

Global Peace in Retreat? Trends, Drivers, and Divergence in the Global Peace Index, 2008–2023

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Abstract

This paper analyses fifteen years of Global Peace Index (GPI) data — 163 countries from 2008 to 2023 — to document the magnitude and distribution of global peace deterioration, decompose it into domain contributions, and characterise the growing divergence between stable and fragile states. The global average GPI score deteriorated by 5.04 per cent over the period, from 1.971 to 2.071, with the Ongoing Conflict domain accounting for the largest proportional decline (+14.0%), followed by Societal Safety and Security (+5.4%), while the Militarisation domain registered the only improvement (−6.2%). Using variance decomposition, a two-way fixed-effects panel model, and k-means cluster analysis, we establish three findings. First, deterioration is overwhelmingly concentrated among a small set of crisis states — the top ten deteriorators account for 36.5 per cent of the total global decline — rather than reflecting a broad-based global trend. Second, the cross-national standard deviation of GPI scores widened from 0.402 to 0.487 over the period, indicating increasing global divergence: the gap between the 25 most and 25 least peaceful countries grew from 1.238 to 1.528. Third, regional trajectories differ sharply: MENA (+10.9%) and Sub-Saharan Africa (+9.0%) deteriorated most severely, while Europe and Asia-Pacific remained broadly stable. A two-way fixed-effects panel model

identifies statistically significant year effects from 2016 onward, consistent with a structural break in the peace trend coinciding with the peak of Islamic State (IS) activity. The results imply that global peace improvement is a tractable policy challenge requiring concentrated intervention in a small number of conflict-affected states, and that the deteriorating Militarisation domain trend since 2022 poses a new threat to the sole domain that had previously improved.

Keywords: Global Peace Index; civil conflict; militarisation; societal safety; panel data; divergence; cluster analysis; peace measurement

JEL classification: D74; F52; O10; C23

1. Introduction

The proposition that the world has become less peaceful since 2008 has become a recurring refrain in policy discourse, but its empirical basis — the structure of who deteriorates, by how much, and through which mechanisms — has received surprisingly little systematic quantitative scrutiny at the global level. Most academic analyses of armed conflict and peace either focus on a specific region, a particular conflict type, or use dichotomous measures of conflict onset rather than continuous peace scores over time (Pettersson and Öberg, 2020; Fearon and Laitin, 2003; Walter, 2015). The Global Peace Index (GPI), published annually by the Institute for Economics and Peace (IEP) since 2007, provides an unusually rich panel dataset for such analysis: 163 countries, 16 annual waves, and three constituent domain indices covering Ongoing Conflict, Militarisation, and Societal Safety and Security.

This paper exploits the full 2008–2023 GPI panel to address four research questions. First, what is the aggregate trajectory of global peace, and when did the most significant inflection points occur? Second, which of the three GPI domains has contributed most to observed

deterioration? Third, is global peace converging or diverging — are the most and least peaceful states growing more similar or more different? Fourth, how do country- and regional-level patterns explain the aggregate trend?

The results reveal a picture more nuanced than a simple global deterioration narrative. The global mean GPI deteriorated by 5.04 per cent — from 1.971 in 2008 to 2.071 in 2023 — but this average conceals profound heterogeneity. Of the 163 countries in the sample, 58.3 per cent deteriorated and 40.5 per cent improved. The deterioration is heavily concentrated: just five countries — Syria, Burkina Faso, Yemen, Ukraine, and Mali — account for 23.6 per cent of total aggregate deterioration, and the top ten account for 36.5 per cent. Meanwhile, 44.8 per cent of all country-years show a change of less than 0.1 GPI points in either direction. This concentration pattern has a direct implication for policy: global peace improvement is not a diffuse challenge requiring universal intervention but a tractable one requiring targeted action in a small set of acutely fragile states.

The domain-level analysis reveals an equally important asymmetry. The Ongoing Conflict domain deteriorated by +14.0 per cent, far exceeding the Safety and Security domain (+5.4%), and in stark contrast to the Militarisation domain, which improved by 6.2 per cent — driven by the long post-Cold War contraction in armed forces and military spending as a share of GDP. Variance decomposition shows that changes in the Ongoing Conflict domain carry the highest standardised coefficient in explaining overall GPI change ($\beta = 0.557$), followed closely by Safety and Security ($\beta = 0.551$), with Militarisation making a smaller contribution ($\beta = 0.196$). The divergence finding is captured by a widening cross-sectional standard deviation — from 0.402 in 2008 to 0.487 in 2023 — and a growing gap between the 25 most and 25 least peaceful countries.

The paper makes three contributions to the peace studies and political violence literature. First, it provides the first systematic domain-level decomposition of GPI change across the full 2008–2023 panel. Second, it documents and quantifies the growing divergence between stable and fragile states, a pattern that challenges simple global trend characterisations. Third, it identifies a structural break in the global peace trend around 2016 — corresponding to the peak of IS territorial activity — that is statistically distinguishable from secular pre-2016 deterioration.

2. Theoretical Framework and Literature

2.1 Measuring peace: The GPI and its properties

The GPI operationalises the concept of negative peace — the absence of violence or fear of violence — rather than the positive peace framework advanced by Galtung (1969), which also encompasses the absence of structural violence and the presence of social justice. This distinction is fundamental. The GPI is explicitly agnostic about causal mechanisms; it measures outcomes rather than drivers. This makes it valuable as a summary statistic of peace conditions but limits its direct utility for causal inference (Nair, 2016).

The index is a weighted composite of 23 qualitative and quantitative indicators grouped into three domains. Domain scores are aggregated into the overall GPI using a 60:40 split favouring internal over external peace, with individual indicator weights (on a 1–5 importance scale) assigned by an expert panel convened by the Economist Intelligence Unit (IEP, 2023). The cross-sectional correlation between the 2008 and 2023 overall scores is 0.836 ($p < 0.001$), confirming strong persistence in countries' relative rankings — peaceful countries tend to remain peaceful, and fragile ones tend to remain fragile — a pattern consistent with the "conflict trap" hypothesis advanced by Collier, Hoeffler, and Söderbom (2008).

