The ECONOMY of FRANCESCO FOUNDATION

World Fraternity Report 2025

I The Economy of Francesco

World Fraternity Report 2025

Index

1. Introduction

We have all encountered fraternity in our lives—sometimes without naming it. It is the friend who shows up when everything falls apart, the neighbour who steps in when childcare collapses, the colleague who shares responsibility rather than competition. It is the quiet sense of mutual reliance that binds families, communities, and even strangers in moments of vulnerability or collective hope. We recognise it instinctively in these everyday gestures, yet we rarely consider that the same force also shapes how economies function.

Fraternity sustains the trust that allows markets to operate, the cooperation that makes innovation possible, and the shared outlook that turns growth into a common good rather than a private gain. And still, despite its pervasive role in our social and economic life, fraternity remains almost entirely absent from the indicators we use to assess progress.

Why don't we measure fraternity in the economy?

We track growth, inequality, sustainability—almost everything. And yet we have no indicator that tells us how fraternal our economies actually are.

This report takes up that challenge. Inspired by *The Economy of Francesco*, it builds on the vision of Saint Francis of Assisi and on Pope Francis's call, in *Fratelli Tutti* (2020), to place fraternity at the centre of social and economic renewal. Within this framework, we explore what it means to make fraternity visible, measurable, and actionable in today's economies.

Our aim is to offer an empirical assessment of the state of fraternity within and across the world's economies. Using international datasets, we develop an original indicator designed to capture how fraternity manifests—both inside each economy and in the relationships between them.

Given that the notion of fraternity has been interpreted in different, diverse ways across the history of ideas and intellectual thought, these introductory notes clarify how *The Economy of Francesco* understands fraternity and what implications this carries for our measurement and understanding of economic life. Such clarification is essential to prevent misunderstandings arising from the multiple meanings of the term "fraternity" across languages and cultures—including the gender dimension, which can risk reducing fraternity to *brotherhood*.[1]

[1] We deliberately chose not to title our report Fraternity and Sorority because the addition of sorority would unintentionally alter the meaning of fraternity. By pairing the two terms, fraternity would come to signify exclusively male bonds, while sorority would represent female ones. This gendered distinction does not align with our conceptual framework. In the liberal tradition, for instance, fraternity is not confined to relationships among men (Nelson 2009); rather, it denotes a broader social and moral bond among all members of society (Bruni and Sugden 2019). Using fraternity alone thus preserves its universal, inclusive dimension, consistent with its roots in Franciscan ideals and its philosophical and political significance in modern democratic thought.

In this report, we will adopt the following definition:

Fraternity is a form of relationship that arises from the interaction between two or more parties. A relationship is considered *fraternal* when it displays both **objective** features (such as reciprocity and openness) and **subjective** features (such as friendliness or proximity). These two dimensions are interdependent;: objective traits shape the way parties experience the relationship, while subjective traits influence how it manifests externally. Fraternity can therefore be defined as the way individuals **perceive and conceive** their own and others' relationships, based on the interplay between these objective and subjective aspects. In this sense, fraternal relationships are those in which the parties *prosume*—that is, simultaneously produce and consume—**relational goods**.

To examine this definition more thoroughly, we will analyze the **subjective** features (or how fraternity is lived and perceived by the parties involved) and the **objective** features (or how fraternity appears to an external observer).[2]

1.1 Subjective Features

Communion.
Individuals engaged in a fraternal relationship are aware of a shared element that unites them. This may include a common goal, origin, history, feeling, or sense of belonging. Such elements of commonality are not necessarily pre-established; they may also emerge spontaneously from initially non-fraternal interactions (Esheté 1981).

Recognition.
In a fraternal relationship, the parties recognize each other as equals in certain respects. They understand their mutual roles and responsibilities, while acknowledging that no one should be treated merely as a means to another's ends (Rawls 1999; Cupit 2013).

Mutual Care.
Fraternal relationships are grounded in the belief that both parties should look out for one another. Although the degree of care may vary depending on the nature of the shared communion, mutual care remains a core principle. It arises from reciprocal recognition and strengthens the bond between parties (Cupit 2013; Cataldi & Iorio 2022)

Affective Tone.
Fraternal relationships are characterized by goodwill and friendliness. This does not imply romantic affection, but rather a general disposition of kindness, respect, and pleasant interaction (Bruni and Sugden 2008).

[2] We intentionally defined fraternity in terms of parties rather than people,. This choice reflectings our belief that fraternity extends beyond human relationships.; We believe fraternal relationships it encompasses our connections with the biosphere, including animals, plants, soil, and the atmosphere. Furthermore, this perspective allows us to consider intergenerational fraternity, meaning that a fraternal relationship does not necessarily require the simultaneous presence of both subjective and objective elements

Proximity.
Fraternity is not constrained by physical or intellectual distance. Parties from diverse cultural, religious, political, or geographical backgrounds can establish fraternal relationships when they perceive each other as neighbors—akin to the notion exemplified in the parable of the Good Samaritan (Lk 10). In this sense, *neighborhood* represents a form of closeness that emerges from encounter, rather than pre-existing geographical or cultural proximity (Pope Francis 2020).

Transitivity.
If three parties—*a*, *b*, and *c*—belong to a given set *X*, and *a* is related to *b* while *b* is related to *c*, then *a* is also related to *c*. This property, when applied to multiple relationships, transitivity defines *X* as the essence of fraternity. Unlike friendship, which tends to be selective and exclusive, fraternity is *transitive*—it naturally extends connections to others rather than closing them off (Bruni and Sugden 2008).

1.2 Objective Features

Reciprocity.
Fraternal relationships involve reciprocal interactions between the parties. Reciprocity encompasses a range of exchanges—from equivalent trade, as in market relations, to the exchange of gifts. The key feature is that both parties respond to each other's actions, whether through deeds, words, or even silent acknowledgment (Hodge 2025)

Openness.
This represents the objective counterpart of *proximity*. Fraternal relationships can emerge between parties who are physically, culturally, or religiously distant by establishing a connection that transcends such boundaries. While these differences can enrich fraternity, they must never become barriers to it (Nelson 2009).

Horizontality.
This is the objective expression of *recognition*. Fraternal relationships cannot thrive within rigid hierarchies or immutable vertical structures. As Rawls suggests in *A Theory of Justice* (§17), institutions should ensure that inequalities serve to benefit the least advantaged members of society (Rawls 1999). Although fraternity does not require perfect equality and may tolerate certain disparities, it struggles to exist in contexts of stark and unjust inequality (Cohen 1992).

Inclusivity.
Fraternal relationships are inherently inclusive: they invite the participation of third parties rather than excluding them. The concept of *externality* thus does not apply to fraternity, whose purpose is to transform externalities into *internalities* by engaging those affected by the relationship. This objective principle mirrors the subjective dimension of transitivity (Munoz-Dardé 2018).

Relational Goods.
Fraternal relationships generate *relational goods* that are simultaneously produced and

consumed (*prosumed*) by the parties involved. First, the relationship itself is a good—it holds intrinsic value, rather than being merely a means to achieve external ends. Second, unlike standard market goods (private or public), whose production and consumption are separate, relational goods are *co-created* and *co-enjoyed* in real time. Although contributions may be unequal—such as in friendships or collective events—complete "free riding" is impossible, since participating is necessary to experience the relational good. Finally, relational goods have an *emergent* quality: they often arise unexpectedly from interactions and transcend the sum of individual contributions. This explains why fraternal relationships can emerge from other types of relationships, such as friendships, professional collaborations, or business exchanges (Uhlaner 1989; Gui 1996; Donati 2021)

2. Measuring Fraternity

Given the definition of fraternity outlined above, this section seeks to operationalize the concept. To this end, we theoretically link a set of measures derived from global data sources to the objective and subjective features of fraternity. We conducted an extensive review of international databases to identify variables capable of capturing the multifaceted nature of fraternity, while remaining fully aware that existing data cannot entirely reflect all its conceptual dimensions. Despite these limitations, the selected indicators provide a satisfactory coverage of most aspects of fraternity, with only a few—albeit significant—dimensions still unexplored.

