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"ARE YOU WILLING TO PAY?" WAR AND CITIZENS' READINESS TO PAY TAX: THE CASE OF UKRAINE

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ABSTRACT

"Are you willing to Pay?" War and Citizens' Readiness to Pay Tax: The Case of Ukraine

Bellicose theories of state formation suggest that wars enable the emergence of strong states via the mechanism of increased war-time taxation. We explore the hitherto little-analysed micro-level foundations of this claim. Does the experience of war increase public support for higher taxation? Furthermore, is this support limited to only defensive purposes, or does it extend to other warrelated but forward-looking goals, like postwar reconstruction and cohesion-building? We implement a survey experiment during the ongoing war in Ukraine to address the above questions. We find that war changes citizen support for taxation at the intensive but not the extensive margin: war-related primes do not affect the proportion of respondents willing to pay more tax, however, among those ready to do so, defence- and cohesion-related purposes increase the amount and duration of tax hikes considered acceptable. Our findings complement conventional elite-centric models of warrelated state-building and ongoing debates about Ukraine's post-war governance.

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KEYWORDS: war, state building, taxation, fiscal capacities, Ukraine, experiment, micro-level

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Introduction

The claim that 'wars make states' has become almost commonplace in the state building literature (Dincecco 2011; Rasler and Thompson 1985; Thies 2005; Tilly 1990). The argument focuses on war-related increases in taxation and associated improvements in (longer-run) fiscal and bureaucratic capacity as the main causal mechanism. However, the underlying theories that support this claim were usually developed for historical periods where accountability relations between citizens and rulers were comparatively underdeveloped. They therefore tend to ignore the question of citizen-level support for increased taxation that would be required to make the 'wars make states' argument applicable to modern-day societies (Flores-Macías and Kreps 2017; Queralt 2019).

We address this gap by asking directly about the willingness of present-day citizen-taxpayers to contribute to state finances in the context of war. Our starting premise is the well documented link between patriotism and taxation (Geys and Konrad 2020; Konrad and Qari 2012; Qari, Konrad, and Geys 2012; Slemrod 2007). We propose that increases in citizens' commitments to the nation and common good can bolster private incentives to make contributions to state revenue and thus overcome the free rider problems usually at the heart of public finance. We unpack this claim by exploring various war-related motivations that may increase citizens' willingness to pay taxes. Since the focus of the 'war makes states' argument is usually about the longer-term (Narizny 2003; Peacock and Wiseman 1961), we emphasize motivations that extend beyond the immediate 'hot phase' of wars. First, we evaluate taxpayers' commitment to strengthening the future defensive military capabilities of their country. We regard this as the closest citizen-level equivalent to the conventional elite-centric 'war makes states' argument. Positive results would thus provide bottom-up support for conventional bellicose state building theory. The second and third motivations look beyond immediately defence-related purposes to probe further the question of why levels of taxation often remain high even after a war has ended (Peacock and Wiseman 1961). Specifically, we focus on requirements for state finance for post-war reconstruction and for redistributive efforts to reinforce political cohesion across segments of society that differed in their exposure or initial political posture to the war.

Our second major contribution is that we study citizens' views about the above goals during the phase of an active war. The few studies within the wider field of bellicose state building literature that do consider public preferences for war-related finance usually do so in postwar Western societies and/or in hypothetical future conflicts (Flores-Macías and Kreps 2017; Kriner, Lechase, and Zielinski 2018). While we build on these studies, we regard them as more indirect tests of the original 'wars make states' argument. In part, this is because they were implemented in contexts where states' fiscal and institutional capacities were already well developed (e.g. post-World War II US), which means that they cannot explore the original claim that wars shift societies from a low- to a higher-tax equilibrium, and because citizens' peacetime perceptions of war-related threats and disruptions are likely to be more diffuse than during times of open military conflict.

To make progress, we focus on a setting where initial public support for taxation was low and experiences of war and destruction are very real. Specifically, we study the case of Ukraine. According to anecdotal evidence, the full-scale Russian invasion of February 2022 resulted in much greater public support for paying taxes.[1] This was despite the country's prior notoriety for its relatively low levels of enforcement of existing tax codes and a generalized lack of public trust in the appropriate use of state finances, making this an ideal test case for the claim that wars can shift societies from a low- to a new high-tax equilibrium that is supported by wide segments of society. Expanding on these anecdotal premises, we ask first to what extent public support for paying taxes is also observable in more structured opinion survey data, and second which of the above three war-related motivations (if any) contribute to a greater readiness to contribute to state finance via taxation. Following the standards established by earlier public opinion research in our field of study

[1] For instance, an April 2023 Economist article argued that "Patriotic Ukrainians are rushing to pay their taxes" (The Economist 2023), notwithstanding war-related losses in earnings, novel increases in personal and corporate tax rates, and continued reports of high-level cases of tax evasion (see also Puiulet, Loginova, and Shedrofsky (2023) and Zablotskyy and Djankov (2023)).

(Flores-Macías and Kreps 2017; Kriner, Lechase, and Zielinski 2018), we approach these questions through a pre-registered survey experiment. The experiment was embedded in an original opinion poll of 2,100 adult respondents, fielded in the government-controlled parts of Ukraine in August 2023, thus at a time when the initial shock of the February 2022 invasion had already given way to more entrenched war-related experiences, as well as preliminary reflections about the country's possible postwar future. Our experiment randomly varies primes related to the three expenditure purposes outlined above (postwar defensive posture, reconstruction, and political cohesion) in an effort to distinguish possible drivers of citizen's longer-run support for taxes.

Contrary to the available anecdotal evidence, we find only mixed evidence that experiences of war lead to an immediate shift in citizen attitudes about taxation. Specifically, we show that changes are strong at the intensive but not the extensive margin. None of the three primes shift respondents' fundamental stance on whether to pay more taxes or not. Yet, among the sizeable part of our sample who are already open to paying more tax, spending demands associated with maintaining the country's future defensive capability and national cohesion emerge as significant predictors both of the amount people are willing to pay, and the duration during which they are ready to do so. Explorations of possible mechanisms driving these results suggest that low levels of trust in government are an important factor mediating citizen's willingness to pay more taxes. As such, our study suggests some degree of inertia in the shift from low- to high-tax equilibria, which is strongly conditioned by pre-existing institutions and political norms.

In addition to the above innovations, we make several contributions. First, as noted, our focus on citizen attitudes fills an important gap in efforts to make historical theories of war-related state building applicable to modern times, where large-scale fiscal expansion is usually not possible without at least implicit support by citizen taxpayers. In doing so, we add novel micro foundations to a growing body of literature that already models the process of war-time fiscal expansion as a negotiation between rulers and citizens (Peacock and Wiseman 1961; Queralt 2019), but which usually lacks supporting evidence or empirical analysis of the actual beliefs and attitudes of those on the latter side of these bargains.

Second, by extending our study beyond non-defence-related motivations for paying more taxes (reconstruction, postwar cohesion), we contribute to the debate on why levels of taxation often remain high after a war (Peacock and Wiseman 1961). Moreover, while our results on this question are mixed, our explorative analysis about the mediating effects of political trust adds to more recent strands of literature that emphasize interactions between state (fiscal) performance and 'softer' variables like social and political norms and cultures (Besley and Persson 2014; Sambanis, Skaperdas, and Wohlforth 2015).

Finally, we generate important insights about future prospects for social and political development in our case study Ukraine. The ability to permanently increase tax recovery rates is often highlighted as an important factor shaping Ukraine's performance and relations with international partners during the reconstruction phase, as well as during its EU membership negotiations and the creation of a new security architecture (Becker et al. 2023). Our findings suggest that these goals will be only partially enabled through increased citizen support for higher tax levels. Further interventions to overcome the reluctance of those still unwilling to pay taxes should remain a priority, with particular emphasis on interventions that improve public trust over the way additionally collected tax revenues will be spent.

Literature review

The empirical foundations of earlier bellicose theories that link wars to improvements in taxation and long-term fiscal and bureaucratic development often reach back to the medieval or premodern period (Dincecco 2011; Dincecco, Fenske, and Onorato 2019; Fenske 2014; Rasler and Thompson 1985; Thies 2005; Tilly 1990). During these times, democratic mechanisms of political accountability were still non-existent or underdeveloped and thus citizens' attitudes to war-related taxation played no or only a marginal role in these theories. Most of the previously cited literature focuses on the incentives and behaviours of elites and rulers, who are thought to respond to the challenges of war and the upkeep of large militaries by introducing new taxes and bureaucratic innovations. The vast expenses of fighting or preparing for war emerge under these perspectives as a driver of growth in state and fiscal capacities that works mostly from the top down (Dincecco 2011; Rasler and Thompson 1985; Thies 2005; Tilly 1990). By contrast, if citizen-taxpayers feature at all, they mostly appear as passive or largely obedient constituencies that are unable or unwilling to resist the increase in taxation.

