

# Trust in the Executive: Requiring Consensus and Turn-Taking in the Experimental Lab

T. Clark Durant\*, Michael Weintraub†, Daniel Houser‡, Shuwen Li§

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Why is it so hard to get opposing elites to work together rather than to seek partisan gains and/or political survival? While the credible commitment problem is widely known, there are a number of lesser known obstacles to building trust and trustworthiness between opposing elites. This article presents an account of how some of those obstacles interact through time. Common institutional types, particularly winner-take-all and power-sharing institutions, force trade-offs between agile responses in the short term and medium term trust between elites, on the one hand, and between trust among elites in the medium term and the adaptability of agreements in the long term, on the other. We call this the ‘time horizon trilemma.’ As an alternative approach, we consider a variant on the two-person consulate used by the Roman Republic for more than 400 years as Rome rose to prominence. In our variant, a ‘turn-taking institution,’ opposing executives take short alternating turns as the ultimate decision-maker within one term. We conduct behavioral games in the experimental lab to provide an initial estimate of the impact of these institutional types - winner-take-all, requiring consensus only, requiring turn-taking only, or requiring both - on overcoming obstacles to agile responses in the short term, trust among elites in the medium term, and adaptability of agreements in the long term. We find that turn-taking is a promising alternative to solving the time horizon trilemma.

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\*University of Florida.

†Universidad de los Andes.

‡George Mason University.

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# Introduction

Why is it so hard for opposing elites to work together, rather than to seek partisan gains and/or political survival? This is a crucial question for many, whether those concerned with hyper-partisanship in established democracies (Pildes 2011; Haidt 2013; Sunstein 2015) or with ethnic conflict and civil war in developing countries (Walter 2002; Flores & Nooruddin 2012). Recent work has shown both why fostering elite trust and trustworthiness matters, and why this trust is so hard to sustain.<sup>1</sup>

Trust among elites matters because it leads to both better institutions and better policies. On the institutional side, trust can sustain constraints on the executive, preventing the executive from adjusting the rights and obligations of other citizens to punish or privilege them for political reasons (Acemoglu & Johnson 2005; North et al. 2009). On the policy side, trust can allow opposing groups to harness their differences to consider a broader range of problems and solutions (Page 2007; Haidt 2013), as well as to better overcome social dilemmas in which individual and social interests diverge (Ostrom & Walker 2005). A variety of complex issues, such as sustaining economic growth, conserving the environment, improving the fairness and effectiveness of the social safety net, or investing in infrastructure require patient and concerted leadership year after year.

This type of response is only possible if elites can trust one another to sacrifice short term personal or political expediency for broader gains. As Heckathorn & Maser (1987) note, the strategic structure of such situations combines aspects of the prisoner's dilemma (namely, opportunities to cheat) with aspects of unequal coordination games (namely, multiple cooperative equilibria). On top of that, there are common complications arising from the social structure and psychological constraints of the players (Tetlock 2002; Haidt 2013). We call the difficulty associated with getting opposing elites to trust and be trustworthy in governing

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<sup>1</sup>It has also examined the causes and consequences of trust in the government among ordinary citizens (e.g. Keele 2007; Hetherington & Husser 2012).

together, rather than seeking short-term partisan gains and political survival, the *chronic challenge*.

The chronic challenge is not the whole story, however, as it is flanked by two others. Politics face *acute challenges* in the short term and *constitutive challenges* in the long term. Acute challenges include foreign policy threats, financial crises, and public health risks, all requiring agile responses (Moe & Howell 1999; Posner & Vermeule 2011). Constitutive challenges, on the other hand, consist of the shifting identities, priorities, and beliefs of participants, which influence the rules of the game and who can play. To address constitutive challenges there must be flexibility to iteratively adapt the terms of cooperation (Bednar 2008; North et al. 2009). Failure to do so can trigger ethnic conflict, violent regime change, or civil war. The median number of years between violent regime change in the poorest half of the world's countries is seven years, compared to sixty years in the richest decile of countries (Cox et al. 2015). This shortens the time available both to set an agreement in motion and for it to bear fruit.

To make matters worse, these challenges interact. Some have noted how the credible commitment to be trustworthy is undermined by the short-term demand for agility, or vice versa (Rodrik & Zeckhauser 1988), while others have noted how credible commitments are undermined by long-term demands for adaptability, or vice versa (Roeder & Rothchild 2005; Durant & Weintraub 2014a). We call the interaction of these three challenges the *time horizon trilemma*. In short, the goal is to get opposing elites to forgo short-term partisan gains, develop agile responses to pressing problems, and adapt to changes in the rules of the game and who can play.

Our intent is to use the experimental laboratory to provide an initial assessment of how well different types of executive institutions address the three challenges in the time horizon trilemma. The next section discusses the major types of executive institutions we consider: winner-take-all institutions (i.e. one ultimate decision-making authority), power-

sharing institutions (i.e. two or more ultimate decision-making authorities), and turn-taking institutions (i.e. predictable role reversal between a few leaders who take turns as ultimate decision-maker within the term). The third section presents our experimental design, and ties it to previous experimental research. The fourth section presents our hypotheses and results. The fifth discusses a few insights that can be gleaned from the results. The sixth applies these insights to the case of the Roman Republic, which began with a 170-year period in power-sharing, followed by a 250-year period of turn-taking. We believe our lab experiment sheds new light on the puzzle of why and how Rome rose to prominence when it did. We conclude with a discussion of the many steps required to build upon this preliminary assessment before informing the debate in countries attempting to avoid or escape political violence and civil war.

## **Alternative approaches to executive institutions**

Commonly recommended institutional alternatives tend to address one or two but not all three sides of the trilemma. Winner-take-all institutions allow agile responses by choosing one decisive leader, yet this creates high stakes competition to win or retain control, undermining trust among elites. In the extreme, the *ex ante* prospect or *ex post* reality of losing a high stakes election can lead to coups, riots, or civil wars (Bates 2008), as it did in Pakistan in 1971, in Chile in 1973, in Bangladesh in 1975, in Argentina in 1976, and so forth.

Power-sharing or power-dividing institutions, on the other hand, allow for credible commitments by creating multiple offices, coalition members, or branches that have a veto, and stipulating that all veto-holders must agree to changes in policy (e.g. Tsebelis 2002; Hoddie & Hartzell 2003; Lijphart 2004). In some cases, intransigence and brinksmanship can block *any* adjustment (Goodin 1996; Roeder & Rothchild 2005), preventing agile responses in the short term, slowing iterative adaptation of the terms of cooperation over the long term. This can render polities incapable of escaping civil war in a lasting way (Zahar 2005). This ap-

plies even if the constitution lets what count as a politically significant group be *flexible* (e.g. determined by elections). It applies even more so if the constitution makes what communal groups are politically significant *fixed*, as was the case of Lebanon after 1943, until the civil war began in 1975. As a result, power-sharing agreements frequently collapse in the long term, particularly in multiethnic societies. As Roeder & Rothchild (2005) note, ‘among the 16 experiments with power-sharing institutions cited by Horowitz (1985) in *Ethnic Groups in Conflict*, 12...were subsequently discarded.’

