war

The historical narrative of the fall of the Athenian democracy revealed the following stylized facts (a) conflicts about income distribution were prominent during the lifetime of the democracy; (b) war played a redistribution role where the poor majority favoured war as it increased its expected income while the rich preferred peace to avoid the costs of war; (c) despite repeated defeats the Athenians chose to wage further wars; (d) military defeat triggered the interruption of democracy and eventually ended it. Therefore a systematic explanation of the fall of the Athenian democracy requires a combination of two elements of conflict, domestic antagonism between the rich elite and the poor majority and inter–state war. This is accomplished in the present section by using a formal model of conflict to examine the decision of the poor majority to vote for war. It builds on previous work by Jackson and Morelli (2007) by modelling the interests of the pivotal agent of the warring state, the majority of the Athenian poor in this case.

Athens is assumed to consist of two types of individuals, the majority of poor indexed by P, with fixed income Y_P, and the minority of rich indexed by R, with fixed income Y_R, where $Y_P < Y_R$. Total income is denoted by Y. Let $\gamma > \frac{1}{2}$ denote the proportion of the income of the rich and $1 - \gamma < \frac{1}{2}$ the proportion of the income of the poor. The parameter γ measures the degree of income inequality between rich and poor; an increase in inequality implies an increase in γ. We may then write $Y_R = \gamma Y$ and $Y_P = (1-\gamma)Y$. Both the poor and the rich elite are modelled as single players.[13]

In a quest for income gains the majority of poor Athenians may decide to go to war against a foreign power E, whose income is denoted by Z. Let δ and $1 - \delta$ denote the fractions of war gains obtained by the rich and the poor Athenians respectively, where $0 \leq \delta \leq 1$. To focus on how war advanced the interests of "the democrats and those who lived off war" (Microyiannakis, 1973, p.245), it is further assumed that the share of war gains of the rich is smaller than their share of domestic income, $\gamma > \delta$ and thus the other way around for the poor, that is, $1- \delta > 1-\gamma$.[14] In other words, materially the poor benefit relatively more than the rich from a victorious military campaign. Whoever wins the war takes a proportion $0 < g < 1$ of the income of the defeated.

The violence associated with war is assumed to destroy a fraction ϕ of the income of each side. Let superscripts V and L denote victory and defeat respectively. If Athens wins the war the income of the poor Athenian, total Athenian income and total enemy income are respectively

$$Y_P^V = (1 - \phi)\big((1 - \gamma)Y + (1 - \delta)gZ\big); \qquad Y^V = (1 - \phi)(Y + gZ);$$

$$Z^L = (1 - \phi)(1 - g)Z \tag{1.1}$$

If Athens loses the war the respective incomes are

$$Y_P^L = (1 - \phi)(1 - g)(1 - \gamma)Y; \qquad\qquad Y^L = (1 - \phi)(1 - g)Y;$$

$$Z^V = (1 - \phi)(gY + Z) \tag{1.2}$$

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[13] In so doing we abstract from the collective action problem of each group, (Olson, 1965), that is, the incentive of each individual member of the groups to free–ride on the rest of the group, since the collective effort is costly for each individual but beneficial for the group. For detailed treatment of the latter see Moore (1995), Apolte (2012) and Olsson–Yaouzis (2012).

[14] For concreteness, the model abstracts from redistribution through pay–for–service and other public expenditures in ancient Athens discussed above.

Let Π denote the probability that Athens wins the war. Assuming as per standard practice that utility equals the level of disposable income, the expected utility of the poor Athenian and Athens' enemy are respectively written as $A_P^W = \Pi Y_P^V + (1 - \Pi)Y_P^L$ and $E^W = \Pi Z^L + (1 - \Pi)Z^V$. After the relevant manipulations, the payoffs are written as follows

$$A_P^W = (1 - \phi)[(1 - \gamma)Y(1 - g(1 - \Pi)) + \Pi(1 - \delta)gZ] \tag{2}$$

$$E^W = (1 - \phi)\big((1 - g\Pi)Z + (1 - \Pi)gY\big) \tag{3}$$

The probability that Athens wins the war is assumed to be proportional to her relative income as in Jackson and Morelli (2007); that is, it depends positively on the Athenian income and negatively on her enemy's income according to the formula

$$\Pi = \frac{Y}{Y + Z} \tag{4}$$

Under democracy, the majority of the poor Athenians choose to go to war if the war payoff exceeds the certain income from peace, that is, if $A_P^W > Y_P$. Substituting and using (4) we obtain that the latter inequality is satisfied for values such that

$$\frac{1 - \delta}{1 - \gamma} - 1 > \frac{\phi(Y + Z)}{(1 - \phi)gZ} \tag{5}$$

The ratio $\frac{1 - \delta}{1 - \gamma}$ on the left–hand–side depicts the poor Athenian's war gain relative to his domestic income, what Jackson and Morelli (ibid.) call the political bias of the pivotal decision maker, the ratio of what he gains compared to what he risks. Thus, the difference $\left(\frac{1 - \delta}{1 - \gamma} - 1\right)$ represents the redistribution effect of war. In so far as the share of the poor Athenian's war gain exceeds his domestic income share, war results in redistribution in favour of the poor. The ratio at the right–hand–side, $\frac{\phi(Y + Z)}{(1 - \phi)gZ}$, denotes the total loss from war suffered by both sides as a proportion of surviving Athenian gain, the ratio of what is destroyed compared to what is gained from the enemy. Note that the latter does not depend on distribution, that is, it applies equally to poor and rich Athenians, and is increasing in the size of war destruction ϕ. Therefore the poor Athenian chooses war when his redistribution gain exceeds the proportionate loss of war. As already explained, war benefited the Athenian poor from navy employment and associated activities to service the navy as well as exploitation of new lands in the form of cleruchies that transformed

the landless to landlords of the territories under Athenian control. It bears noting that if $\gamma = \delta$, or equivalently, $1 - \gamma = 1 - \delta$, there is no political bias and the difference in the left–hand–side is zero, so that war is never optimal. Given that "nature" decides the size of war destruction, an alternative convenient way is to follow Acemoglu and Robinson (2006) and express the condition in (5) as

$$\phi_P \equiv \frac{g(\gamma-\delta)Z}{g(\gamma-\delta)Z+(1-\gamma)(Y+Z)} > \phi \tag{5'}$$