Literature on war-related fiscal expansion in contemporary societies necessarily pays more attention to taxpayers' preferences. However, it still often assumes a largely complacent or ill-informed citizenry. For instance, in an important extension to bellicose theory, Peacock and Wiseman's (1961) influential hypothesis of a 'displacement effect' turns to citizen behaviour to explain why tax levels tend to remain high after the 'hot' phases of a war. The authors posit that this happens because individual citizens fail to readjust their attitudes and expectations about the appropriate level of taxation to pre-war levels. While paying more attention to voters' attitudes, Peacock and Wiseman's theory thus still essentially assumes an obedient citizenry that reacts mostly passively to government-imposed changes in fiscal behaviour during and after wars. It is also noteworthy that, because of the lack of reliable data on citizen preferences, the authors fill the missing micro-links in their theory with generic statements, such as about (alleged) "changes in social and political ideas and institutions" (Peacock and Wiseman 1961, 28). By contrast, there is little engagement with the underlying behavioural assumptions and empirical foundations in this important contribution to the literature on state building and public finance.

Unsurprisingly, those authors who do take citizens' economic interests seriously typically reach conclusions that are much more sceptical about the postulated positive effect of war on states' long-term fiscal and developmental capacities. For example, Queralt (2019) and Flores-Macías and Kreps (2017) describe the evolution of fiscal capacity during and after war as result of a continuous negotiation between governments and taxpayers. Both studies assume the latter to be reluctant to accept higher tax rates, potentially leading to suboptimal outcomes like predominantly debt-financed war efforts and postwar state expenditures. In a further shift that anticipates conditions in our case study country, Ukraine, contributions that fall into this strand of literature usually assume that outcomes will be mediated by contextual factors like the availability of alternative sources of public finance and preexisting institutional conditions. Specifically, the low-tax scenario is expected to be more likely in nations that have access to (foreign) debt, plausible prospects of debt forgiveness, as well as relatively low levels of initial state capacity and democratic legitimacy (see below and Centeno 2002; Queralt 2019; Thies 2005).

For our purposes, the problem is that also these contributions are either not backed by sufficient evidence about citizen preferences, or that they probe for public opinions in ways that are not fully suitable for testing the claim that wars make states. For example, during World War II, the pioneer of public opinion research in the US, George Gallup, questioned the assumption of a reluctant taxpayer. He noted that "if the people could write income tax legislation, they would have begun months ago to require every family except those on relief to pay at least something in the form of an income tax…., they have been fair-minded enough to believe that everyone should pay at least a few dollars to help the government pay for the war" (Gallup 1942, 442). Gallup's claim may be true or not and its efficacy in changing individual behaviours may well be constrained by some of the mediating variables highlighted in the previously cited literature. However, the problem is that we just will not know unless robust data on citizen-level preferences about the appropriate level of war-time taxation is collected.

Those studies that do use actual opinion polls (and survey experiments) do not advance the situation, as they often collect information for societies where fiscal capacities are already well developed, and/or where war is only a distant possibility. For example, survey experiments by Flores-Macías and Kreps (2017) and Kriner, Lechase and Zielinski (2018) investigate the effects of different modalities of tax-based finance on the public's support for waging hypothetical new wars among samples of US and British survey respondents.[2] In doing so, they capture environments where the shift from relatively low to high levels of fiscal capacity has already been accomplished. Moreover, because they make support for war the dependent variable, they turn around the logic of the original wars make states argument; we learn from these studies that the public's appetite for future wars is shaped by existing tax and public finance policies under conditions where accountability relations and fiscal capacities are already well developed. What we do not learn is whether wars increase citizens' willingness to pay more taxes in settings where societies are yet to move from a low- to a high-tax equilibrium. Very similar observations apply to the closely related literature on 'Guns versus Butter' (Mintz 1989; Mintz and Huang 1991; Narizny 2003). These latter studies usually ask about the willingness of modern societies to substitute more 'conventional' government spending on social services (e.g. health, education) with defence-related expenditures. However, they are again typically applied to countries which already enjoy high levels of fiscal and state capacity. Moreover, they usually do not inquire about actual citizen preferences, often approximating them with alternative measures, such as the popularity or government involvement of left- and right-wing parties (Narizny 2003; Norpoth 1987).

Theoretical framework and hypotheses

Our theory follows the contrast between reluctant citizens who populate the models of authors like Queralt (2019) and Flores-Macías and Kreps (2017) and the more optimistic expectations of observers like Gallup (1942). Our default assumption is that public support for taxation is low. This aligns with the reluctant taxpayer hypothesis. Moreover, it speaks to the type of settings that originally inspired traditional formulations of bellicose state building theory, i.e. situations where initial tax levels are low. The natural correlate of this assumption is that citizens' appetite for increased taxation should also be low. This latter premise is supported in several analyses of

[2] See also Geys (2010). The UK is only covered in Flores-Macías and Kreps' (2017) study.

contemporary societies that resemble our study country Ukraine (Besley and Persson 2013, 2014; Weigel 2020). While not primarily concerned with war-related situations, this literature suggests that citizens in countries with initially low levels of tax collection and associated low levels of government performance and service delivery will be less inclined to tolerate higher tax burdens (Besley and Persson 2013, 2014; Weigel 2020).

We confront the above view with the proposition that wars may increase the willingness to pay taxes, broadly following the optimism that shone through in Gallup's quote. Our starting point here is a vast body of research that suggests that crises experiences like wars can fundamentally alter the sense of cohesion and unity in a society. It is well known that wars regularly trigger collective psychological responses like rally-around-the-flag effects (Gibler 2010; Hetherington and Nelson 2003) or the phenomena of parochial altruism (Choi and Bowles 2007; Rusch 2013, 2014). Both concepts indicate shifts in individual attitudes that could also plausibly affect public views about taxation. Key processes usually mentioned are a heightened sense of national- and community-level identification and solidarity (Cecchi, Duchoslav, and Bulte 2016; Gibler, Hutchison, and Miller 2012; Mironova and Whitt 2018). The latter mechanisms also relate closely to the notions of patriotism and civicness, which have been found to increase individual incentives to pay tax and to overcome free rider problems that often prevent fiscal reforms and state building (Geys and Konrad 2020; Konrad and Qari 2012; Qari, Konrad, and Geys 2012; Slemrod 2007).

Since tax is a field of public finance where collective action problems and free-rider incentives are likely to be particularly high, we translate the above expectations about generalised war-related increases in the sense of common purpose into three specific motivations that could help explain why people, individually, would be willing to make the sacrifice of paying more tax. Throughout, we emphasize reasons that would help explain why citizens would tolerate higher levels of taxation even after the 'hot phase' of war has ended, aiming to contribute to the wider debate why war-related increases in states' fiscal capacities often survive well into the postwar period (e.g. as stated by Peacock and Wiseman's (1961) displacement theory).

The first mechanism aligns very closely with conventional bellicose theory of fiscal state development. It focuses on the need to increase and maintain the state's defensive and military capabilities to prosecute wars. We speculate that citizens who are confronted by risks of war-related annihilation of their society and its way of life will make similar calculations about the need for increased state finance as those commonly attributed to a country's elites and rulers. In other words, under this hypothesis, individual concerns about the nation's defensive capabilities would lead to an alignment of elite and citizen level preferences for higher taxation.

The prediction, if borne out by the data, would offer direct micro-level support for the notion that wars can lead to permanent improvements in a country's societal consensus around tax, via the mechanism of commonly recognized increased defensive needs (Konrad and Qari 2012; Peacock and Wiseman 1961, 27; Slemrod 2007). Moreover, to further sharpen the link to bellicose state building theory's original concerns with longer-run fiscal trends, we extend our expectations forward, suggesting that concerns about military threats can also raise citizens' willingness to tolerate higher taxes for *future* defensive purposes. Our hypothesis thus reads as follows:

H1: Considerations of future defensive needs increase support for taxes.

Our next two propositions deliberately reach beyond the military domain, to further enhance our understanding why citizens may accept higher taxes over the long-run, even after the active phase of a war has ended. The first of these focuses on financial needs linked to the goal of post-war reconstruction.

In exploring this motivation, we have to follow a recently less-trodden path within the wider literature on postwar state building. For instance, many studies now emphasize non-financial aspects of reconstruction, such as peace building, security and local project implementation arrangements (Cowen and Coyne 2005; Fengler et al. 2008; Richardson, Deckro, and Wiley 2004). Yet, we argue that this choice of focus is not strictly necessary, nor sufficient. Prominent economists from the post-

WW II period like Hirschman and Keynes always paid considerable attention to the fiscal and political dimensions of reconstruction, recognizing that the governance and coordination challenges involved can be very much conceptualized as problems of public choice and public finance (Cowen and Coyne 2005; Hirschman 2022). Moreover, also on practical grounds, tax-based revenue is likely to play a significant role during the reconstruction period. Even in a case like Ukraine, where foreign aid and Russian reparations are regularly invoked as a source of reconstruction finance, high sovereign debt overhangs from the war and the magnitude of the expected costs of reconstruction will make significant tax-based contributions eminently probable. Our goal under this mechanism is therefore to reconnect the literature on war and state building to the above earlier debates on the public choice and public finance dimensions of postwar reconstruction.