As a result of these failures, there is widespread skepticism that democracy - whether of a winner-take-all or power-sharing variety - can be used to avoid or end civil wars (Wantchekon & Neeman 2002; Lyons 2002; Hartzell & Hoddie 2007; Gurses & Mason 2008; Dunning 2011).

There is another class of executive institutions that gets relatively little attention: turn-taking institutions. These institutions use role reversal to amplify trust between a few leaders within a term. The best example of this is the two consuls of the Roman Republic, who took month-long turns presiding over the Senate within an annual term. More recent examples include the annual rotation of the presidency of the 7-person Swiss Federal Council (since 1831), the 8-month rotation of the Chairmanship of the 3-person presidency of Bosnia-Herzegovina (since 1997), and that of the Chief Minister in Uttar Pradesh in India (in 1995).<sup>2</sup> Empirical examples of these institutional alternatives, and how they map onto our theoretical expectations, are captured in Figure 1.

The case of the Roman consulate is particularly intriguing in light of recent scholarship on how the right conditions allow reciprocity to build trust through time (Axelrod 1984; Ostrom 1999; Fehr et al. 2002; Panchanathan & Boyd 2004; Bowles & Gintis 2011). The ‘right conditions’ include repeated interactions between a small number of mutually identifiable players with clear rules and norms about what behaviors are obligatory, permitted, and

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<sup>2</sup>The Uttar Pradesh agreement – between the Bharatiya Janata Party (BJP) and the Bahujan Samajwadi Party (BSP) – ultimately failed. We thank an anonymous reviewer for this example.

Figure 1: Types of executive institutions

| Types of executive institutions                   |  |  |  |
|---|--|--|--|
|   | <i>Winner-take-all (baseline)</i>  | <i>Requiring consensus</i>   | <i>Requiring turn-taking</i>   |
| <b>Description of institutional type</b>          | <ul style="list-style-type: none"> <li>▪ One ultimate decision-maker</li> <li>▪ Presidential systems with few constraints on the executive</li> <li>▪ Parliamentary systems with two parties (often arising from single member districts)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Two or more ultimate decision-makers</li> <li>▪ Presidential systems with constraints on the executive, e.g. vetoes by legislature or court</li> <li>▪ Parliamentary systems with multiple parties (often arising from multi-member districts)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Predictable, near-term role reversal between two or more leaders who take turns as the ultimate decision-maker within a term</li> </ul>                                     |
| <b>Real-world examples</b>                        | <ul style="list-style-type: none"> <li>▪ Argentina (1852 – present)</li> <li>▪ Chile (1925 – 1973)</li> <li>▪ Pakistan (1947 – 1971)</li> <li>▪ Bangladesh (1971 – 1975)</li> <li>▪ Democratic Republic of the Congo (1997 – present)</li> </ul>     | <ul style="list-style-type: none"> <li>▪ Roman Republic (509 – 342 BCE)</li> <li>▪ United States (1776 – present)</li> <li>▪ Belgium (1831 – present)</li> <li>▪ Lebanon (1943 – 1975)</li> <li>▪ South Africa (1997 – present)</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Roman Republic (342 – 90 BCE)</li> <li>▪ Switzerland (1848 – present)</li> <li>▪ Bosnia and Herzegovina (1996 – present)</li> </ul>   |
| <b>Institutional features captured in the lab</b> | <ul style="list-style-type: none"> <li>▪ In the policy-making sub-game, the electoral winner chooses policy for each year in the term (i.e. a variant of a dictator game)</li> </ul>   | <ul style="list-style-type: none"> <li>▪ In the policy-making sub-game, the electoral winner proposes policy for each year in the term, but the other player can accept or reject the proposal (i.e. a variant of an ultimatum game)</li> </ul>  | <ul style="list-style-type: none"> <li>▪ In the policy-making sub-game, the leaders take turns in each role, playing each role twice over the course of a four-year term (i.e. a variant of a trust game)</li> </ul> |

forbidden; players who have the ability to form reputations based on mutual observation, and are able to reward or punish one another; and the ability of players to iteratively assess and improve their institutions to match shifting circumstances.<sup>3</sup>

In a set of prior papers (Durant & Weintraub 2014a,b), we use game-theoretic models to discuss how turn-taking institutions with two leaders create a symmetry between those ‘in’ and those ‘out’ of office that has attractive properties when it comes to forming, enforcing, and adapting the terms of cooperation, not unlike the veil constructs proposed by Buchanan & Tullock (1962) and Rawls (1999). Specifically, the variation we considered yields a single winner when sufficient consensus exists (e.g. 55% of the electorate), but resorts to turn-taking between the top two vote-getters, e.g. alternating annual turns twice over a four-year term, when the electorate is divided.

In this paper, we use the experimental lab to test whether ‘requiring turn-taking’ can do

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<sup>3</sup>Initial work took a game-theoretic lens, and focused on getting *strategic structure* right (Axelrod 1984). Subsequent empirical work on real-world social dilemmas has incorporated more behavioral, social, and institutional nuance (Ostrom 1999).

more than ‘requiring consensus’ when it comes to preserving agile responses in the short term (e.g., in a given year), fostering mutual trust and cooperation over the medium term (e.g., between a particular pair of leaders over the course of a few terms), and enabling iterative adaptation over the long term (e.g., as different pairs of leaders take office over the course of decades).

