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Territorial arrangements and ethnic conflict management: The paradox that isn't

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ABSTRACT

Ethnic civil war, the most common type of war in the 21st century, is one of the biggest challenges for development practitioners and scholars. Like other types of armed conflict, it impedes countries' economic, social and political development, and there is no consensus on how 'best' to solve it. Territorial self-governance has received much attention in efforts to reduce the risk of ethnic civil war, but the academic and policy debates over its effects remain inconclusive. This has reinforced the notion that territorial self-governance is a 'paradoxical' institution, which either increases or mitigates the risk of ethnic civil war. In this article, we argue that claims of a 'paradox' of territorial self-governance are exaggerated, as they stem from differences in empirical operationalization. We present a systematic overview of the underlying definitions, geographic and temporal scope of quantitative indicators from ten datasets, and compare how they capture aspects of self-rule, shared rule and their legal codification. Using a series of binary time-series-cross-section analyses, we illustrate that different measures of territorial arrangements lead to different results, both regarding the significance and direction of statistical effects. Our findings highlight the need to pay greater attention to the deceptively simple yet empirically fundamental question of which data are being used and why.

1. Introduction

Some people may benefit from war (Cramer 2006; Spencer 2015), but the majority do not. The overwhelmingly negative effects of violent conflict on countries' economic, social and political trajectories are summarized in the oft-cited phrase of war as 'development in reverse' (Collier et al. 2003; Gates et al. 2012; Hegre 2018). According to the Center for Systemic Peace (2023), ethnic civil wars constitute the most common type of war in the 21st century so far – posing a significant challenge to development prospects, and therefore standing at the centre of our analysis.

Explanations for the occurrence of ethnic civil wars frequently

highlight the material and symbolic values of territory (Denny and Walter 2014; Schulte 2018), with ethnic challengers in "most ethnic [civil] wars since 1955 ... hav[ing] sought independence or regional autonomy" (PITF 2019: 6). Consequently, there has been much interest in territorial self-governance arrangements as (potential) part of conflict management and peacebuilding approaches (United Nations and World Bank 2018; Wolff et al. 2020). Following this line of argument, it matters for the inextricably fused goals of peace and development how power is distributed among territorially bound layers of the state.

Despite the policy-making relevance of territorial self-governance arrangements – defined here broadly as institutional design that ensures the self-determination rights of a sovereign state's geographically

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delineated sub-units, for instance in the form of federalism or regional autonomy (cf. McGarry and O’Leary 2010; Wolff 2009, 2013)¹ – academics remain divided over these arrangements’ likely effects (Bakke 2015; Basta 2018; Neudorfer et al. 2022). Numerous authors have referred to the so-called ‘paradox’ of territorial self-governance arrangements (e.g., Beramendi and León 2015; Erk and Anderson 2009; Keil and Anderson 2018; Rode et al. 2018; Vendenbergh 2022), which states that “the same institutions, policies, and practices that are designed to contain divisions may contribute to perpetuating conflict” (Beramendi and León 2015: 215).

Building on previous research which has identified conceptual and measurement confusion as a fundamental reason for academic contestation (Anderson 2010; Blume and Voigt 2011; Schneider 2003; Trinn and Schulte 2022), we question the notion that there is a ‘paradoxical’ relationship between territorial self-governance and the prospects for peace (and thus, ultimately, development). To do so, we take a step back from arguments that seek to identify causal mechanisms between territorial arrangements and violent civil conflict. Instead, we focus on issues of empirical operationalization and ask: To what extent do indicators of territorial self-governance drive statistical results on the relationship between territorial self-governance and the risk of ethnic civil war? Put differently: How important is the choice of indicator for whether we find territorial self-governance arrangements to have violent conflict-reducing effects or not?

The indicators of territorial self-governance arrangements that we use in our analysis stem from ten quantitative datasets: the Database of Political Institutions; the Driving Democracy Dataset; the Economic Effects of Constitutions Dataset; the Ethnic Power Relations Dataset; the Ethno-Embedded Institutionalism Dataset; the Inclusion, Dispersion and Constraint Dataset; the Institutions and Elections Project Dataset; the International Monetary Fund Fiscal Decentralization Dataset; the Political Constraint Index Dataset; and the Regional Authority Index Dataset.

In a novel contribution to existing scholarship, we present a systematic overview of these indicators based on their underlying definitions, temporal and geographic scope, and test their effects on the risk of ethnic civil war in a series of binary time-series-cross-section analyses. Our systematic overview and the hypotheses to guide our analysis focus on aspects of self-rule, shared rule and their legal codification.

Our findings show that the use of different indicators under an otherwise identical research design leads to partly contradictory results. Depending on the indicator included in our statistical models, aspects of self-rule or shared rule either have a statistically significant negative effect on the incidence of ethnic civil war (i.e., they help to reduce the risk that ethnic civil war occurs) or they do not. Depending on the indicator used, there also is considerable variation in the marginal effects of self-rule or shared rule arrangements on the risk of ethnic civil war, which corroborates our argument that the choice of empirical measure is a relevant driver of different – and at times contradictory – results.

Overall, we make the deceptively simple point that the choice of territorial arrangement indicator(s) affects empirical results. While this finding is in itself not surprising, it matters a great deal for policy-makers who try to make sense of academic debates. As our analysis shows, aggregate indicators of territorial arrangements as well as disaggregated

variables which capture specific aspects of self-rule or shared rule – for instance, fiscal autonomy, borrowing autonomy, shared fiscal control (by regional and central representatives) or an Upper House that ensures regional representation at the centre – all produce different effects on the risk of ethnic civil war.² The fine print – of which data are being used and for what reason – thus deserves close scrutiny before statistical results are used to inspire policy recommendations.

In the following sections, we outline central arguments in the academic debate on the ‘paradox’ of territorial arrangements for ethnic conflict management and why they matter from a policy-making perspective; compare the quantitative indicators that we selected for our analysis in terms of their underlying definitions, temporal and geographic scope; provide details on our method and hypotheses; and discuss our empirical findings before concluding with some reflections about the practical implications of our research.

2. The ‘paradox’ of territorial arrangements for ethnic conflict management

Policy-making interest in territorial approaches to conflict management is well-founded, since territory often plays a central role in violent conflict dynamics (Denny and Walter 2014; Mediation Support Project 2010; PITF 2019). In 2007, the United Nations (UN) Peacebuilding Commission discussed the implementation of local governance and decentralization in post-conflict contexts (UN Peacebuilding Commission 2007). Federalism headlined the January 2009 edition, and decentralization and special territorial autonomy the November 2010 edition of the ‘Peace Mediation Essentials’ notes, published by the Mediation Support Project in Switzerland in consultation with the Mediation Support Unit at the UN Department of Political Affairs (Mediation Support Project 2009, 2010). In 2020, the World Bank Group released a commissioned report on ‘The Merits of Subnational Governance as a Catalyst for Peace’ (Wolff et al. 2020).

Yet, the academic debate offers no clear guidelines for policy-makers interested in territorial self-governance arrangements, as research about the suitability of territorial strategies to contain, mitigate, stop or prevent ethnic violence remains divided and inconclusive (Keil and Anderson 2018; Schulte 2018; Swenden 2013; Wolff 2013):

On the one hand, proponents of territorial self-governance suggest that the vertical distribution of political decision-making powers makes the onset, continuation or recurrence of ethnic civil wars less likely, as it helps to address grievances and security concerns amongst populations in territorially defined sub-units of the state (e.g., Bermeo 2002; Ghai 2000; Gurr 1993; Hartzell et al. 2001; Lijphart 2002; Saideman et al. 2002). According to these authors, territorial self-governance helps to reduce the risk of violent ethnic conflicts because it increases opportunities for political representation at different levels of government; creates formal forums for the expression of sub-national interests; enhances the prospects that these interests are translated into tailor-made policies at the sub-national level; and leads to new arenas for cooperation and negotiation between representatives from different levels of government (cf. Keil and Anderson 2018; Martínez-Herrera 2010; Suso 2010; Swenden 2013).

Sceptics, on the other hand, argue that territorial self-governance either does not matter for or – worse – increases the risk of violent ethnic conflict (e.g., Bunce 2004; Chapman and Roeder 2007; Cornell 2002; Lake and Rothchild 2005; Nordlinger 1972; Roeder 2009). According to the sceptical view, this is because the vertical distribution of political powers – and associated cultural recognition, economic and administrative resources of geographically defined sub-units of the state – can, in the worst case, enhance both the resolve and the opportunity of

¹ The debate on territorial self-governance is marked by “a plethora of concepts, whose definitions vary from author to author and which often have a large, and often unclear, overlap” (Trinn and Schulte 2022: 18). The slightly longer version of our own definition is that we use ‘territorial self-governance’ as an umbrella label for any type of institutional design that distributes power vertically (i.e., among the central and non-central levels of government), by creating territorially defined sub-units of the state whose governing bodies have exclusive decision-making powers over certain issue areas (Trinn and Schulte 2022; Wolff 2009, 2013). These sub-units have political authority that is independent from that of the central government, which they can exercise as long as it does not violate the legal framework of the overarching state (Wolff 2013).

² See section 5 for the full discussion of our statistical results depending on how the indicators in our analysis capture different aspects of territorial self-governance.

politically mobilized groups to escalate inter-ethnic tensions (Bunce 2004; Cornell 2002; Nordlinger 1972; Roeder 1991, 2009). Rather than improving the prospects for peace, territorial self-governance may increase the risk of ethnic violence (especially in the form of secessionist civil wars) if political actors at the sub-national level use self-governance powers and resources to strengthen ethno-nationalist movements; ask for further material and symbolic concessions from the central government; pass discriminatory policies that benefit some (typically: ethnic) groups over others; and create ‘mini-statelets’ from which they are able to organize full-scale rebellion (cf. Brancati 2006; Keil and Anderson 2018; Martínez-Herrera 2010; Swenden 2013). Arguably, territorial self-governance arrangements that are drawn along ethnic lines are particularly prone to such tension-enhancing dynamics – because they increase the risk that leaders of geographically concentrated groups, who represent a demographic majority within a given sub-unit of the state, can mobilize members of their ethnic community into (violent) collective action (Cornell 2002; Hale 2004; Roeder 1991, 2009).

So far, the academic debate between proponents and sceptics of territorial self-governance lacks a clear resolution. This is captured in phrases such as ‘the paradox of federalism’ (Beramendi and León 2015; Erk and Anderson 2009), ‘the paradox of decentralization’ (Brancati 2009; Keil and Anderson 2018) or ‘the paradox of autonomy’ (Anderson 2004; Suso 2010), which imply that territorial self-governance is a ‘difficult’ institution that defies straightforward classification as either a useful or detrimental tool of conflict management.