The relative lack of prior research in this area means that we have to base our expectations primarily on our own theoretical priors and anecdotal evidence. We posit that it is plausible that, in a case like Ukraine where the war is largely fought on the nation's territory, the need to repair the considerable damage to public and private infrastructure will be immediately apparent down to the level of individual citizens. The prospect of postwar reconstruction thus emerges as another, but this time non-defence-focused, possible micro-level mechanism behind a war-related increase in citizens' willingness to paying higher taxes. Moreover, anticipating conditions in our case study country, we note the availability of substantial anecdotal evidence suggesting that Ukrainians are already involved in significant efforts to support the repair and reconstruction of infrastructure that was damaged or destroyed during the war. Newspaper and media reporting indicates that these citizen-level initiatives are often considerable and that they involve people from all walks of life (see for example Adler (2023) and Lambroschini (2022)). In an effort to translate these observations from the field of voluntary and informal activism to the domain of formal public finance, we propose the following hypothesis:

H2: Considerations of future reconstruction increase support for taxes.

Our final proposition focuses more directly on how a war-related increase in societal unity may affect attitudes about taxation. Our starting point is the vast literature on the link between taxation, societal cohesion, and redistribution (for overviews see Alesina and Angeletos 2005; Zhang et al. 2016). We adapt these arguments to a war-time setting, proposing that increased taxation may also be motivated by the desire to offset differences between factions of society that differed in their exposure to war. The particular type of fiscal mechanism we focus on is one of horizontal redistribution across different territorial or sub-national units. The latter are a well-known feature in the fiscal architecture of federal political systems and geographically diverse countries, making them a plausible reference point for our analysis (Johnson 1988; Oates 1968; Plotnick 1981).[3]

Our expectations are again informed by previously cited literature that emphasizes war-related socio-psychological transformations in the extent of social and national cohesion as an important societal underpinning for increased civic and state capacity in times of conflict (Gilligan and Pasquale 2014; Mironova and Whitt 2018; Sambanis, Skaperdas, and Wohlforth 2015). Most of this scholarship posits that the unifying experience of foreign aggression and military conflict can increase the willingness to unite across socio-political divides that previously prevented cooperation.

Yet, our expectations in this domain are again more uncertain - not least because the literature itself is not fully consistent. For instance, contrary to the aforementioned studies, a sizeable body of research suggests that war can also deepen social divides, such as by aggravating grievances, mistrust, and disrupting social relations (Acemoglu, Hassan, and Robinson 2011; Besley and Reynal-Querol 2014; De Juan and Pierskalla 2016; Mironova and Whitt 2018). Anticipating again our country context, we do not rule out finding similar evidence in our analysis. For instance, newspaper reports and preliminary qualitative interviews conducted before our survey indicate that

[3] Even though Ukraine is not formally organized as a federal system, horizontal transfer mechanisms of the type described have a long pre-war history in the country. While their actual performance was mixed, one of their main purposes was to offset emerging inequalities between the country's more prosperous West and economically lagging Eastern regions. This makes them also directly relevant for the present war context (Thießen 2004; Yaroshevych and Kondrat 2024).

some Ukrainians in non-occupied territories harbour considerable mistrust towards populations in occupied regions, because of their suspected collaboration with Russian invaders (Yaffa 2023). One of our interviewees put the case particularly starkly: "All those who don't leave are collaborators... There are no people who could not leave... even if everything goes well later, they are potential traitors who will work with Russia as agents. They should be judged as collaborators."[4] In such a case, the willingness to contribute taxes to cohesion-building transfers to these groups might be lower than for defensive and reconstruction-related policy purposes outlined above.

At the same time, other anecdotal and quantitative sources reveal considerable openness to collaborating across identity and territorial divides. For instance, as one of our respondents noted, the war provoked people to be "more tolerant, help each other more and give mutual support".[5] Recent survey evidence suggests that such views also extend to people in occupied territories. A nationally representative poll in 2024 found that clear majorities of respondents in government-controlled areas felt that "Residents of the temporarily occupied territories had no choice and were forced to obtain Russian passports". Moreover, most welcomed future affirmative action in support of these populations, such as easier admission into Ukrainian institutions of higher education.[6] Expanding on these sources, we propose that citizens may also display a willingness to support tax-financed redistribution across territories that differed in their exposure to the war. In doing so we add a further, hitherto little-explored, mechanism to the debate about war-related increases in states' fiscal capacities. Our hypothesis reads that:

H3: Considerations of future territorial cohesion increase support for taxes.

[4] Female respondent, pianist, interview in Lviv, 18 April 2023.
[5] Female respondent, runs military NGO, interview in Lviv, 18 April 2023.
[6] School for Policy Analysis National University of Kyiv-Mohyla Academy, Reintegration of Liberated Communities and Social Cohesion: Second Wave (March 11-16, 2024). https://spa.ukma.edu.ua/wp-content/uploads/2024/04/REINTEGRATION-OF-LIBERATED_-SfPA-1.pdf. Last accessed 29 May 2025.

Country context

Our choice of Ukraine as a study country is motivated by several considerations. First, the fact that the war is still ongoing means that it represents a much more concrete and personal experience for most citizens. This is a departure from earlier opinion research on the tax-war link, where war was often represented as a more abstract and hypothetical possibility (Flores-Macías and Kreps 2017; Kriner, Lechase, and Zielinski 2018). We believe that this context will make the individual cost-benefit calculations involved in the trade-off between higher taxes and the various purposes of war-related finance more tangible.[7] We also note that, because the war with Russia is predominantly fought on Ukrainian territory, ours is a case where individuals are likely to have much stronger experiences of the increased sense of national- and community-level identification that is at the starting point of our proposed micro-level linkages from war to higher taxation (Gibler, Hutchison, and Miller 2012).

In addition, we view Ukraine as a plausible example of a modern-day society where the experience of war may have enabled a shift from a low- to a higher-tax equilibrium. Before the full-scale invasion of Russia, Ukraine was notorious for its low levels of tax morale. Widely-cited causes include insufficient public trust in the fairness of revenue collection and the proper usage of tax income (Berenson 2018; Čábelková and Hanousek 2004; Daniels, Wietzke, and Povitkina 2023; Stetsenko and Nishcheretov 2021). One of the few authors who drew on tax and opinion data noted that, compared to neighbouring nations like Poland or Russia, Ukraine "failed to build a tax state that is either effectively coercive or legitimate in the eyes of its citizens, resulting in lower levels of compliance." (Berenson 2018, 2).

Yet, consistent with our theory, there are reasons to assume that the war may have triggered a change in the societal consensus around taxation. As noted earlier, many observers have identified a sharp war-related increase in national cohesion, patriotism, and solidarity (Barrington 2021; Kulyk

[7] See Part 1 of the Appendix for further discussion about the practical and validity concerns of carrying out a survey during war. Information about ethical considerations is given in Part 2 of the Appendix. Ethical clearance for the survey and the pre-survey qualitative interviews was granted by Universitat Pompeu Fabra.

2023). As alluded to in the previous section, these shift in attitudes are presently mostly visible in the form of private initiatives. Key examples include an increased willingness of many Ukrainians to support the war effort through private donations, voluntary activities, or even by serving in the military, despite the risks for one's health and life.[8] However, parallel developments suggest that the described changes in citizen-levels attitudes and behaviours may have also enabled higher government tax intakes during the war. The IMF estimates that, around the time of our data collection (Summer 2023), tax revenues excluding social security contributions had grown by 17 percent relative to the previous year (IMF 2023). This was mostly driven by personal income tax (up 26 percent) and surcharges on goods and services (e.g. VAT, up 24 percent) – hence tax types that would affect citizens directly.[9]

Despite this optimism we acknowledge that Ukraine is one of the countries where many conditions are present that have been associated with lower levels of long-run fiscal state capacity in the past (Queralt 2019). In particular, external finance may emerge as a factor that undermines movements towards a more sustainable domestic tax base. Official estimates put the government's budget deficit in 2024 at about $43 billion, and the shortfall is likely to be covered through domestic borrowing and financial aid from Western partners (Harmash 2024). This trend continues developments from the first years of the war, when public budget overhangs were largely covered through foreign aid. There are also plausible expectations that much of the government debt accumulated during the war and the future period of postwar reconstruction will be forgiven or covered through other sources, such as Russian reparations or reserves. Although justifiable on moral grounds and beneficial for Ukraine's short-term development and resilience, both factors may

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[8] For instance, in our qualitative interviews, one respondent described feeling compelled to "volunteer, donate, change my lifestyle" (Female respondent, volunteer, interview online, 20 April 2023). Another established a non-governmental organization to help militarily (Female respondent, runs NGO interview in Lviv, 18 April 2023).

[9] However, these increases may reflect lower tax income in the comparison year, given that the full-scale Russian invasion only occurred two months earlier, as well as the growth in taxable wage income, due to increased military subscription (IMF 2023).

weaken the emergence of strong domestic tax institutions, if previous international experiences are taken as an indication (Queralt 2019).