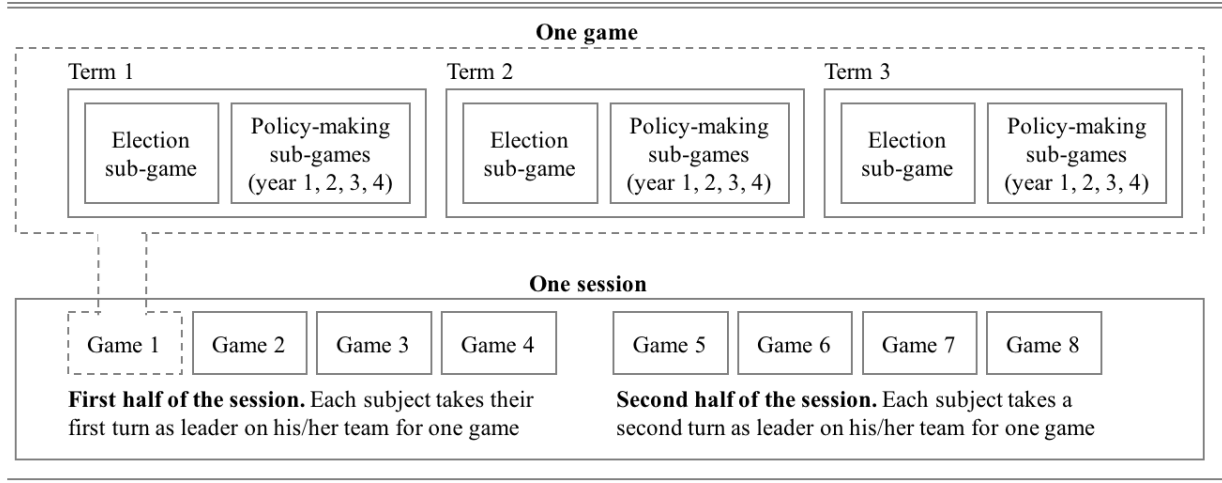
## Experimental design

Each experimental session has two teams, consisting of four players each. Those teams are kept constant throughout the session. As shown in Figure 2, in each session subjects play a series of eight identically structured ‘games,’ with each game consisting of three ‘terms,’ and each term consisting of an election sub-game and four policy-making sub-games. In every three-term game, each team has one player assigned as the leader, who is responsible for making policy decisions. Each subject was randomly assigned the leader role for a three-term game in the first half of the session (e.g. 3 consecutive terms in the first 12 terms), and then again for another three-term game with the same counterpart in the second half. Since each session includes eight three-term games, and each term includes four ‘years’ of policy-making, subjects experienced 96 ‘years’ of choices in their one session. To reiterate: sub-games are nested within terms, terms are nested within games, and games are nested within sessions.

Subjects begin each term with an initial endowment of \$10. Payoffs at the end of the term equal the initial \$10 endowment minus any resources committed during the election sub-game, plus any resources won from policy payoffs. Payoffs at the end of each three-term game consist of the average payoff across the three terms. To determine the subjects’ take-home winnings, one three-term game is picked at random, with players paid depending on their performance in that game.

*The election sub-game.* In the election sub-game, subjects deploy their resources to win

Figure 2: Experimental design



the right to make policy in the policy-making sub-game (e.g. to be ‘in’ office). As the focus is on elite behavior - rather than mass citizen behavior - we follow others in using a strategic ‘contest’ rather than a voting game (Merolla et al. 2005; Garfinkel & Skaperdas 2007). To win the office, subjects commit resources to three ‘battlefields.’ Whichever team commits the most resources to a battlefield wins that battlefield, and whichever team wins the most battlefields wins the election.<sup>4</sup> Subjects have 40 seconds to make or adjust their bids, with their choices only visible to their teammates, with one exception: resource placements at the 20 second mark is made mutually visible, so players have a chance to react and strategically manipulate their opponents’ reactions. Ties are settled by a coin toss. The election game is held constant across treatments.

The election game is a combination of an all-pay auction and a Colonel Blotto game. This set-up - a group Colonel Blotto Game with a perfect substitutable group impact function, all-pay auction contest success function, discrete resources, and majority rule of winning - is new

<sup>4</sup>Battlefields could be understood as geographical areas (e.g. states deemed ‘in play’ in the Electoral College), or demographic or issue-based segments of the electorate that are undecided (e.g. soccer moms, millennials, or cultural conservatives).



to the literature.<sup>5</sup> This aspect of the design builds on a number of predecessors. Chowdhury et al. (2013) were the first to offer a Colonel Blotto game with both all-pay and logit contest success functions. A group contest with an all-pay auction and perfectly substitutable impact function was solved by Baik et al. (2001). Abbink et al. (2010) were the first to study group contests with perfectly substitute impact functions, upon which Chowdhury et al. (2016) build to study in-group and out-group dynamics, particularly relevant here. Erkal et al. (2011) provided an experiment in which money is redistributed after a contest. Finally, Humphrey & Renner (2011) studied how altruistic decisions affect the payoffs of in-group members in a public goods game.

*The policy-making sub-games.* For each ‘year’ a leader is in office, she chooses a ‘policy,’ dividing \$5 between two public goods accounts: one account for herself (and her partisans), and one for the other office-seeker (and her partisans). Because of the policy multiplier, each \$1 a leader puts into the in-party account generates \$1 of benefits for each subject in her own party, while each \$1 she puts in the out-party account is multiplied so that it generates more than \$1 for each subject outside of her party. With a 2x multiplier, the leader can keep \$5 for herself and each of her partisans, or give \$10 to those in the other party, or any dollar unit in between.<sup>6</sup> All policy options are shown in Table 1. This payoff structure - with each incremental dollar creating \$2 for the out-group than \$1 the in-group - is patterned after standard trust games.<sup>7</sup> In a political context, this reflects that (a) policy preferences differ and (b) policy-makers may not take into account all costs imposed on those outside their group.<sup>8</sup>

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<sup>5</sup>For an overview, see Kovenock & Roberson (2012b).

<sup>6</sup>The menu is a mix of a dictator’s dilemma payoff structure (Cherry et al. 2002) and a public goods payoff structure.

<sup>7</sup>While this game appears similar to a centipede game (e.g. Rosenthal 1981), in that it is finite and, by giving more resources, more are ‘created,’ it more closely resembles standard trust games.

<sup>8</sup>While it would be possible to create a variant where the in-group can make these concessions on

Table 1: Policy menu

| Policy | Payoff for own side ('Ins') | Payoff for other side ('Outs') |
|--------|-----------------------------|--------------------------------|
| A      | \$5                         | \$0                            |
| B      | \$4                         | \$2                            |
| C      | \$3                         | \$4                            |
| D      | \$2                         | \$6                            |
| E      | \$1                         | \$8                            |
| F      | \$0                         | \$10                           |

While the payoff structure is the same across treatments, who chooses or proposes policy varies across the four treatments: (1) the winner-take-all baseline (NC-NT), (2) requiring consensus only (C-NT), (3) requiring turn-taking only (NC-T), and (4) requiring consensus and turn-taking (C-T). For both of the ‘requiring turn-taking’ treatments, whichever team wins the election chooses a policy for the first and third years of the term, but roles are reversed for the second and fourth years. For the ‘not requiring turn-taking’ treatments, whichever team wins the election chooses a policy for all four years of a term. For the ‘requiring consensus’ treatments, the leader of whichever team wins the election (‘in’ team) proposes policy payoffs for the year to the leader of the losers (‘out’ team), who can accept or reject them. As in standard ultimatum game environments, rejecting means that neither side receives a payoff.

All subjects were volunteers recruited from the undergraduate student population at George Mason University. The experiments were conducted between February and March of 2014; a total of 176 subjects participated in 528 elections and made a total of 2,112 policy choices over the course of 22 independent sessions.<sup>9</sup> The computerized experimental sessions

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the margin *while still receiving higher payoffs in absolute terms*, we opted to keep things simple and comparable with other experiments, and to note that the marginal payoffs may be more externally valid than they at first appear.