In an effort to overcome this academic stalemate, a growing body of scholarship has highlighted the relevance of context-dependent dynamics (e.g., Brancati 2006, 2009; Cederman et al. 2015; Neudorfer et al. 2022). This scholarship emphasises the effects of both the context-specific design of territorial self-governance and of the broader context under which it operates. Context-specific design features of territorial self-governance arrangements include, for instance, the manner in which *intra*-state boundaries are drawn or the competences given to decision-making bodies at different levels of the state (Brancati 2006, 2009; Rode et al. 2018; Schulte 2018). The broader context under which territorial self-governance operates includes, for instance, the overarching country’s political regime or socio-economic conditions (Bakke and Wibbels 2006; Suberu 2009; Swenden 2013).

A separate body of literature has sought to advance the academic debate on territorial arrangements by introducing new conceptualizations and empirical measurements. This includes recent datasets such as the Ethnic Regional Autonomies Dataset (Panov and Semenov 2018), the Localization and Decentralization Indicators (Ivanyna and Shah 2014), the Local Autonomy Index (Ladner et al. 2016; Ladner and Keuffer 2021), the Regional Authority Index (Hooghe et al. 2008, 2016) and the Territorial Self-Governance Dataset (Trinn and Schulte 2022). Rather than helping to overcome divisions in the academic debate, however, these efforts have added further ambiguity over which indicators to choose for one’s analysis and why, due to the lack of a commonly agreed methodology on how ‘best’ to measure vertical state structures (Harguindéguy et al. 2021).

Academic inconclusiveness, the notion that territorial self-governance is a ‘paradoxical’ institution, and a plethora of conceptualizations and measurements (Hooghe et al. 2016; Trinn and Schulte 2022) pose considerable, inter-linked challenges to policy-makers interested in institutional pathways for peace (such as UN and World Bank 2018). We illustrate this point with two short examples of territorial self-governance discussions in the context of peacebuilding efforts in Yemen and Ukraine.

Both before and since the escalation of years of violence into an “internationalized civil war” in 2015 (UCDP 2024a: n.p.), there have been repeated discussions about the implementation of federalism in Yemen (Salisbury 2015). While some regard federalism as a requirement for sustainable peace (e.g., Gupta 2021), others describe “the 2014 proposal [by the then-government of President Abdu Rabbu Mansour Hadi] to partition Yemen into a federal system ... [as] one of the major

causes of the current conflict” (al-Deen 2019: 4). Of course, sustainable peace – just like the incidence of war – is a multi-causal phenomenon. Altering the vertical distribution of political powers thus should not be seen as a panacea of conflict management, but needs to be considered in the context of further factors such as the strength of the state, the level of fragmentation among different political groups or the geographic distribution of natural resources (al-Deen 2019; al-Rawhani 2019). Arguably, however, federalism can be seen as both a source and a solution of violent conflict in Yemen, not only because of the context under which it would have been implemented,³ but because of ambiguities surrounding the meaning of ‘federalism’ itself. Policy-makers and their advisors have struggled to assess the likely effects of federalism in Yemen, as it can take multiple different forms, for instance, ethno-federalism as opposed to ‘simple’ federalism, or symmetrical as opposed to asymmetrical federalism, depending on how the boundaries of federal units are drawn and what formal powers are given to each of them (Anderson 2015; Watts 2013). Federalism, thus, lacks a “set template” (Moriani et al. 2013: 109).

Not surprisingly, given well-known conceptual confusion in discussions about vertical state structures (Anderson 2010; Blume and Voigt 2011; Schneider 2003; Trinn and Schulte 2022), different actors in Yemen had different understandings about the meaning of federalism as opposed to other arrangements such as confederations or non-federal decentralized states (Moriani et al. 2013). While by far not the only challenge for peacebuilding attempts in Yemen, academic inconclusiveness regarding the conceptualization and likely effects of federalism (Beramendi and León 2015; Erk and Anderson 2009) added another layer of difficulty to policy-oriented discussions.⁴

Conceptual confusion similarly contributed to policy-making challenges in Ukraine after the annexation of Crimea in 2014 and prior to the full-scale invasion by Russian forces in 2022 (UCDP 2024b). During this time, the topic of territorial self-governance featured prominently in the Minsk negotiations that sought to bring an end to violent conflict in the Donbas region (International Crisis Group 2020; Rabinovych and Gawrich 2023). Like in Yemen, policy-makers were confronted with multiple challenges, including the politically charged question to which extent the situation in Ukraine was a violent *intra*-state conflict (as argued by the Russian government) or a violent *inter*-state conflict (as argued by the Ukrainian government) (Åtland 2020). While the Minsk I and Minsk II agreements explicitly mentioned decentralization as a particular type of territorial self-governance arrangement (Åtland 2020; International Crisis Group 2020; Rabinovych and Gawrich 2023; UN Peacemaker 2024), the meaning of this term and its likely effects were shrouded in ambiguity. Russian, Ukrainian and Donbas regional representatives had different understandings of what it would mean to grant autonomy to territories in eastern Ukraine under a decentralization arrangement (Åtland 2020; International Crisis Group 2020).

At the same time, Western donors supported decentralization from a good governance perspective,⁵ but largely avoided engagement with the debate on territorial self-governance as a tool of conflict resolution (Rabinovych and Gawrich 2023). The gradual ‘introduction’ of ever more far-reaching provisions for territorial self-governance and their broader implications for Ukraine’s sovereignty and viability as a state illustrate both the complex and multi-dimensional nature of territorial self-governance and the fierce policy and academic debates over its

³ While al-Deen (2019) argues that war has *de facto* federated Yemen, it remains *de jure* a unitary state, as the 2015 Draft Constitution – which would have formally introduced federalism – was a major point of contention and did not lead to a final constitutional text (Berghof Foundation and Political Development Forum Yemen 2024).

⁴ This was observed first-hand by one of the authors who served as an advisor to the constitutional drafting commission for Yemen in 2014.

⁵ For the varying effects of self-rule and shared rule on corruption see, for instance, Neudorfer and Neudorfer (2015).

relative merits (Malyarenko and Wolff 2018, 2019).

Overall, the “terminological mess” (Garcia 2009 cited in Trinn and Schulte 2022:18) in the study of territorial arrangements is a major challenge for both academics and policy-makers. Over the years, the academic debate has generated a plethora of state structure typologies and indicators, whose underlying conceptualization and relationship to one another are not always clear (Harguindéguy et al. 2021; Ladner et al. 2016; Trinn and Schulte 2022), creating obstacles for effective knowledge exchange in scholarly circles and beyond.

Instead of seeking to analyze the causal relationships between territorial self-governance arrangements and the incidence of ethnic civil war, we ask: To which extent does the indicator of territorial self-governance drive statistical results on the relationship between territorial self-governance and the risk of ethnic civil war? Put differently: How important is the choice of indicator for whether we find territorial self-governance arrangements to have violent conflict-reducing effects or not?

To highlight the relevance of these questions, we present in the next section a systematic overview of the underlying definitions, geographic and temporal scope of quantitative indicators from ten datasets, and compare the manner in which they conceptually specify and empirically measure aspects of self-rule, shared rule and the legal codification of vertical state structures.

3. A systematic overview of territorial arrangement indicators

As the short examples of Yemen and Ukraine have illustrated, there is no commonly agreed understanding of what territorial self-governance arrangements such as federalism or decentralization are or what they (should) look like. Nor are there generally agreed typologies to distinguish different state structures from each other. For instance, scholars such as McGarry and O’Leary (2010) treat devolution and decentralization as synonyms, while Lyon (2015) identifies them as two distinct points on the centralization-decentralization scale. Farzanegan et al. (2018) equate decentralization with “the devolution of authority towards sub-national governments” (Farzanegan et al. 2018: 190), while Siegle and O’Mahoney (2006) consider devolution as a particular type of decentralization besides deconcentration and delegation. Brancati (2009, cited in Wolff 2011: 28), in turn, conceptualizes “decentralisation ... as federalism”, further complicating the conceptual relationship between devolution, decentralization and federal (or non-federal) state structures.

Conversely, the constituting elements of territorial self-governance arrangements may be invoked in rather ambiguous terms, too. For instance, authors might discuss the effects of self-rule (a core feature of territorial self-governance) by relying largely on its broad definition as the ability of representative bodies in geographically defined sub-units of the state to exercise autonomous decision-making powers (see e.g., Erk and Anderson 2009; Juon 2024; Swenden 2013). As these autonomous decision-making powers can take various forms – for instance in the cultural, financial or security dimension (Schulte 2018) –, the use of broad indicators that aggregate different dimensions into a single measure may lead to inappropriate conclusions about the meaning and likely effects of different self-rule arrangements (see also our discussions in section 5).

Conceptual confusion is not only a concern for reasons of terminological accuracy, but also relevant for the construction of empirical measures – after all, conceptual confusion can easily translate into

measurement confusion when researchers lack clarity about what it is that they are actually trying to quantify (Adcock and Collier 2001; Hooghe et al. 2008, 2016; Trinn and Schulte 2022).

Building on the recognition that conceptual and measurement confusion are a major challenge in the study of territorial self-governance arrangements, we compare and contrast indicators of different territorial arrangements from ten quantitative datasets (Table 1).

Our selection of empirical measures is by no means exhaustive, as our aim is not to engage with all available datasets – given the plethora of territorial arrangement indicators that have been produced over the years, none of which have (yet) become *the* ‘go-to’ dataset in territorial arrangement studies (Harguindéguy et al. 2021; Trinn and Schulte 2022), this would be an unfeasible task. Rather, we followed a strategy of ‘convenience sampling’, whereby we drew on those datasets with which we were familiar from our previous research and that we could easily access at the time of writing this article. Consequently, datasets that either were difficult to obtain or which have been published only recently – such as Trinn and Schulte’s (2022) Territorial Self-Governance Dataset – do not feature in our analysis. This does not weaken our overarching argument, since the point about conceptual and measurement differences and their impact on the perception of a ‘paradox’ of territorial self-governance stands irrespective of whether we use older or newer datasets (see Table 1 and section 5).

As the indicator summary in Table 1 and the more detailed overview in Table A.1 in the appendix illustrate, there is considerable variation in terms of temporal and geographic coverage. While the Driving Democracy (DD) Dataset provides information on only two years (1996 and 2000), the Ethnic Power Relations Dataset covers the most extensive time period with 72 years (1946 to 2017). Geographic coverage ranges from 60 countries in the (Over-Time) Economic Effects of Constitutions (EEC) Dataset, to 234 countries in the Political Constraint Index (POLCON) Dataset. We include information on country-level indicators in Table 1 and Table A.1, but it should be noted that the EPR Dataset also provides a group-level version, and the Regional Authority Index (RAI) Dataset a region-level version (not included in our tables).