The indicators employed are drawn from well-established international sources, including the World Values Survey, the Global Preferences Survey, the Armed Conflict Location & Event Data Project, Hofstede's Cultural Dimensions, and the Social Connectedness Index, complemented by an in-house exploration of Google Trends data. A detailed description of these data sources and their country coverage is provided in the following section.

Regarding the subjective dimensions—communion, recognition, mutual care, affective tone, proximity, and transitivity—only partial operationalization was possible. Communion is reasonably represented by variables referring to the importance of family and friends, the willingness to contribute to the common good, and adherence to socially appropriate behavior. Recognition appears through indicators of tolerance, respect for others, and preference for equality, though these proxies fall short of capturing its deeper ethical meaning, namely the acknowledgment of others as ends in themselves. Mutual care is approximated through measures of altruism, patience, and online search data, but lacks behavioral or institutional indicators of reciprocal support. The affective tone of fraternity—its emotional warmth and friendliness—is scarcely represented and only indirectly captured through patience-related variables. Proximity, on the other hand, is well covered by measures of perceived closeness to different territorial levels, social trust, and social connectedness indices. Transitivity, understood as the capacity to extend fraternity beyond direct relations to third parties, remains entirely unmeasured.

The objective dimensions—reciprocity, openness, horizontality, inclusivity, and relational goods—are overall better represented, though still incomplete. Reciprocity is effectively measured through positive reciprocity, generalized trust, and search frequency for reciprocity-related terms. Openness is captured through attitudes toward immigrants and indicators of global connectedness. Horizontality is only partially reflected in Hofstede's Power Distance Index and in equality preferences, as current data do not include robust measures of institutional or structural equality. Inclusivity is represented mainly by attitudes toward immigration, leaving aside broader aspects such as the participation of vulnerable populations or consideration for future generations. Finally, relational goods are reasonably proxied by online search interest and the Schwartz value "doing something good," although the emergent and co-created nature of relational goods remains inherently difficult to quantify.

INDICATORS	**DESCRIPTION**	**FRATERNITY DIMENSION**
Importance of family and friends (WVS)	Percentage of individuals who declare family and friends to be very important	Communion
Tolerance and respect (WVS)	Percentage of individuals who believe that children should be encouraged to learn at home tolerance and respect for other people	Recognition (respect), Proximity (tolerance)
Closeness feeling (continent)	Percentage of individuals who declare to feel very close to, respectively,: their continent; their country; their town village	Openness and proximity
Closeness feeling (country)		
Closeness feeling (town village)		
Perceived national priorities (poverty reduction) (WVS)	Percentage of individuals who declare as priority global poverty over national problems	Horizontality
Perceived national priorities (equality) (WVS)	Percentage of individuals who declare as priority global equality over freedom	Recognition and horizontality

Trust in others (WVS)	Percentage of individuals who declare most people can be trusted	Proximity
Doing something good (WVS)	Percentage of individuals who declare very important doing something for the good of society	Communion, relational goods
Behave properly (WVS)	Percentage of individuals who declare very important to always behave properly	Communion
Happiness (WVS)	Percentage of individuals who declare to be quite happy or very happy	A transversal construct that cuts across all dimensions.
Attitudes toward immigrants (WVS)	Percentage of individuals who declare themselves as being immigrant to the country they live in	Openness and inclusivity
Attitudes toward immigrants (WVS)	Percentage of individuals who believe that when jobs are scarce, natives over immigrants	Openness and inclusivity
Cultural_proximity (GTD)	Google search "proximity"	Proximity
Fraternity (GTD)	Google search "fraternity"	Fraternity
Mutual care (GTD)	Google search "mutual care"	Mutual care
Reciprocity (GTD)	Google search "reciprocity"	Reciprocity
Googlerelational_goods (GTD)	Google search "relational goods"	Relational goods
Patience (GPS)	Patience	Mutual care and affective tone
Positive reciprocity (GPS)	Positive reciprocity	Reciprocity (transitivity?)

Altruism (GPS)	Altruism	Mutual care
Trust (GPS)	Generalized trust	Proximity
Social connectedness index (SCI)	Social connectedness index	Openness
Power Distance Index (HCD)	Power distance Index measures the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally.	Horizontality
Masculinity (HCD)	Masculinity versus its opposite, femininity refers to the distribution of roles between the genders which is another fundamental issue for any society to which a range of solutions are found.	Opposite of mutual care and affective tone (the higher masculinity in a society the less fraternity)
Political violence (ACLED)	Number of political violence events;	Captures the erosion of social cohesion and the breakdown of fraternal relations.
Number civilian fatalities (ACLED)	Number of reported civilian fatalities (aggregated at the country–year level).	Reflects the extreme negation of mutual care and the collapse of social protection.

2.1 Data and methods

Building on the conceptual foundations laid out in the previous section, we now describe the empirical strategy adopted to measure fraternity across countries. This section presents the data sources, operational definitions, and harmonization procedures used to translate the subjective and objective dimensions of fraternity into a consistent, cross-national dataset suitable for constructing the Fraternity Index.

Data

To construct the Fraternity Index, we draw on a broad set of internationally comparable datasets that capture social values, preferences, cultural orientations, online behavior, and

indicators of political conflict. The backbone of the analysis is provided by the World Values Survey (WVS - https://www.worldvaluessurvey.org), a long-standing cross-national survey that documents social, political, and moral values through repeated waves since 1981. The WVS offers essential variables for measuring the subjective and relational dimensions of fraternity, including the importance attributed to family and friends, attitudes toward tolerance and respect, generalized trust, happiness, views on immigration, and perceptions of national priorities such as equality and poverty reduction. It also includes items derived from the Schwartz value scale, such as the importance of "doing something good" and "behaving properly." The dataset covers approximately 100 countries, with the most recent available wave retained for each.

Complementing these attitudinal measures, the Global Preferences Survey (GPS) provides experimentally validated indicators of economic preferences across 76 countries (Falk et al., 2018). Collected between 2008 and 2016, the GPS offers globally comparable measures of patience, risk-taking, positive reciprocity, altruism, and trust. These variables are particularly useful for approximating the behavioral foundations of reciprocity, mutual care, and affective tone, contributing to the operationalization of several dimensions of fraternity.

To capture the role of conflict and violence as negative signals of social cohesion, we rely on the Armed Conflict Location & Event Data Project (ACLED - https://acleddata.com). ACLED compiles high-resolution information on political violence, protests, and civilian harm across more than 200 countries from 1997 to the present, updated weekly. Two indicators are used in this report: the annual number of political violence events and the number of reported civilian fatalities at the country–year level. Both serve as proxies for the breakdown of fraternal relations and the erosion of mutual protection.

The analysis also incorporates Google Trends Data (GTD), which provide a dynamic measure of online search behavior across countries. Google Trends tracks the relative frequency with which users search for specific terms and indexes these values on a scale from 0 to 100, where 100 represents the peak search interest for that term within the selected time frame and location. In this report, GTD are used to capture public attention to relational and moral concepts, specifically we recovered the search intensity for terms such as "fraternity," "mutual care," "reciprocity," "relational goods," and "cultural proximity." Because these searches reflect spontaneous, real-time expressions of interest, they offer an indirect but timely proxy for the salience of relational notions in different societies. The data cover more than 100 countries from 2004 to 2025 and were extracted via the Google Trends API.