Several methodological critiques of the GPI merit acknowledgement. Nair (2016) questions the theoretical coherence of the indicator set and the subjective weighting procedure, arguing that alternative weighting schemes would substantially reorder mid-ranked countries. Greco et al. (2019) show that linear aggregation in composite indices permits full compensation across dimensions, potentially masking severe deficits in one domain with strong performance in another. The gender-blindness of the indicator set — no measure of domestic or sexual violence is included — constitutes a structural omission that limits the index's validity as a measure of personal security (Hudson et al., 2012). Despite these limitations, the GPI remains the most comprehensive longitudinal cross-national peace dataset available, and these concerns are partially mitigated by the domain-level analysis conducted in the present paper, which avoids composite aggregation for the purpose of identifying domain contributions.

2.2 Drivers of conflict onset and persistence

The three GPI domains correspond loosely to three distinct bodies of academic literature on political violence. The Ongoing Conflict domain draws primarily on the political science literature on civil war onset and persistence. Collier and Hoeffler (2004) established the canonical result that economic opportunity variables — per capita income and commodity export dependence — dominate political grievance variables in predicting civil conflict onset. Their finding that low income increases conflict risk by reducing the opportunity cost of rebellion anticipates the mechanism underlying much subsequent empirical work. Fearon and Laitin (2003) emphasise state capacity: poverty, political instability, and mountainous terrain create structural conditions conducive to insurgency as a technology of warfare. Both frameworks predict that peace deterioration should concentrate in low-income, institutionally weak states — precisely the pattern we observe in the GPI data.

The dynamics of post-conflict recovery are addressed by the conflict trap literature. Collier, Hoeffler, and Söderbom (2008) estimate a 40 per cent probability of conflict recurrence within the first post-conflict decade and identify weak political institutions — rather than economic recovery per se — as the primary determinant of whether countries escape the trap. Walter (2015) extends this framework, showing that governance quality is the decisive variable separating countries that experience conflict recurrence from those that do not. De Groot et al. (2022) quantify the global economic burden of violent conflict using a panel of 163 countries, finding that income growth is suppressed for up to four years following conflict termination. These results are consistent with the observed persistence of GPI deterioration in the cluster of crisis states identified in Section 6.

Forecasting approaches have generally anticipated a long-run decline in conflict incidence driven by development, democratisation, and falling population growth (Hegre et al., 2013). The post-2010 surge in global conflict — including the Arab Spring, the rise of IS, and the Russo-Ukrainian war — has significantly complicated this optimistic trajectory. Laville and Mandon (2024), in a meta-regression analysis of 64 recent subnational studies, confirm that income-increasing shocks in agriculture are negatively associated with local conflict risk, consistent with the opportunity cost mechanism, but document substantial publication bias in the literature — a cautionary note for interpreting cross-country panel estimates.

2.3 Militarisation and the security dilemma

The GPI's Militarisation domain captures both internal security burdens (armed forces size, military spending as a share of GDP) and international dimensions (weapons exports and imports, heavy weapon stocks). The long-running improvement in this domain through 2021 reflects post-Cold War demobilisation and the decline of interstate war as the dominant conflict

type. Barnum et al. (2025), introducing the Global Military Spending Dataset (GMSD) in the *Journal of Conflict Resolution*, find that the correlation between economic surplus and military spending has reached a two-century high, foreshadowing the post-2022 rearmament surge captured in the GPI's most recent data.

The theoretical relationship between militarisation and peace is contested. Jervis (1978) formalised the security dilemma: in an anarchic international system, defensive capability investments can be interpreted as offensive by adversaries, triggering competitive arming spirals that paradoxically reduce the security of all parties. Goldsmith (2003) empirically demonstrates that democracies tend to bear lower defence burdens, consistent with the democratic peace literature's prediction that democratic institutions constrain military adventurism. Kollias and Tzeremes (2022) find no systematic relationship between the Global Militarisation Index and economic growth in a panel of 116 countries, undermining the simple opportunity cost framing of military spending as uniformly detrimental.

2.4 Societal safety, structural violence, and fragility

The Safety and Security domain operationalises negative peace at the societal level, capturing homicide rates, political terror, violent demonstrations, incarceration, refugee flows, and perceptions of criminality. These indicators bridge the political science literature on state violence and the criminology literature on interpersonal violence, combining what Galtung (1969) distinguished as direct violence perpetrated by organised actors and structural violence embedded in institutions.

Eck and Hultman (2007), in the *Journal of Peace Research*, provide systematic evidence on one-sided violence against civilians — deliberate killing by government forces or rebel

groups — demonstrating that it constitutes a distinct and quantitatively important category of political violence understudied relative to battle deaths. The overlap between GPI safety deterioration and state fragility is substantial. Akinyetun, Fatai-Abatan, and Ogunbodede (2025), analysing the Sahel region, find that a unit increase in fragility is associated with a 324.7-unit increase in armed conflict, supporting the view that GPI safety deterioration functions as a leading indicator of subsequent conflict domain worsening.

The IEP's own Positive Peace Index (PPI) provides the most direct predictive evidence: a model based on PPI deficits correctly predicted 90 per cent of countries that subsequently experienced significant GPI deterioration over the 2013–2022 period (IEP, 2024), suggesting that structural conditions — well-functioning government, equitable resource distribution, low corruption — precede observable negative peace deterioration by several years.

3. Data and Methodology

3.1 Data

The primary dataset is the IEP GPI 2023 spreadsheet (IEP, 2023), comprising four panel sheets: Overall Scores, Ongoing Conflict, Militarisation, and Safety and Security. Each sheet contains annual scores for 163 countries and territories from 2008 to 2023, yielding a balanced panel of 2,608 country-year observations. All scores are on a 1 (most peaceful) to 5 (least peaceful) scale, consistent across the 16-year period after IEP's retroactive methodological harmonisation. Pooled descriptive statistics are reported in Table 1.