The documentation that accompanies the indicators in Table 1 and Table A.1 differs remarkably in the amount of information on underlying definitions. On one end of the spectrum is the EEC Dataset, which contains only a short note that the conceptualization of its federalism variable is based on another, not publicly available source (Downes 2000). On the other is the RAI Dataset, whose authors provide detailed information in several publications on their conceptual specifications and measurement rules (Hooghe et al. 2008, 2016, 2023). Somewhere in-between lie the DD, Ethno-Embedded Institutionalism (EEI) and Inclusion, Dispersion and Constraint (IDC) Datasets, which refer to a number of different state structure concepts (such as decentralization, ethnofederalism or asymmetric federalism), but provide relatively little clarification about how these terms affect the empirical operationalization of the datasets’ variables (Norris 2008; Strøm et al. 2015, 2017; Theuerkauf 2012).

The ‘self-rule’ column in Table A.1 summarizes how each dataset operationalizes autonomous decision-making powers by territorially defined sub-units of the state. According to conceptual discussions in the territorial self-governance literature, the three key components of self-rule arrangements are: firstly, the actual range of public policy functions (i.e., the issue areas over which sub-national entities have exclusive decision-making powers, such as e.g., education, health or security);

Table 1

Indicators Used in Our Analysis. Full details on each indicator's operationalization are included in Table A.1 in the Online Appendix.

Name of Dataset	Indicators Used in Our Analysis	Geographic Scope	Temporal Scope
Database of Political Institutions (DPI)	<ul style="list-style-type: none"> • a variable that identifies whether there are autonomous regions • a variable that identifies whether municipal governments are elected at the municipal level • a variable that identifies whether state or province governments are elected at the state or province level • a variable that identifies whether subnational governments have extensive taxing, spending or regulatory authority • a variable that identifies whether the constituencies of senators [where a Senate exists at the centre] are states or provinces 	177 countries	1975 to 1995
Driving Democracy (DD) Dataset	<ul style="list-style-type: none"> • a variable that identifies federations, decentralized unions and unitary states, based on countries' <i>de jure</i> state structures 	191 countries distinguished into unitary states, hybrid unions or federal states 68 countries coded for their level of political, administrative and fiscal decentralization	Data distinguishing unitary states, hybrid unions or federal states: year 2000 Data measuring the level of political, administrative and fiscal decentralization: year 1996
Economic Effects of Constitutions (EEC) Dataset	<ul style="list-style-type: none"> • a variable that identifies countries as federal or 'otherwise' 	EEC Cross-Section Dataset: 85 countries EEC Over-Time Dataset: 60 countries	EEC Cross-Section Dataset: 1990 to 1998 EEC Over-Time Dataset: 1960 to 1998
Ethnic Power Relations (EPR) Dataset	<ul style="list-style-type: none"> • a variable that measures population with regional autonomy as a fraction of the total population in a given country • a variable that measures population with regional autonomy who are excluded from state power at the national level as a fraction of the total population in a given country • a variable that measures population with regional autonomy and with access to state power at the national level as a fraction of the total population in a given country 	183 countries	1946 to 2017
Ethno-Embedded Institutionalism (EEI) Dataset	<ul style="list-style-type: none"> • a variable that identifies unitary state structures • a variable that identifies federal state structures • a variable that identifies state structures which contain at least one autonomous region but are otherwise unitary 	174 countries	1955 to 2007
Inclusion, Dispersion and Constraint (IDC) Dataset	<ul style="list-style-type: none"> • a variable that measures sub-national tax authority • a variable that measures sub-national education authority • a variable that measures sub-national police authority • a variable that measures whether municipal governments are locally elected • a variable that measures whether state/provincial governments are locally elected • a variable that measures regional constituencies in the Upper House 	180 countries	1975 to 2010
Institutions and Elections Project (IAEP) Dataset	<ul style="list-style-type: none"> • a variable that identifies countries as unitary system, confederation or federal system • a variable that identifies whether regional governmental representatives are autonomously selected by their region, appointed by the central government, or whether there is no regional government 	170 countries	1960 to 2012
International Monetary Fund (IMF) Fiscal Decentralization Dataset	<ul style="list-style-type: none"> • a variable which measures the share of the own revenues of the state/province/region level of government as a proportion of general government revenue 	86 countries	1972 to 2020
Political Constraint Index (POLCON) Dataset	<ul style="list-style-type: none"> • a variable that identifies countries with "independent sub-federal entities ... [that can] impose substantive constraints on national fiscal policy" [Henisz 2015:34] 	234 countries	1960 to 2001
Regional Authority Index (RAI) Dataset	<ul style="list-style-type: none"> • a variable that identifies the self-rule powers of sub-national entities, measured as the sum of: the extent of sub-national governments' autonomy + the range of policies for which a sub-national government is responsible + the extent to which a sub-national government can independently tax its population + the extent to which a sub-national government can borrow + the extent to which a sub-national entity has an independent legislature and executive • a variable that identifies shared rule provisions, measured as the sum of: the extent to which sub-national representatives co-determine national legislation + the extent to which sub-national governments co-determine national policy in intergovernmental meetings + the extent to which sub-national representatives co-determine the distribution of national tax revenues + the extent to which sub-national governments co-determine sub-national and national borrowing constraints + the extent to which sub-national representatives co-determine constitutional change • a variable that is the sum of the preceding two variables • all individual variables that form part of the aforementioned self-rule and shared rule indicators 	81 countries	1950 to 2010

secondly, fiscal decentralization (specifically: the ability of sub-national entities to raise revenues and make independent spending decisions to fund sub-national policies); and, thirdly, the presence of institutions at the sub-national level (e.g., an elected regional assembly and/or executive) to perform the aforementioned two points (Swenden 2013; Trinn and Schulte 2022; Weller and Wolff 2005; Wolff et al. 2020).

Leaving aside the EEC Dataset (whose underlying definitions are unclear), all datasets except POLCON and IMF explicitly mention the existence of representative institutions at the sub-national level in their coding rules (see Table A.1). Apart from the Institutions and Elections Project (IAEP) Dataset, the accompanying materials for all other datasets refer to the second key component of self-rule arrangements (fiscal decentralization). There is, however, notable variation in the level of detail by which this dimension is empirically captured. For instance, the DD, EEI and EPR Datasets mention fiscal decentralization and economic autonomy in the aggregate description of their territorial arrangement indicators, whereas the RAI Dataset provides disaggregated variables on taxing and borrowing powers at the sub-national level (Table A.1). Moreover, the authors of the IMF Fiscal Decentralization Dataset caution not to over-interpret the extent to which their data capture aspects of self-rule. They point out that their fiscal decentralization measure may but “does not necessarily reflect ... fiscal autonomy” (Lledó et al. 2022:13, emphasis added), as this is not a requirement in the reporting of the data on which they draw (Lledó et al. 2022).

Similarly, different datasets capture the range of public policy functions under self-rule provisions to different extents. Overall, the IDC and RAI Datasets present the most refined conceptualization and measurement of these functions (see Table A.1), by providing separate indicators on education, security and fiscal authority (IDC) or on fiscal as opposed to other policy powers, the latter including, for example, cultural-educational, welfare, immigration or citizenship policy (RAI).

In sum, there is notable variation among the ten datasets in how they capture the different forms that autonomous decision-making powers at the sub-national level can take. As noted earlier, and as we illustrate further in section 5, this variation has a direct impact on the empirical effects that we see.

The ‘shared rule’ column of Table A.1 summarizes how each dataset does (or does not) capture the representation of self-governing entities in political decision-making processes at the centre. Shared rule in combination with self-rule is most commonly associated with federal systems (Hooghe et al. 2016; Keil and Anderson 2018; Watts 1998) but not exclusive to them, as it can also be provided in other types of territorial self-governance arrangements, such as non-federal states with at least one autonomous region (Hooghe et al. 2016; Swenden 2013). Shared rule can take several forms, including (mandatory) representation of self-governing entities in lower or upper chambers of the national parliament, in executive structures, commissions and agencies, or through the use of qualified and/or concurrent voting procedures on certain policy issues that affect the entire country, the self-governing entity/entities or both (Hooghe et al. 2016; Watts 1998; Weller and Wolff 2005).

Overall, the ten datasets in our analysis provide fewer details on shared rule as opposed to self-rule arrangements. The IMF Dataset does not provide any information on shared rule at all. The DD, EEC and IAEP Datasets contain variables that denote the presence or absence of federal state structures. However, due to insufficient information in their accompanying materials, it is unclear how these datasets operationalize shared rule as a defining element of federalism (Table A.1). The EEI Dataset provides comparatively more details on the meaning of shared rule but does not provide a separate variable on shared rule arrangements either. The POLCON Dataset contains a dummy variable to

identify federal state structures, which foregrounds questions of shared rule in its underlying definitions, as it puts greater emphasis on the manner in which representatives of sub-national entities can influence national fiscal policy, rather than the autonomous powers granted to them (Henisz 2000, 2015).⁶ The EPR Dataset contains two variables to identify whether ethnic groups with regional autonomy have access to state power at the national level but does not clarify in which cases this access may be based on shared rule provisions.

By contrast, the DPI, IDC and RAI Datasets provide separately coded variables on self-rule and shared rule, although the RAI Dataset is the only one – out of the ten datasets considered in our analysis – which disaggregates multiple aspects of shared rule, for instance with distinct measures of co-determined law-making or economic policy decisions at the centre (Table A.1). In sum, Table A.1 illustrates notable variation regarding the measurement of shared rule arrangements, ranging from no measurement (IMF Dataset) through unclear measurement of shared rule as a defining element of federalism (e.g., DD and IAEP Datasets) to the disaggregated measurement of different dimensions of shared rule (the RAI Dataset). As we illustrate in section 5, this variation has a direct impact on the results of our statistical analysis.

Finally, the ‘legal codification’ column in Table A.1 describes the formal (*de jure*) guarantee of self-rule and/or shared rule. Typically, the formal codification of state structures is based on a country’s constitution but can also be provided through ordinary legislation which may require qualified or concurrent majorities for amendments, international treaties or peace agreements (Schulte and Carolan 2023; Trinn and Schulte 2022; Watts 1998; Wolff et al. 2020).

The legal codification of territorial arrangements is an integral part of most datasets in Tables 1 and A.1. While the coding rules for the DPI, EEC and POLCON Datasets do not explicitly state whether their variables focus on *de jure* provisions, their accompanying literature indicates that they refer to legally codified state structures (see Table A.1). Only the authors of the IMF and EPR Datasets explicitly state that they do not focus on *de jure* provisions in the coding of their variables (Table A.1).