That is, the poor Athenian chooses war if the destruction from war is below the critical level indicated by the previous inequality; otherwise the destruction from war is so large that the poor Athenian is better off with peace without redistribution. Given the actual size of ϕ, the higher is the critical value of ϕ_P, the more likely is that Athens decides to fight; or equivalently, for a certain level of the critical threshold ϕ_P a lower actual rate of destruction makes war more likely. One may hazard the guess that in comparison to actual war destruction ϕ of modern warfare, its ancient counterpart was smaller making war more likely than now. Although pillaging and loss of life in ancient times is not to be underestimated, man–made capital, including stocks of buildings and machines, was significantly smaller than in the industrial era implying that material losses then were substantially smaller.

The comparative static properties of ϕ_P are as follows

$$Sign\frac{d\phi_P}{d\gamma} = Sign(1-\delta)(Y+Z) > 0 \qquad Sign\frac{d\phi_P}{dg} = Sign(1-\gamma)(Y+Z) > 0$$

$$Sign\frac{d\phi_P}{dZ} = Sign(1-\gamma)Y > 0 \qquad Sign\frac{d\phi_P}{dY} = -Sign(\gamma-\delta)Z < 0$$

$$Sign\frac{d\phi_P}{d\delta} = -Sign(1-\gamma)(Y+Z) < 0 \tag{6}$$

That is, the war threshold ϕ_P is increasing in Athenian inequality γ, enemy of the income, Z and the income that the victor takes from the defeated g. On the other hand, ϕ_P is decreasing in the proportion of enemy income taken by the rich Athenian δ, and the size of Athenian income Y. Intuitively, a victorious war transfers more to the Athenian poor, the lower their domestic income and the more they grab from the enemy. For example, high Athenian income inequality γ leads the decisive Athenian poor to choose war, and so does a large poor Athenian's comparative gain from war, captured by $1 - \delta$, since victory increases his income. On account of these findings, the increased wealth inequality that is presumed to have taken place in the fifth

century (see Karayiannis and Hatzis, 2012, and the references therein) explains the unremitting engagement of Athens in war. On the other hand, a high Athenian income Y implies that war risks a sizable Athenian loss decreasing the likelihood of the Athenian poor choose war.

Similarly, the enemy of Athens chooses war if $E^W > Z$. Manipulating we find that

$$E^W - Z = -\phi Z < 0 \tag{7}$$

That is, for all parameter values the enemy of Athens is always better off by peace; thus, he will never start a war against Athens.

On the other hand, if the Athenian rich are in control of the government, they would choose war when $A_R^W = \Pi(1 - \phi)(\gamma Y + \delta gZ) + (1 - \Pi)(1 - \phi)(1 - g)\gamma Y > Y_R$. However, upon substitution we find that

$$A_R^W - Y_R = -(\gamma - \delta)gZ - \phi\big((Y + (1 - g)Z) + \delta gZ\big) < 0 \tag{8}$$

That is, within the present setting the Athenian rich will never start a war. This finding shows that the enemy of Athens is better off when Athens is ruled by an oligarchy of the rich than a democracy and explains why Sparta and Macedon overthrew the democratic regime after their victories in 404 and 322 respectively. In addition, it offers an alternative, choice – consistent, explanation of the establishment of oligarchies in the Greek city–states by the victorious Macedonian monarchs successors to Alexander in the Hellenistic times (323 – 146), which maintains that oligarchic regimes were set up because of the non – democratic ideology characterizing that period.[15] That is, the material interests of a domestic oligarchy in the defeated side are aligned with the material interests of the victor.