<sup>9</sup>After running 4 sessions of each of the 4 treatments, 3 more of each of the ‘requiring turn-taking’ treatments (T-NC and T-C) were run, as they exhibited greater variability in policy efficiency due to the greater frequency of conditional play: bursts of cooperation, then defection and punishment, then a return to cooperation, and so forth.

were programmed using z-Tree (Fischbacher 2007). The average payment was \$20.42, including the show-up fee.<sup>10</sup> Since choices within each experimental session are likely to depend upon the history of choices within that session, we conservatively take each independent session as one observation in our analysis. More precisely, for each dependent variable we use the average value over all eight of the three-term games, the full session, as the single observation for that session. It is important to note that some of the null results presented below might be a consequence of lack of statistical power, rather than true null results. As such, we prefer to focus on the positive results from the experiment. The usual precautions were taken to ensure anonymity, as well as comprehension of the instructions. More detail, including the complete set of choices made by subjects, is available in the Online appendix.

## Experimental hypotheses and results

Here we describe our experimental hypotheses, and share our results.

*Hypothesis 1: Requiring turn-taking should increase trust and trustworthiness, more than requiring consensus does.* A good measure of trust is cooperation over and above the subgame perfect Nash equilibrium (SPNE) in dictator and trust games (e.g. Berg et al. 1995; Glaeser et al. 2000; McCabe et al. 2003). For the treatments where no consensus is required (either NC-NT or NC-T), the unique SPNE is to pick policy A each year. For the treatments where consensus is required (either C-T or C-NT), the relevant SPNE is for one side to propose policy B, and the other side to accept it.<sup>11</sup> These equilibria hold in the commonly-cited case of finitely repeated games with subjects (a) who are rational, (b) who are either selfish or

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<sup>10</sup>The average payoff from those who played was \$30.63 in experimental dollars, with an exchange rate of 3 experimental dollars to 2 real dollars.

<sup>11</sup>There is one other SPNE for this game: the proposer offers policy A, and the responder - indifferent between accepting and rejecting - accepts it. In practice, this makes it costless for the responder to reject the offer.<sup>12</sup> The threat of this is part of what makes offers higher in the ultimatum game than in the dictator game.

groupish, and (c) for whom the common knowledge assumption holds.

*Hypothesis 2: Requiring turn-taking should increase the number of realized trust opportunities, more than requiring consensus does.* We measure iterative adaptability by counting the number of potential trust opportunities realized in a given session. A potential trust opportunity occurs when the ‘trustor’ takes office. In other words, a trust opportunity is a trust game that emerges endogenously from turnover in office, based on changes in who wins elections or how elections allocate power. A trust opportunity is ‘realized’ - and therefore an agreement is iteratively adapted - if three additional conditions are satisfied: (1) a trustee must take office after the trustor; (2) trust must be placed in that trustee; and (3) that trustee must prove trustworthy by paying back the initial trust invested.<sup>13</sup> We hypothesize that requiring turn-taking should generate more realized trust opportunities than requiring consensus because role reversal triggers positive and negative reciprocity even when the SPNE would be non-cooperation.

*Hypothesis 3: Requiring turn-taking should reduce the agility of policy-making, less than requiring consensus does.* Our measure of agility, seconds per policy choice, is meant to reflect the value of agile responses in the face of shifting circumstances, both to seize hold of fleeting upside opportunities and to mitigate the downside of adverse challenges. This metric builds on a commonly used measure of agility in operational environments: lead time, the time elapsed between the request for an output and its fulfillment (Cachon & Terwiesch 2009). This provides a baseline that allows us to test the hypothesis that the time to make decisions scales proportionately with the number of decision-makers involved, regardless of task complexity. We acknowledge, however, that this particular measure of agility may not be externally valid beyond the experimental lab.

*Results.* Overall, the results are consistent with the hypotheses. Figure 3 reports two-tailed

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<sup>13</sup>This is a relatively low bar for determining trustworthiness, given that the policy multiplier automatically doubles what is given, reflecting the notion of the ‘break-even point’ used in business to assess the feasibility of an investment.

Figure 3: Experimental results support core hypotheses

| <b>Hypothesis</b>  | <b>Dependent variable</b>  | <b>Institution A</b><br>Mean (SEM)                | <b>Institution B</b><br>Mean (SEM)                  | <b>Δ of means</b><br>(A-B) | <b>p-value</b> |
|--|--|---|---|----------------------------|----------------|
| <b>Medium term responses to chronic challenges</b><br>H1: Requiring turn-taking increases trust by more than requiring consensus   | <b>Trust:</b> Annual policy payoffs per person over the selfish subgame perfect Nash equilibrium                         | <u>Consensus</u> ( $n=11$ )<br>\$0.23<br>(\$0.72) | <u>noConsensus</u> ( $n=11$ )<br>\$0.41<br>(\$0.51) | -0.18                      | 0.616          |
|  |  | <u>TT</u> ( $n=14$ )<br>\$0.63<br>(\$0.64)        | <u>noTT</u> ( $n=8$ )<br>\$0.01<br>(\$0.29)         | \$0.65                     | 0.005          |
| <b>Long term responses to constitutive challenges</b><br>H2: Requiring turn-taking increases the number of realized trust opportunities by more than requiring consensus | <b>Adaptability:</b> Number of realized trust opportunities, i.e., trustors who trust and have a trustworthy counterpart | <u>Consensus</u> ( $n=11$ )<br>12.45<br>(13.55)   | <u>noConsensus</u> ( $n=11$ )<br>8.18<br>(9.56)     | 4.27                       | 0.404          |
|  |  | <u>TT</u> ( $n=14$ )<br>15.14<br>(12.15)          | <u>noTT</u> ( $n=8$ )<br>1.88<br>(2.23)             | 13.27                      | 0.001          |
| <b>Short term responses to acute challenges</b><br>H3: Requiring turn-taking decreases agility by less than requiring consensus  | <b>Agility:</b> Time per policy decision (in seconds)  | <u>Consensus</u> ( $n=11$ )<br>11.36<br>(1.44)    | <u>noConsensus</u> ( $n=11$ )<br>7.61<br>(1.61)     | 3.75                       | 0.000          |
|  |  | <u>TT</u> ( $n=14$ )<br>8.03<br>(3.36)            | <u>noTT</u> ( $n=8$ )<br>7.07<br>(5.11)             | 0.96                       | 0.642          |

$t$ -tests for institutional comparisons.<sup>14</sup> First, turn-taking does significantly increase trust, at  $p < 0.001$ , but requiring consensus fails to increase trust. Second, requiring turn-taking increases realized trust opportunities by nearly seven times, a difference that is significant at  $p < 0.001$ . While requiring consensus does increase realized trust opportunities, it is not at a statistically significant level. Third, requiring turn-taking does reduce agility by 1 second, yet this result does not achieve statistical significance. Requiring consensus reduces agility by close to 5 seconds, a difference which is significant at  $p < 0.000$ .