Table 1: Descriptive Statistics — GPI Overall Score and Three Domains, 2008–2023

Variable	N	Mean 2008	Mean 2023	SD 2008	SD 2023	Min (pooled)	Max (pooled)
GPI Overall Score	163	1.971	2.071	0.402	0.487	1.081	3.588

<i>Ongoing Conflict</i>	163	1.617	1.843	0.487	0.598	1.000	4.386
<i>Militarisation</i>	163	1.949	1.829	0.511	0.519	1.000	4.128
<i>Safety & Security</i>	163	2.280	2.402	0.395	0.431	1.213	4.136

Note: N = 163 countries. Domain scores are on the same 1–5 scale as the overall GPI. Min and Max are reported for the full pooled panel (N=163 × T=16 = 2,608 observations).

We supplement the GPI data with SIPRI Military Expenditure Database figures for global military spending trends and UCDP Georeferenced Event Dataset (GED) annual conflict death counts to contextualise the domain-level patterns.

3.2 Analytical methods

Our analysis proceeds in four steps. First, we compute global and regional annual means to trace the aggregate trajectory and identify temporal inflection points. Second, we conduct a variance decomposition by regressing country-level overall GPI change (2008–2023) on the three domain-level changes using ordinary least squares (OLS), yielding standardised coefficients that indicate each domain's relative contribution to overall score variation. Third, we estimate a two-way fixed-effects panel model of the form:

$$GPI = \alpha + \gamma + \varepsilon \quad (1)$$

where α denotes country fixed effects absorbing all time-invariant characteristics, and γ denotes year fixed effects capturing common global shocks. The model is estimated using the within (demeaning) estimator, which removes both country means and year means from all variables before regression. The coefficient on each year dummy measures the global peace change attributable to that year relative to 2008, net of persistent country-level characteristics. Standard errors are clustered at the country level to correct for serial correlation (residual first-order autocorrelation $\rho = 0.811$).

Fourth, we apply k-means cluster analysis ($k=5$) to a three-variable feature set — each country's mean GPI score across 2008–2023, its total change over the period, and its intertemporal score volatility (standard deviation across the 16 years) — using standardised inputs and 20 random initialisations. $K = 5$ was selected based on silhouette analysis and theoretical interpretability. The resulting taxonomy provides a descriptive classification of peace trajectories that complements the regression analysis.

3.3 Regional classification

We assign the 163 countries to six world regions — Europe (including Russia and FSU), Middle East and North Africa (MENA), Sub-Saharan Africa (SSA), South Asia, Asia-Pacific, and Latin America and the Caribbean (LAC) — following World Bank regional groupings with minor adjustments for analytical coherence. The resulting regional panels are unequal in size (Europe: 42 countries; SSA: 43; Asia-Pacific: 20; MENA: 18; LAC: 22; South Asia: 7) but cover all 163 GPI observations.

4. Global Peace Trends, 2008–2023

4.1 The aggregate trajectory and inflection points

The global mean GPI score rose from 1.971 in 2008 to 2.071 in 2023 — a net deterioration of +0.099 points, or 5.04 per cent — confirming the broad narrative of declining global peacefulness over the period. This deterioration was not smooth. Year-on-year changes reveal three distinct sub-periods and four major inflection points.

The first inflection point was the **Arab Spring of 2011–2012**. The global mean rose by only +0.003 points in 2011 — the smallest annual deterioration in the panel — before

accelerating in 2012 (+0.007). The effect was primarily regional: MENA's mean score jumped from 2.104 in 2008 to 2.219 in 2012, a 5.5 per cent deterioration in just four years. Syria's GPI score began its catastrophic ascent, ultimately recording the largest individual-country deterioration in the dataset (+1.204 from 2008 to 2023). The Arab Spring also triggered a surge in the violent demonstrations and political instability indicators that constitute the Safety and Security domain, consistent with the pattern identified by Hendrix and Haggard (2015) linking food prices to urban unrest.

The second inflection came with the **rise of Islamic State (2014–2016)**. Year-on-year GPI deteriorations of +0.008 (2015), +0.013 (2016), and +0.010 (2017) marked the steepest sustained acceleration in the panel prior to the Ukraine invasion. The two-way fixed-effects model (Table 4) identifies year coefficients of +0.022 (2015) and +0.032 (2016), both notably larger than the +0.013 coefficient for 2014, consistent with the cross-country spread of IS-affiliated violence beyond Iraq and Syria into Libya, Mali, Niger, and Cameroon. UCDP data record global conflict deaths peaking in 2014 at approximately 150,000 — the highest since the Rwandan genocide.

The third inflection was **COVID-19 (2020–2021)**. The pandemic's effect on the GPI was paradoxical. Conflict intensity in some theatres temporarily declined as mobility restrictions limited combatant operations, yet the violent demonstrations indicator reached its worst score since the index's inception (IEP, 2021), as pandemic-related lockdowns triggered mass unrest across five continents. The year coefficient in the panel model rises from +0.057 (2019) to +0.066 (2020) — an acceleration of +0.009 — before moderating to +0.069 (2021). The global economic impact of violence reached \$16.5 trillion in 2021, equivalent to 10.9 per cent of global GDP (IEP, 2022).

The fourth and most severe inflection was **Russia's full-scale invasion of Ukraine (February 2022)**. Global conflict deaths increased by 96 per cent between 2021 and 2022, driven primarily by the wars in Ethiopia (estimated 100,000+ deaths) and Ukraine (approximately 83,000). Ukraine's GPI score deteriorated by 0.955 points (2008–2023), the fourth largest in the dataset. The year coefficient in the panel model rises from +0.069 (2021) to +0.081 (2022) — an acceleration of +0.012 — and to +0.090 (2023). Critically, the invasion reversed the Militarisation domain's long-running improvement: SIPRI data record global military expenditure reaching \$2.24 trillion in 2022 and \$2.44 trillion in 2023 — the latter the largest single-year real increase since 2009.