5   Democracy, war and oligarchy in a dynamic setting

The historical narrative showed that war was not a one–shot game and more often than not the combatants renewed the conflict. This section examines the decision to go to war in a setting of a two–stage sequential game, where choices made in the first stage affect the outcome of the second stage. The game is as follows. We assume that in the first stage Athens decides to start a war. The stage ends with either Athens or her enemy winning. In the second stage the winner of the first stage decides. The winner has three choices, namely, to
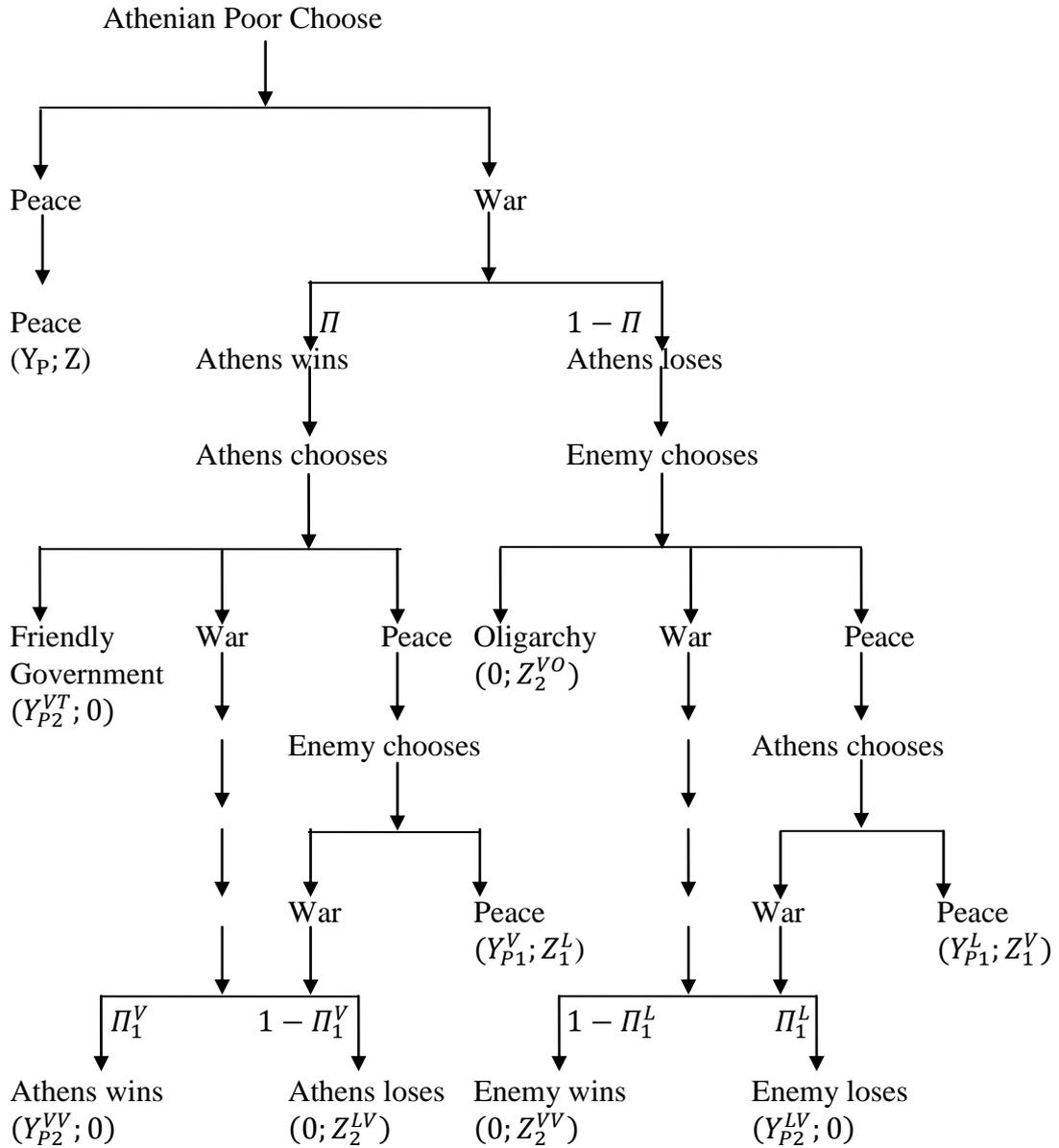
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[15] I thank Roland Oetjen for alerting me to this point.

fight a second period war in order to eliminate the other side, to do nothing on the hope that peace prevails (that is, the other side will also choose peace), or to install a government to his liking on the defeated side so that no further war takes place. The outcome of a new war, victory or defeat, is as before uncertain. Doing nothing raises the risk that the loser of the first stage may regroup and attack in order to recover his losses. For example, Philip did not change the Athenian regime after his 338 victory in Chaeronea, and Athens rose again against Macedon in 322. Thus, the solution of such inaction is optimal if only both sides are better off by not fighting a second stage war. Installing a friendly government takes the form that if Athens won the first stage, she installs a government of local democrats – Athenian sympathisers and establishes cleruchies. On the other hand, if the enemy won the first stage war, he overthrows the Athenian democracy and imposes oligarchy. A government installed on the defeated can be successfully maintained only if the first stage victor commits resources to support it. As the events of 404 showed, the rule of the Thirty Tyrants was short–lived, democracy was reinstated and war re–started. The cost of imposing a government of victor's liking is modelled as a percentage of the total income of the first stage winner. In order to bring the game to a close, it is assumed that if the victor of the first stage installs his favourite regime on the defeated, the income of the latter falls to 0, and similarly, if there is a second stage war the winner takes the entire income of the loser. The game then ends. The extended form of the game is presented in Figure 1, along with the associated probabilities of Athenian victory and defeat and the corresponding payoffs of Athens and her enemy. We solve the game by backwards induction starting from the second stage.

A. When Athens wins the first stage war

Take first the case where Athens wins. At the end of the first stage, denoted by subscript 1, the total incomes of Athens, the poor Athenians and the enemy of Athens are respectively, Y_{P1}^V, Y_1^V, and Z_1^L given above by (1.1). The income endowment of Athens has now changed affecting the incentives to fight in the second stage for two reasons. First, the domestic income distribution has now improved in favour of the poor, so that their gains from further war are relatively smaller; formally, $\frac{1-\delta}{\left(\frac{(1-\gamma)Y+(1-\delta)gZ}{Y}\right)} < \frac{1-\delta}{1-\gamma}$. As a result, their incentive to fight another war diminishes. Second, and contrary to the previous, as the first stage winner Athens has now a larger income; the probability to win a second stage war is then higher increasing the incentive to choose war.

Figure 1: The democracy – war game

Athenian Poor Choose

Peace

Peace
$(Y_P; Z)$

War

Π — Athens wins

$1 - \Pi$ — Athens loses

Athens chooses

Enemy chooses

Friendly Government $(Y_{P2}^{VT}; 0)$ — War — Peace — Oligarchy $(0; Z_2^{VO})$ — War — Peace

Enemy chooses

Athens chooses

War — Peace $(Y_{P1}^V; Z_1^L)$

War — Peace $(Y_{P1}^L; Z_1^V)$

Π_1^V — $1 - \Pi_1^V$

$1 - \Pi_1^L$ — Π_1^L

Athens wins $(Y_{P2}^{VV}; 0)$

Athens loses $(0; Z_2^{LV})$

Enemy wins $(0; Z_2^{VV})$

Enemy loses $(Y_{P2}^{LV}; 0)$

Note: Expressions in brackets show actual incomes at the corresponding stage of the game