## Discussion

This section shares three insights from the experiment, and links them both to the relevant literature and to real political examples. First, behavior was mostly groupish, not purely

<sup>14</sup>Note that the labels ‘Institution A’ and ‘Institution B’ in Figure 3 are placeholders, and the institutions they refer to vary depending upon the test performed.

selfish or purely altruistic. Second, requiring consensus increased cooperation by a little, and reduced agility by a lot.<sup>15</sup> Conversely, the winner-take-all environment allowed for agile decision-making, and little to no cooperation or trust in policy-making. Third, only turn-taking made trust grow as participants accumulated experience. The subjects in the leader role were able to test many small acts of trust and see those acts repaid with reciprocated trust in short order. This was done without reducing agility in a statistically significant way.<sup>16</sup>

## **Behavior was mostly groupish, not purely selfish or altruistic**

Across all four treatments, the election sub-game revealed behavior that was mostly groupish, not selfish or altruistic; that is, investments in conflict were greater than both the individual MSNE (which varied by treatment) and the social optimum (which was zero investment in conflict in all four treatments). For the baseline (NC-NT), the investment per person was \$6.75, more than 3 times the individual optimum of \$2.16. For requiring consensus only (C-NT), the investment per person was \$1.21, more than 1.5 times the individual optimum of \$0.79. For ‘requiring turn-taking only’ (NC-T), the investment per person was \$2.13, rather than the individual optimum of \$0. Likewise, for ‘requiring consensus and turn-taking’ (C-T), the investment per person was \$1.48, rather than the individual optimum of \$0.

This is common in other group conflict experiments featuring an interaction between intra-group and inter-group collective action problems (e.g. Goren & Bornstein 2000; Ahn et al. 2011). Altruism is not unconditional and does not extend beyond the group (e.g. Boyd et al. 2003). Putnam (2000) distinguishes between *bonding* social capital, consisting of mutual trust between extended family, friends, and strangers who share a group identity, and *bridging* social capital, consisting of mutual trust between strangers across groups. Indeed,

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<sup>15</sup>Again, we urge caution when interpreting results from the agility measure due to concerns about external validity.

<sup>16</sup>Overall the turn-taking treatments increased the time per policy decision by about a second (from 7 to 8 seconds per decision on average), but this was not statistically significant.

in other experiments, groups are less likely than individuals to engage in bridging behaviors and tend to be closer to the selfish predictions of rational choice in the way they treat one another, whether in trust games (Cox 2002; Kugler et al. 2007), dictator games (Cason & Mui 1997; Luhan & Sutter 2009), ultimatum games (Bornstein & Yaniv 1998), or centipede games (Bornstein et al. 2004).

In the real world, while bonding behaviors can mitigate collective action problems within groups, they can amplify conflict between them (Hardin 1997). Relative to the selfish motivations of *homo economicus*, real people are all too willing to make personal sacrifices to help their perceived group dominate other groups, whether those groups are defined by ethnicity (Flores & Nooruddin 2012) or party (Pildes 2011; Haidt 2013), or some combination thereof. At the more benign end of the spectrum, this may mean giving time and money to mobilize votes. At the more destructive end, this can mean violent aggression and/or resistance in the context of civil war. This has a massive cost in terms of human life: from 1990 to 2002, over 90% of battle-deaths globally were from civil wars (Lacina & Gleditsch 2005; Lacina 2006).

## **Requiring consensus increased cooperation by a little, but reduced agility by a lot**

The naïve prediction is that requiring consensus should foster cooperation and trust, but reduce agility. The latter point was borne out by the experiment: requiring consensus only (C-NT) increased the time per policy decision by 300% over the baseline winner-take-all (from 3 seconds per decision to 12 seconds per decision).

The impact on cooperation and trust was more complicated. Relative to the winner-take-all baseline (NC-NT), the average effect of requiring consensus only (C-NT) was to increase cooperation up to the relevant SPNE and no further; essentially, choosing policy B (\$4 for each of us, \$2 for each of you) rather than policy A (\$5 for us, \$0 for you). Counter-intuitively, while on average there was no trust, i.e. cooperation above and beyond the relevant SPNE,

the trusting policies (i.e. policies C, D, E and F) were chosen 49% of the time. Two factors explain this puzzle. First, subjects were mostly ‘testing the waters’ of trust with policy C, representing the vast majority (specifically, 89%) of the 49%. Second, this trust was counterbalanced by the fact that 14% of proposed policies were rejected. These rejections had a disproportionate impact on policy payoffs: moving from policy B to C increases policy payoffs by \$0.50 per person on average, while rejecting policy B is equivalent to reducing policy payoffs by \$3.00 per person on average. Of the 14% of proposals that were rejected, less than 20% had proposed policy A, offering nothing to their counterpart, while almost 80% had proposed policy B (\$4 for each of us, \$2 for each of you). Even though there were four times more cases of rejecting policy B in absolute terms, the base rates for the two policies were different: policy A was proposed only 7% of the time, whereas policy B was proposed 44% of the time. The rejection rate for policy A was higher, at 36%, than the rejection rate of 27% for policy B.

These results further validate the notion that commonly considered political institutions force a choice a between making decisions *quickly* (i.e. agility) and making decisions *together* (i.e. with cooperation and/or trust). Theory predicts that winner-take-all institutions allow decisions to be made more quickly than power-sharing institutions, because power-sharing institutions require more deliberation and negotiation, which take time.<sup>17</sup> At the same time, theory predicts that winner-take-all institutions raise the stakes of winning control of the executive office, because the benefits of winning and the costs of losing are not bounded by deliberation and negotiation. In our experiment, though the policy menu was exactly the same across conditions, the investment in winning office in the winner-take-all institution was more than five times the investment when consensus was required.

High-stakes electoral competition creates a variety of dysfunctional or destructive effects

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<sup>17</sup>In the modern era, this point goes back to Hamilton in *The Federalist Papers*, no. 70. In contemporary debates, it is agreed upon by those who recommend power-sharing (Lijphart 2004) and those who recommend a more unitary executive (Posner & Vermeule 2011).



in the real world. The *ex ante* prospect or *ex post* reality of losing a high stakes election leads to coups, riots, or civil wars (Bates 2008). Even within stable democracies, high-stakes electoral competition creates pressure to pursue ‘bad policy’ so long as it is ‘good politics’ (Robinson 1998). This can mean targeting short-term benefits (e.g, tax breaks, subsidies, monopoly privileges) at a potentially pivotal group at the expense of long-term benefits for the polity as a whole (Rodrik et al. 2004; Acemoglu & Johnson 2005); pursuing policies that mobilize co-partisans, bribe swing voters, and/or divide the opposition; and incentivizing elites to showcase and/or hasten the benefits of their agenda while hiding and/or delaying its costs (Cowen 2005).