Google Trends is particularly valuable in this context for at least two reasons. First, it provides behavioral evidence that complements survey responses: search behavior is less prone to social desirability bias and reveals what individuals actively seek to know or understand. Second, the data allow for global comparability, as Google Trends applies a consistent normalization method across countries. At the same time, the use of GTD comes with important limitations. The index reflects relative, not absolute search volumes, making it difficult to compare intensity across terms without careful normalization. Internet

penetration varies widely across countries, meaning that GTD may overweight digitally connected populations and underrepresent groups with limited access. Searches for moral or relational concepts may also be influenced by contextual events—for instance, news reports, political speeches, or viral content—rather than underlying social attitudes. Moreover, search terms may have different meanings across languages and cultures, introducing ambiguity that cannot always be resolved even with multilingual search strategies. Despite these constraints, when combined with survey-based measures and other structural indicators, GTD provide a valuable behavioral complement that enriches the multidimensional assessment of fraternity across countries.

Cultural and organizational norms are introduced through the Hofstede Cultural Dimensions (HCD - https://geerthofstede.com/research-and-vsm/) dataset, which provides cross-country measures of values shaping social and institutional life. Two dimensions are particularly relevant for fraternity: Power Distance, which reflects hierarchical versus horizontal social structures, and Masculinity, whose reversed values capture orientations linked to care, cooperation, and affective tone. These indicators are available for more than 90 countries using the most recent estimates.

Finally, we incorporate the Social Connectedness Index (SCI - https://data.humdata.org/dataset/social-connectedness-index), which provides a structural measure of social integration derived from anonymized and aggregated Facebook friendship links. Developed by Bailey et al. (2020), the SCI estimates the relative probability that individuals in two geographic areas—such as countries, regions, or even ZIP codes—are connected through Facebook friendships. These probabilities are normalized to account for population size and platform penetration, yielding a comparable metric of social connectedness across diverse contexts. The SCI thus captures both within-country ties (e.g., urban–rural linkages, regional integration) and cross-border relationships, offering a unique lens into how people connect across spatial, cultural, and political boundaries.

The SCI is particularly useful in the measurement of fraternity for several reasons. First, it taps into actual social networks, rather than self-reported ties, providing an objective structural indicator of proximity and openness. Unlike attitudinal data, which capture perceptions, the SCI reflects behavioral evidence of relational integration, as friendships on social media often reflect real-world connections, migration patterns, historical legacies, and diasporic linkages. Second, because it is available at multiple geographic scales, the index allows researchers to examine both local cohesion and the degree to which societies are connected beyond their borders—two dimensions central to the concept of fraternity. Third, its global coverage makes it possible to compare connectivity patterns across countries with vastly different demographic and institutional profiles.

Despite its strengths, the SCI also has limitations that need to be acknowledged. The measure depends on Facebook usage, which varies substantially across countries, age groups, and socioeconomic segments. In contexts where Facebook penetration is low, the SCI may disproportionately reflect the networks of more connected, urban, or younger populations. Cultural differences in how people use social media—for instance, whether

they "friend" acquaintances or only close contacts—can also affect comparability. Moreover, although Facebook friendships are indicative of relational ties, they do not reveal their quality, depth, or frequency, and may capture weak ties as much as strong ones. Finally, since the SCI focuses on online networks, it may not fully capture offline forms of social cohesion, particularly in societies where digital divides persist. Yet, despite these limitations, when triangulated with survey-based indicators and other behavioral measures, the SCI remains a powerful and innovative proxy for proximity and openness, offering structural insight into two core pillars of fraternal relationships.

Together, these datasets provide a rich, multidimensional basis for translating the conceptual features of fraternity into measurable empirical indicators, allowing for a comprehensive cross-country assessment of relational cohesion and cooperative orientation.

Methods

For each source, country-year panels were sorted chronologically and missing values were forward-filled within countries. The most recent available observation for each variable and country was retained, yielding one record per country. All merges were executed by country name or ISO3 code, keeping only matches present in all key datasets. The resulting dataset represents the most recent, harmonized cross-section of available indicators across more than 100 countries.

We assessed reliability on the full indicator set (z-scored and direction-aligned). The scale shows good internal consistency (Cronbach's $\alpha = 0.861$), with an average inter-item correlation of 0.186. Item–test and item–rest correlations are generally positive and moderate; the strongest contributors include world closeness (WVS close to world/continent), priority to poverty (WVS), Google queries on fraternity/relational goods, and the conflict harm proxies (political-violence and civilian-fatalities, both reversed), as well as Hofstedes' dimensions retained for the analysis.

A small subset of items shows weak item–rest correlations and would marginally increase α if removed (α_if_deleted > 0.861). The weakest are WVS tolerance/respect (item–rest = −0.055; α_if_deleted = 0.869), WVS priority to equality (0.024; 0.867), WVS friends important (0.027; 0.867), happiness (0.044; 0.866), and mean trust in science (0.133; 0.864). Modestly weaker contributors include Masculinity (reversed) (0.188; 0.862), GPS trust (0.226; 0.861), behave properly (0.225; 0.861), and patience (0.234; 0.861).Given the small gains in α ($\leq$ +0.008), we retain the full set for breadth of construct coverage; however, as a robustness check, we excluded the weakest items (tolerance, equality priority, friends, happiness, mean_sci), obtaining qualitatively unchanged results.

All continuous variables were standardized (z-scores). Variables representing undesirable phenomena—political violence events, civilian fatalities, and Hofstede's Masculinity—were sign-reversed so that higher values always indicate more relationally cohesive and cooperative contexts.

We then computed two complementary composite indices:

1. Equal-weight index (index_eq) – The simple arithmetic mean of all standardized indicators;
2. Geometric-mean index (index_geo) – The exponential of the mean of log-transformed, positively shifted z-scores, which reduces sensitivity to extreme values;
3. Inverse-variance weighted index (index_ivw) - Weights are set to the inverse of each indicator's cross-country variance (computed on z-scores), then normalized to sum

1. The index is the weighted sum of z-scores. This down-weights noisier dimensions and up-weights more stable ones.

The three composite measures are highly correlated, indicating that they capture a largely common underlying construct of relational and cooperative orientation across countries. The equal-weight and geometric-mean indices are most closely aligned ($r = 0.80$), suggesting that the geometric aggregation, while slightly penalizing imbalance among indicators, produces results consistent with the unweighted average. The inverse-variance weighted index also correlates strongly with both the equal-weight ($r = 0.75$) and the geometric-mean versions ($r = 0.74$), confirming that the relative weighting of more stable versus more variable indicators does not substantially alter the overall pattern. These high pairwise correlations support the robustness of the Fraternity Index to alternative aggregation methods.

To identify meaningful patterns in the multidimensional fraternity structure, we applied clustering techniques to eight normalized subindexes derived from the indicator set. Hierarchical clustering (Ward's method, Euclidean distance) was used to explore the dendrogram and determine candidate solutions, supported by Calinski–Harabasz and Duda–Hart stopping rules. Both criteria suggested that a solution between six and eight clusters captures the most structure without overfragmentation. We selected a six-cluster solution for interpretability and policy relevance. K-means clustering ($k = 6$) was then applied as a robustness check, yielding highly consistent group assignments.

The resulting clusters reveal distinct profiles of relational orientation across countries, ranging from globally inclusive care systems to traditional family-centered structures. These clusters were mapped geographically to visualize regional patterns and inform policy implications.

3. Results

What does fraternity look like when measured across the world? In this section, we explore the empirical patterns revealed by the Fraternity Index. We begin by examining how countries are distributed along the fraternity scale and what this distribution tells us about global relational cohesion. We then compare country rankings across different versions of

the index to assess the robustness of the findings. Finally, we introduce the Fraternity Gap, a measure that highlights which regions stand out—positively or negatively—in their levels of social connectedness and cooperative orientation.