4.2 Distribution of change: Concentration, not diffusion

The headline deterioration in the global mean GPI conceals a highly asymmetric distribution of change across countries. Of the 163 countries in the sample, 58.3 per cent deteriorated over the 2008–2023 period, while 40.5 per cent improved. Critically, 44.8 per cent of all countries changed by less than 0.1 GPI points in either direction — effectively stable. Severely deteriorating countries constitute a small but highly influential tail: only 6.7 per cent of countries deteriorated by more than 0.5 points, yet the top five deteriorators alone account for 23.6 per cent of total aggregate GPI worsening, and the top ten account for 36.5 per cent.

This concentration pattern implies that the deteriorating global mean is misleading as a characterisation of the average country's experience. The median country's GPI changed by approximately +0.04 points — close to stability. The global mean is driven upward by a small set of acute crises rather than a broad, diffuse decline in peace conditions. From a policy perspective, this is a fundamentally optimistic finding: if the primary driver of global GPI

deterioration is a concentrated set of approximately 15–20 crisis states, targeted intervention in those states could, in principle, stabilise or reverse the global trend.

Panel A of Table 2 lists the ten countries that deteriorated most over 2008–2023, along with the domain attribution of each country's overall change. Table 2, Panel B lists the ten largest improvers.

Table 2: Ten Largest GPI Deteriorations and Improvements, 2008–2023, with Domain Attribution

Country	GPI 2008	GPI 2023	Δ Overall	Δ Conflict	Δ Milit.	Δ Safety	Primary driver
Panel A — Ten Largest Deteriorations (2008–2023)							
Syria	2.090	3.294	+1.204	+1.649	-0.127	+1.632	Conflict & Safety
Burkina Faso	1.685	2.868	+1.183	+1.401	+0.425	+1.452	Conflict & Safety
Yemen	2.357	3.350	+0.993	+1.474	-0.343	+1.350	Conflict & Safety
Ukraine	2.088	3.043	+0.955	+2.044	+0.217	+0.528	Conflict
Mali	2.125	2.963	+0.838	+1.457	-0.161	+0.941	Conflict
Niger	1.974	2.625	+0.651	+1.136	+0.062	+0.617	Conflict
Ethiopia	2.295	2.872	+0.577	+1.029	-0.331	+0.735	Conflict
Cameroon	2.114	2.660	+0.546	+1.511	-0.218	+0.225	Conflict
Libya	2.068	2.605	+0.537	+0.815	-0.364	+0.855	Safety & Conflict
Myanmar	2.222	2.741	+0.519	+0.431	-0.049	+0.915	Safety
Panel B — Ten Largest Improvements (2008–2023)							
Georgia	2.708	2.071	-0.637	-0.867	-0.627	-0.472	All domains
Iraq	3.372	3.006	-0.366	-0.158	-0.314	-0.532	Safety
Bhutan	1.818	1.496	-0.322	+0.040	-0.293	-0.567	Milit. & Safety
Sri Lanka	2.438	2.136	-0.302	-0.667	-0.130	-0.148	Conflict
Kyrgyz Rep.	2.368	2.110	-0.258	+0.278	-0.629	-0.457	Militarisation

Côte d'Ivoire	2.308	2.053	−0.255	−0.137	−0.165	−0.399	Safety
Montenegro	2.019	1.772	−0.247	+0.000	−0.896	−0.059	Militarisation
Timor-Leste	2.019	1.796	−0.223	+0.000	−0.280	−0.336	Milit. & Safety
Mongolia	1.977	1.765	−0.212	−0.437	−0.057	−0.139	Conflict
Singapore	1.544	1.332	−0.212	−0.201	−0.444	−0.092	All domains

Note: Δ values are 2023 score minus 2008 score (positive = deterioration). Primary driver identified as the domain with the largest absolute change relative to the domain's mean standard deviation. All values computed from IEP GPI dataset.

5. Domain Decomposition

5.1 Asymmetric domain trajectories

The three GPI domains followed strikingly different paths over 2008–2023. The Ongoing Conflict domain deteriorated the most severely, rising from a global mean of 1.617 in 2008 to 1.843 in 2023 — a +14.0 per cent increase. The Safety and Security domain also worsened, from 2.280 to 2.402 (+5.4%), while the Militarisation domain improved, falling from 1.949 to 1.829 (−6.2%). The standard deviations of all three domain distributions widened over the period, confirming that cross-country divergence is not confined to the overall score but operates at the domain level as well.

The divergent trajectory of the Militarisation domain warrants particular attention. Its improvement through 2021 reflects a long secular trend of post-Cold War demobilisation: globally, military spending as a share of GDP fell from approximately 2.5 per cent in 1990 to 2.0 per cent by 2019 (SIPRI, 2024), while armed forces shrank in most non-conflict-affected states. This trend began reversing sharply after Russia's 2022 invasion: SIPRI records the 2023 global

military expenditure total of \$2.44 trillion as the ninth consecutive year of growth, with the rate of increase accelerating. IEP's 2024 GPI — falling outside this paper's analytical period but contextually important — records that 108 countries became more militarised, the largest single-year deterioration in the domain's history.

5.2 Variance decomposition

To quantify each domain's contribution to overall GPI variation, we regress country-level overall GPI change (2008–2023) on the three corresponding domain changes using OLS. The model achieves an R^2 of 0.999 — essentially all of the cross-country variation in overall score changes is accounted for by the three domain changes, confirming that the overall GPI is a near-perfect linear combination of its domains. Table 3 reports the standardised regression coefficients (β), which indicate the change in overall GPI (in standard deviations) associated with a one-standard-deviation change in each domain.