Having won the first stage war, Athens now chooses. She has three options, namely, doing nothing, fighting a second period war to eliminate her enemy, or installing a government to her liking on the enemy. If no new war is fought the payoff of the poor Athenian is Y_{P1}^V, but the enemy may then start a second stage war. If war breaks out Athens wins with a probability of

$$\Pi_2^V = \frac{Y_1^V}{Y_1^V + Z_1^L} = \frac{Y + gZ}{Y + Z} > \Pi$$ and takes all of the income of her adversary, but may be beaten with a

probability of $1 - \Pi_2^V$ and lose all her income. If Athens wins the second stage war, the incomes of the poor Athenian and the enemy are respectively

$$Y_{P2}^{VV} = (1 - \phi)(Y_{P1}^V + (1 - \delta)Z_1^L) \qquad\qquad Z_2^{LL} = 0 \qquad\qquad (9.1)$$

where the superscript $i = V, L$ stands for first stage victory (V) or defeat (L), and the superscript $j = V, L$ denotes second stage victory or defeat. On the contrary, if Athens loses the second stage war, the incomes of the poor Athenian and the enemy are

$$Y_{P2}^{VL} = 0 \qquad\qquad\qquad Z_2^{LV} = (1 - \phi)(Z_1^L + Y_1^V) \quad (9.2)$$

The expected utility of the poor Athenian and the enemy are written as (where the W superscript denotes second stage war) as

$$A_{P2}^{VW} = \Pi_2^V Y_{P2}^{VV} \qquad\qquad\qquad E_2^{LW} = (1 - \Pi_2^V)Z_2^{LV} \qquad (10)$$

The poor Athenian chooses war instead of peace when $A_{P2}^{VW} > Y_{P1}^V$. Substituting from the previous definitions and solving we derive that the inequality is satisfied for values

$$\phi_P^V \equiv \frac{(\gamma - \delta)(1 - g)ZY}{(Y + gZ)\big((1 - \gamma)Y + (1 - \delta)Z\big)} > \phi \qquad\qquad (11)$$

That is, for level of war destruction lower than the threshold defined by (11) the poor Athenian chooses war rather than peace in the second stage. The same intuition as in inequality (6) applies here too. The poor Athenian chooses war when the destruction from fighting is not "too much" as the latter is determined in (11), Note that at this level of generality we cannot establish unambiguously how ϕ_P^V compares to ϕ_P.[16]

The defeated enemy decides whether or not to wage war in the second stage by comparing E_2^{LW} with Z_1^L. Upon substituting we have

$$E_2^{LW} - Z_1^L = -\phi(1 - \phi)(1 - g)Z < 0 \qquad\qquad (12)$$

It then follows that the enemy of Athens will not start a second stage war.

The third option is to impose on the enemy a government of local democrats friendly to Athens at a percentage cost τ of her income. The poor Athenian's expected utility from imposing a

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[16] From (5) and (10) we have $Sign\ (\phi_P^V - \phi_P) = Sign\big((1 - \gamma)(1 - 2g)Y - [(1 - \delta)g^2 - 1 - \gamma 1 - 2gYZ - 1 - \delta g 2Z2$ which is ambiguous.

government of local democrats is $A_{P2}^{VT} = (1 - \tau)Y_{P1}^V$. The poor Athenian chooses to install a government of local democrats if $A_{P2}^{VT} > A_{P2}^{VW}$. Upon substituting we have

$$\phi > \tau \frac{Y+Z}{Y+gZ} \frac{(1-\gamma)Y+(1-\delta)gZ}{(1-\gamma)Y+(1-\delta)Z} + \phi_P^V \equiv \phi_P^T \tag{13}$$

That is, if the destruction brought by war is larger than the critical value ϕ_P^T, Athens installs a friendly regime on her enemy after her first stage victory. This way it avoids further war whose outcome is uncertain and may jeopardise the gains from victory.

B. When Athens loses the first stage war

If Athens loses the first stage war, the total incomes of Athens, the poor Athenians and the enemy of Athens are respectively Y_{P1}^L, Y_1^L, and Z_1^V given above by (1.2). As endowments change so do the incentives to go to war. The Athenian income distribution remains as it was before (represented by the γ parameter), so the incentive of the poor Athenian to pursue war remains undiminished. However, the probability of winning that war is now lower since Athens has a smaller income than at the beginning of the first stage, notably, $\Pi_2^L = \frac{Y_1^L}{Y_1^L+Z_1^V} = \frac{(1-g)Y}{Y+Z} < \Pi$. It is now the enemy who chooses at the beginning of the second stage. He has three options, namely, doing nothing, fighting a second period war to eliminate Athens, or installing an oligarchic government and no further war takes place. If no new war is fought the payoff of the enemy is Z_1^V, but Athens may then start a second stage war. Athens wins the latter with a probability of Π_2^L and takes all of the income of the enemy, but Athens may be beaten with a probability of $1 - \Pi_2^L$ and lose all her income. If the enemy wins the second stage war the incomes of the poor Athenian and the enemy are respectively

$$Y_{P2}^{LL} = 0 \qquad\qquad Z_2^{VV} = (1 - \phi)(Z_1^V + Y_1^L) \tag{14.1}$$

If Athens wins the second stage war, the incomes of the poor Athenian and her enemy are respectively

$$Y_{P2}^{LV} = (1 - \phi)(Y_{P1}^L + (1 - \delta)Z_1^V) \qquad Z_2^{VL} = 0 \tag{14.2}$$

The expected utility of the poor Athenian and the enemy are written as (where the W superscript denotes second stage war)

$$A_{P2}^{LW} = \Pi_2^L Y_{P2}^{LV} \qquad\qquad E_2^{VW} = (1 - \Pi_2^L)Z_2^{VV} \qquad (15)$$