These results also validate the idea that while power-sharing institutions are relatively better than winner-take-all institutions at fostering cooperation in relative terms, they often fail in more absolute terms. This is because few changes and adaptations can be made without renegotiation, and this allows potentially pivotal segments to extract a disproportionate share of the benefits of change. In many cases, the give and take is not very deep; it consists of using ‘pork’ or ‘earmarks’ to get policy passed. Our results illuminate this tendency, as 88% of our proposals were clustered around the policies, B and C, which would deliver immediate returns for both parties.

## **Only turn-taking made trust grow as players accumulated experience**

Whereas leaders in the baseline winner-take-all (NC-NT) treatment chose trusting policies 20% of the time, those in the ‘requiring turn-taking only’ treatment did so 40% of the time. This is still less than those in the ‘requiring consensus only’ treatment; the difference was that leaders in the ‘requiring turn-taking only’ (a) could not reject offers, and (b) chose policy F, the most trusting policy, 18% of the time, rather than 1% of the time. Finally, leaders in the ‘requiring consensus and turn-taking’ treatment chose trust 54% of the time, and more

than 75% of this consisted of choosing policy F.

The choice of policy F was concentrated in particular pairs of subjects. Both turn-taking treatments had pairs of subjects in the leader role reach the highest levels of trust, reciprocally choosing policy F over and over, back and forth. Suppose we define *high trust* as choosing policy F more than 90% of the time in one three-term game (i.e. allowing one deviation in 12 policy choices). In the ‘requiring turn-taking only’ treatment, there were *six* high-trust games.<sup>18</sup> In the ‘requiring consensus and turn-taking’ treatment, there were *seventeen* high-trust games.<sup>19</sup>

Notably, most of these high-trust games came when subjects in the second half of the session. This is when subjects were more experienced (i.e. had already taken the leader role for a three-term game in the first half) but also when they faced strongest incentives for the unraveling of cooperation, as this was known to be the last game where they would be in the leader role. Across both turn-taking treatments, there were only *five* high-trust games in the first half of sessions, and *eighteen* in the second half.<sup>20</sup>

This is a striking result precisely because so many inter-group games show subjects acting *more* selfishly across the group boundary than they would within the group, or with another individual in an environment where groups are not salient.<sup>21</sup> The turn-taking environments provided enough ‘bridging capital’ between the two leaders to overcome the distrust between groups.

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<sup>18</sup>These were spread across two of the seven sessions: one in one session and five in another session. In both cases this included the last three-term game of the session; that is, there was minimal ‘unraveling’ as the end grew near.

<sup>19</sup>These were spread across five sessions: two sessions with one high-trust game, and then one session each with four, five, and six high-trust games.

<sup>20</sup>For ‘requiring turn-taking only’ it was one in the first half and five in the second half. For ‘requiring consensus and turn-taking,’ it was two in the first half and sixteen in the second half.

<sup>21</sup>As mentioned above, this is true for trust games (Cox 2002; Kugler et al. 2007), dictator games (Cason & Mui 1997; Luhan & Sutter 2009), ultimatum games (Bornstein & Yaniv 1998), and centipede games (Bornstein et al. 2004).

While there are many real-world examples of the breakdown of winner-take-all or power-sharing institutions, there are few examples of turn-taking of the kind we describe here. The next section discusses the best historical example in greater depth: the impact of switching from power-sharing to turn-taking institutions during the rise of the Roman Republic.

## Explaining the rise of Rome

Moreover you may reckon the beginning of liberty [in Rome] as proceeding rather from the limitation of the consuls' authority to a year than from any diminution of their power compared with that which the kings had exercised. All the rights of the kings and all their insignia were possessed by the earliest consuls; only one thing was guarded against - that the terror they inspired should not be doubled by permitting both to have the rods. Livy ii.1.7

Our experimental results allow us to shed light on an ancient anomaly: when and why the Roman Republic rose to prominence. As the quote above makes clear, the Roman historian Livy believed that the creation of the office of the consul in 509 BCE was pivotal in moving Rome from informal patron-client networks that defined elite relations under the monarchy to the formal obligations and liberties that increasingly defined them under the Republic. By contrast, contemporary historians (e.g. Cornell 1995; Forsythe 2005; Beard 2015) point to the middle of the fourth century as the turning point for Roman Republic. Our experiments may help to reconcile Livy's explanation of why Rome began to rise (i.e. the office of the consul) with contemporary historians' explanations of when and why it did so.

The institution of the consular office consisted of (a) splitting the office of the executive - previously, a king - in two; (b) electing a pair or 'college' to serve a one-year term; and (c) forcing turn-taking from month to month within the term so long as both consuls were physically in Rome (Cornell 1995). While likely intended as an interim measure, this executive institution endured from 509 BCE through peaceful successions of power for more than 400

years.<sup>22</sup>

While the institution of the consular office may have prevented a return to monarchy, it is not likely the cause of the Roman Republic's rise. Empirically, Rome did not win control of any extraordinary dominion until the middle of the fourth century BCE. For the first 170 years of Roman history, from the founding of the Republic (and the consular office) in 509 BCE to the middle of the fourth century BCE, Rome's dominion ebbed and flowed, but remained on the order of 1,000 square kilometers.<sup>23</sup> With the Latin War (341-338 BCE), however, Rome began to win and maintain control of territory at an exponential rate. Over the next 200 years, there was a three order-of-magnitude increase in scale,<sup>24</sup> with Figure 4 plotting the scope of Roman dominion over 600 years.<sup>25</sup>

What changed in the middle of the fourth century BCE? Over the first 150 years of Roman history, there was mounting conflict between patrician families and plebeian families, the so-called 'Conflict of the Orders.' Notably, for this period only patricians were eligible for the consular office, as well as the other executive offices. Initially, plebeians used lynch mobs and informal strikes, or *secessio*, to defend their interests. In 449 BCE, the *Leges Valeria-Horatiae* put in place formal power-sharing institutions by recognizing plebeian offices, including the *tribune of the people*, able to veto actions by patrician consuls.

However, in 367 BCE, with *Lex Licinia-Sextia*, the Romans began a shift from power-sharing — a 'patricians only' consulate, counterbalanced by a 'plebeian only' tribune of the

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<sup>22</sup>One minor variation was that - for 52 of the years over the span from 444 to 367 BCE - there were 3 to 9 consular tribunes elected, instead of just two consuls (Cornell 1995).

<sup>23</sup>The positive deviation would be the capture of Veii in 396 BCE, while the negative deviation was the sack of Rome by the Gauls in 390 BCE (Cornell 1995).