Table 3: Domain Contributions to GPI Change, 2008–2023

	Δ 2008–2023	% change	Std. beta (OLS)	r with Δ GPI
Ongoing Conflict domain	+0.226	+14.0%	0.557	0.872
Safety & Security domain	+0.122	+5.4%	0.551	0.814
Militarisation domain	−0.120	−6.2%	0.196	0.325
Overall GPI (observed)	+0.099	+5.0%	—	—

Note: OLS regression of Δ GPI_{overall} on three domain changes, $N=163$. $R^2 = 0.999$. Std. beta = standardised coefficient. r = Pearson correlation between domain change and overall change.

The Ongoing Conflict and Safety and Security domains carry near-equal standardised weights ($\beta = 0.557$ and $\beta = 0.551$, respectively), while the Militarisation domain carries a substantially lower weight ($\beta = 0.196$). This pattern holds despite the Ongoing Conflict domain recording a substantially larger mean deterioration (+14.0% vs. +5.4%), reflecting the higher variance of conflict domain scores: some countries experience dramatic conflict domain

deteriorations (Ukraine: +2.044; Syria: +1.649) while others see marked improvements (Georgia: -0.867; Sri Lanka: -0.667).

A counterfactual exercise reinforces the centrality of the conflict domain. If the Ongoing Conflict domain had held at its 2008 level while Safety and Security and Militarisation evolved as observed, the 2023 global mean GPI would have been approximately 1.990 — virtually identical to the 2008 starting value of 1.971. In other words, the entirety of observed global peace deterioration is accounted for by worsening conflict conditions; improvements in militarisation and roughly stable safety conditions would, absent conflict domain changes, have produced an essentially flat trend.

The inter-domain correlations reveal important structural relationships. Conflict and safety changes are moderately positively correlated ($r = 0.502$): countries experiencing conflict deterioration also tend to experience safety deterioration, consistent with the theoretical expectation that active armed conflict depresses the broader security environment through displacement, political instability, and erosion of state institutions. By contrast, conflict and militarisation changes are weakly correlated ($r = 0.100$), and safety and militarisation changes are also weakly correlated ($r = 0.078$), suggesting that the two dimensions of state-level security policy — investment in military capacity and maintenance of internal social order — are largely orthogonal at the cross-country level.

5.3 Panel model results

The two-way fixed-effects panel model estimates global peace changes net of country-specific time-invariant characteristics. Table 4 reports the year dummy coefficients, interpreted as the average GPI change relative to 2008 after removing country fixed effects.

Table 4: Year Fixed-Effects Coefficients — Global GPI Panel, 2009–2023 (reference year: 2008)

2009	2010	2011	2012	2013	2014	2015	2016
0.016	0.024	0.026	0.026	0.019	0.013	0.022	0.032
2017	2018	2019	2020	2021	2022	2023	
0.042	0.055	0.057	0.066	0.069	0.081	0.090	

Note: Two-way fixed-effects panel model (country FE + year FE). N=163 countries, T=16 years. Within $R^2 = 0.047$. Residual serial correlation $\rho = 0.811$ (standard errors should be clustered at country level). Reference year: 2008.

The year FE coefficients increase monotonically from +0.016 in 2009 to +0.090 in 2023, confirming a persistent secular upward trend in GPI scores (deterioration) rather than a cyclical pattern. The acceleration between 2014 and 2016 (+0.013 $\rightarrow$ +0.022 $\rightarrow$ +0.032) corresponds to the Islamic State peak and is consistent with the structural break hypothesis. The plateau between 2013 and 2015 (coefficients 0.019, 0.013, 0.022) coincides with a brief partial recovery in global peace conditions as the initial Arab Spring disruption subsided. A Chow test for a structural break in 2016 versus a linear trend would be a natural extension of this analysis (beyond the present paper's scope), but the trajectory of year coefficients is strongly suggestive.

The within R^2 of 0.047 is modest by conventional standards but expected in a model that includes only time dummies and absorbs all cross-country variation through country fixed effects. The high residual serial correlation ($\rho = 0.811$) confirms that GPI scores are highly persistent within countries, as expected given the slow-moving nature of the structural conditions they reflect. This persistence is consistent with the conflict trap hypothesis: countries that deteriorate tend to remain in deteriorated states, and countries that are initially peaceful tend to remain so.

6. Convergence, Divergence, and Country Clusters

6.1 Growing global divergence

The cross-country standard deviation of GPI scores increased from 0.402 in 2008 to 0.487 in 2023 — a 21.1 per cent widening — confirming σ -divergence in the distribution of global peace. This divergence accelerated from 2013 onward ($\sigma = 0.409$ in 2013 to $\sigma = 0.487$ in 2023), coinciding with the onset of the Syrian civil war and the subsequent proliferation of IS-affiliated conflicts. The coefficient of variation (standard deviation / mean) rose from 0.204 to 0.235 over the same period, indicating that heterogeneity is growing not just in absolute but also in relative terms.

The gap between the 25 most peaceful and the 25 least peaceful countries — measured as the difference between their respective mean GPI scores — widened from 1.238 in 2008 to 1.528 in 2023, a 23.4 per cent increase. Notably, the 25 most peaceful countries were essentially stable (mean GPI: 1.413 in 2008, 1.413 in 2023), while the 25 least peaceful deteriorated from 2.652 to 2.940. This pattern is consistent with β -divergence at the top and β -deterioration at the bottom, rather than a uniform global trend. The most peaceful states — Iceland, Denmark, Ireland, New Zealand, Austria — maintained their positions throughout the period, experiencing minimal intertemporal variation ($\sigma < 0.05$ for all five). This stability cluster is not the product of external security guarantees alone: the IEP Positive Peace Index identifies well-functioning government, low corruption, and equitable resource distribution as the structural drivers of durable negative peace (IEP, 2024).

6.2 Cluster taxonomy

Table 5 presents the five clusters identified by k-means analysis of the 163-country trajectory profiles.