In addition, we do emphasize the non-negligible social and psychological legacies of decades of low government performance and accountability. Research from other transition and post-Soviet economies suggest that the shift to modern systems of governance and stronger rule of law can be painfully slow, as individual expectations and behaviours take time to adjust (Čábelková and Hanousek 2004; Sajó 2003; Zaloznaya, Claypool, and Reisinger 2018). Evidence from a study related to ours similarly suggests that the rate of change in public norms in areas like corruption and good governance appears to be much slower in war-time Ukraine than initially hoped (Daniels, Wietzke, and Povitkina 2023). These contextual obstacles will thus have to be taken into consideration during the interpretation of our results in the later parts of this paper.

Research design

In the experiment outlined below we test our hypotheses through a pre-registered priming experiment embedded in an online survey of 2,100 adult respondents. The survey was fielded in the government-controlled parts of Ukraine, using quotas for age, sex and region.[10] Data collection ran from 10 to 24 August 2023, hence at a time when the war had already settled into a more stable stalemate and when there were initial public debates about the country's possible postwar future.

As noted, we expect that the ongoing nature of the war will cause a high base level of patriotic feelings among our study participants, which should raise respondents' general willingness to increase their tax contributions. However, within this setting, we aim to distinguish between the three war-related motivations for paying taxes outlined above. We trigger these motivations through three short primes that are randomly allocated to respondents using quotas for age, sex and region.

[10] Quotas were based on pre-war census data and are applied with +/- 10 percent allowance due to the situation.

Each respondent reads only one prime. The average responses to the three treatments are compared against a 'neutral prime' (control group). The latter refers to more generic uses of tax revenue that are not immediately related to the experience of the war. Specifically, the control invokes policy areas like education and pensions that should seem attractive to most people even under 'normal' circumstances, in order to avoid undue biases of responses towards the treatment primes.

Because we are interested in the potential for sustained long-run support for taxation that extends beyond the immediate war period (see above) the wording of the text read by study participants starts with reference to the necessities of postwar public finance. We further expect that, by asking about the future, we are raising the bar for positive results of our primes, given that this wording moves respondents' attention away from more immediate and potentially more transient emotional experiences of the war (e.g. rally around the flag effects).

The text reads as follows:

> "We would now like to ask your opinions on a possible priority for the use of Ukrainian tax money after the war. Coming out of the war, taxes will be important to increase Ukraine's ability to face new challenges, such as…"

The control group received the neutral prime:

"educating children or supporting the pension payouts to Ukraine's aging society."

The Defence prime (H1) read:

"maintaining a high level of defensive military capabilities."

The Reconstruction prime (H2) stated:

"supporting the postwar reconstruction of Ukraine."

The Cohesion prime (H3) read:

"ensuring national cohesion, by directing sufficient resources to all previously occupied territories."[11]

Immediately after reading the prime, study participants are presented with the following outcome questions:

"What do you think? Remember, there is no right or wrong answer as everyone's situation is different. Would you be prepared to pay an increased level of taxation (which might be added to the price of goods or come out of your salary) to pay for the above priority?

Answer: "Yes"/"No".

Those who answered the first query with "yes" were presented with the following questions:

"How much extra would you be prepared to pay?"

Answer: "1% more", "2% more", "5% more", "10% more".

"For how long do you think this additional levy should last after the war?

Answer: "1-2 years", "5 years", "10 years", "As long as necessary" [12]

[11] The wording of the primes is informed by preliminary qualitative interviews carried out during the design stage of our study. For instance, in the case of the Cohesion prime, interviews revealed that the experience of war had changed social and national identities in Ukraine in a way that makes it impossible to explore support for redistribution at the level of ethnic or linguistic groups (for example, few Ukrainians still identify as Ukrainian or Russian speakers and few regard these categorizations as still salient). This adds to our previously described theoretical motivations for highlighting intentions of horizontal territorial redistribution over group-level redistribution.

[12] As a robustness check, we run a multiple-hypothesis correction using the Romano-Wolf corrector (Clarke, Romano, and Wolf 2020; Romano and Wolf 2005). All significant results retain significance at 0.1 probability or stronger.

We follow the experiment with a debriefing text that ensures that we have not deceived the respondents: “Please note that nothing has been agreed about how government funding will be raised after the war or what it will be spent on. The described priority is only one possible proposal.”

Socio-economic and demographic measures are collected of the age, sex, previous and current regions of residence, educational level, employment and degree of exposure to the war. We also measure the language chosen to answer the survey (respondents could choose to answer in Ukrainian or Russian). The survey also contains additional questions on respondents’ trust in government and in President Zelenskyy, which will provide further descriptive support when interpreting results on Primes 2-4.[13] For ease of interpretation, we present the results using linear regression and the outcome variables are recoded to run from 0 to 1.[14]

Results

Our results only yield mixed support for the claim that the experience of war has shifted the attitudes of Ukrainians towards more favourable views of higher taxation. In the first stage of the experiment (binary response variable), we find that future challenges associated with war do not shift attitudes at the *extensive margin*. Focusing on the question whether to pay increased taxes or not, none of our primes has a significant effect (Figure 1). This finding is -on the one hand- surprising, given the high degree of implication Ukrainians have shown during the war, such as through fighting and volunteering. However, the bar is high for preferring the tax purposes offered as the comparison is made against taxes dedicated to social purposes. Another plausible explanation is that the limited

[13] Questions on trust are taken from the 2017 European/World Value Survey for Ukraine, again to assess the representativeness of our sample and carry out external validity tests.

[14] In the Appendix we present the results for the binary outcome of agreeing to pay an increased level of taxation analysed with logistic regression and the ordinal question of the amount and duration of the tax increase analysed with ordinal logistic regression. The results still hold. Our main results should and do hold for an analysis without covariates. However, given that we later include heterogeneous analysis, we include covariates throughout, using age band, sex, educational level, previous and current regions of residence, size of settlement, and language chosen.

tolerance of taxes comes from respondents' mistrust of other taxpayers' compliance or of the government's ability to collect and use tax revenue in a transparent and accountable manner.[15] We return to these propositions in the Mechanisms section below.

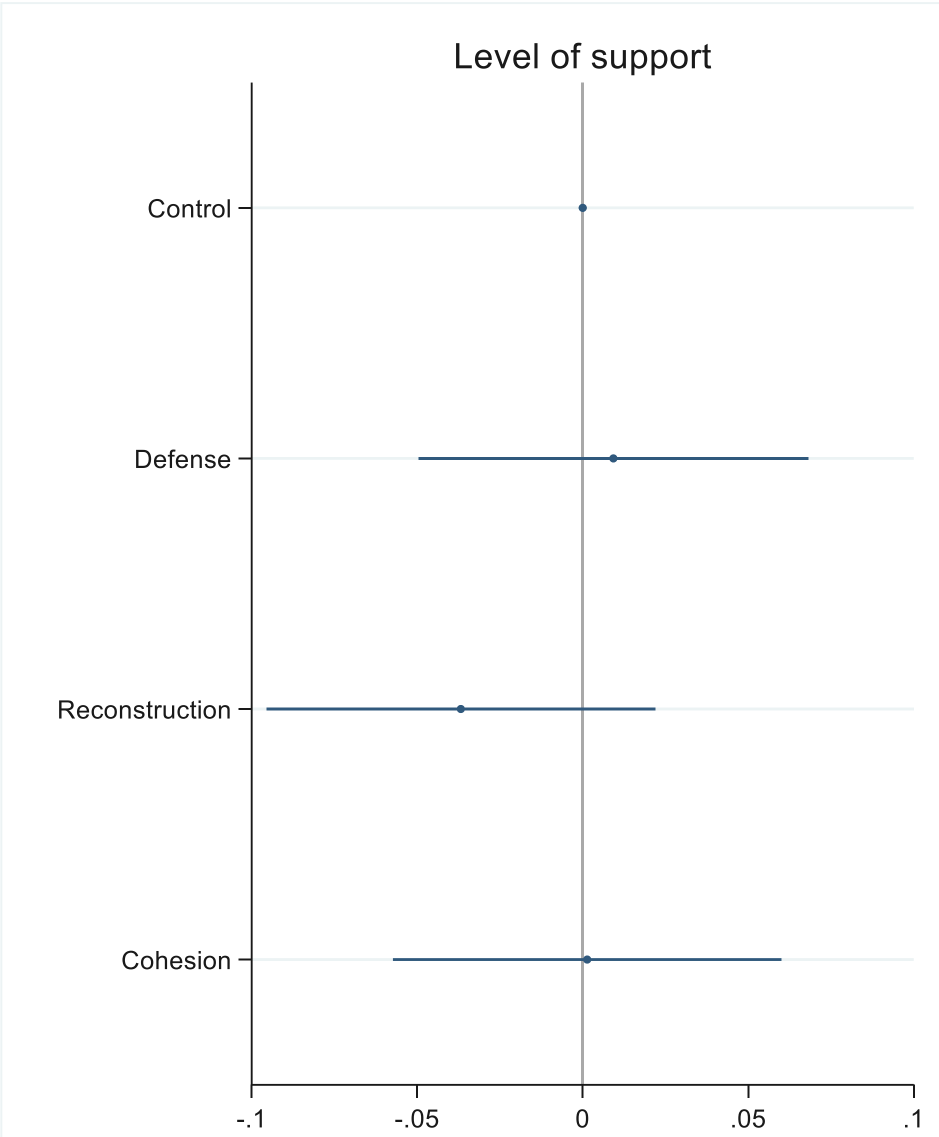

Figure 1: Coefficient plot of the effect of the experimental primes on support for paying increased taxes, showing point estimates and confidence intervals at 0.05 probabilities

[15] For example, a report from 2023 points to persistently high rates of public mistrust that the Ukrainian government would handle taxes in a responsible way (Kyiv International Institute of Sociology 2023b). Responses from our initial qualitative interviews also indirectly support this interpretation. Focusing on recent aid inflows into Ukraine, one respondent noted that, "frankly, of course, when there's tons of money circulating and coming into the country, that creates, you know, an opportunity, the temptation for some people" (Interview with male respondent, academic, online, 25 January 2023).