All in all, Table A.1 illustrates clear variation in the conceptualization and operationalization of different types and dimensions of territorial self-governance arrangements. In the following section, we outline how we test the statistical effects of this variation.

4. Research design: Method, hypotheses and data

We use binary time-series-cross-section analysis as our empirical testing method.⁷ We employ logit analysis in our main models. To control for temporal dependence, we include a peace years variable (that denotes the number of years without ethnic civil war) as well as three natural cubic splines (Beck et al. 1998). To reduce the risk of endogeneity bias, we lag the explanatory variables by one year.⁸

The effects of territorial arrangements could be assessed either at the country, sub-national or group level (Cederman et al. 2015; Harguindeguy et al. 2021; Hooghe et al. 2016). Following a macro-level

⁶ Because the POLCON Dataset foregrounds questions of shared rule, we include its dummy variable in our statistical models on shared rule rather than self-rule or aggregate indicators.

⁷ Despite its recent growth in popularity (Poot 2014), we do not use meta-analysis in this paper. This is because the diversity of conceptualizations and measurements of territorial arrangements – which we explicitly recognize in our research – makes it difficult to collate a consistent sample of relevant publications, and thus undermines the prospect of obtaining meaningful results (cf. Field and Gillett 2010).

⁸ While an instrumental variables approach in principle would be preferable for dealing with endogeneity issues (Miguel et al. 2004), this was not feasible in practice, as we were unable to identify an instrument that is highly correlated with territorial self-governance and uncorrelated with ethnic civil war. We therefore follow the example of authors such as Fearon and Laitin (2003) and use lags instead.

perspective of ethnic conflict management, we use country-years as our unit of analysis. Depending on the territorial arrangement indicator that we use, we include between 53 and 150 countries in our regressions, and time periods ranging from 1956 to 2007 (longest time period), through 1961 to 1999 (medium time period), to 1976 to 2007 (shortest time period).

To guide our statistical analysis, we require a set of testable hypotheses to see whether the choice of territorial arrangement indicator leads to different results. We therefore derive four hypotheses from existing scholarship about the arguable benefits of territorial self-governance for ethnic conflict management (the ‘proponents’ side of the academic debate, as discussed in [section 2](#)).

Hypothesis 1 builds on arguments which state that autonomous decision-making powers at the sub-national level will reduce the risk of ethnic civil war, as they help to address grievances and security concerns amongst populations in territorially defined sub-units of the state (e.g., [Gurr 1993](#); [Hartzell and Hoddie 2007](#); [Saideman et al. 2002](#)):

Hypothesis 1 (H1). *The risk of ethnic civil war decreases when sub-units of the state have exclusive decision-making powers over at least one issue area.*

By lacking a clear specification of individual issue areas, **Hypothesis 1** intentionally casts its net widely. This is an advantage for our research aim, as it allows us to compare variables from our ten datasets, which – as noted in [section 3](#) – capture key dimensions of self-rule to different extents and with varying levels of disaggregation. Put simply, **Hypothesis 1** allows us to assess the effects of a broad range of ‘self-rule’ operationalizations.

Hypothesis 2, by contrast, narrows our focus to the fiscal dimension of self-rule and assumes that autonomous decision-making powers at the sub-national level over the handling of economic resources reduce the risk of ethnic civil war. This assumption is based on research which has highlighted the relevance of fiscal autonomy arrangements for ethnic conflict management, as they facilitate the development of spending projects that are tailored to each sub-national unit’s needs (e.g., [Ezcurra 2015](#); [Lyon 2015](#)). According to this line of argument, fiscal decentralization should be regarded as the *sine qua non* of any vertical power distribution, since the ability to raise revenues and make independent spending decisions arguably is a pre-condition for the meaningful implementation of any policy that is within the exclusive concern of a sub-national entity (cf. [Ezcurra 2015](#); [Lyon 2015](#), [Wolff et al. 2020](#)):

Hypothesis 2 (H2). *The risk of ethnic civil war decreases when sub-units of the state have fiscal decision-making powers that are not subject to the central government’s authority.*

Hypothesis 3 refers to the shared-rule dimension. It builds on arguments by proponents of territorial self-governance arrangements that co-decision-making at the centre (which involves representatives from different levels of government) reduces inter-ethnic tensions. This is because shared rule gives representatives from sub-national entities both a stake in institutions at the centre and an opportunity to influence decision-making processes which could undermine sub-units’ self-rule ([Bermeo 2002](#); [Hooghe et al. 2016](#); [McGary and O’Leary 2009](#); [Swenden 2013](#); [Weller and Wolff 2005](#)). Building on these arguments, **Hypothesis 3** assumes that shared rule at the centre helps to reduce the risk of ethnic civil war:

Hypothesis 3 (H3). *The risk of ethnic civil war decreases when there are shared rule provisions at the centre.*

Hypothesis 4 turns to the legal codification of vertical state structures and assumes that the risk of ethnic civil war will be reduced when self-rule and/or shared-rule arrangements are based on formal guarantees, not ‘just’ informal practice ([Schulte and Carolan 2023](#)). **Hypothesis 4** thus builds on arguments by proponents of territorial self-governance that legal codification matters for conflict management, as it signals the commitment of the central government to upholding the status of self-governing entities and, conversely, the commitment of non-central governments to respecting the integrity of the overarching state, thus solidifying the status of sub-national entities ([Swenden 2013](#); [Trinn and Schulte 2022](#); [Watts 1998](#); [Weller and Wolff 2005](#)):

Hypothesis 4 (H4). *The risk of ethnic civil war decreases when self-rule and/or shared rule arrangements are legally codified.*

We test Hypotheses 1 to 4 with each of the territorial arrangement indicators discussed in [section 3](#), to see whether the choice of indicator leads to different statistical results.⁹

To ensure that our results are solely driven by the choice of indicator, we retain the same empirical testing method (logit time-series-cross-section analysis), unit of analysis (country-years), dependent and control variables (as discussed below) in all our main models. A high consistency of results across model specifications would imply that the choice of quantitative indicator has little impact on the statistical relationship between territorial arrangements and the risk of ethnic civil war. Varying results, by contrast, would indicate that the choice of indicator is a key driver of the statistical relationships that we find.

It is worth re-emphasizing that the territorial arrangement indicators included in our analysis vary in terms of their geographic and temporal scope (see [Table 1](#) and [Table A.1](#)). Since this scope can affect empirical findings ([Geddes 2003](#); [Gerring 2017](#)), we conducted a separate robustness test that standardizes the country-years across our statistical models, for all indicators being used ([Tables A.4–A.6](#) and [Figures A.1–A.3](#) in the [Online Appendix](#)). While the results of this sample standardization have to be taken with a pinch of salt – since it leads to a substantial reduction in sample size and the dropping of some variables from the estimation – they remain consistent with our main findings (discussed in [section 5](#)) according to the robustness definition of [Sala-i-Martin \(1997\)](#) except for the EPR measure of regional autonomy which now becomes statistically significant in [Table A.4](#) and [Figure A.1](#).

Our dependent variable in all statistical models is based on data from the Political Instability Task Force (PITF) Ethnic War Problem Set, 1955–2007 ([Political Instability Task Force 2009](#)). According to the PITF, ethnic civil wars are violent conflicts between governments and “ethnic challengers” ([PITF 2019](#): 6), with a mobilization threshold of at least 1,000 people, and a conflict intensity threshold of at least 1,000 battle-related fatalities over the full course of the conflict and at least one year in which the number of battle-related fatalities exceeded 100 ([PITF 2019](#)). Since we are interested in the effects of territorial arrangements on the incidence of ethnic civil war in *any* given year, we code each year in which a country experienced an ethnic civil war according to the PITF (or, in some cases, more than one ethnic civil war) as ‘1’, and ‘0’ otherwise.

Following previous research in the civil wars literature ([Fearon and Laitin 2003](#); [Hegre and Sambanis 2006](#); [Neudorfer et al. 2022](#)), our control variables include a country’s level of economic development

⁹ Descriptive statistics for each indicator, and information on the correlation between variables from different indicators, can be found in our [Online Appendix](#).

(measured in GDP per capita)¹⁰; political regime type (measured as level of democracy and democracy squared)¹¹; institutional design¹²; population size in millions¹³; level of ethnic fractionalization¹⁴; level of socioeconomic inequality¹⁵; the incidence of large-scale ethnic violence in a neighboring country¹⁶; involvement in a violent interstate conflict¹⁷; recent experience of political instability¹⁸; colonial history¹⁹; territorial conditions²⁰; and status as an oil exporter.²¹

5. Statistical results

Tables 2 to 4 present the results from 28 statistical models to test our

¹⁰ This variable is measured in GDP per capita (US\$). It is based on Gleditsch (2002, 2008), with data from the Penn World Table version 9.0 (Feenstra, Inklaar and Timmer 2015) to complete missing information.

¹¹ We use the Revised Combined Polity Score according to the Polity IV Project dataset version p4v2015 (Marshall, Gurr and Jaggers 2016). Following empirical evidence for a curvilinear relationship between the level of democracy and risk of violent intrastate conflict (Hegre et al. 2001), we also include the variable's quadratic term, after transforming the Revised Combined Polity Score's original scores to values ranging from 0 to 10, to allow for non-linear modelling.

¹² We use two dummy variables – one to distinguish parliamentary from other forms of government, and one to distinguish proportional from other electoral systems for the national legislature – based on information from legal documents and other (academic) sources if no legal documents could be obtained. The form of government variable follows definitions by Cheibub (2007), and the electoral system variable those by Golder (2005). Both variables have been previously used – and discussed – in Neudorfer et al. (2022) and Theuerkauf (2012).

¹³ This variable is based on the Penn World Table version 9.0 (Feenstra, Inklaar and Timmer 2015), with data from Gleditsch (2002) and the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2017) to complete missing information.

¹⁴ This variable uses the ethnic fractionalization index according to Alesina et al. (2003).

¹⁵ This variable uses Vanhanen's Index of Power Resources (Vanhanen 2003).

¹⁶ This is a dummy variable based on data by the PITS (2009). It takes on the value '1' for each year in which there was at least one ethnic civil war in at least one neighboring country.

¹⁷ This is a dummy variable based on data by the UCDP/PRIO Armed Conflict Dataset version 4–2014 (UCDP/PRIO 2014). It takes on the value '1' for each year in which a country was involved in at least one violent interstate conflict with at least 25 battle-related deaths.