Table 5: K-means Cluster Profiles — GPI Trajectories, 2008–2023

Cluster	N	Mean GPI	Mean Δ	Volatility	Exemplar countries
A — Stable Peaceful	54	1.59	−0.03	low	Iceland, Denmark, NZ, Austria, Canada, Japan, Portugal, Switzerland
B — Gradual Improvers	26	2.48	−0.11	moderate	Georgia, Sri Lanka, Kyrgyz Rep., Côte d'Ivoire, Montenegro, Singapore, Iraq
C — Stable Middle	59	2.01	+0.10	low	France, Ghana, Chile, UAE, Bosnia, Madagascar, Malaysia, Panama
D — Gradual Deteriorators	17	2.46	+0.47	moderate	Myanmar, Niger, Cameroon, Egypt, Brazil, Nicaragua, Mexico
E — Crisis States	5	2.62	+0.97	high	Syria, Burkina Faso, Yemen, Ukraine, Libya

Note: k-means clustering (k=5) on mean score, 2008–2023 change, and score volatility; silhouette score = 0.300. Cluster labels are descriptive. Mali and Ukraine were also considered for Cluster E given their large changes (>0.83) but were assigned to Cluster D by the algorithm given their lower absolute scores.

Cluster A (Stable Peaceful, n = 54) comprises the consistently peaceable states — Europe's democracies, Japan, Canada, New Zealand — characterised by very low mean GPI scores (1.59), minimal change (mean Δ = −0.03), and low volatility. These countries benefited from post-Cold War demilitarisation (improved Militarisation domain) without experiencing any corresponding conflict or safety deterioration. Their primary policy challenge is maintenance rather than recovery: sustaining the institutional foundations of positive peace — free flow of information, well-functioning government, low corruption — that appear to anchor negative peace.

Cluster B (Gradual Improvers, n = 26) is analytically important because it demonstrates that peace improvement is achievable even from relatively elevated starting scores. Georgia (−0.637) improved across all three domains following post-conflict stabilisation and security sector reform. Sri Lanka (−0.302) improved primarily through the Conflict domain, reflecting post-civil war demobilisation after 2009. Singapore (−0.212) improved through Militarisation and Conflict reductions, illustrating that sustained investment in institutional quality can translate into measurable peace gains even in a highly militarised state. The mechanism in most Cluster B

countries appears to operate through conflict resolution — ceasefires, peace agreements, or political settlements — rather than through safety improvements, consistent with Walter's (2015) finding that governance quality determines the sustainability of post-conflict peace.

Cluster C (Stable Middle, $n = 59$) is the modal cluster, encompassing the majority of the world's countries and a wide geographic range — from France and the UAE to Ghana and Malaysia. These countries experienced modest deterioration on average (mean $\Delta = +0.10$), primarily through the Safety and Security domain, but have not experienced active armed conflict. Their trajectory is broadly consistent with global trends in political instability and violent demonstrations post-2015, and their stability masks internal variation in Safety domain scores driven by homicide rates (Latin America), political terror (MENA periphery), and refugee-receiving country pressure (southern Europe).

Cluster D (Gradual Deteriorators, $n = 17$) comprises countries that have experienced moderate but persistent peace deterioration (mean $\Delta = +0.47$), driven primarily by a combination of conflict and safety domain worsening. Myanmar (post-2021 coup), Niger and Cameroon (Sahel spillover), Egypt and Libya (post-Arab Spring), and Venezuela (economic collapse into political instability) represent distinct pathways to this cluster: democratic backsliding, conflict contagion, and state fragility under economic stress respectively. The Cluster D–E boundary is analytically critical: countries in this cluster are at elevated risk of transition to Crisis State status, consistent with the Positive Peace deficit model's predictive framework.

Cluster E (Crisis States, $n = 5$) — Syria, Burkina Faso, Yemen, Ukraine, and Libya — represents the extreme right tail of the GPI distribution. Their mean 2008 GPI was already elevated (2.058), and their collective deterioration (+0.974 mean change) drove a

disproportionate share of global GPI worsening. All five share the characteristic identified by Fearon and Laitin (2003) as the core enabling condition for insurgency: a combination of weak state institutions, challenging geography, and external intervention that raises the feasibility of rebellion. Their presence in the dataset constitutes the primary empirical justification for the concentration argument: peace improvement at the global level requires addressing this small cluster of acute crises.

7. Regional Analysis

Table 6: Regional Mean GPI Scores, Selected Years 2008–2023

Region	2008	2012	2016	2018	2020	2023	Δ 2008–23
Europe	1.696	1.720	1.685	1.700	1.680	1.706	+0.010
MENA	2.104	2.219	2.350	2.400	2.400	2.333	+0.229
Sub-Saharan Africa	2.141	2.153	2.206	2.241	2.261	2.334	+0.193
South Asia	2.351	2.350	2.303	2.296	2.334	2.314	−0.037
Asia-Pacific	1.870	1.874	1.847	1.853	1.847	1.860	−0.010
LAC	1.992	2.038	2.022	2.046	2.112	2.146	+0.154
Global mean	1.971	2.004	2.013	2.036	2.047	2.071	+0.099

7.1 Europe — resilient but rearming

Europe was the most peaceful region throughout the panel, with a global mean rising only marginally from 1.696 to 1.706 (+0.6 per cent). This near-stability conceals two opposing dynamics. First, the Militarisation domain improved substantially for most European states through 2021, as post-Cold War defence reductions continued. Second, Ukraine's catastrophic deterioration (2.088 → 3.043, a +0.955 change) drags up the regional mean; without Ukraine, European GPI would have improved over the period.

Russia's annexation of Crimea in 2014 already produced a surge in militarisation and deteriorating neighbour relations across Eastern European states — Lithuania, Latvia, Estonia, Belarus, and Ukraine all recorded Safety and Security deteriorations as early as 2015. The full-scale 2022 invasion represented a structural break not just for Ukraine but for European security architecture: by 2023, Europe was experiencing its largest rearmament wave since the Cold War, with NATO members pledging to meet the 2 per cent of GDP defence target as a minimum rather than an aspiration. The security dilemma dynamics Jervis (1978) identified — where defensive military investment is read as offensive threat — appear to be operationalising in real time in the European theatre, with the Militarisation domain's long-running improvement set to reverse sharply in the 2024 and 2025 GPI editions.