That said, within our sample, a sizeable share of respondents (816 or about 40 percent) reported a willingness to pay more tax. For these individuals, war-related primes visibly shift attitudes at the *intensive margin* and we see effects on respondents' willingness to pay higher taxes (Figure 2) and to do so for a longer period (Figure 3).

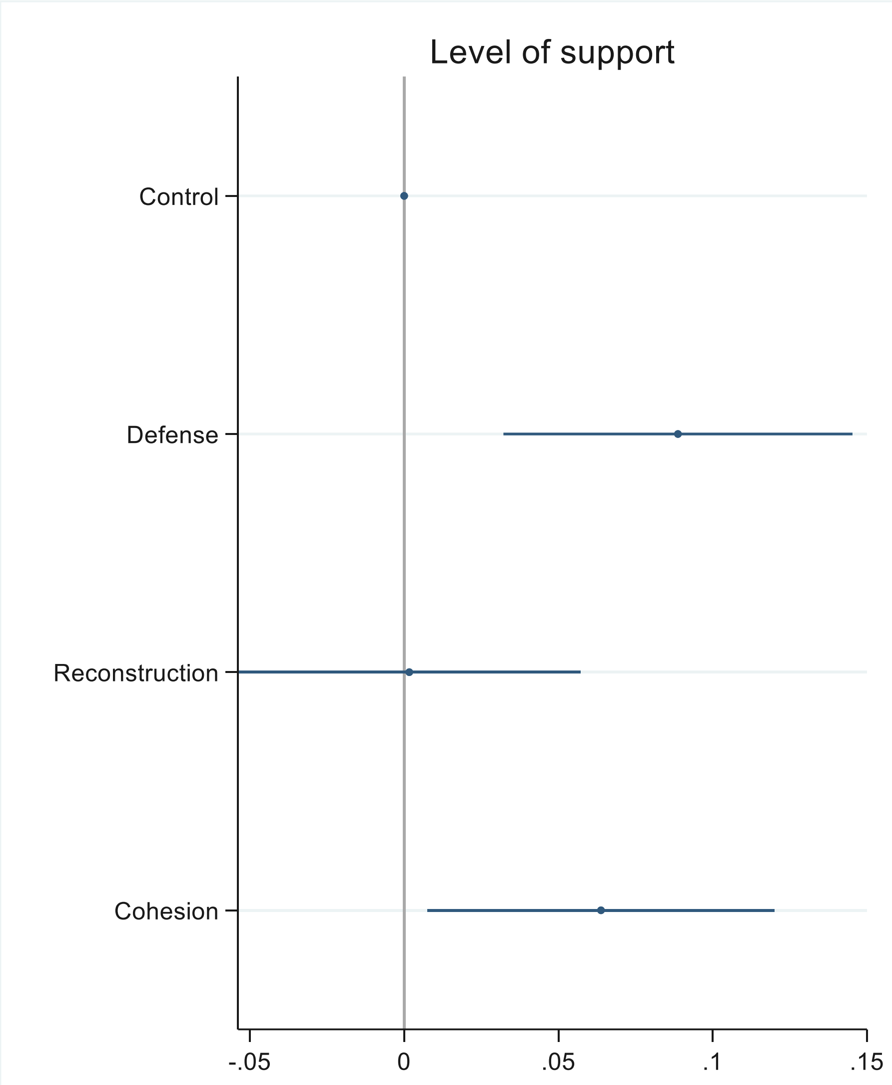

Figure 2: Coefficient plot of the effect of the experimental primes on the amount of taxes respondents are prepared to pay, among those who are prepared to pay increased taxes, showing point estimates and confidence intervals at 0.05 probabilities

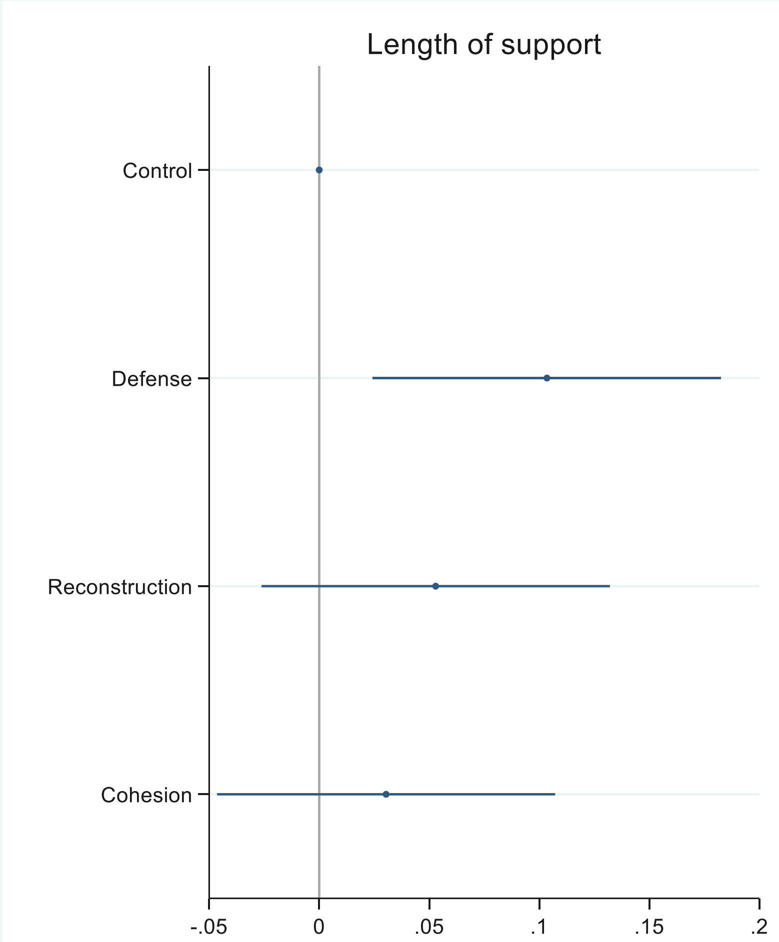

Figure 3: Coefficient plot of the effect of the experimental primes on the length of time respondents are prepared to pay taxes, among those who are prepared to pay increased taxes, showing point estimates and confidence intervals at 0.05 probabilities

The strongest and most consistent effect emerges from the defence-related prime which positively influences respondents' willingness to pay higher taxes (Figure 2) and to do so for a longer period (Figure 3). Relative to the control, the Defense prime increases the likelihood of preferring higher taxes by 8.9 percent (significant at 0.01), and a 10.3 percent greater likelihood to accept additional taxes over a longer duration.

Of the two remaining treatments only the cohesion prime emerges as another significant driver of favouring higher tax levels, with a 6.4 percent greater likelihood relative to the control. However, this positive effect does not carry over into the length of additional taxation deemed acceptable. The reconstruction prime has no effect on any of the outcome variables. A possible interpretation is that the availability of alternative sources of finance -most notably the possibility of future Russian reparation payments- may have reduced respondents' tolerance of higher taxation for this particular spending category.

All in all, our findings provide partial evidence that bellicose state building may be supported by a bottom-up process. Moreover, this works mostly through citizen-level concerns for their country's defensive capabilities, aligning quite closely with the original premises of (elite-centric) bellicose state building theory. By contrast, other non-defense related purposes of durably higher taxes yield more limited or uneven citizen-level support.

Mechanisms

To explore in more depth possible reasons behind the uneven support for paying tax, we return to the binary question of whether to pay increased taxes or not.[16] Using observational data collected in the survey, we explore possible mediating variables. Our starting point is the claim of the wider literature on social norms and public finance that citizens' acceptance of taxes is usually strongly conditioned by individual expectations of the efficacy of how such money will be administered (Besley and Persson 2014; Weigel 2020). Respondents may doubt or mistrust the government's ability to collect and use tax revenue in a transparent and accountable manner. Support for this sentiment also exists in Ukraine. In a survey from July 2023, 73.6 percent of respondents believed ordinary citizens may not want to pay taxes because they believe the money will be stolen or misspent (Kyiv International Institute of Sociology 2023b).