Comparing E_2^{VW} with Z_1^V we find

$$E_2^{VW} - Z_1^V = -\phi(1-\phi)(Z+gY) < 0 \qquad (16)$$

That is, the enemy of Athens is better off by not pursuing further war. On the other hand, the poor Athenian is better off with second stage war when $A_{P2}^{VW} > Y_{P1}^L$, which holds when

$$\phi_P^L \equiv \frac{(\gamma-\delta)(Z+gY)}{(1-\gamma+(\gamma-\delta)g)Y+(1-\delta)Z} > \phi \qquad (17)$$

From (5′) and (16) we have $\phi_P^L > \phi_P$.[17] The latter shows that after defeat in the first stage war the destruction threshold for pursuing war in the second stage is larger than that of the first stage. Having lost the earlier war, the poor Athenian is now prepared to tolerate higher losses in exchange for victory in the later stage. This further implies that in the setting of the present model and other things being equal, the defeated state has a heighten incentive to pursue second stage war. Similarly, from (10) and (16) we obtain $\phi_P^L > \phi_P^V$.[18] Again, if defeated in the first stage, the poor Athenian is willing to go to a more destructive war in the second stage in order to recover his losses. Finally, if the enemy decides to overthrow the Athenian democracy and install an oligarchy, it will cost a proportion λ of his income; that is $E_2^{VO} = (1-\lambda)Z_1^V$. The enemy will impose oligarchy if $E_2^{VO} > E_2^{VW}$. The latter is satisfied when

$$\lambda < \phi \qquad (18)$$

Analytically, the enemy of Athens will choose oligarchy if the rate of destruction from war exceeds the percentage cost of imposing oligarchy; imposing oligarchy is the least costly option for the victorious enemy. The subgame equilibrium is then as follows

1   For $\phi_P < \phi$ there is no war in the first stage and neither Athens nor her enemy take any further actions. When Athens and her enemy choose peace in the first stage, the choices that the two sides face in the second stage are identical to those in the context of a single – shot game, so that peace will be chosen again in the second stage (see the leftmost branch of the game)

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[17] $Sign\ (\phi_P^L - \phi_P) = Sign\ \{Y(Z+gY) + (1-g)Z^2\} > 0$
[18] $Sign\ (\phi_P^L - \phi_P^V) = Sign\ \{(1-\gamma)Y^3 + ZY^2(2(1-\gamma)+g(1-\delta)) + Z^2Y((1-\delta)(1+g+1-\gamma+1-\delta Z3>0$

2   For $\phi < \phi_P$ the poor Athenian chooses war in the first stage. There are two possibilities

2.1   First, Athens wins the war with probability Π. Then

    2.1A   If $\phi_P^T < \phi < \phi_P$ Athens installs a government of local democrats on the defeated enemy and the game ends

    2.1B   If $\phi_P^V < \phi < \min[\phi_P, \phi_P^T]$[19] the Athenian poor choose peace in the second stage, and as the enemy of Athens will not start a second stage war; the game ends

    2.1C   If $\phi < \min[\phi_P, \phi_P^V]$[20] the Athenian poor choose a second stage war that Athens wins with a probability of Π_2^V and the game ends

2.2   Second, Athens loses the first stage war with probability $1 - \Pi$. Then

    2.2A   If $\lambda < \phi < \phi_P < \phi_P^L$ the enemy imposes oligarchy in Athens and the game ends

    2.2B   If $\phi < \min[\lambda, \phi_P, \phi_P^L]$ [21] the Athenian poor choose to fight a new war in the second stage; Athens wins the war with probability Π_2^L and the game ends

    Note that the intermediate case $\phi_P^L < \phi < \lambda$ (where the enemy would choose peace and so would the Athenian poor) is ruled out by virtue of the finding $\phi_P < \phi_P^L$ and the assumption $\phi < \phi_P$

Let $\mathcal{A}$ denote the payoff and let be β denote the discount factor used to find the present value of the second stage payoff, where a small (high) value of β indicates an impatient (patient) actor, that is, one who attaches greater (lower) value to the present than the future. The expected utility from the possible first and second stage outcomes under the set of circumstances listed previously are then as follows

If $\lambda < \phi_P^V < \phi_P^T < \phi < \phi_P < \phi_P^L$, then

Athens wins the first stage war with probability Π and installs local democrats on the defeated in the second stage, or she loses first stage war with probability $1-\Pi$ and the enemy imposes oligarchy in Athens. Thus, from (2.1A) and (2.2A) we have

$$\mathcal{A}_1 = \Pi(Y_{P1}^V + \beta(1 - \tau)Y_{P1}^V) \tag{19.1}$$

If $\lambda < \phi_P^V < \phi < \phi_P < \phi_P^T < \phi_P^L$, or $\lambda < \phi_P^V < \phi < \phi_P < \phi_P^L < \phi_P^T$, then

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[19] That is, when $\phi_P^V < \phi < \phi_P < \phi_P^T$ or $\phi_P^V < \phi < \phi_P^T < \phi_P$

[20] This includes the cases where $\phi < \phi_P^V < \phi_P$ or $\phi < \phi_P < \phi_P^V$

[21] In detail, $\phi < \lambda < \phi_P < \phi_P^L$, or $\phi < \phi_P < \lambda < \phi_P^L$, or $\phi < \phi_P < \phi_P^L < \lambda$