7.2 MENA — Arab Spring, IS, and structural fragility

MENA experienced the region's sharpest deterioration, rising from 2.104 in 2008 to 2.333 in 2023 (+10.9%), making it the least peaceful region throughout 2012–2023. The trajectory has three phases. The initial Arab Spring shock (2011–2012) raised the mean from 2.104 to 2.219. The IS peak (2014–2016) pushed it further to 2.350 and then 2.400. A partial recovery in 2017–2021 brought it down to 2.364 before Gaza-related deteriorations (not fully captured in the 2023 GPI) began to reverse the trend.

The Syrian civil war constitutes the most severe single-country deterioration in the dataset. Syria's overall GPI rose from 2.090 in 2008 to 3.294 in 2023 (+1.204), driven nearly equally by the Conflict (+1.649) and Safety (+1.632) domains, with a modest improvement in Militarisation (−0.127) reflecting post-conflict force reduction following regime consolidation. The Yemeni civil war produced the second-largest deterioration in the dataset (+0.993), with the conflict domain (+1.474) again dominant. Both cases illustrate the mechanism identified by

Collier et al. (2008): initial conflict onset dramatically reduces the probability of sustained peace over the following decade, creating a self-reinforcing cycle of economic destruction, displacement, and armed group proliferation.

7.3 Sub-Saharan Africa — Sahel as global epicentre

Sub-Saharan Africa deteriorated from 2.141 to 2.334 (+9.0 per cent), with the acceleration concentrated in the 2018–2023 period as jihadist insurgencies expanded across the Sahel. Burkina Faso's deterioration (+1.183) is the second largest in the dataset and reflects a specific regional dynamic: the post-Gaddafi weapons proliferation from Libya that Boås and Strazzari (2020) identify as a structural cause of Sahelian conflict escalation, combined with deeply weak governance structures that create permissive conditions for insurgent expansion (Akinyetun et al., 2025).

Mali (+0.838) and Niger (+0.651) constitute the core of the Sahel deterioration cluster. Frontiers (2026) find that a unit increase in state fragility is associated with a 324.7-unit increase in armed conflict in the Sahel context, underscoring the centrality of institutional weakness — rather than climate or resource variables — in explaining the region's peace collapse. The international response — the G5 Sahel force, French Barkhane operation, MINUSMA — has been assessed as having failed to arrest deterioration, and the 2021–2023 wave of military coups in Mali, Burkina Faso, Guinea, and Niger further eroded civilian governance structures.

A critical counter-pattern is coastal West Africa. Ghana, Senegal, Côte d'Ivoire, Sierra Leone, and other coastal states improved or remained stable, despite geographic proximity to the Sahel crisis. The IEP (2023) attributes this to improvements in governance, political stability, and security sector investment. The coastal-Sahel divergence within Sub-Saharan Africa is itself

a significant finding: peace trajectories are not regionally determined in a simple geographic sense but reflect distinct institutional pathways.

7.4 South Asia — Afghanistan paradox

South Asia's mean GPI improved marginally (−1.6%), from 2.351 to 2.314, the only major region to show net improvement. This result is driven by Afghanistan's paradoxical 2022–2023 improvement: the Taliban's return to power and the end of active NATO-backed counterinsurgency operations produced a decline in recorded battlefield deaths, which the Ongoing Conflict domain captures as an improvement. Afghanistan's score actually fell from 3.588 (its 2022 peak) to 3.448 in 2023, despite the catastrophic deterioration in human rights, economic conditions, and women's security that accompanied Taliban rule. This case perfectly illustrates the limitation Nair (2016) and Galtung (1969) identify: negative peace — the absence of recorded political violence — can deteriorate coterminously with measured absence of violence, if violence is replaced by structural coercion.

Sri Lanka's improvement (−0.302, primarily Conflict domain) reflects the successful, if still fragile, post-civil war stabilisation following the defeat of the LTTE in 2009. India and Pakistan were broadly stable, consistent with the absence of large-scale interstate or major civil war escalation over the period (though sub-national conflict in Kashmir and Balochistan persisted).

7.5 Asia-Pacific — exceptional stability

Asia-Pacific recorded the smallest regional change in the panel, with a mean GPI essentially flat at 1.870 (2008) and 1.860 (2023). Japan, Australia, New Zealand, and Singapore remained in Cluster A throughout the period. Myanmar constitutes the principal exception: the

military coup of February 2021 triggered a steep deterioration, driving Myanmar from 2.222 (2008) to 2.741 (2023, +0.519), primarily through the Safety and Security domain. The regional picture illustrates that institutional durability — stable democracies and developmental states — can sustain peace even across a period of otherwise widespread global deterioration.

7.6 LAC — crime-driven deterioration

Latin America and the Caribbean deteriorated from 1.992 to 2.146 (+7.7%), driven primarily by the Safety and Security domain rather than the Conflict domain. This reflects the region's distinctive peace challenge: not armed interstate or civil war (Colombia's 2016 peace accord with the FARC actually generated a modest improvement in that country) but extraordinarily high rates of organised criminal violence. Venezuela's collapse — from a GPI of 1.949 in 2008 to 2.713 in 2023 (+0.764) — combines economic disintegration, political instability, and crime-driven safety deterioration. Honduras, El Salvador, and Mexico experienced similar Safety domain deteriorations through the 2010s before partial improvements from 2019 onward in El Salvador following the Bukele administration's security crackdown.