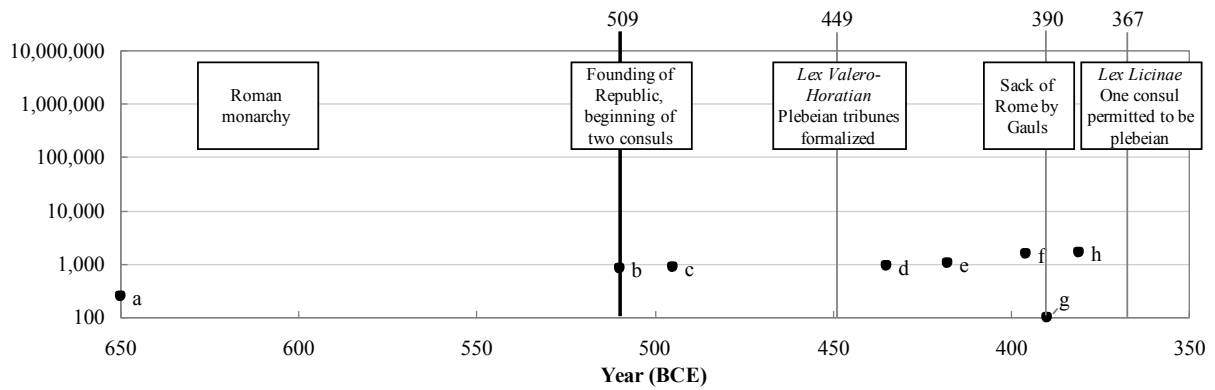
<sup>24</sup>From the city-state of Rome (1,000 square kilometers) to the dominant power of central Italy (10,000 square kilometers) by 338 BCE, then all of the Italian peninsula (100,000 square kilometers) by 275 BCE, and then much of the Mediterranean (1,000,000 square kilometers) by 146 BCE.

<sup>25</sup>Data drawn from Cornell (1995) and Taagepera (1978).

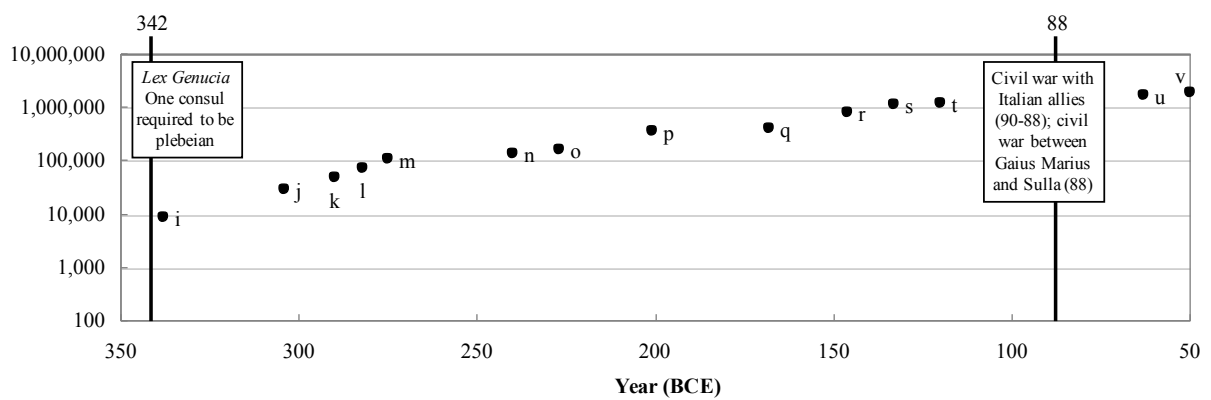
Figure 4: The rise of Rome after *Lex Genucia*

**Dominion of the Roman Republic, before and after *Lex Genucia* (km<sup>2</sup>)**

Before *Lex Genucia*



After *Lex Genucia*



**From 100 to 1,000 km<sup>2</sup>:**

- a. Rome in 7<sup>th</sup> century (c. 650)
- b. Rome at end of monarchy (c. 510)
- c. Annexation of Ficulea, Crustumarium, and Nomentum (495)
- d. Annexation of Fidanae (435)
- e. Annexation of Labici (418)

**From 1,000 to 10,000 km<sup>2</sup>:**

- f. End of Third Veientine War (396)
  - g. Sack of Rome by Gauls (390)
  - h. Annexation of Tusculum (381)
  - i. End of Latin War (338)
  - j. End of Second Samnite War (304)
- From 10,000 to 100,000 km<sup>2</sup>:**
- k. End of Third Samnite War (290)
  - l. Battle of Populonia (282)
  - m. End of Pyrrhic War (275)

**From 100,000 to 1,000,000 km<sup>2</sup>:**

- n. End of First Punic War (241)
- o. End of Mercenary Wars (227)
- p. End of Second Punic War (201)
- q. End of Third Illyrian War (168)
- r. End of Fourth Macedonian War (148), Achaean War (146) and Third Punic War (146)
- s. Asia Minor annexed (133)
- t. Gallia Transalpina annexed (120)

**Above 1,000,000 km<sup>2</sup>:**

- u. End of Third Mithradic War (63)
- v. End of Gallic Wars (50)

people — to turn-taking, permitting one consul to be plebeian. In practice, almost none were elected. In 342 BCE, with *Lex Genucia*, however, the Romans shifted more definitively to turn-taking, *requiring* that one consul be plebeian.

In effect, elites within the Roman Republic experimented with 170 years of power-sharing followed by 250 years of turn-taking, as defined here. As in with experiments, power-sharing was not conducive to building and maintaining trust, yet turn-taking was. And, as in our experiments, turn-taking allowed opposing leaders to explore the benefits of cooperation incrementally, starting with many small acts of trust and adapting and building over a succession of partners, rather than from one grand bargain. This also fits the theory and empirical evidence set out by North et al. (2009) for other cases, who note that (1) it is easiest for trust to take root among a few powerful elites based on personal relationships; (2) for those elites to come to consensus on impersonal rules over time; and (3) for those elites to use the impersonal nature of the rules to apply the rules to other counterparties as needed.

This is the pattern set in motion by *Lex Genucia* in 342 BCE. First, other magistracies were structured to pair patricians and plebeians in a similar way, most importantly the censors,<sup>26</sup> creating bonds between particular patrician and plebeian leaders. Forsythe (2005) finds many cases where a particular patrician-plebeian pair returned to office at the same time, suggesting something akin to a modern-day ‘ticket.’ In the century after 367 BCE, 10 patrician-plebeian pairs held the consulate two or more times together, with another 5 pairs of *families* doing so, covering at least 30% of the century. An additional 5 pairs of individuals held the consulate and the censorship together, and so forth.