Athens wins first stage war with probability Π and there is peace at second stage, or she loses the first stage war with probability $1-\Pi$ and the enemy imposes oligarchy. Thus, from (2.1B) and (2.2A) we have

$$\mathcal{A}_2 = \Pi(Y_{P1}^V + \beta Y_{P1}^V) \tag{19.2}$$

If $\lambda < \phi < \phi_P < \phi_P^V < \phi_P^T < \phi_P^L$, or $\lambda < \phi < \phi_P^V < \phi_P < \phi_P^T < \phi_P^L$,

or $\quad \lambda < \phi < \phi_P < \phi_P^V < \phi_P^L < \phi_P^T$, $\quad$ or $\quad \lambda < \phi < \phi_P^V < \phi_P < \phi_P^L < \phi_P^T$,

or $\quad \lambda < \phi < \phi_P^V < \phi_P^T < \phi_P < \phi_P^L$, $\quad$ or $\quad \lambda < \phi < \phi_P^V < \phi_P^T < \phi_P^L < \phi_P$,

or $\quad \lambda < \phi < \phi_P^V < \phi_P^L < \phi_P^T < \phi_P$, $\quad$ then

Athens wins the first stage war with probability Π and wins second stage war with probability Π_2^V, or she loses the first stage war with probability $1-\Pi$ and the enemy imposes oligarchy. Thus, from (2.1C) and (2.2A) we have

$$\mathcal{A}_3 = \Pi(Y_{P1}^V + \beta \Pi_2^V Y_{P2}^{VV}) \tag{19.3}$$

If $\phi_P^V < \phi_P^T < \phi < \lambda < \phi_P < \phi_P^L$, or $\phi_P^V < \phi_P^T < \phi < \phi_P < \lambda < \phi_P^L$, then

Athens wins the first stage war with probability Π and imposes local democrats on the defeated at second stage, or she loses the first stage war with probability $1-\Pi$, the enemy does not impose oligarchy, and then Athens wins the second stage war. Thus, from (2.1A) and (2.2B) we have

$$\mathcal{A}_4 = \Pi(Y_{P1}^V + \beta(1-\tau)Y_{P1}^V) + (1-\Pi)(Y_{P1}^L + \beta \Pi_2^L Y_{P2}^{LV}) \tag{19.4}$$

If $\phi_P^V < \lambda < \phi < \phi_P < \phi_P^T < \phi_P^L$, or $\phi_P^V < \lambda < \phi < \phi_P < \phi_P^L < \phi_P^T$ then

Athens wins the first stage war with probability Π and there is peace at second stage, or she loses the first stage war with probability $1-\Pi$, the enemy dos not impose oligarchy and there is peace in the second stage. Thus, from (2.1B) and (2.2B) we have

$$\mathcal{A}_5 = \Pi(Y_{P1}^V + \beta Y_{P1}^V) + (1-\Pi)(Y_{P1}^L + \beta Y_{P1}^L) \tag{19.5}$$

If $\phi < \lambda < \phi_P < \phi_P^V < \phi_P^T < \phi_P^L$, or $\phi < \lambda < \phi_P^V < \phi_P < \phi_P^T < \phi_P^L$,

or $\quad \phi < \lambda < \phi_P < \phi_P^V < \phi_P^L < \phi_P^T$ $\quad$ or $\quad \phi < \lambda < \phi_P^V < \phi_P < \phi_P^L < \phi_P^T$, then

Athens wins the first stage war with probability Π and wins the second stage war with probability Π_2^V, or she loses the first stage war with probability $1-\Pi$, the enemy does not impose

oligarchy and then she wins the second stage war with probability Π_2^L. Thus, from (2.1C) and (2.2B) we have

$$\mathcal{A}_6 = \Pi(Y_{P1}^V + \beta\Pi_2^V Y_{P2}^{VV}) + (1 - \Pi)(Y_{P1}^L + \beta\Pi_2^L Y_{P2}^{LV}) \tag{19.6}$$

Thus, under the circumstances listed above war confers to the Athenian poor the expected utility $\mathcal{A}_i$ described by (19.i). However, the Athenian poor do not automatically opt for war. They choose war in the first stage, if $\mathcal{A}_i$ exceeds the certain income from peace in the two stages. The payoff from the latter is written as

$$\mathcal{N} = Y + \beta Y \tag{20}$$

For example, when $\lambda < \phi_P^V < \phi_P^T < \phi < \phi_P < \phi_P^L$ the poor Athenian chooses war (peace) if $\mathcal{A}_1$, given by (19.1) is greater (smaller) than $\mathcal{N}$, given by (20). Subtracting equation (20) from (19.i), $i = 1, \dots 6$, for each one of the circumstances depicted above, we identify under what conditions $\mathcal{A}_i > (<) \mathcal{N}$. We then find that the poor Athenian votes for war (peace) for the following critical values of β

$(19.1) - (20) \Rightarrow \mathcal{A}_1 > (<) \mathcal{N}$ when $\beta > (<) \beta_1 \equiv \frac{(1-\gamma)Z}{D_1 Z - D_2 Y}$

$D_1 = (1-\tau)(1-\phi)(1-\delta)g - (1-\gamma)$; $D_2 = (1-\gamma)\big(1-(1-\tau)(1-\phi)\big)$, upon assuming that $D_1 Z - D_2 Y > 0$.

$(19.2) - (20) \Rightarrow \mathcal{A}_2 > (<) \mathcal{N}$ for all $\beta > 0$, provided $\frac{(1-\phi)(1-\delta)g}{\phi(1-\gamma)} > (<) \frac{Y}{Z}$

$(19.3) - (20) \Rightarrow \mathcal{A}_3 > (<) \mathcal{N}$ when $\beta > (<) \beta_3 \equiv \frac{(Y+Z)Y\{((1-\gamma)-(1-\phi)(1-\delta)g)Z+\phi(1-\gamma)Y\}}{D_1 Y^2 + D_2 YZ + D_3 Z^2}$

$D_1 = (1-\gamma)(1-(1-\phi)^2)$; $D_2 = [(1-\gamma)(2-(1-\phi)^2 g) - (1-\phi)^2(1-\delta)]$;

$D_3 = [(1-\gamma)g - (1-\delta)(1-\phi)^2]$, upon assuming that $D_1 Y^2 + D_2 YZ + D_3 Z^2 > 0$