8. Discussion

8.1 The concentration finding and its policy implications

The finding that peace deterioration is concentrated among approximately 15–20 crisis states rather than broadly distributed is the paper's most policy-relevant result. It implies that the global GPI can, in principle, be stabilised or improved through targeted intervention — diplomacy, peacekeeping, post-conflict reconstruction, and economic support — focused on a small set of countries rather than requiring universal policy change. This is broadly consistent with the empirical finding by Hegre, Hultman, and Nygård (2019) that doubling UN

peacekeeping expenditure reduces conflict recurrence risk from 40 to 31 per cent: the marginal returns to peacebuilding investment are highest precisely in the countries that drive the global deterioration.

The counterfactual analysis quantifies this point. If the ten Cluster E and D countries with the largest GPI deteriorations had stabilised at their 2008 scores, the 2023 global mean would be approximately 1.993 rather than 2.071 — a global GPI in 2023 effectively no different from the 2008 starting point. The arithmetic of peace improvement is dominated by a small number of extreme cases, which means that the leverage points for global peace policy are identifiable and addressable, even if not easily so.

8.2 Domain priorities and the militarisation reversal

The variance decomposition assigns roughly equal explanatory weight to the Ongoing Conflict and Safety and Security domains ($\beta = 0.557$ and $\beta = 0.551$), suggesting that policy targeting peace improvement cannot focus exclusively on conflict resolution while ignoring structural safety conditions. The IEP's own evidence that PPI deficits predict subsequent GPI deterioration with 90 per cent accuracy implies that safety deterioration — visible in the GPI's Safety domain — often precedes the conflict domain worsening that drives the most severe GPI declines. Investment in governance quality, anti-corruption measures, and police capacity may therefore have a preventive effect on the Conflict domain deterioration that is not directly visible in short-run GPI comparisons.

The impending reversal of the Militarisation domain's long-running improvement is potentially the most consequential medium-term structural change. SIPRI (2024) reports that the 2023 real increase in global military spending (+6.8%) was the steepest since 2009. Barnum et al.

(2025) find that the correlation between economic surplus and military spending is at a two-century high. If this rearmament wave induces the security dilemma dynamics Jervis (1978) models — where rising military expenditure among NATO states is matched by Russian and potentially Chinese countermeasures — the Militarisation domain will deteriorate across several Cluster A (Stable Peaceful) countries for the first time in the GPI era, potentially narrowing the gap between the most and least militarised states at precisely the moment when conflict risk is also rising.

8.3 Divergence and the limits of global averages

The divergence finding — cross-national standard deviation rising from 0.402 to 0.487, and the top-to-bottom gap widening from 1.238 to 1.528 — has implications for how global peace trends are characterised. The global mean GPI is a statistic that represents no individual country's experience accurately: neither the Cluster A countries (which are stable to slightly improving) nor the Cluster E countries (which deteriorated dramatically) are well-described by the global average. Policy recommendations based on global average trends risk misallocating attention: the deteriorating global mean does not signal that average countries need to make average improvements; it signals that a small number of countries need transformative intervention.

The divergence also has a theoretical implication: it is not consistent with a Solow-type convergence model in which initial conditions predict subsequent adjustment. The most peaceful countries are not gravitating toward the global mean, nor are the least peaceful; both tails are moving away from it. This is most naturally interpreted through the lens of the conflict trap (Collier et al., 2008) and the positive peace deficit framework (IEP, 2024): countries with strong

institutional foundations sustain and modestly improve their peace positions, while countries with institutional deficits face reinforcing cycles of deterioration.

9. Conclusion

This paper has conducted the first systematic domain-level decomposition of the GPI's full 2008–2023 panel, yielding three principal findings. First, global peace deteriorated by 5.04 per cent over the period, but this decline is concentrated in a small number of crisis states — the top ten deteriorators account for 36.5 per cent of all global GPI worsening — rather than reflecting a broadly distributed global trend. Second, the Ongoing Conflict domain (+14.0%) and Safety and Security domain (+5.4%) drove the deterioration, while the Militarisation domain improved (−6.2%); variance decomposition assigns the Conflict and Safety domains near-equal standardised betas (0.557 and 0.551) in explaining overall GPI changes, with Militarisation contributing less (0.196). A counterfactual analysis shows that without Conflict domain deterioration, the global mean GPI in 2023 would have remained at approximately the 2008 level. Third, global peace is diverging, not converging: the cross-country standard deviation widened from 0.402 to 0.487, and the gap between the 25 most and 25 least peaceful countries grew from 1.238 to 1.528. The panel fixed-effects model identifies a statistically distinguishable acceleration in peace deterioration from 2016 onward, consistent with a structural break corresponding to the peak of Islamic State activity.

The regional analysis reveals that MENA (+10.9%) and Sub-Saharan Africa (+9.0%) concentrated the most severe deterioration, while Europe and Asia-Pacific remained broadly stable. Cluster analysis identifies five trajectory types — Stable Peaceful, Gradual Improvers,

Stable Middle, Gradual Deteriorators, and Crisis States — that provide a more accurate characterisation of the distribution of global peace experience than the global average alone.

The policy implications are threefold. Global peace improvement requires targeted intervention in a small, identifiable cluster of crisis states rather than universal policy change. The Safety and Security domain's deterioration precedes and accompanies Conflict domain worsening, suggesting that investment in governance quality, institutional capacity, and crime reduction has preventive as well as remedial value. And the emerging reversal of the Militarisation domain's long-running improvement — driven by the post-2022 rearmament wave — is the most significant new structural risk to global peace in the GPI era.

Several limitations merit acknowledgement. The GPI measures negative peace exclusively; improvements in structural conditions that would be captured by the Positive Peace Index are not visible here. The composite index methodology involves weighting choices that may not optimally reflect the theoretical structure of peace measurement. Regional classification boundaries are analytical choices that could be drawn differently. Future research should extend the analysis to the 2024 GPI to assess whether the Militarisation reversal accelerates as expected, integrate the Positive Peace Index as a leading indicator to test its predictive validity at the country level, and investigate the sub-national dimensions of the cluster transitions identified in Section 6 — particularly the Cluster D countries at elevated risk of transition to Crisis State status.

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