¹⁸ This is a dummy variable that – following the example of Fearon and Laitin (2003) – codes a country's recent experience of political instability. We use data from the Polity IV Project dataset version p4v2015 (Marshall, Gurr and Jaggers 2016) to identify episodes of political instability.

¹⁹ We use three dummy variables that – based on information from the United Nations (2010) and the CIA World Factbook (Central Intelligence Agency 2010) – denote whether a country used to be under colonial rule (by any colonial power) at any point in time between 1946 and 2007; used to be under British colonial rule at any point between 1946 and 2007; and used to be under colonial rule by any country other than France or the United Kingdom at any point between 1946 and 2007.

²⁰ Following the example of Fearon and Laitin (2003), we include one variable that denotes a country's percentage of mountainous terrain, and one variable that identifies noncontiguous territory, i.e., countries with territory that holds at least 10,000 people that is separated from the land area containing the capital city either by land or 100km of water. The percentage of mountainous terrain is taken from Fearon and Laitin's (2003) replication data. We have coded the variable on noncontiguous territory based on information from publicly available maps.

²¹ Again following the example of Fearon and Laitin (2003), we use a dummy variable that takes on the value '1' for all years in which a country's fuel exports as a percentage of merchandise exports exceeded 33%. Data for this variable mainly stem from Fearon and Laitin's (2003) replication dataset, supplemented and cross-checked with information from the World Bank's World Development Indicators.

four hypotheses. Figures 1 to 4 illustrate the marginal effects of different territorial arrangement indicators (as discussed in section 3) on the incidence of ethnic civil war, while holding all other variables constant at their mean values. Marginal effects with a negative sign denote a reducing effect on violent conflict likelihood, while a positive sign indicates an increasing effect (for further details on how to interpret marginal effects, see, for example, Baum 2006). To illustrate this, if the marginal effect is -0.1 , a one-unit increase in the independent variable reduces the likelihood of ethnic civil war by 10%. In Tables 2 to 4, we highlight marginal effects in lighter and darker grey shades, with darker grey indicating the point estimate for the marginal effect and lighter grey indicating the lower and higher confidence intervals (L.C. and H.C.). To facilitate the interpretation of effect magnitudes, we also provide estimates for the marginal effects of the 'ethnic war in a neighboring country' variable as a reference point. The following paragraphs outline the statistical results in detail.

As noted in section 4, Hypothesis 1 casts the net broadly, as it proposes that any autonomous decision-making powers at the sub-national level will reduce the risk of ethnic civil war, without specifying a particular sphere of 'autonomous powers'. This is intentional, in order to mirror the ambiguity with which the term 'self-rule' may be invoked by academics and policy-makers if they do not distinguish its different dimensions clearly and consistently (cf. Schulte 2018; see also our discussions in section 3). Unsurprisingly, there is notable variation in our results depending on the self-rule indicator that we use (see Table 2 and Figure 1). For instance, neither the education policy variable in the IDC Dataset (Model 10, Table 2) – which disaggregates a particular issue area of self-rule – nor the population with regional autonomy variable in the EPR Dataset (Model 13, Table 2) – which provides an aggregate measure of autonomy (see Table A.1) – have a statistically significant (that is: relevant, according to our models) effect on the incidence of ethnic civil war, *ceteris paribus*. Conversely, the issue-specific variables on borrowing autonomy (Model 5, Table 2) and a region's representative institutions (Model 6, Table 2) from the RAI Dataset, and on control over sub-national security forces from the IDC Dataset (Model 11, Table 2 – only at 90% significance level) all have a statistically significant negative – that is: relevant reducing – effect on the incidence of ethnic civil war, holding all other variables constant.

These notable but unsurprising results corroborate the point from our short examples of Yemen and Ukraine. Confusion over the meaning of terms such as 'self-rule' or 'autonomy' are a fundamental problem in academic and policy-making discussions over the strengths and weaknesses of territorial self-governance. If these terms are not clearly and consistently specified (including whether they are invoked in their aggregate meaning or with reference to disaggregated issue areas), it might seem paradoxical that statistical results sometimes show an ethnic civil war-reducing effect of self-rule arrangements, and sometimes not. As our results indicate, however, this is not a paradox, but rather a clear reminder that it matters which kind of data are used to capture self-rule and why. Proponents of territorial self-governance arrangements could point to the ethnic civil war-reducing effects of the RAI borrowing autonomy variable, while sceptics could point to the statistical insignificance of the EPR population with regional autonomy variable – thus reinforcing the academic divide between them, unless they recognize that they are referring to different things.

Hypothesis 2 narrows the focus of Hypothesis 1, by referring to fiscal decision-making powers as one particular component of self-rule. Here, too, statistical results feed the notion of a 'paradox' of fiscal decentralization. Holding all other variables constant, the aggregate measure of fiscal autonomy by the RAI Dataset (Model 4, Table 2) has a statistically significant negative – i.e., relevant reducing – effect on the risk of ethnic civil war. A similarly aggregate measure of sub-national governments' taxing, spending or regulatory authority by the DPI Dataset, however, is not statistically significant, *ceteris paribus* (Model 7, Table 2).

Variables that disaggregate different aspects of fiscal decentralization likewise lead to contradictory results. The IMF Dataset's variable on

Note: +significant at 10; *significant at 5; **significant at 1. Estimations performed using Stata 18. Variables included in all models but not printed: mountainous terrain, non-contiguous state structure, peace years and three natural cubic splines. L.C./H.C. = Lower/Higher Confidence Bound. AIC = Akaike Information Criterion.

revenue decentralization has a statistically significant negative effect on the incidence of ethnic civil war (Model 14, Table 2), while the IDC Dataset's variable on subnational taxing authority is statistically insignificant (Model 9, Table 2), *ceteris paribus*. Looking at the marginal effects of the statistically significant IMF variable in further detail, it has a point estimate of -0.315 at the 90 % significance level (Model 14, Table 2). Hence, a one-unit increase in revenue decentralization reduces the likelihood of ethnic civil war by 31.5 % when holding all other variables constant at their mean. Compared to our reference point of marginal effects for the ethnic war in a neighbouring country variable (EWarNei), this is a substantial effect magnitude (Model 14, Table 2). Of course, however, these results need to be taken with a pinch of salt in discussions of territorial self-governance, as the IMF Dataset authors caution not to over-interpret the extent to which their data capture aspects of self-rule (see Table A.1 and section 3).

Overall, the testing of Hypothesis 2 leads to contradictory results – highlighting, yet again, that it matters for our empirical findings which indicator we use.

To further illustrate the implications of our results so far, we create two sets of synthetic (i.e., statistically generated, not 'real-life') countries: poor autocracies and rich democracies. We then compare the effects of political and fiscal decentralization on the predicted probabilities of ethnic civil war in these synthetic country sets, using Models 4, 6, 9, 13 and 14 (to capture a broad but concise range of territorial arrangement indicators) from Table 2. Figures 3 and 4 illustrate the predicted probabilities that we find, with values close to 1 meaning a high chance of the incidence of ethnic civil war, and values close to 0 meaning a low chance. The point estimates are presented with confidence level predictions (low and high). If these confidence lines for poor autocracies and rich democracies overlap, the effect is not significant.

The results presented in Figures 3 and 4 show that – holding all other variables except GDP *per capita* and level of democracy (polity) constant at their mean – neither the regional representation variable from the RAI Dataset (Model 6 of Table 2) nor the population with regional autonomy variable from the EPR Dataset (Model 13, Table 2) have a statistically significant effect on the risk of ethnic civil war in either rich democracies or poor autocracies.

In the same illustrative exercise, results from different fiscal decentralization indicators are contradictory. When using the RAI measures of fiscal autonomy and subnational tax authority, neither poor, autocratic countries nor rich, democratic countries show significant benefits from fiscal autonomy and subnational tax authority (Figure 4). By contrast, the IMF revenue decentralization variable has a statistically significant negative effect on the risk of ethnic civil war in poor autocracies, but no statistically significant effect on the risk of ethnic civil war in rich democracies, *ceteris paribus* (Figure 4). In line with our previous findings, this further illustrates the lack of a clear picture across different indicators, even when narrowing our focus to two synthetic country subsets (poor autocracies and rich democracies).

Hypothesis 3 proposes that the risk of ethnic civil war decreases when there are shared rule provisions at the centre. When testing this hypothesis, we find inconsistent results, albeit with a smaller number of indicators, since neither the DD, EEC, IAEP nor IMF Datasets provide variables on shared rule arrangements (Table A.1). Separate shared rule variables are included in the DPI, IDC and RAI Datasets, with the RAI Dataset being the only one that disaggregates multiple aspects of shared rule (see section 3). Since the IDC shared rule variable ('stconst') is largely based on DPI data – with missing values in the DPI Dataset completed by the IDC authors (Strøm et al. 2015) –, we use only the IDC (and not the separate DPI) variable in our statistical analysis (Table 3). While it is not entirely clear to which extent the EPR data capture shared rule provisions (see Table A.1 and section 3), we include their variable on 'population with regional autonomy and access to state power at the

national level' in our testing of Hypothesis 3.

As reported in Table 3, neither the EPR, IDC nor the POLCON variables reach statistical significance, holding all other variables constant. By contrast, all RAI variables apart from the one on co-determined borrowing constraints have a statistically significant negative effect on the incidence of ethnic war, *ceteris paribus*. Sceptics thus could point to the irrelevance of shared rule provisions according to the IDC's, EPR's or POLCON's aggregate variables, while proponents could emphasize the violent conflict-reducing effects of most of the RAI's disaggregated variables.

Figure 5 shows considerable variation between each shared rule indicator's marginal effects. This further supports our argument on how the choice of indicator could reinforce divides between different sides of the academic debate, if used without clear and consistent acknowledgment what it is that each indicator does (or does not) capture.

According to Hypothesis 4, the legal codification of self-rule and/or shared rule arrangements should reduce the risk of ethnic civil war. The only two datasets in our analysis that refer to *de facto* rather than *de jure* provisions are the EPR and IMF Datasets (Table A.1). Comparing the results for the EPR and IMF variables with those from the other (*de jure*-oriented) datasets in Table 2 and Table 3, there is no consistent picture: The EPR variables have a statistically insignificant effect, *ceteris paribus*, on the incidence of ethnic civil war in both tables, albeit with opposing coefficient signs. The IMF indicator in Table 2, by contrast, has a strongly statistically significant (negative) effect. Conversely, there is little consistency among the *de jure*-oriented variables from other datasets either, as some of them have a statistically significant effect, *ceteris paribus*, on the risk of ethnic civil war while others do not, and some have a negative coefficient sign, while others do not (see Tables 2 and 3 and our preceding discussions in this section).