$(19.4) - (20) \Rightarrow \mathcal{A}_4 > (<) \mathcal{N}$ when

$$\beta > (<) \beta_4 \equiv \frac{Y(Y+Z)\{[(1-\gamma)(1-(1-\phi)(1-g))-(1-\phi)(1-\delta)g]Z+\phi(1-\gamma)Y\}}{D_1(Y+Z)^2 + D_2 YZ}$$

$D_1 = (1-\delta)(1-\phi)(1-\tau)gZ - (1-\gamma)\big(1-(1-\phi)(1-\tau)\big)Y$; $D_2 = (1-g)(1-\phi)^2\big[(1-\gamma+g(\gamma-\delta))Y + (1-\delta)Z\big]$, upon assuming that $D_1(Y+Z)^2 + D_2 YZ$

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$$(19.5) - (20) \Rightarrow \mathcal{A}_5 > (<) \mathcal{N} \text{ for all } \beta > 0, \text{ provided } \frac{(1-\phi)(\gamma-\delta)g-\phi(1-\gamma)}{\phi(1-\gamma)} > (<) \frac{Y}{Z}$$

$$(19.6) - (20) \Rightarrow \mathcal{A}_6 > (<) \mathcal{N} \text{ when}$$

$$\beta > (<) \beta_6 \equiv \frac{Y(Y+Z)\{[(1-\gamma)(1-(1-\phi)(1-g))-(1-\phi)(1-\delta)g]Z+\phi(1-\gamma)Y\}}{D_1 Z^2 + D_2 ZY - D_3 Y^2}$$

$D_1 = g(1-\phi) + (1-\delta)(1-\phi)^2 - (1-\gamma);$ $\qquad D_2 = (1-\phi)(1-\delta+(1-\gamma)g) +$ $(1-\phi)^2 (1-g)(1-\gamma+g(\delta-\gamma)) - 2(1-\gamma);$ $D_3 = \phi(1-\gamma),$ upon assuming that $D_1 Z^2 + D_2 ZY + D_3 Y^2 > 0$

Analytically, when the exogenous parameters take the values described by, for example, circumstances (19.1) the poor Athenian chooses war if the discount factor is larger than the critical value β_1. Intuitively, his discount factor is large enough to render the present value of uncertain war gains over two stages greater than the present value of certain income from peace over two stages. Similar interpretations apply to the rest of the critical values of β. All in all, whether or not the Athenian poor choose war in the first stage depends on how the discount factor compares to a critical value given by the formulas above. That is, given the parameter values regarding the sizes and distribution of income, war gains and destruction, whether or not the poor Athenian chooses war or peace in the multi–stage setting also depends on how patient he is.[22] The inequalities establish that for each circumstance described (range of parameter values) there may be values of the discount factor such that the poor Athenian is in an ex ante sense better off by choosing war in the first and the second stages (whose outcomes are uncertain) than with peace (whose income outcomes are certain). As a corollary, the possibility of Athenian defeat and regime change in the first stage, as for example after the defeat in the Peloponnesian War, does not necessarily deter the Athenian majority from choosing war, an observation that may go a long way to explain the incessant wars of Athens and the ultimate fall of democracy.

6   Redistribution, war and structural weaknesses of the Athenian direct democracy

In a background of division between the rich and the poor of the ancient Athenian democracy, war served as a redistribution instrument to advance the material interests of the

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[22] See Garfinkel and Skaperdas (2007) for a related detailed discussion of how accounting for the discounted rewards from victory may affect the incentive to compromise on a peaceful resolution rendering war as the rational choice under "the shadow of the future".

majority of the poor, but defeat in war precipitated the end of democracy. When studying the survival of democracy the literature confines its interest to domestic factors and specifically whether the rich elite, which is worse off with the redistribution pursued by the majority that prevails in elections, will respect the democratic outcome or attack the democracy to prevent redistribution. The ancient Athenian experience pointed to the significance of defeat in war, an external factor that is overlooked by modern scholarship. Athens throughout her history was engaged in almost interminable wars. Victory nevertheless was not assured. Over a period of two hundred years Athens suffered three catastrophic naval defeats, in 413, 405 and 322 which were then followed by oligarchic takeovers, where the domestic oligarchs were willing to rule under the guardianship of the victor. This feature was not unique to Athens. Ste. Croix (1954) showed that at times of crisis, both democrats and oligarchs of the Greek city – states were prepared to subjugate the autonomy of the polis to income class interests. The Athenian democracy was reinstated twice but vanquished the third time.

The role of the navy in the era of democracy cannot be overemphasized. Not only was it the principal attacking force of Athenian military expeditions, but also a source of employment for the *thetes*, the poorer class of Athenians, and as such the root of their economic and political standing. Although the model presented above does not fully account for the short–lived oligarchic coup of 411, dubbed by Hansen (1999, p.40) "a constitutional somersault", engineered after the Sicilian catastrophe, it must be borne in mind that it was the fleet stationed in the island of Samos that restored democracy in 410. Similarly, although almost all of the fleet was lost in the defeat of Peloponnesian War, it was rebuilt again in the 4th century, after Sparta failed to contain the democrats opposing the new oligarchy. In terms of the model, Sparta was unable to commit the resources required to support the Thirty Tyrants. Although defeated in the Peloponnesian War, Athens managed to regroup, re–establish her naval dominance and restart war in the fourth century. On the contrary, Macedonian occupation of the port of Munichia after 322 rendered Athens unable to reclaim naval supremacy after the Macedonian defeat. It is also indicative that after the 322 oligarchy change, the *trierarchy* liturgy was abolished and no new fleet was built. It bears noting that the association between major military engagements and disenfranchisement runs opposite to the claim of Ticchi and Vindigni (2008) that in the representative democracies of 19th and 20th century, the elites often extended the franchise voluntarily during or after major wars. The reason was that they needed to offer a credible commitment to income redistribution policies in order to induce men to fight and probably women to replace them in the