[16] Our sample size is not large enough to implement similar analysis on the second and third outcome variables as they were asked only to the respondents who agreed with paying more taxes.

To further investigate these arguments, we ask respondents about their levels of trust in government. We also inquire about levels of trust in the individual leader, President Zelenskyy.[17] We propose that this latter variable captures a somewhat different emotional response as Zelenskyy is strongly associated with the prosecution of the war. His leadership during the crisis has earned him widespread support among the Ukrainian populace, a remarkable turnaround given the mixed opinions prior to the conflict. Surveys around the time of our field work tracked his popularity at 91 percent expressing strong or moderate approval in February 2023 (IRI 2023), and still at a high of near 77 percent at the end of 2023 (Kyiv International Institute of Sociology 2023a), compared to 32 percent in December 2021, prior to the invasion by Russia (Kizilova and Norris 2023). Trust in Zelenskyy likely captures a rally-round-the-flag effect, which arises when exogenous shocks such as war mean that individuals align their preferences with those of the leader (Mueller 1970). Our separate questions enable us to distinguish these two mechanisms.

The results on trust in government as a mediating variable show that those with higher levels of trust are overall more positive about paying taxes. However, the difference is significant between the two levels of trust on only the defense prime (Figure 4). Those with high levels of trust in the government have a 0.59 probability of supporting paying taxes, while those with low trust in government have only 0.38 probability.

[17] We create binary variables of low trust (which includes the responses “not at all” and “not much” from the four-level scale) and high trust (which includes the responses “quite a lot” and “a great deal”).

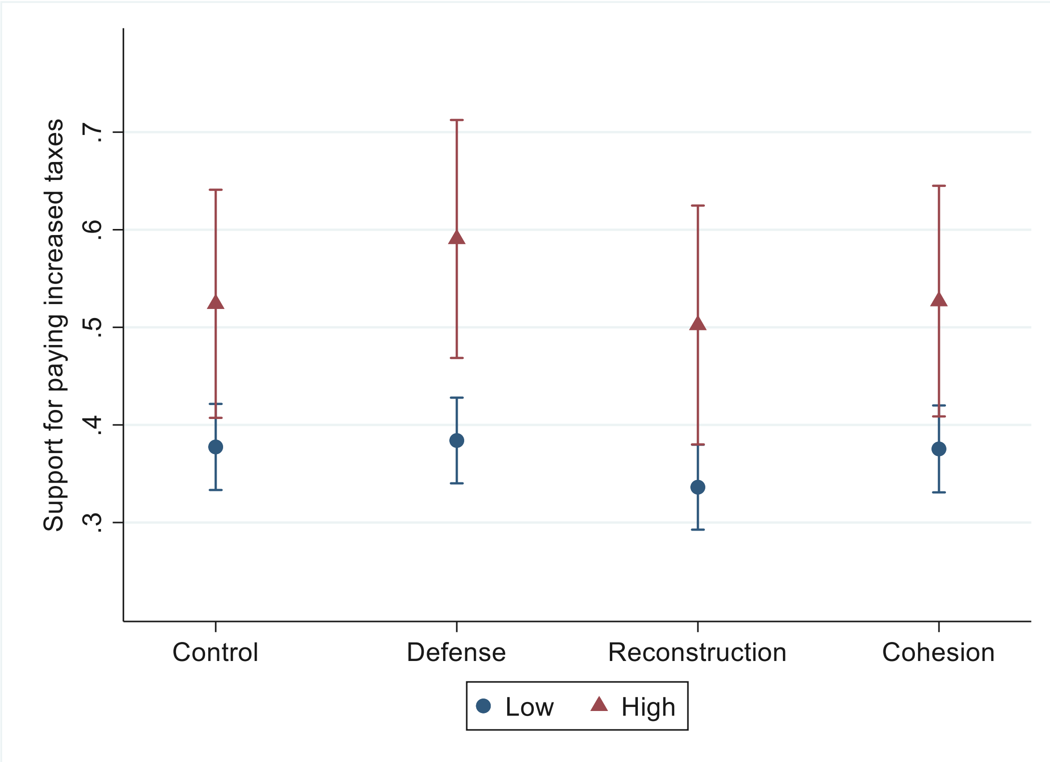

Figure 4: Predicted probabilities of support for paying increased taxes conditioned on respondents with low and high trust in government.

Our results for trust in Zelenskyy show a much stronger impact of trust (Figure 5). Not only are those with higher levels of trust in Zelenskyy more positive about paying taxes. The difference is significant across all the primes. A plausible interpretation is that these positive results originate in an intense rally-round-the-flag effect that is more closely tied to the ongoing war than the more forward-looking questions at the heart of our survey experiment. In this sense, our overall more moderate findings may reflect the fact that, by priming respondents around *future* spending purposes, we raised the bar for finding positive results (see above). Questions and experimental designs that would have targeted the war-related rally around the flag effect more directly might have yielded more positive responses about the acceptability of higher taxes.

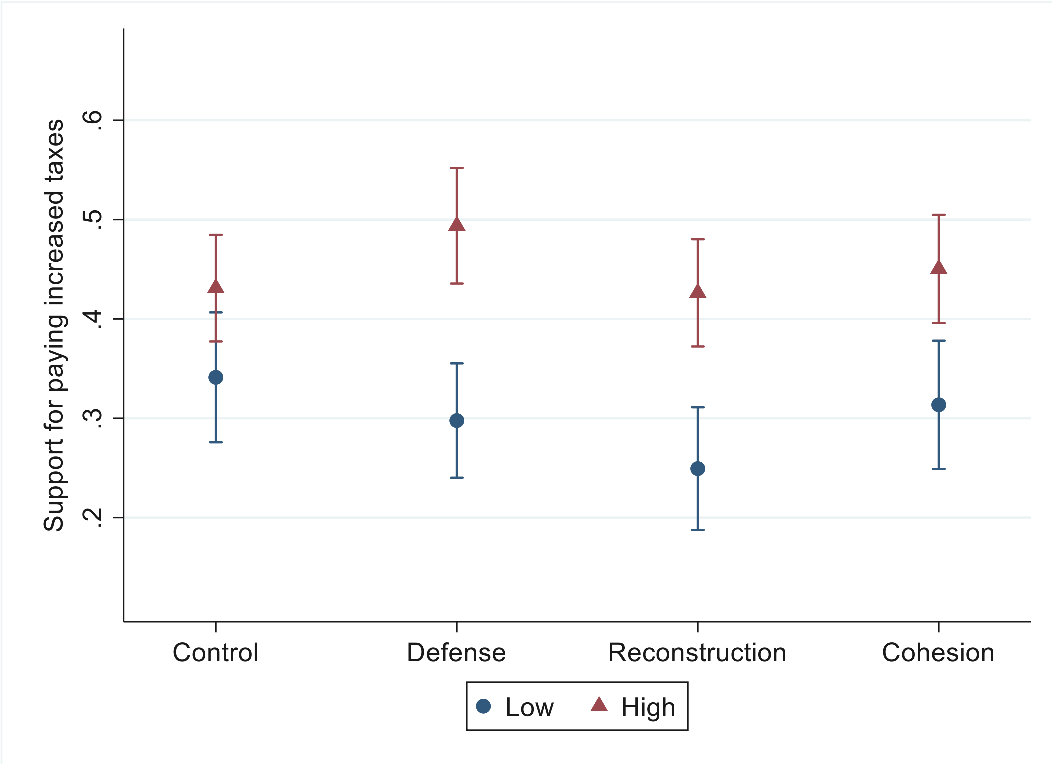

Figure 5: Predicted probabilities of support for paying increased taxes conditioned on respondents with low and high trust in President Zelenskyy.

Conclusion

War is often seen as a powerful trigger for the building of fiscal state capacity. Yet, the validity and micro-level drivers of these claims are surprisingly little studied. We fill this gap with the help of a survey and embedded experiment about public attitudes toward tax in war-time Ukraine.

Our findings provide positive but also nuanced support for the notion that 'wars make states' also from a citizen perspective. While anecdotal accounts reveal strong willingness of Ukrainian respondents to support the war effort through voluntary donations and initiatives, our findings suggest that this translates only unevenly into widespread public endorsements of higher taxes. At the extensive margin, none of our proposed war-related drivers provided sufficient motivation for those opposed to higher taxes to shift their opinions. This finding is broadly consistent with the wider literature on the link between war and taxation. Ukraine is one of the countries where access to alternative forms of finance, such as foreign debt or aid, potentially reduces incentives for taxation. In international comparisons, carried out across large numbers of countries and extended time frames, these factors emerge as influences that can considerable weaken the war-fiscal capacity link (Centeno 2002; Queralt 2019; Thies 2005). Our micro-level results provide plausible evidence that these constraints also manifest themselves in public attitudes towards wartime taxation in a contemporary case like Ukraine.