In a final step of our analysis, we look at territorial arrangement indicators that do not provide separate information on self-rule and shared rule arrangements but distinguish vertical state structures more broadly from each other (for instance, in the form of binary federalism variables, see Table A.1). Notably, Table 4 reports a negative coefficient sign for all aggregate indicators included in our analysis, and statistically significant effects for all aggregate indicators apart from the IAEP one. At face value, it thus looks as if inconsistent results (as reported in Tables 2 and 3) could be linked to the disaggregation of self-rule and shared rule aspects. Upon closer inspection, however, Figure 6 reveals that the marginal effects of the aggregate indicators differ considerably from each other. Highly aggregated indicators of territorial arrangements thus may lead to similar conclusions about the statistical significance and direction of their effects according to our statistical models (Table 4). Yet, the variation in the size of the confidence bounds as well as the small magnitude of their effects (Figure 6) could feed academic disagreement about how much territorial arrangements really matter for the prospects of peace or violence.

6. Conclusion

Territorial self-governance has a reputation of being difficult. Academics and policy-makers remain divided over the usefulness of territorial self-governance as a tool of ethnic conflict management, captured in phrases such as 'the paradox of federalism' (Beramendi and León 2015; Erk and Anderson 2009), 'the paradox of decentralization' (Brancati 2009; Keil and Anderson 2018) or 'the paradox of autonomy' (Anderson 2004; Suso 2010).

We contribute to the debate between proponents and sceptics of territorial self-governance by taking a step back from arguments that assess the causal relationships between state structures, war and peace. Instead, we ask to which extent notions of a paradox may be driven by the "terminological mess" (Garcia 2009 cited in Trinn and Schulte 2022:

Table 3
Effects of Shared Rule on the Incidence of Ethnic War.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Shared Rule (RAI)	Law-making (RAI)	Executive Control (RAI)	Fiscal Control (RAI)	Borrowing Control (RAI)	Constitutional Reform (RAI)	Fiscal Control (POLCON)	Upper House (IDC)	Reg. Autonomy Included Nationally (EPR)
L.Shared rule (RAI)	-0.19** (0.06)								
L.Law-making (RAI)		-0.89** (0.32)							
L.Executive control (RAI)			-1.66* (0.83)						
L.Fiscal control (RAI)				-0.87** (0.34)					
L.Borrowing control (RAI)					0.00 (.)				
L.Constitutional reform (RAI)						-0.29* (0.13)			
L.Fiscal control (POLCON)							0.00 (.)		
L.Upper house (IDC)								-0.57 (0.90)	
L.Regional autonomy included nationally (EPR)									-0.24 (0.80)
L.Proportional representation=1	-0.78+ (0.42)	-0.67 (0.42)	-0.91* (0.39)	-0.72+ (0.40)	-0.71* (0.35)	-0.77+ (0.42)	-0.96* (0.38)	-2.84** (1.10)	-0.88* (0.41)
L.Parliamentary government=1	1.32* (0.66)	1.25* (0.61)	1.41+ (0.72)	1.56* (0.67)	1.87** (0.65)	1.39* (0.69)	0.36 (0.40)	0.44 (0.82)	0.46 (0.39)
L.Ln GDP per capita	0.99** (0.30)	1.03** (0.28)	1.02** (0.33)	0.99** (0.29)	1.00** (0.30)	0.97** (0.30)	-0.10 (0.13)	-0.10 (0.24)	0.23+ (0.13)
L.Ln population size	0.33+ (0.19)	0.39+ (0.21)	0.26 (0.19)	0.30 (0.19)	0.19 (0.21)	0.30+ (0.18)	0.19* (0.08)	0.62** (0.18)	0.31** (0.07)
Ethnic war in a neighboring country (EWarNei)	0.56 (1.15)	0.53 (1.18)	0.56 (1.13)	0.52 (1.15)	0.62 (1.17)	0.58 (1.14)	-0.12 (0.25)	0.36 (0.55)	0.36 (0.27)
Level of ethnic fractionalization	-0.93 (1.12)	-1.24 (1.06)	-0.68 (1.10)	-1.17 (1.05)	-0.88 (1.06)	-0.88 (1.11)	0.80+ (0.46)	0.07 (1.15)	1.08* (0.48)

(continued on next page)

Table 3 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Shared Rule (RAI)	Law-making (RAI)	Executive Control (RAI)	Fiscal Control (RAI)	Borrowing Control (RAI)	Constitutional Reform (RAI)	Fiscal Control (POLCON)	Upper House (IDC)	Reg. Autonomy Included Nationally (EPR)
L.Level of socioeconomic inequalities	-0.00 (0.03)	-0.01 (0.03)	-0.00 (0.03)	-0.01 (0.03)	-0.01 (0.03)	-0.00 (0.03)	0.04* (0.02)	-0.06** (0.02)	0.02 (0.02)
Involvement in international conflict	-0.81** (0.27)	-0.79** (0.27)	-0.75** (0.28)	-0.76** (0.26)	-0.66* (0.26)	-0.77** (0.27)	1.07 (0.84)	0.59 (1.94)	0.74 (0.76)
L.Experience of political instability	0.60 (0.48)	0.61 (0.48)	0.58 (0.49)	0.58 (0.49)	0.53 (0.49)	0.60 (0.49)	0.01 (0.30)	-0.04 (0.48)	-0.02 (0.27)
Experience of colonial rule	3.09** (0.91)	3.03** (0.94)	3.33** (0.92)	3.39** (0.86)	3.65** (0.86)	3.17** (0.91)	0.84* (0.35)	-0.73 (1.14)	1.32** (0.33)
L.Level of democracy	0.66* (0.33)	0.68* (0.34)	0.64* (0.32)	0.64+ (0.34)	0.68* (0.33)	0.66* (0.33)	0.28 (0.18)	-0.60 (0.50)	0.26+ (0.15)
L.Level of democracy squared	-0.07+ (0.04)	-0.07+ (0.04)	-0.07+ (0.04)	-0.07+ (0.04)	-0.08* (0.04)	-0.07+ (0.04)	-0.03+ (0.02)	0.06 (0.04)	-0.03* (0.01)
L.Status as oil exporter=1	-0.07 (0.51)	-0.03 (0.49)	-0.18 (0.59)	-0.20 (0.51)	-0.49 (0.56)	-0.12 (0.50)	-0.59+ (0.35)	-1.48+ (0.78)	-0.52 (0.42)
Constant	-0.98 (0.68)	-0.90 (0.74)	-1.10 (0.72)	-0.75 (0.71)	-0.84 (0.74)	-0.96 (0.67)	0.52 (0.45)	1.20 (1.21)	-0.31 (0.41)
Observations	2733	2733	2733	2733	2542	2733	4900	2158	5615
Countries	66	66	66	66	63	66	143	103	149
Margins (TSG=0-1) L.C.	-0.003	-0.017	-0.028	-0.015	0.000	-0.005	0.000	-0.026	-0.038
Margins (TSG=0-1)	-0.002	-0.008	-0.016	-0.008	0.000	-0.003	0.000	-0.006	-0.005
Margins (TSG=0-1) H.C.	-0.001	-0.000	-0.004	-0.002	0.000	-0.000	0.000	0.013	0.028
Margins (EWarNei =0-1) L.C.	-0.015	-0.016	-0.015	-0.015	-0.016	-0.014	0.000	-0.008	-0.003
Margins (EWarNei =0-1)	0.005	0.005	0.005	0.005	0.006	0.006	0.000	0.004	0.007
Margins (EWarNei =0-1) H.C.	0.025	0.026	0.025	0.025	0.029	0.025	0.000	0.016	0.018
Pseudo R ²	0.82	0.82	0.82	0.82	0.82	0.82	0.77	0.84	0.76
Count R ²	0.99	0.99	0.99	0.99	0.99	0.99	0.98	0.99	0.98
Adjusted Count R ²	0.83	0.83	0.83	0.83	0.83	0.83	0.81	0.82	0.82
Adjusted McFadden R ²	0.79	0.79	0.79	0.78	0.78	0.78	0.76	0.81	0.75
AIC	258	258	257	259	256	259	844	234	947

Note: +significant at 10; *significant at 5; **significant at 1. Estimations performed using Stata 18. Variables included in all models but not printed: mountainous terrain, non-contiguous state structure, peace years and three natural cubic splines. L.C./H.C. = Lower/Higher Confidence Interval. AIC = Akaike Information Criterion.

18) in discussions of territorial arrangements. Put simply, we ask whether notions of a paradox of territorial self-governance may be exaggerated, if they are grounded in differing understandings of what territorial self-governance is and how it should be empirically captured.

We illustrated the relevance of this question with reference to two short empirical examples of confusion about the meaning and likely effects of federalism and decentralization during peacebuilding discussions in Yemen and Ukraine (section 2). Next, we presented a systematic overview of the underlying definitions, geographic and temporal scope of quantitative indicators from ten datasets, to highlight the manner which they do (or do not) capture aspects of self-rule, shared rule and the legal codification of vertical state structures (section 3). We then ran a series of binary time-series-cross-section analyses, which showed that different indicators of territorial arrangements (captured in different variables on self-rule and, where applicable, shared rule and the legal codification of the resulting arrangements) lead to different statistical results, and thus to different conclusions about the relationship between territorial arrangements and the risk of violent ethnic conflict (section 5). To ensure that these results are solely driven by the choice of indicator, we retained the same dependent variable (denoting the incidence of ethnic civil war), unit of analysis (country-years), empirical testing method (logit time-series-cross-section analysis) and control variables in all our main models (section 4).

Our findings do not resolve questions about the causal effects of territorial self-governance on the prospects for peace. What they do show, however, is that the choice of indicator influences the statistical results that we obtain – and that this choice may be, at least in part,

responsible for conflicting conclusions. Overall, we make the deceptively simple yet empirically fundamental point that it matters which data are being used and why. Proponents of territorial self-governance could point to the statistically significant negative (i.e., ethnic civil war-reducing) effects of aggregate state structure indicators in the EEC and EEI Datasets, while sceptics could emphasize the statistical insignificance of the IDC Dataset’s disaggregate self-rule indicator on education policy (see section 5). Rather than accepting this as part of the ‘paradox’ of territorial self-governance, academics and policy-makers interested in conflict management need to pay close attention to the fine print in the interpretation of these empirical findings (such as the level of detail or breadth with which different indicators distinguish territorial arrangements from each other, or to which extent they separate the multiple dimensions of self-rule).