The histogram in Figure 1 shows the cross-country distribution of the Fraternity Index, computed as the equal-weighted mean of standardized indicators and rescaled to a 0–100 scale. Most countries cluster between 30 and 50, with a modal group around 40, indicating moderate fraternity globally. The kernel density curve closely follows a unimodal pattern with a slightly longer right tail, suggesting limited asymmetry, while the normal overlay confirms an approximately normal distribution centered on the mid-range. Countries with the lowest values, such as Palestine, Ukraine, Myanmar, Haiti, and Nicaragua, reflect contexts affected by conflict, institutional fragility, or limited social trust, whereas high-income democracies like Japan, Ireland, and Lithuania also appear in the lower decile, showing that economic development alone does not guarantee relational cohesion. At the upper end, small islands and microstates—Grenada, Antigua and Barbuda, Micronesia, Guam, French Guiana, Barbados, and Aruba—achieve the highest scores, illustrating how dense social networks, communal norms, and strong local cohesion foster fraternity across diverse geographic and economic contexts. The scatterplot in Figure 2 compares country rankings derived from equal-weight and geometric-mean indices. Alignment along the diagonal demonstrates high consistency between the two aggregation methods, with minor deviations, confirming that country rankings are robust to the choice of index construction.

To assess relative performance across countries, we calculate the Fraternity Gap, defined as the standardized deviation of each country's index value from the global mean of the Fraternity Index, expressed in standard deviation units (z-scores). Positive values indicate countries with higher-than-average fraternity, while negative values denote below-average fraternity. By situating countries along this standardized continuum, the Fraternity Gap provides a clear comparative framework for understanding how social connectedness varies worldwide and for identifying regions where interventions to strengthen cooperative norms and relational cohesion may be most needed. In the accompanying map (depicted in Figure 3), blue shades represent countries exceeding the global mean, red shades indicate those falling below it, and white areas correspond to missing or unavailable data. This visualization reveals pronounced regional disparities in line with the rankings shown above: higher fraternity levels are visible in small island nations and parts of Northern Europe, where dense social networks, egalitarian values, and inclusive practices prevail, whereas lower fraternity scores appear in regions affected by conflict, social fragmentation, or institutional fragility, including parts of the Middle East, Sub-Saharan Africa, and Eastern Europe.

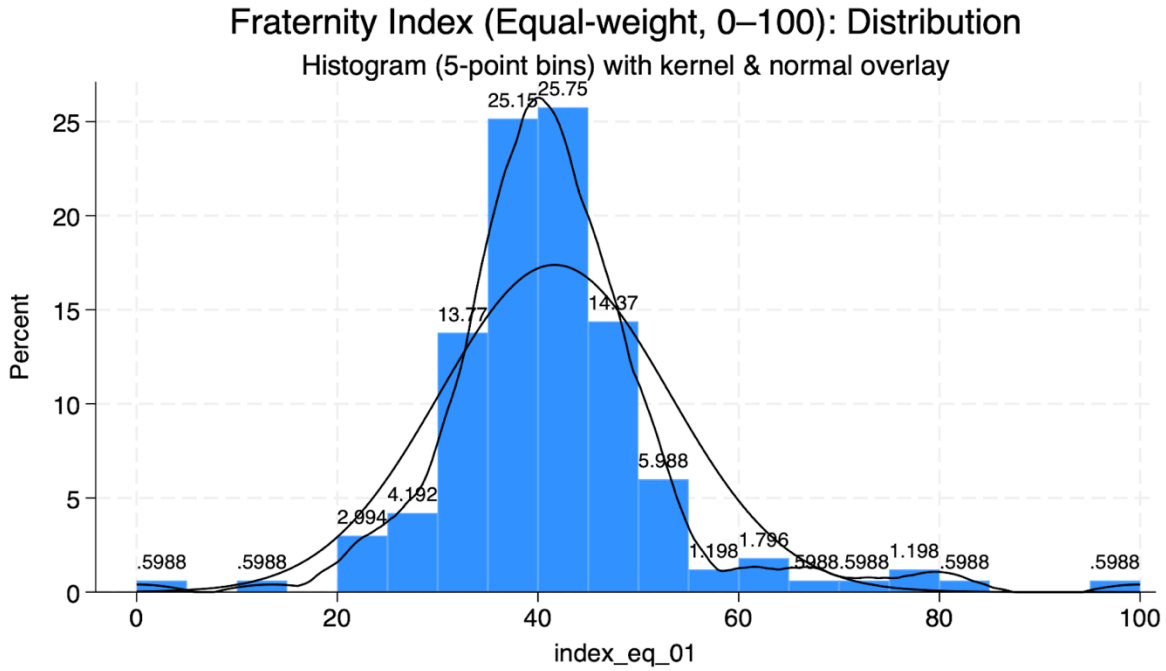

Figure 1. Distribution of the Fraternity Index (Equal-weight, 0–100).

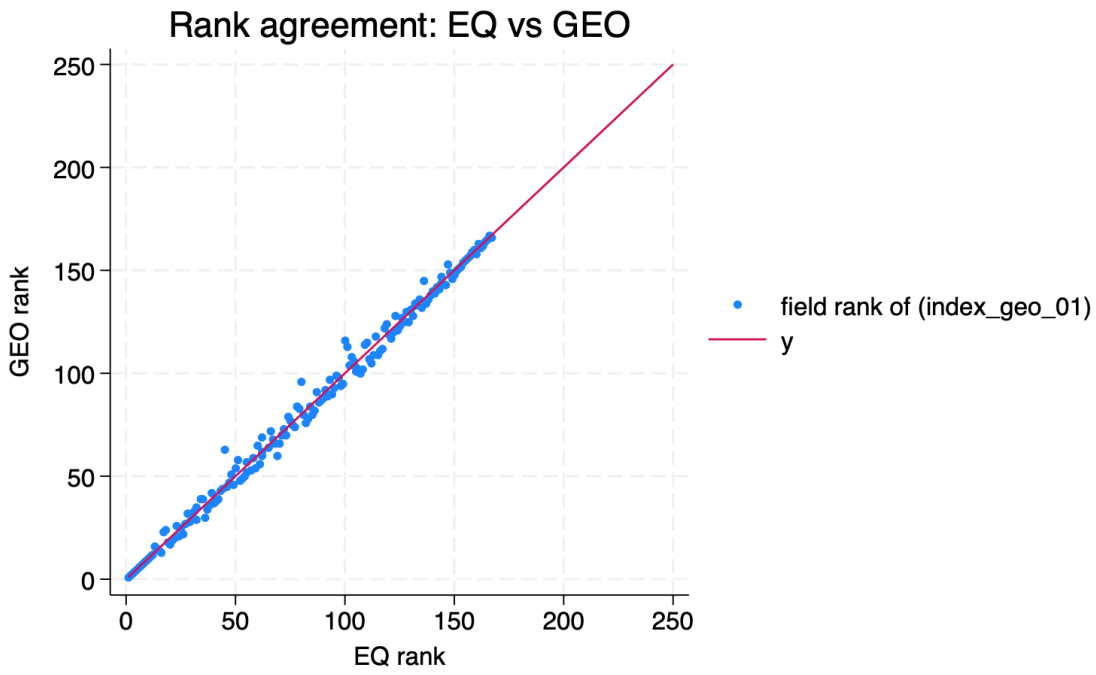

Figure 2. Rank agreement between Equal-weight and Geometric-mean Fraternity Indices.