Second, in the next decade or so, a new elite consensus emerged around fundamental obligations, rights, and liberties that should apply to all men, regardless of family of origin. *Lex Ovinia* led to changes in the way the Senate was constituted, transferring responsibility for picking senators away from consuls to the censors, who were instructed to enroll *anyone* with the rank of praetor or above, meaning that the patrician-plebeian balance in the magistracies

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<sup>26</sup>After *Lex Publilia* in 339 BCE. The aediles had been balanced in 367 BCE. In 337 BCE, the first plebeian praetor was elected. Half of the pontifices and augurs were required to be plebeian, with *Lex Ogulnia* in 300 BCE.

would be reflected in the Senate.<sup>27</sup> This created a standard path, the *cursus honorum*, up through the magistracies and into the Senate that was open to all Roman citizens, regardless of family of origin. Over the following decades, the division between patrician and plebeian mattered less and less; in its place, a new class of citizens defined by shared experience in leadership roles emerged, known as the *nobility*, creating a cadre of leaders that mobilized and managed resources and logistics at a previously unknown scale.<sup>28</sup> Strikingly, as the Roman Republic grew by over three orders of magnitude from 342 BCE to 89 BCE, more than 400 unique patrician and plebeian executives took turns in the consul office.

Third, and finally, the emerging elite consensus on standard rights, liberties and obligations made it easier to retain and leverage the loyalty of conquered elites, which began with the Latin Settlement in 338 BCE, extending the standard set of rights and obligations to conquered communities in Latium, including Lanuvium, Aricia, Nomentum and Pedum. Thereafter, some conquered communities received full citizenship, while others received a variation that did not include the right to vote in Rome; at a minimum, most were granted the so-called Latin Rights, including the right to intermarry with Romans, mutual rights to make contracts, and the right to free movement (Beard 2015). All included an obligation to provide troops for Roman armies and the right of those troops to share in the spoils of further conquests. Toynbee (1965) famously notes that these innovations ‘gave the Roman commonwealth the maximum capacity for expansion, combined with the maximum solidity of structure.’

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<sup>27</sup>The exact date of *Lex Ovinia* is unknown, but is thought to fall after 339 BCE and before 318 BCE (Cornell 1995).

<sup>28</sup>An example includes organizing 40,000 Romans and allies for the Battle of Sentinum in 295 BCE, a different order of magnitude than skirmishes in the previous century, with a scale requiring ‘complex and demanding logistics of equipment, supply, and animal transport’ (Beard 2015), including 50 tonnes of wheat per day. See also Cornell (1995) and (Forsythe 2005).

## Conclusion

This article makes three contributions to the conversation on how governance and institutional design can help or hurt trust between opposing elites, reducing or amplifying the risk of violent conflict. These contributions are small steps on a long path to policy relevance.

First, we conceptualize the time horizon trilemma, complicating theories of inter-elite cooperation by adding a set of countervailing challenges to the well-known credible commitment problem. Acknowledgment of these challenges helps explain stubborn bargaining failures that we see empirically, both in established democracies and in fragile post-conflict environments, and challenges assumptions built into commonly cited rational choice models and core claims in the literature on institutional design.

Second, we innovate in the experimental lab: few existing experimental studies pair election with policy-making games to assess how electoral institutions affect the shape of policy and, in particular, trust and trustworthiness.<sup>29</sup> While some studies have assessed new electoral options in the lab for proof of concept (e.g. Casella & Palfrey 2006), these do not seek to test prominent alternatives against one another, hampering our ability to understand trade-offs among them. Our design serves as a stepping stone between more basic experiments (e.g. trust games, ultimatum games, Blotto contests) and more complex ones (e.g. capturing the nuances of elite conflict and trust-formation).

Third, we offer a new angle on an ancient puzzle: why and how the Roman Republic rose to prominence. Contemporary historians reference the institutional change from power-sharing to turn-taking alongside other factors accounting for the rise of Rome, but do not provide a causal account linking them (e.g. Cornell 1995; Forsythe 2005; Beard 2015). Indeed, these accounts do not distinguish between causes of trust among opposing elites (e.g. the design of *executive political institutions* in particular) and effects of that trust (e.g. on the

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<sup>29</sup>One exception is Rodet (2015).



design of other political institutions, and the quantity and quality of leaders developed by those institutions). This is because these accounts do not attend to how subtle differences in institutional structure — in particular, the difference between requiring consensus and requiring turn-taking — can diminish or amplify trust and trustworthiness. By highlighting the impact of these differences, our experimental results help to explain why and how the Roman Republic rose to prominence.

Of course, these contributions count for nothing if there is no path to policy relevance. We believe there *is* such a path.

First, there is more work to be done in the lab. Additional treatments could connect more basic research to more applied research. To simplify the environment further, we could replace the three-battlefield Blotto environment with a one-battlefield case, a lottery, or a coin toss. To complicate the environment further, we could enable retrospective voting, making leaders accountable to elites or mass segments; add multiple issues to require dynamic prioritization, so that agility matters more; and give incumbents the ability to prevent elections and/or allow the opposition to instigate violence. Beyond extensions, we feel it crucial to address the mechanisms driving our results: we have no doubt that trust is greater under turn-taking and that turn-taking is causally related to trust, yet it is unclear *why* we observe such differences. Because we do not have clear evidence regarding mechanisms, we must be cautious in extending our findings to other environments.

Second, there are opportunities to test and refine the turn-taking mechanism in the private sector. In the last few decades there has been significant experimentation with the idea of ‘pairing’ to improve the efficiency and effectiveness of behavior, including among surgeons (Jari & Shelbourne 2002), computer programmers (Williams & Kessler 2002), managers (Canner 2008), and CEOs (Arena et al. 2011). World class organizations like the Mayo Clinic, Toyota, and the U.S. Armed Forces have used paired leadership across hundreds of

roles over the course of decades.<sup>30</sup> Initial field tests of the ideas presented here may take place in the private sector, where the target population is larger and interested parties could opt in without widespread and contentious political changes.

Third, the aspects of the mechanism that are relevant to the private sector - improving the quality of decision-making, transferring tacit knowledge on the job, reducing single points of dependency - would provide grounds for testing in local or regional governments, even if they were not suffering from ethnic conflict or clashes of opposing elites. This would provide further opportunities for discovery and refinement before taking on higher-stakes cases at the national level.

This is a long path to impact at the national scale. Even so, we believe this is a promising way to improve the quality of debate over what institutional alternatives are most likely to foster trust among opposing elites.

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<sup>30</sup>The Mayo Clinic has used paired leadership between physicians and administrators at the department level, campus level and enterprise level since the 1950s, modeled after the partnership between Will Mayo and Harry Harwick. Toyota has used paired leadership between Japanese and native managers at the functional manager, general manager, and VP levels in 40+ plants outside Japan, mostly since the 1980s. This is based on author interviews with existing managers at the Mayo Clinic and Toyota. The Armed Forces pairs commissioned and non-commissioned officers at more junior levels, and commanding and executive officers at more senior levels.

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