As we highlighted throughout, the relevance of our arguments goes well beyond academic circles. With policy-makers increasingly likely to draw on ‘hard’ (i.e., quantitative) data to inform their decisions (Duvendack and Theuerkauf 2024), it is of pivotal importance for development practitioners and scholars to question the underlying research design of different statistical results. We should not be tempted by the apparent simplicity with which quantitative research presents violent conflict dynamics compared to qualitative research (Keen 2012), but instead prioritize transparency and critical assessment of which empirical measures are being used why and how. In-depth engagement with the underlying definitions, temporal and geographic scope of different indicators may help to bridge academic divides, support clarity in policy-making advice and soften the negative reputation of territorial

Table 4
Effects of Aggregate Indicators on the Incidence of Ethnic Civil War.

	(1)	(2)	(3)	(4)	(5)
	EEI	EEC	DD	IAEP	RAI
L.EEI indicator	-0.71** (0.24)				
L.EEC indicator		-1.45* (0.69)			
L.DD indicator			-0.44+ (0.22)		
L.IAEP indicator				-0.09 (0.15)	
L.RAI Indicator (aggregate index)					-0.11** (0.03)
L.Proportional representation=1	-0.96* (0.39)	-0.48 (0.67)	-0.42 (0.43)	-0.50 (0.42)	-0.86+ (0.46)
L.Parliamentary government=1	0.45 (0.36)	0.48 (0.64)	0.24 (0.49)	0.22 (0.45)	1.07* (0.53)
L.Ln GDP per capita	0.27* (0.12)	-0.16 (0.63)	-0.10 (0.19)	-0.13 (0.17)	0.91** (0.32)
L.Ln population size	0.38** (0.07)	0.77* (0.30)	0.31** (0.09)	0.19** (0.07)	0.55* (0.24)
Ethnic war in a neighboring country (EWarNei)	0.37 (0.26)	-0.10 (0.67)	-0.11 (0.31)	-0.05 (0.30)	0.40 (1.27)
Level of ethnic fractionalization	1.11* (0.47)	-1.15 (1.18)	0.99+ (0.52)	0.52 (0.45)	-0.70 (1.14)
L.Level of socioeconomic inequalities	0.01 (0.02)	0.03 (0.03)	0.02 (0.02)	0.02 (0.02)	0.00 (0.03)
Involvement in international conflict	0.85 (0.75)	1.50* (0.70)	1.02 (0.99)	1.03 (1.01)	-0.78** (0.27)
L.Experience of political instability	-0.05 (0.26)	0.17 (0.56)	0.15 (0.34)	-0.01 (0.32)	0.58 (0.50)
Experience of colonial rule	1.33** (0.34)	3.22** (0.97)	0.61+ (0.33)	0.58+ (0.35)	3.17** (0.92)
L.Level of democracy squared	0.21 (0.15)	0.55* (0.25)	0.21 (0.23)	0.25 (0.22)	0.56+ (0.33)
L.Level of democracy squared	-0.02 (0.01)	-0.05* (0.02)	-0.02 (0.02)	-0.03 (0.02)	-0.06 (0.04)
L. Status as oil exporter=1	-0.39 (0.46)	-1.29 (1.08)	-0.61* (0.31)	-0.55+ (0.30)	-0.08 (0.53)
Percent of mountainous terrain	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Noncontiguous country structure	-0.67+ (0.38)	-2.29** (0.71)	-0.04 (0.37)	-0.18 (0.37)	-0.99 (0.63)
Time since last EthnWarIncidence splines1	-1.82** (0.23)	-1.70** (0.44)	-1.61** (0.19)	-1.61** (0.18)	-2.05** (0.50)
_splines2	-0.02** (0.00)	-0.02** (0.01)	-0.02** (0.00)	-0.02** (0.00)	-0.02** (0.01)
_splines3	0.01** (0.00)	0.01** (0.00)	0.01** (0.00)	0.01** (0.00)	0.01** (0.00)
_splines3	-0.00** (0.00)	-0.00 (0.00)	-0.00* (0.00)	-0.00* (0.00)	-0.00** (0.00)
Observations	5644	1873	3919	4100	2733
Countries	150	53	147	150	66
Margins (TSG=0-1) L.C.	-0.024	-0.033	-0.018	-0.008	-0.002
Margins (TSG=0-1)	-0.015	-0.016	-0.009	-0.002	-0.001
Margins (TSG=0-1) H.C.	-0.005	0.002	0.000	0.004	-0.000
Margins (EWarNei=0-1) L.C.	-0.003	-0.014	-0.015	-0.013	-0.019
Margins (EWarNei=0-1)	0.008	-0.001	-0.002	-0.001	0.004
Margins (EWarNei=0-1) H.C.	0.018	0.012	0.010	0.011	0.026
Pseudo R ²	0.76	0.84	0.78	0.78	0.82
Count R ²	0.98	0.99	0.98	0.98	0.99
Adjusted Count R ²	0.81	0.86	0.82	0.82	0.83
Adjusted McFadden R ²	0.75	0.80	0.77	0.76	0.79
AIC	940	205	695	717	255
BIC	1079	321	827	850	380

Note: +significant at 10; *significant at 5; **significant at 1. Estimations performed using Stata 18.

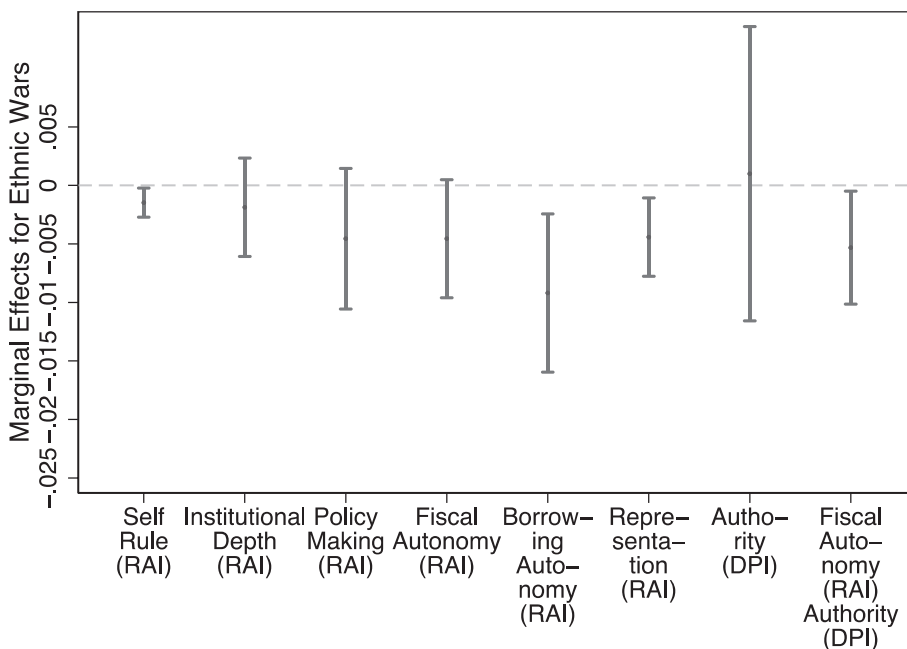


Figure 1. Marginal Effects of Self-Rule Variables (based on Table 2).

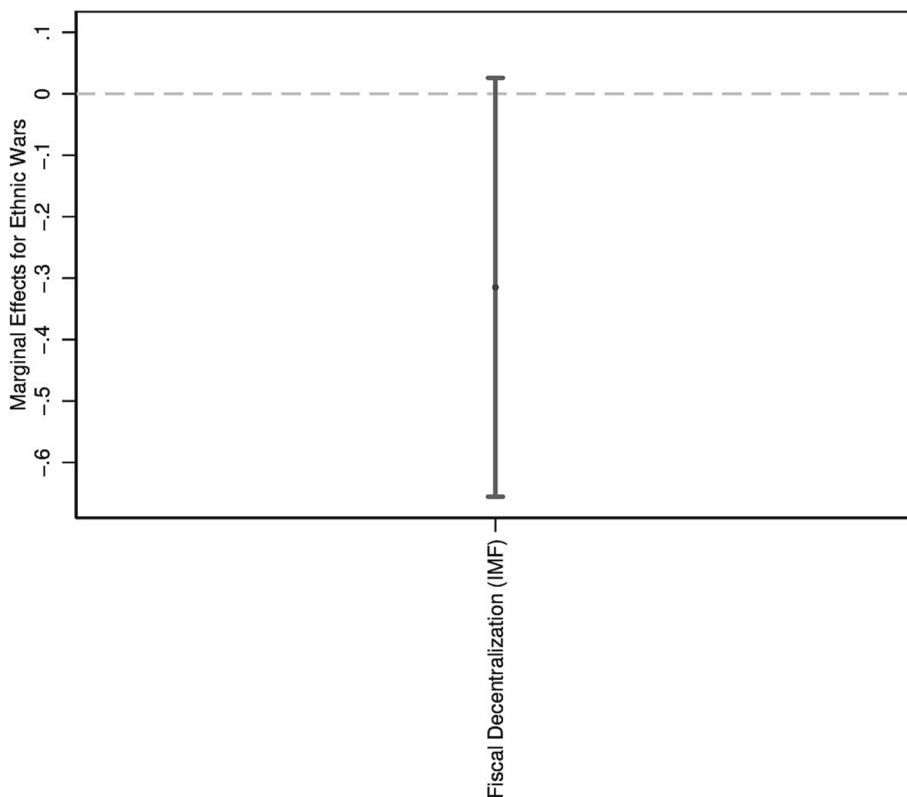


Figure 2. Marginal Effects of Self-Rule Variables (based on Table 2).

self-governance as a ‘difficult’ because ‘paradoxical’ institution.

Our findings provide fruitful ground for further qualitative and quantitative research: Qualitative researchers may want to build on our arguments by using detailed case studies to further illustrate the

relevance of conceptual and empirical clarity in specific contexts. Quantitative researchers may want to conduct reflexive research that questions how and why the dynamics in academic knowledge production lead researchers to choose certain indicators over others.