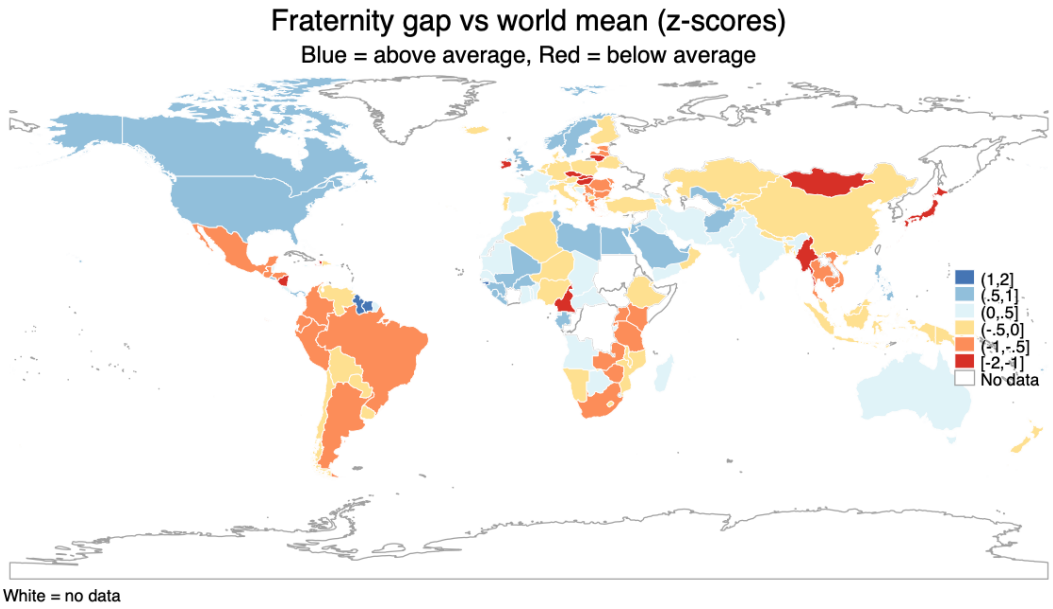

Figure 3. Global distribution and map of the Fraternity Gap (standardized deviations from the world mean).

To uncover underlying patterns in the multidimensional structure of fraternity, we conduct a clustering analysis on the eight subindexes—communion, recognition, proximity, openness, mutual care, horizontality, inclusivity, and care tone. All variables are normalized to a 0–100 scale to ensure comparability. Using hierarchical clustering with Ward's method to guide the selection of the optimal number of clusters, and refining the solution through K-means, we identify six distinct groups of countries with similar relational profiles.

As shown in Figure 4, Cluster 1 exhibits very high mutual care and inclusivity but minimal communion, reflecting societies that prioritize altruistic norms and openness beyond family ties. Cluster 2 combines strong communion and openness with moderate inclusivity and recognition but limited reciprocity, indicating family-oriented yet globally connected contexts. Cluster 3 emphasizes recognition of equality and tolerance, moderate care tone, and inclusivity, characteristic of formal, equality-driven societies. Cluster 4 highlights horizontality and local solidarity with low inclusivity, suggesting inward-focused egalitarianism. Cluster 5 centers on emotional care and reciprocity, strong communion, and care tone, with weaker recognition, reflecting societies where warmth and mutual support dominate. Cluster 6 is marked by strong family ties but low inclusivity and mutual care beyond close circles, indicative of traditional, inward-looking care structures.

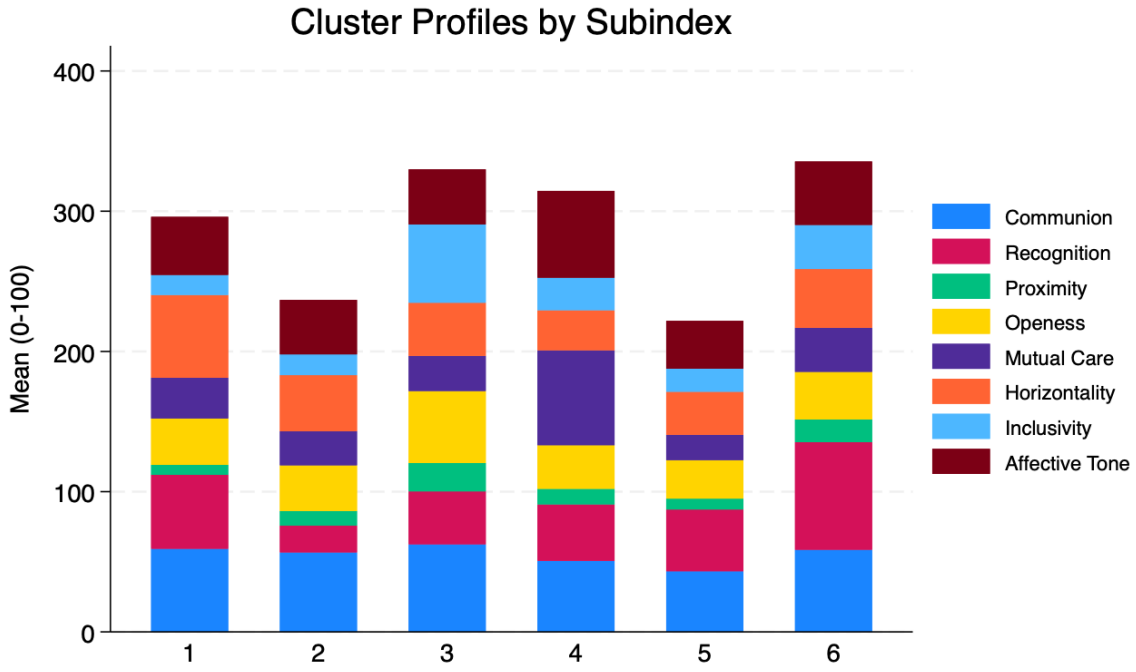

Figure 4: Mean Subindex Scores (0–100) Across Six Clusters. This stacked bar chart shows the average values of eight fraternity subindexes for each cluster, highlighting differences in dimensions such as communion, recognition, proximity, openness, mutual care, horizontality, inclusivity, and care tone.

The heatmap depicted in Figure 5 reveals distinct regional patterns in cluster distribution. Cluster 5 dominates in Asia (12 countries) and the Americas (9), confirming its strong presence in Latin America and parts of Asia. Cluster 3 is concentrated in Europe (8 countries) with limited representation in the Americas (Canada, Trinidad & Tobago). Cluster 6 is heavily represented in Africa (5 countries) and also appears in Asia and Oceania. Cluster 1 spans Europe (8) and Asia (7), with smaller presence elsewhere. Cluster 2 is rare, occurring only in Asia (Maldives) and the Americas (USA). Cluster 4 is minimal, with one country each in Africa, Asia, and Europe.

To evaluate how the Fraternity Index relates to broader economic and social patterns, we examine its correlation structure with GDP and the eight underlying subdimensions. As shown in the heatmap in Figure 6 the Fraternity Index has only a weak positive correlation with GDP (0.19), confirming that it does not simply reflect economic size. Instead, it strongly correlates with social dimensions such as Communion (0.54), Proximity (0.53), Inclusivity (0.48), and Affective Tone (0.45). Correlations between GDP and these subdimensions are mixed, ranging from positive (Mutual Care = 0.49) to negative (Inclusivity = -0.17, Openness = -0.10), highlighting the multidimensional nature of fraternity beyond income.