Despite this, we do find positive results at the intensive margin. Among those already more willing to pay taxes, war-related triggers -especially those associated with defensive purposes- positively impacted the amount and duration of tax increases deemed acceptable. We document these effects under a condition where the whole Ukrainian society was already ‘treated’ by the experience of the war, so the fact that our primes did move some respondents further bolsters the significance of our findings. This finding brings original support to the micro-level foundations of the ‘war makes states’ argument.

In addition, we uncover indications that political norms and trust in the performance of government matter. Similar to other societies with histories of poor tax morale and associated insufficient government performance and service delivery (Besley and Persson 2013, 2014; Weigel 2020), there are signs that the lack of willingness to pay more tax is explained by the relatively low levels of trust Ukrainians put in their government. These sentiments have already been linked to weak tax compliance in Ukraine in the pre-war period (Berenson 2018) and they are reproduced in our analysis, where concerns about corruption and mistrust in the proper use of government funds emerge as strongly-held beliefs among those not willing to pay more taxes. While war-related rally-round-the-flag effects help offset these sentiments, the resulting changes in attitudes appear to be too transient to result in an immediate societal consensus around permanently higher tax levels.

Yet, our findings also offer hope for a more positive outlook. Among those who are prepared to pay more tax, war-related defensive concerns and -to a lesser extent- the need to build national cohesion after the war, emerge as factors that significantly increase the size and duration of tax raises people are willing to tolerate. This not only provides support for the ‘wars make states’ argument at the intensive margin of public attitudes towards tax, it can also be regarded as a potential starting point for a much wider shift in societal norms around taxation. If the Ukraine government and its partners succeed in reassuring currently sceptical Ukrainians that money raised through taxes will be well-spent, it seems reasonable that the war (and hopefully an eventual post-war context) will create conditions that enable a much wider change in public opinions about taxation.

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“Are you willing to Pay?” War and Citizen’s Readiness to Pay Tax: The Case of Ukraine

Appendix

Lesley-Ann Daniels (Institut Barcelona d’Estudis Internacionals)
Frank Borge Wietzke (Institut Barcelona d’Estudis Internacionals)

Contents

Part 1: Research design

The data collection comprises of interviews and a survey that were part of the MICROPOLPAX and RESPAX research projects, funded by the European Commission and the Spanish Ministry of Science and Innovation. The data collection was approved by Universitat Pompeu Fabra prior to the implementation of the activities.

Interviews
A total of 17 qualitative interviews were carried out prior to the distribution of the survey. Initial interviews were carried out by the principal investigator with a range of academics, peace activists and NGO staff, in order to clarify the concepts and questions and help design the survey.[18] After the survey was designed, further interviews were carried out with a range of Ukrainian citizens to collect qualitative responses on the topics of the survey.[19] These interviews followed a semi-structured interview template, which had been created in light of the expert advice. The interviews were made seeking a balance across age, sex, and region of the country. The interviews were offered in Ukrainian and in Russian and were translated into English by the interviewer.

[18] Six interviews were carried out, in English. Given the security situation, these interviews were carried out online using a secured connection.
[19] Eleven interviews were carried out by the research assistant, in Ukrainian. These interviews were carried out online using a secured connection and also face-to-face. Given the security situation, the face-to-face interviews were carried out only in Lviv, but efforts were made to interview respondents from different parts of Ukraine (e.g. Western Ukraine, Kyiv, Dnipro) and with different characteristics, e.g. internally-displaced persons, ex-military, and returned refugees).

Survey
Questionnaire: The survey questionnaire was designed by the research team drawing on the feedback from the expert interviews. The survey was trialled prior to the fielding. Data collection ran from 10 to 24 August 2023.

Sample: The survey was carried out by IPSOS, an international survey company with an office in Ukraine. A non-random quota sample of Ukrainian residents over 18 years old is recruited from an online panel (N=400,000) provided by IPSOS. Respondents are offered a small reward for their participation. The sample size is 2,100 respondents, including 100 pilot responses.[20] The survey company uses soft quotas (with ten percent variance) for age group (18-20, 21-30, 31-40, 41-50, 51+), sex (male, female), and region (Central, Eastern, Kyiv, Northern, Southern, Western) based on pre-war census data. Individuals who are not Ukrainian residents at the time of the survey or before the outbreak of the Russian war (24 February 2014) are excluded.

Running a survey during an active war brings challenges (Rickard et al. 2023). Firstly, the data was collected during the war when there was evidence of a change in attitudes towards the government and its actions, but at a time when it was not clear what the outcome of the war would be. At the time of the survey (August 2023), sentiments were optimistic about the possibilities of winning the war (though it is possible that these declared positive sentiments masked doubts). Secondly, the survey runs only in government-controlled areas and so misses the Russian-occupied areas, the proportion of the population who have left Ukraine, and many of the population who are fighting, particularly males. However, the sample is representative of the Ukrainian population who have been living under war conditions for 18 months (at the time of the survey).

Pre-registration: The research design was registered prior to receipt of the data. The data was collected by an external survey company (IPSOS). The data had not yet been collected, and thus the data had not been transmitted, and so not observed or analysed by the researchers, at the time of the timestamp of the registration.

Deviations from the pre-registration plan: In the article we report only the hypotheses that compare each of the primes (Defence, Reconstruction and Cohesion) against the control and not the hypotheses that compare the primes against each other as these do not bring additional information beyond that already contained in the original results.
We use the Romano-Wolf multiple hypothesis corrector rather than the Bonferroni corrector as the former is considerably more powerful, given that it takes into account the dependence structure of the test statistics by resampling from the original data (Clarke, Romano, and Wolf 2020).

Variables measured: We include the following controls in the analysis: age group (18-20, 21-30, 31-40, 41-50, 51+), sex (male, female), region lived in on 23 February 2023 and region lived in at the time of the survey (Central, Eastern, Kyiv, Northern, Southern, Western), how urban the settlement is 0-49, 50-99, 100-499, and 500+ (all in thousands), educational level (maximum of finished School, Technical college, Higher education, or Post-graduate education), and whether the respondent chose to answer the survey in Russian as opposed to Ukrainian. We also ask attitudinal questions about trust in government and trust in President Zelenskyy. The descriptive statistics are given in Table A1.

[20] Sample size is calculated with four groups, setting the alpha at 0.05, the power at 0.8, and taking a small effect size of 0.15, requiring a total sample size of 1,968. Sample size is calculated using the G*Power suite (Faul et al. 2007).

Part 2: Ethical considerations

Questionnaire: Questions were revised, particularly the questions on ethnic identity and victimization, due to sensitivities notified by the expert interviews.

Data collection: As the survey takes place during an active war, the decision was made to avoid randomized contact to respondents, as would happen in a CATI telephone survey. The survey is delivered to only respondents who have signed up to the IPSOS panel book, meaning that they have agreed to take part in surveys. Furthermore, prospective respondents receive an invitation to answer the survey online and can open the survey at the time of their choosing. This is important given that some areas of Ukraine suffered internet or energy blackouts and because respondents may not be in a situation to respond. This survey method was considered to be more appropriate than randomized telephone calls, which could be intrusive and inconvenient.

Informed consent: Respondents were informed of the purpose of the research, that the research was purely for academic purposes, that their answers were confidential and would be stored anonymized, that they could refuse to answer any question.

Experimental manipulation: Respondents are advised prior to the experimental manipulation that they will assess a hypothetical situation.

Support: At the end of the survey, respondents are offered access to two support networks. The text they read is the following: “Thank you for your help with this questionnaire. We would like to remind you that if you are affected by any of the questions that were asked, you can contact Doctors without Borders in Ukraine, who deal with trauma (access them through https://www.doctorswithoutborders.org/what-we-do/where-we-work/ukraine), or alternatively the “Friend” chatbot, which has been developed by a team of Ukrainian psychologists to help respondents deal with trauma. The “Friend” chatbot is available in Ukrainian and English and is available on Telegram at this site: https://t.me/friend_first_aid_bot”

Part 3: Descriptive statistics

Table A1: Descriptive statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Outcome variables					
Support for taxes					
No	2,097	.611	.488	0	1
Support	2,097	.389	.488	0	1
Amount of taxes					
1%	816	.208	.406	0	1
2%	816	.414	.493	0	1
5%	816	.304	.46	0	1
10%	816	.073	.261	0	1