workplace. This apparent contradiction is however explained by the different underlying assumption of the models. Ticchi and Vindigni assume that both the elites and the disenfranchised poor agree on the benefits of repelling the external enemy, while the present model focuses on opposing attitudes of the elite and the poor towards the foreign state. On the other hand, the link between military defeat and disenfranchisement is in some way consistent with the causality of the franchise extension proposed by Lizzeri and Persico (2004) – the need to finance public goods leads the elites to extend voting rights. Specifically, when the Macedonians beat Athens the need for keeping a strong Athenian military force and pay for it largely disappeared. The oligarchic elements could then remove the political rights of the demos "in exchange" of not performing defence duty. Again this reasoning relies on different interests of the elite and the poor vis–à–vis the foreign power.

If income redistribution was at the heart of the decision of Athens to go to war leading to the demise of democracy, one may wonder why redistribution that took place through various fiscal instruments was insufficient. Part of the answer has to do with economic structure. An inherent weakness of the Athenian democracy was that its economic basis remained agricultural, where land, instead of industrial or human capital, was a dominant component of wealth. In a democracy the poor improve their welfare by taxing the rich. However, the risk of capital flight (both human and mobile non human assets) imposes an upper bound on the size of redistribution. In the circumstance of a mainly agricultural economy, where the supply of land is inelastic and therefore easier to tax than industrial or human capital, democracy and the consequent redistribution from the rich to the poor majority is bitterly resisted by landowners, who in turn may be better off under a regime that rules out high taxes to finance wars. The lack of an industrial economic base as a reason of the demise of the Athenian democracy is broadly in line with the modernization hypothesis of democracy, in the sense that democracy is at risk in the absence of economic modernity.[23]

A second structural characteristic that appears to have inadvertently undermined the Athenian democracy relates to the attributes of direct democracy that make it simultaneously attractive and vulnerable. In direct democracy decision making by informed voters reflects accurately their policy preferences and avoids problems of political agency and agenda control.[24] On the

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[23] In an earlier contribution Bates (1991) noted that the more elastic the tax base used by the sovereign to extract revenue, the more control of policy he surrenders to taxpayers.

[24] For recent critical analysis of direct democracy by referendum see Matsusaka (2005), and Tridimas (2010) and the literature cited therein.

other hand, the Athenian democracy lacked important defence mechanisms that are present in contemporary representative government because it was direct democracy. First, party competition offers a degree of protection to representative democracy that is missing from direct democracy without political parties. When unhappy, voters vent their anger to the party in office, rather than the system of government. In so doing, party competition adds to the stability of democratic government (Lipset and Rokkan, 1967). On the contrary, in the direct democracy of Athens, those hurt by policies voted by the demos turned against the rule of the demos. Second, the direct democracy lacked the organizations, political parties, trade unions, civic associations and other professional and pressure groups, that try to influence and use the political decision making system to their benefit. In this process, they make sure that the democracy is defended against usurpers in order to continue to take advantage from it.

A number of extensions are left for future research. First, one could model the war as inflicting differential losses to the poor and rich of Athens. A second extension is to consider redistribution through war as well as civilian public expenditures which confer higher benefits to the poor. Third, in modelling the probability of victory at war one may introduce differential fighting capabilities for the land and sea forces. Another extension is to consider the enemy of Athens as comprising two classes, the ruling and the ruled and explore how that distinction would affect the enemy's incentive to choose war. Finally, the game–theoretic framework may be extended to a setting where the enemy of Athens explicitly interacts with one of the two domestic players. It is suspected that more complex and possibly more nuanced solutions will be derived.

6   Conclusions

Political economy often looks at the establishment of the ancient Athenian democracy as a landmark in understanding the emergence of democratic institutions. However, the reasons behind its demise are left unexplored. The present study is a first step towards a systematic explanation of the fall of the ancient Athenian democracy. It attributed it to defeat in war after which the main beneficiaries of democracy could not recover. The model explored considered Athenian democratic politics as a contest for income redistribution between the rich elite and the poor majority. Unlike standard models where redistribution from the rich to the poor is carried out through taxes and public expenditures for transfers and public provision of goods and services, the model focused on redistribution resulting from international conflict, where war, if won, confers greater relative benefits to the poor, but

inflicts proportional losses to rich and poor. It was found that the larger the relative benefit of the poor from war and the higher the relative income of the enemy the more likely that the poor will choose war. However victory at war is not certain and grave consequences may follow defeat. After beating Athens, a foreign enemy may have an incentive to overthrow the Athenian democratic regime, in order to bring to an end the ability of Athens to launch future wars. The historical narrative showed that Athens engaged in a cycle of glorious and ruinous fights. After pushing back the potent Persian invaders at the beginning of the fifth century, she embarked in offensive operations reaping significant gains subordinating in the process her allies and colliding against Sparta. After a long war of changing fortunes Sparta won that confrontation but failed to subjugate Athens, who rebuilt her strength and although suffering various setbacks she re–established herself as Greece's dominant sea power. In the middle of the fourth century Athens clashed with the rising power of mighty Macedon. Despite defeats, when the opportunity arose, Athens renewed the fight until she capitulated in 322 when the democracy was deposed. The model studied replicates the broad outline of wars. Taking the war gamble was rational, in the sense that there were circumstances where starting a fight made the decisive Athenian citizen better off in an ex ante sense than peace, and so was pursuing further fighting after an initial victory or indeed after a defeat. The gamble was catastrophic in 322. Nevertheless, the framework developed implies nothing teleological; the demise of the direct democracy was neither preordained nor inevitable. However, it took a considerable long time for democracy to re–emerge and when it did it took a fundamentally different form.

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