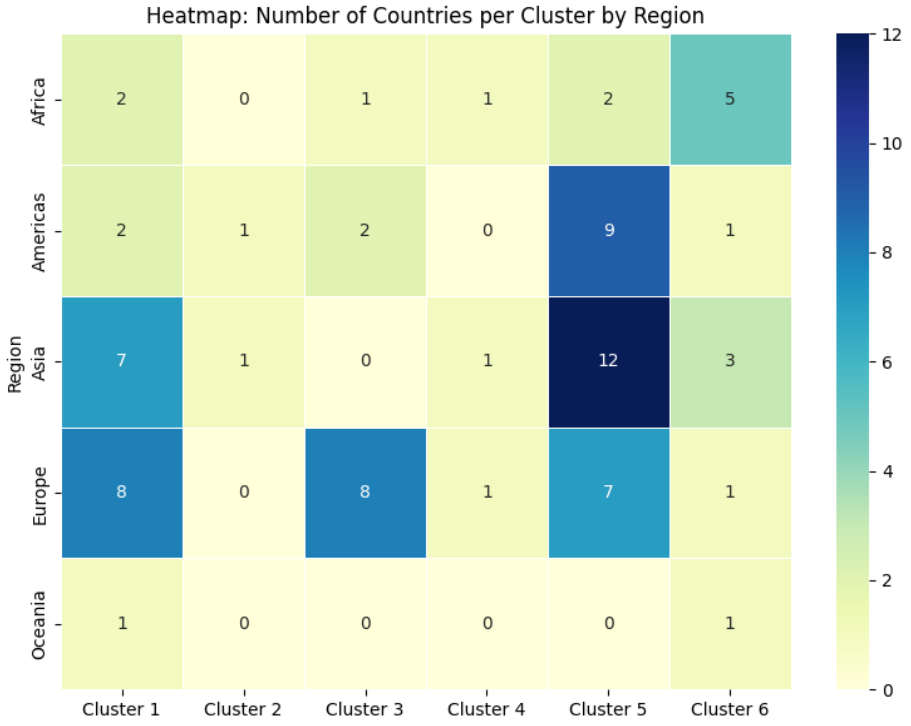

Figure 5: Geographic distribution of clusters across world regions.

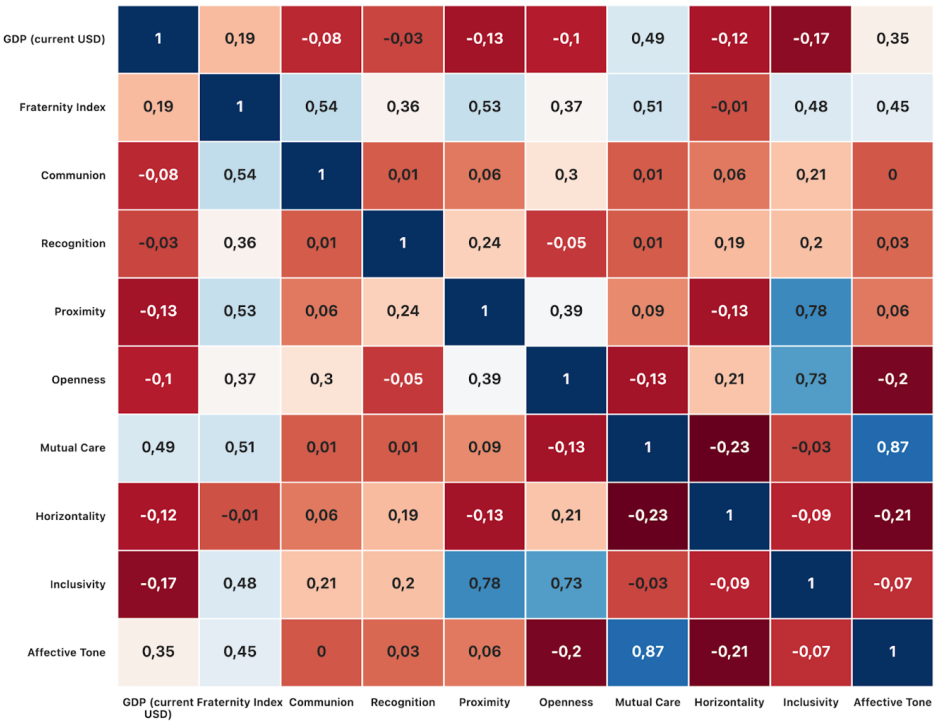

Figure 6: Correlation Matrix

4. Discussion and future research

The empirical patterns presented in the previous section provide the first global portrait of how fraternity manifests across countries. They highlight both the potential of the Fraternity Index to capture meaningful relational dynamics and the challenges inherent in quantifying such a multidimensional concept. Building on these insights, this section discusses the theoretical contribution of the index, reflects on its limitations, and outlines priorities for future research.

A major contribution of this report lies in its theoretical innovation. By grounding the measurement exercise in a comprehensive conceptual framework that draws from philosophy, sociology, relational economics, and the tradition of The Economy of Francesco, the Fraternity Index moves beyond existing indicators of social capital, trust, or cohesion. Rather than treating relationships as secondary outcomes of economic or institutional structures, the framework positions fraternity as a constitutive dimension of social and economic life. This perspective allows for the analysis of forms of relationality—communion, recognition, mutual care, affective tone, proximity, transitivity, openness, horizontality, inclusivity, and relational goods—that remain largely invisible in conventional metrics.

The analysis relies on well-established secondary data sources, including the World Values Survey, Global Preferences Survey, ACLED, Hofstede Cultural Dimensions, Google Trends, and the Social Connectedness Index. These datasets offer broad geographic coverage, methodological rigor, and temporal depth, strengthening the statistical representativeness of the Fraternity Index at both national and global levels. Yet, reliance on existing datasets also imposes important limitations. While the index captures several objective and subjective features of fraternity, it cannot fully operationalize the depth and complexity of the concept as defined in this report.

Several dimensions remain insufficiently represented or entirely absent. The affective tone of fraternity—emotional warmth, empathy, perceived kindness—is only indirectly reflected. Transitivity, the extension of relational ties beyond dyads to broader networks, is not measured at all. Recognition, understood as the ethical acknowledgment of others as ends in themselves, is only partially approximated through items on tolerance or equality. Inclusivity is restricted to attitudes toward migration, neglecting intergenerational exchanges, engagement with vulnerable groups, and environmental responsibility. Horizontality is captured only indirectly through cultural hierarchy, without indicators that reflect institutional or structural equality.

In addition, the current index offers only a cross-sectional view. By relying on the most recent available data, it provides a valuable snapshot but cannot track changes in fraternity over time. Fraternity is dynamic: it evolves in response to political shifts, crises, cultural transformations, and collective experiences. Longitudinal data would allow future research to measure how relational cohesion develops, identify moments of rupture or

strengthening, and evaluate the impact of policies designed to foster cooperative social environments.

Addressing these gaps requires new data collection efforts. Future research should incorporate behavioral and relational data—such as volunteering, civic engagement, or generosity in economic games—that capture concrete expressions of mutual care, reciprocity, and transitivity. Emotional and affective measures, including perceived kindness, empathy, or benevolence, would strengthen the representation of affective tone. Inclusivity measures should also be expanded to capture participation across generations, the social integration of vulnerable groups, and environmental stewardship. Network-based and structural indicators could help operationalize transitivity and horizontality by revealing how cooperative norms circulate and how institutions support or hinder equality.

It is equally important to ask people directly how they understand and interpret fraternity in their own cultural and social contexts. The concept carries different meanings across countries and communities, and these cannot be reconstructed solely from existing quantitative data. Integrating qualitative research, tailored survey items, and experimental methods would help validate the theoretical framework and uncover relational dimensions currently not captured by secondary sources.

Moreover, new data collections should make a deliberate effort to reach hard-to-reach and underserved populations. Communities with limited digital access, marginalized groups, and populations living in fragile or informal settlements are underrepresented in many international datasets. Their experiences of relational life are essential for understanding fraternity, and excluding them risks reinforcing existing gaps and inequalities in knowledge production.

A comparative assessment of the theoretical framework against current empirical coverage shows that some dimensions are well represented—such as communion, proximity, reciprocity, openness, and relational goods—while others, including recognition, mutual care, inclusivity, and horizontality, are only partially operationalized. Affective tone and transitivity remain largely unmeasured. This highlights both the strengths of the index and the need for further development to capture the full complexity of fraternity.