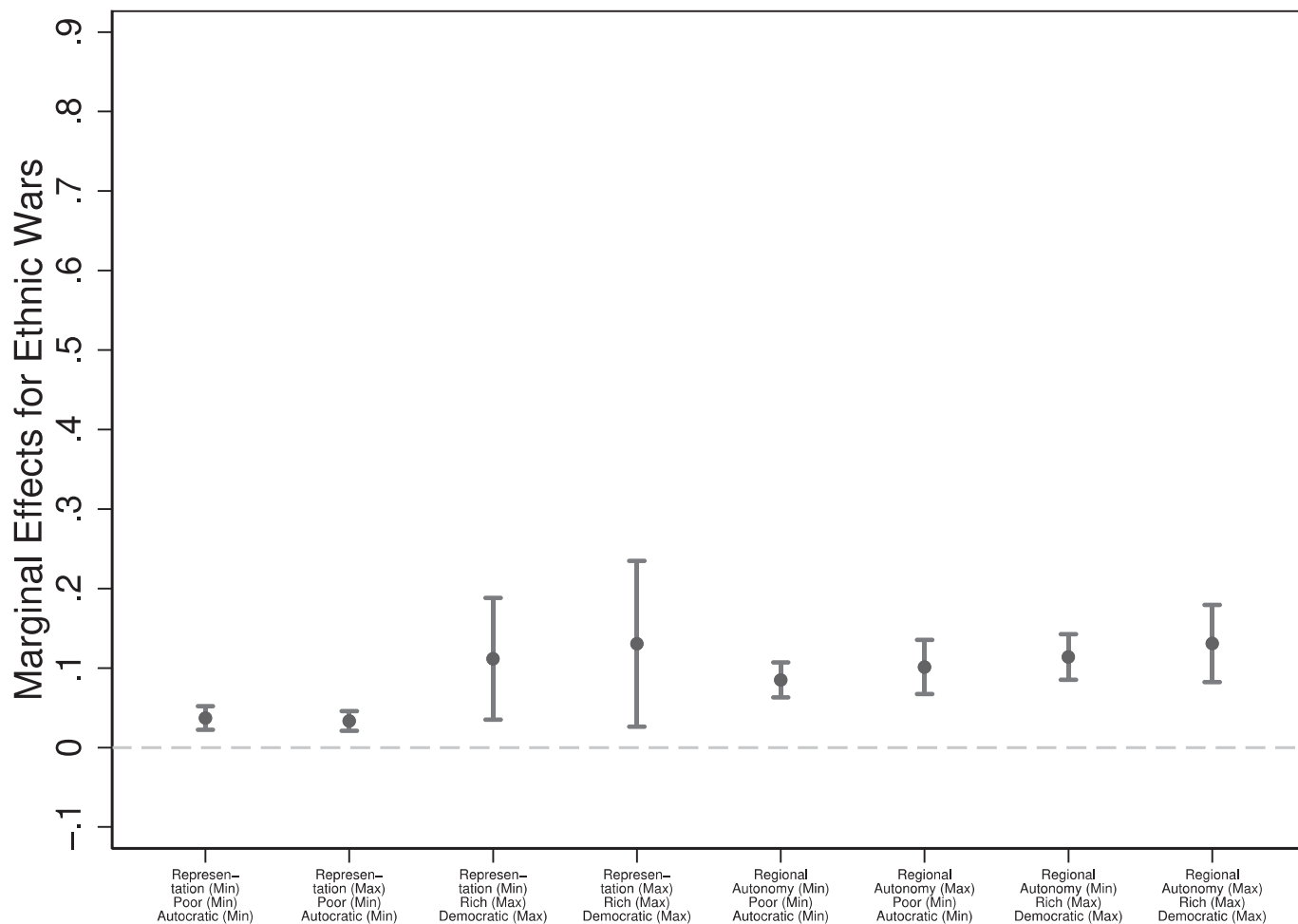


Figure 3. Marginal Effects for Poor Autocracies (and Rich Democracies), Illustrating Results for Hypothesis 1.

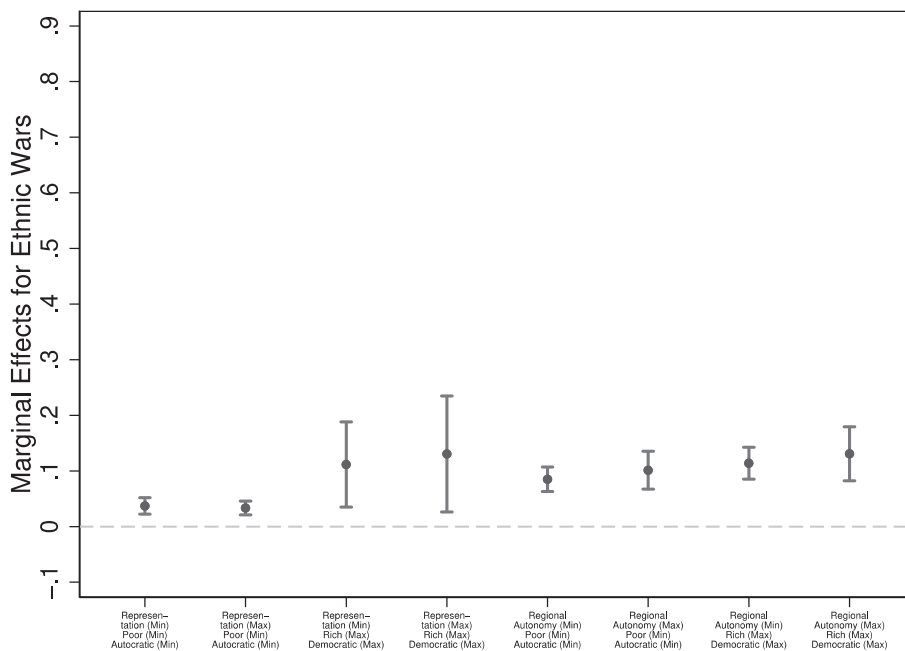


Figure 4. Marginal Effects for Poor Autocracies (and Rich Democracies), Illustrating results for Hypothesis 2 (In the figure, ‘auto’ refers to autocracies and ‘demo’ to democracies).

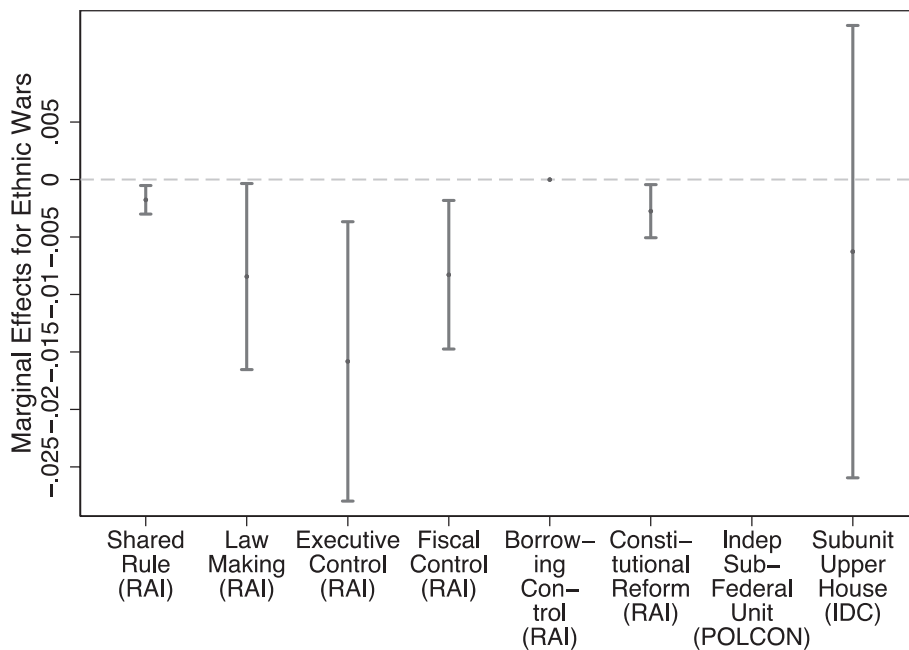


Figure 5. Marginal Effects of Shared Rule Variables (from Table 3).

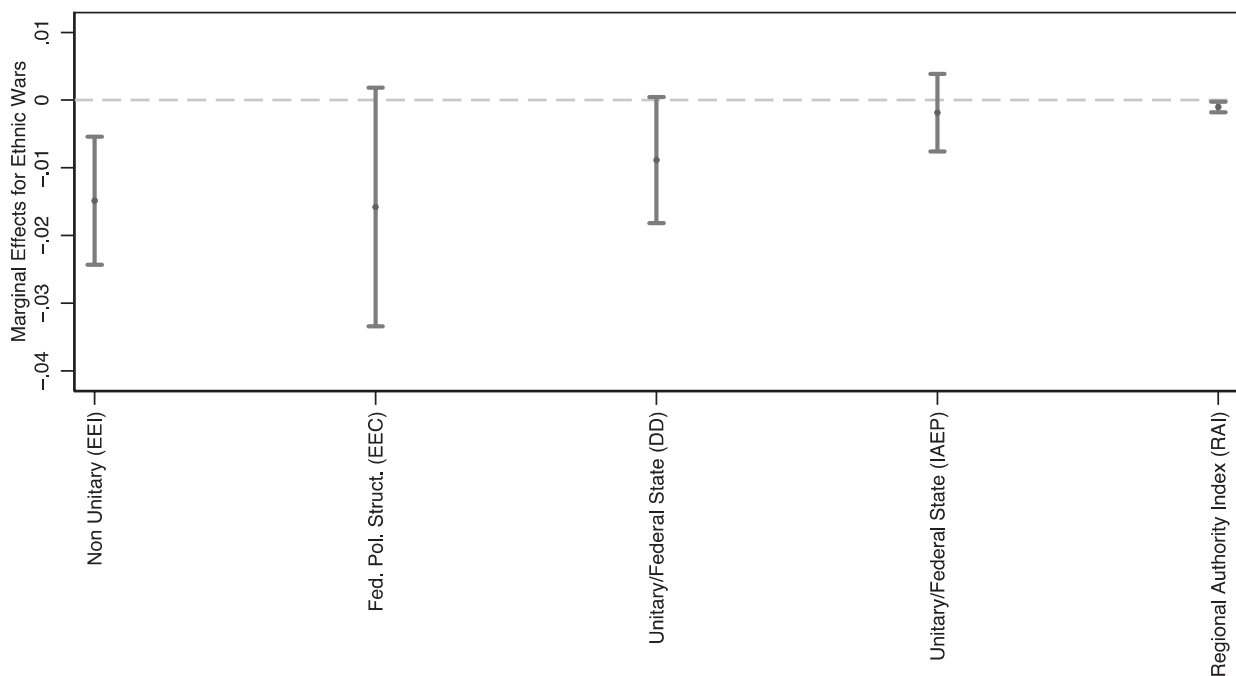


Figure 6. Marginal Effects of Aggregate Indicators (from Table 4).

CRedit authorship contribution statement

Natascha S. Neudorfer: Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Ulrike G. Theuerkauf:** Conceptualization, Writing – original draft, Writing – review & editing. **Stefan Wolff:** Conceptualization, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.worlddev.2024.106812>.

Data availability

Full replication materials are available on the *World Development* website as supplementary files to this article.

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