Length of taxes					
1-2 years	812	.266	.442	0	1
5 years	812	.337	.473	0	1
10 years	812	.05	.219	0	1
As long as necessary	812	.346	.476	0	1
Experimental primes					
Control	2,100	.253	.435	0	1
Defence	2,100	.245	.43	0	1
Reconstruction	2,100	.251	.434	0	1
Cohesion	2,100	.250	.433	0	1
Socio-demographic variables					
Sex					
Male	2,100	.467	.499	0	1
Female	2,100	.533	.499	0	1
Age band					
18-30	2,100	.208	.406	0	1
31-40	2,100	.267	.442	0	1
41-50	2,100	.232	.422	0	1
51+	2,100	.291	.454	0	1
Education					
School	2,085	.093	.290	0	1
Technical	2,085	.229	.420	0	1
Higher	2,085	.377	.484	0	1
Post-grad	2,085	.299	.458	0	1
Employed					
Not-employed	2,097	.359	.48	0	1
Employed	2,097	.64	.48	0	1
Language chosen					
Ukrainian	2,099	.889	.313	0	1
Russian	2,099	.11	.313	0	1
Size of settlement (thousands)					
0-49	2,100	.33	.47	0	1
50-99	2,100	.09	.286	0	1
100-499	2,100	.24	.427	0	1
500+	2,100	.339	.473	0	1
Region previously lived					
Central	2,100	.113	.317	0	1
Eastern	2,100	.348	.476	0	1
Kyiv	2,100	.116	.32	0	1
Northern	2,100	.092	.29	0	1
Southern	2,100	.115	.319	0	1
Western	2,100	.213	.409	0	1

Region currently live					
Central	2,100	.13	.336	0	1
Eastern	2,100	.3	.459	0	1
Kyiv	2,100	.116	.32	0	1
Northern	2,100	.107	.309	0	1
Southern	2,100	.11	.313	0	1
Western	2,100	.236	.424	0	1
Mediating variables					
Trust in government					
Low trust	2,096	.867	.339	0	1
High trust	2,096	.133	.339	0	1
Trust in Zelenskyy					
Low trust	2,095	.391	.488	0	1
High trust	2,095	.608	.488	0	1

Part 4: Additional results

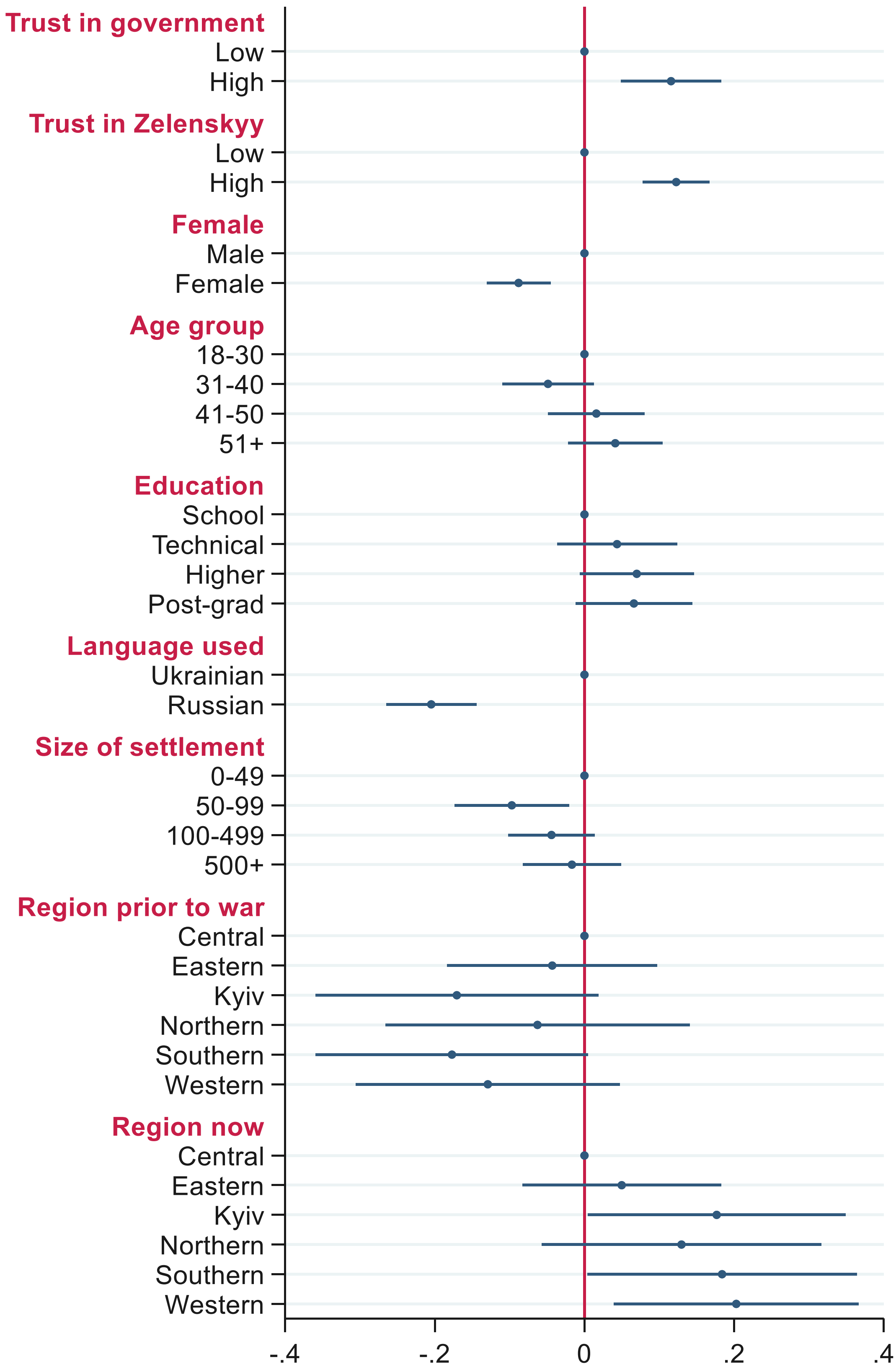

Figure A1: Observational results showing profile of support for paying taxes, with robust standard errors. Showing point estimates and 95% confidence intervals.

Table A2: Full regression results

	Support for tax	Amount of tax	Length of payment
	b/se	b/se	b/se
Experimental primes			
Control	0.000	0.000	0.000
	(.)	(.)	(.)
Defense	0.052	0.603**	0.454*
	(0.13)	(0.20)	(0.19)
Reconstruction	-0.164	0.014	0.217
	(0.13)	(0.19)	(0.18)
Cohesion	0.010	0.422*	0.121
	(0.13)	(0.20)	(0.18)
Covariates			
Sex			
Male	0.000	0.000	0.000
	(.)	(.)	(.)
Female	-0.341***	-0.639***	-0.145
	(0.10)	(0.14)	(0.14)
Age band			
18-30	0.000	0.000	0.000
	(.)	(.)	(.)
31-40	-0.251	-0.042	-0.320
	(0.14)	(0.19)	(0.21)
41-50	0.007	0.397	0.205
	(0.14)	(0.20)	(0.21)
51+	0.087	0.609**	0.342
	(0.14)	(0.20)	(0.21)
Education level			
School	0.000	0.000	0.000
	(.)	(.)	(.)
Technical	0.157	0.277	0.292
	(0.18)	(0.28)	(0.32)
Higher	0.303	0.509	0.502
	(0.17)	(0.28)	(0.31)
Post-grad	0.243	0.453	0.074
	(0.18)	(0.28)	(0.31)
Language chosen			
Ukrainian	0.000	0.000	0.000
	(.)	(.)	(.)
Russian	-1.211***	0.314	-0.625
	(0.19)	(0.39)	(0.36)
Size of settlement			
0-49	0.000	0.000	0.000
	(.)	(.)	(.)
50-99	-0.420*	-0.290	-0.259
	(0.18)	(0.26)	(0.27)
100-499	-0.140	-0.410*	-0.275
	(0.13)	(0.19)	(0.18)
500+	-0.040	-0.700***	-0.461*

	(0.15)	(0.21)	(0.21)
Region lived previously			
Central	0.000	0.000	0.000
	(.)	(.)	(.)
Eastern	-0.133	-0.238	0.038
	(0.34)	(0.63)	(0.44)
Kyiv	-0.631	-0.278	0.332
	(0.45)	(0.74)	(0.60)
Northern	-0.134	-0.412	-0.899
	(0.48)	(0.98)	(0.71)
Southern	-0.611	-0.190	0.177
	(0.45)	(0.73)	(0.59)
Western	-0.466	0.081	0.285
	(0.42)	(0.69)	(0.53)
Region lives now			
Central	0.000	0.000	0.000
	(.)	(.)	(.)
Eastern	0.217	0.367	0.544
	(0.32)	(0.60)	(0.44)
Kyiv	0.694	1.291	0.215
	(0.41)	(0.71)	(0.55)
Northern	0.450	0.727	1.256
	(0.44)	(0.94)	(0.66)
Southern	0.664	0.458	0.202
	(0.44)	(0.71)	(0.58)
Western	0.786*	0.351	-0.011
	(0.39)	(0.65)	(0.51)
Constant	-0.383		
	(0.24)		
/			
cut1		-0.832*	-0.477
		(0.40)	(0.40)
cut2		1.110**	1.022*
		(0.40)	(0.40)
cut3		3.231***	1.248**
		(0.43)	(0.40)
Observations	2081	812	808
Loglikelihood	-1345.416	-979.870	-977.928

Full regression results for Model 1 (support for paying taxes – logit regression), Model 2 (amount of tax – ordinal logistic regression) and Model 3 (length of time to pay taxes - ordinal logistic regression), with robust standard errors. * p < 0.05, ** p < 0.01, *** p < 0.001

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