Overall, the report demonstrates that fraternity can be empirically measured and compared across countries, revealing patterns of relational cohesion that do not simply mirror economic development. High fraternity scores appear in small island nations and parts of Northern Europe, while lower scores emerge in conflict-affected or institutionally fragile contexts. The Fraternity Index thus represents an important first step toward quantifying a complex social and moral construct. Future research that integrates behavioral, affective, longitudinal, and network-based measures—ideally collected through new primary data and inclusive research strategies—will allow for a more complete and nuanced assessment. By making fraternity visible and measurable, this work can inform policies and initiatives aimed at strengthening relational bonds, social cohesion, and collective well-being, in line with the vision of *The Economy of Francesco*.

References

Bailey, M., Cao, R., Kuchler, T., Stroebel, J., & Wong, A. (2020). Social connectedness: Measurement, determinants, and effects. *Journal of Economic Perspectives, 34*(3), 259–280.

Bruni, L., & Sugden, R. (2008). Fraternity: Why the market need not be a morally free zone. *Economics & Philosophy, 24*(1), 35–64. https://doi.org/10.1017/S0266267108001720

Bruni, L., & Sugden, R. (2009). Fraternity, intrinsic motivation and sacrifice: A reply to Gui and Nelson. *Economics & Philosophy, 25*(2), 195–198. https://doi.org/10.1017/S0266267109002066

Cataldi, S., & Iorio, G. (Eds.). (2022). *Social love and the critical potential of people: When the social reality challenges the sociological imagination*. Taylor & Francis.

Cohen, G. A. (1992). Incentives, inequality and community. In G. Peterson (Ed.), *The Tanner Lectures on Human Values* (Vol. 13, pp. 263–329). University of Utah Press.

Cupit, G. (2013). Fraternity and equality. *Philosophy, 88*(2), 299–311. https://doi.org/10.1017/S0031819113000130

Donati, P. (2021). Fraternity takes concrete form in generating relational goods. In *Fratelli tutti* (para. 38). Libreria Editrice Vaticana.

Esheté, A. (1981). Fraternity. *The Review of Metaphysics, 35*(1), 27–44.

Francis, Pope. (2020). *Fratelli tutti: On fraternity and social friendship.* Libreria Editrice Vaticana. https://www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20201003_enciclica-fratelli-tutti.html

Gui, B. (1996). On "relational goods": Strategic implications of investment in relationships. *International Journal of Social Economics, 23*(10/11), 260–278. https://doi.org/10.1108/03068299610149511

Hodge, C. (2025). Fraternity as mutual aid or mutual assistance? From political fraternity to Economics of Francesco. *International Review of Economics, 72*(2), 25.

Muñoz-Dardé, V. (2018). Fellow feelings: Fraternity, equality and the origin and stability of justice. *Daimon: Revista Internacional de Filosofía,* 107–123. https://doi.org/10.6018/daimon/326101

Nelson, J. A. (2009). A response to Bruni and Sugden. *Economics & Philosophy, 25*(2), 187–193. https://doi.org/10.1017/S0266267109002054

Pabst, A. (2013). Fraternity. In L. Bruni & S. Zamagni (Eds.), *Handbook on the economics of reciprocity and social enterprise* (pp. 153–162). Edward Elgar. https://doi.org/10.4337/9781781009117.00017

Rawls, J. (1999). *A theory of justice* (Rev. ed.). Belknap Press of Harvard University Press.

Uhlaner, C. J. (1989). "Relational goods" and participation: Incorporating sociability into a theory of rational action. *Public Choice, 62*(3), 253–285. https://doi.org/10.1007/BF02337743

Contributors: Luigino Bruni, Dalila De Rosa, Tracey Freiberg, Serena Ionta, Matteo Rizzolli, Valentina Rotondi, Paolo Santori

World Fraternity Report 2025

Index

1. Introduction

We have all encountered fraternity in our lives—sometimes without naming it. It is the friend who shows up when everything falls apart, the neighbour who steps in when childcare collapses, the colleague who shares responsibility rather than competition. It is the quiet sense of mutual reliance that binds families, communities, and even strangers in moments of vulnerability or collective hope. We recognise it instinctively in these everyday gestures, yet we rarely consider that the same force also shapes how economies function.

Fraternity sustains the trust that allows markets to operate, the cooperation that makes innovation possible, and the shared outlook that turns growth into a common good rather than a private gain. And still, despite its pervasive role in our social and economic life, fraternity remains almost entirely absent from the indicators we use to assess progress.

Why don't we measure fraternity in the economy?

We track growth, inequality, sustainability—almost everything. And yet we have no indicator that tells us how fraternal our economies actually are.

This report takes up that challenge. Inspired by *The Economy of Francesco*, it builds on the vision of Saint Francis of Assisi and on Pope Francis's call, in *Fratelli Tutti* (2020), to place fraternity at the centre of social and economic renewal. Within this framework, we explore what it means to make fraternity visible, measurable, and actionable in today's economies.

Our aim is to offer an empirical assessment of the state of fraternity within and across the world's economies. Using international datasets, we develop an original indicator designed to capture how fraternity manifests—both inside each economy and in the relationships between them.

Given that the notion of fraternity has been interpreted in different, diverse ways across the history of ideas and intellectual thought, these introductory notes clarify how *The Economy of Francesco* understands fraternity and what implications this carries for our measurement and understanding of economic life. Such clarification is essential to prevent misunderstandings arising from the multiple meanings of the term "fraternity" across languages and cultures—including the gender dimension, which can risk reducing fraternity to *brotherhood*.[1]

[1] We deliberately chose not to title our report Fraternity and Sorority because the addition of sorority would unintentionally alter the meaning of fraternity. By pairing the two terms, fraternity would come to signify exclusively male bonds, while sorority would represent female ones. This gendered distinction does not align with our conceptual framework. In the liberal tradition, for instance, fraternity is not confined to relationships among men (Nelson 2009); rather, it denotes a broader social and moral bond among all members of society (Bruni and Sugden 2019). Using fraternity alone thus preserves its universal, inclusive dimension, consistent with its roots in Franciscan ideals and its philosophical and political significance in modern democratic thought.

In this report, we will adopt the following definition:

Fraternity is a form of relationship that arises from the interaction between two or more parties. A relationship is considered *fraternal* when it displays both **objective** features (such as reciprocity and openness) and **subjective** features (such as friendliness or proximity). These two dimensions are interdependent;: objective traits shape the way parties experience the relationship, while subjective traits influence how it manifests externally. Fraternity can therefore be defined as the way individuals **perceive and conceive** their own and others' relationships, based on the interplay between these objective and subjective aspects. In this sense, fraternal relationships are those in which the parties *prosume*—that is, simultaneously produce and consume—**relational goods**.

To examine this definition more thoroughly, we will analyze the **subjective** features (or how fraternity is lived and perceived by the parties involved) and the **objective** features (or how fraternity appears to an external observer).[2]

1.1 Subjective Features

Communion.
Individuals engaged in a fraternal relationship are aware of a shared element that unites them. This may include a common goal, origin, history, feeling, or sense of belonging. Such elements of commonality are not necessarily pre-established; they may also emerge spontaneously from initially non-fraternal interactions (Esheté 1981).

Recognition.
In a fraternal relationship, the parties recognize each other as equals in certain respects. They understand their mutual roles and responsibilities, while acknowledging that no one should be treated merely as a means to another's ends (Rawls 1999; Cupit 2013).

Mutual Care.
Fraternal relationships are grounded in the belief that both parties should look out for one another. Although the degree of care may vary depending on the nature of the shared communion, mutual care remains a core principle. It arises from reciprocal recognition and strengthens the bond between parties (Cupit 2013; Cataldi & Iorio 2022)

Affective Tone.
Fraternal relationships are characterized by goodwill and friendliness. This does not imply romantic affection, but rather a general disposition of kindness, respect, and pleasant interaction (Bruni and Sugden 2008).

[2] We intentionally defined fraternity in terms of parties rather than people,. This choice reflectings our belief that fraternity extends beyond human relationships.; We believe fraternal relationships it encompasses our connections with the biosphere, including animals, plants, soil, and the atmosphere. Furthermore, this perspective allows us to consider intergenerational fraternity, meaning that a fraternal relationship does not necessarily require the simultaneous presence of both subjective and objective elements

Proximity.
Fraternity is not constrained by physical or intellectual distance. Parties from diverse cultural, religious, political, or geographical backgrounds can establish fraternal relationships when they perceive each other as neighbors—akin to the notion exemplified in the parable of the Good Samaritan (Lk 10). In this sense, *neighborhood* represents a form of closeness that emerges from encounter, rather than pre-existing geographical or cultural proximity (Pope Francis 2020).

Transitivity.
If three parties—*a*, *b*, and *c*—belong to a given set *X*, and *a* is related to *b* while *b* is related to *c*, then *a* is also related to *c*. This property, when applied to multiple relationships, transitivity defines *X* as the essence of fraternity. Unlike friendship, which tends to be selective and exclusive, fraternity is *transitive*—it naturally extends connections to others rather than closing them off (Bruni and Sugden 2008).

1.2 Objective Features

Reciprocity.
Fraternal relationships involve reciprocal interactions between the parties. Reciprocity encompasses a range of exchanges—from equivalent trade, as in market relations, to the exchange of gifts. The key feature is that both parties respond to each other's actions, whether through deeds, words, or even silent acknowledgment (Hodge 2025)

Openness.
This represents the objective counterpart of *proximity*. Fraternal relationships can emerge between parties who are physically, culturally, or religiously distant by establishing a connection that transcends such boundaries. While these differences can enrich fraternity, they must never become barriers to it (Nelson 2009).

Horizontality.
This is the objective expression of *recognition*. Fraternal relationships cannot thrive within rigid hierarchies or immutable vertical structures. As Rawls suggests in *A Theory of Justice* (§17), institutions should ensure that inequalities serve to benefit the least advantaged members of society (Rawls 1999). Although fraternity does not require perfect equality and may tolerate certain disparities, it struggles to exist in contexts of stark and unjust inequality (Cohen 1992).

Inclusivity.
Fraternal relationships are inherently inclusive: they invite the participation of third parties rather than excluding them. The concept of *externality* thus does not apply to fraternity, whose purpose is to transform externalities into *internalities* by engaging those affected by the relationship. This objective principle mirrors the subjective dimension of transitivity (Munoz-Dardé 2018).

Relational Goods.
Fraternal relationships generate *relational goods* that are simultaneously produced and

consumed (*prosumed*) by the parties involved. First, the relationship itself is a good—it holds intrinsic value, rather than being merely a means to achieve external ends. Second, unlike standard market goods (private or public), whose production and consumption are separate, relational goods are *co-created* and *co-enjoyed* in real time. Although contributions may be unequal—such as in friendships or collective events—complete "free riding" is impossible, since participating is necessary to experience the relational good. Finally, relational goods have an *emergent* quality: they often arise unexpectedly from interactions and transcend the sum of individual contributions. This explains why fraternal relationships can emerge from other types of relationships, such as friendships, professional collaborations, or business exchanges (Uhlaner 1989; Gui 1996; Donati 2021)

2. Measuring Fraternity

Given the definition of fraternity outlined above, this section seeks to operationalize the concept. To this end, we theoretically link a set of measures derived from global data sources to the objective and subjective features of fraternity. We conducted an extensive review of international databases to identify variables capable of capturing the multifaceted nature of fraternity, while remaining fully aware that existing data cannot entirely reflect all its conceptual dimensions. Despite these limitations, the selected indicators provide a satisfactory coverage of most aspects of fraternity, with only a few—albeit significant—dimensions still unexplored.

The indicators employed are drawn from well-established international sources, including the World Values Survey, the Global Preferences Survey, the Armed Conflict Location & Event Data Project, Hofstede's Cultural Dimensions, and the Social Connectedness Index, complemented by an in-house exploration of Google Trends data. A detailed description of these data sources and their country coverage is provided in the following section.

Regarding the subjective dimensions—communion, recognition, mutual care, affective tone, proximity, and transitivity—only partial operationalization was possible. Communion is reasonably represented by variables referring to the importance of family and friends, the willingness to contribute to the common good, and adherence to socially appropriate behavior. Recognition appears through indicators of tolerance, respect for others, and preference for equality, though these proxies fall short of capturing its deeper ethical meaning, namely the acknowledgment of others as ends in themselves. Mutual care is approximated through measures of altruism, patience, and online search data, but lacks behavioral or institutional indicators of reciprocal support. The affective tone of fraternity—its emotional warmth and friendliness—is scarcely represented and only indirectly captured through patience-related variables. Proximity, on the other hand, is well covered by measures of perceived closeness to different territorial levels, social trust, and social connectedness indices. Transitivity, understood as the capacity to extend fraternity beyond direct relations to third parties, remains entirely unmeasured.

The objective dimensions—reciprocity, openness, horizontality, inclusivity, and relational goods—are overall better represented, though still incomplete. Reciprocity is effectively measured through positive reciprocity, generalized trust, and search frequency for reciprocity-related terms. Openness is captured through attitudes toward immigrants and indicators of global connectedness. Horizontality is only partially reflected in Hofstede's Power Distance Index and in equality preferences, as current data do not include robust measures of institutional or structural equality. Inclusivity is represented mainly by attitudes toward immigration, leaving aside broader aspects such as the participation of vulnerable populations or consideration for future generations. Finally, relational goods are reasonably proxied by online search interest and the Schwartz value "doing something good," although the emergent and co-created nature of relational goods remains inherently difficult to quantify.

INDICATORS	**DESCRIPTION**	**FRATERNITY DIMENSION**
Importance of family and friends (WVS)	Percentage of individuals who declare family and friends to be very important	Communion
Tolerance and respect (WVS)	Percentage of individuals who believe that children should be encouraged to learn at home tolerance and respect for other people	Recognition (respect), Proximity (tolerance)
Closeness feeling (continent)	Percentage of individuals who declare to feel very close to, respectively,: their continent; their country; their town village	Openness and proximity
Closeness feeling (country)		
Closeness feeling (town village)		
Perceived national priorities (poverty reduction) (WVS)	Percentage of individuals who declare as priority global poverty over national problems	Horizontality
Perceived national priorities (equality) (WVS)	Percentage of individuals who declare as priority global equality over freedom	Recognition and horizontality

Trust in others (WVS)	Percentage of individuals who declare most people can be trusted	Proximity
Doing something good (WVS)	Percentage of individuals who declare very important doing something for the good of society	Communion, relational goods
Behave properly (WVS)	Percentage of individuals who declare very important to always behave properly	Communion
Happiness (WVS)	Percentage of individuals who declare to be quite happy or very happy	A transversal construct that cuts across all dimensions.
Attitudes toward immigrants (WVS)	Percentage of individuals who declare themselves as being immigrant to the country they live in	Openness and inclusivity
Attitudes toward immigrants (WVS)	Percentage of individuals who believe that when jobs are scarce, natives over immigrants	Openness and inclusivity
Cultural_proximity (GTD)	Google search "proximity"	Proximity
Fraternity (GTD)	Google search "fraternity"	Fraternity
Mutual care (GTD)	Google search "mutual care"	Mutual care
Reciprocity (GTD)	Google search "reciprocity"	Reciprocity
Googlerelational_goods (GTD)	Google search "relational goods"	Relational goods
Patience (GPS)	Patience	Mutual care and affective tone
Positive reciprocity (GPS)	Positive reciprocity	Reciprocity (transitivity?)

Altruism (GPS)	Altruism	Mutual care
Trust (GPS)	Generalized trust	Proximity
Social connectedness index (SCI)	Social connectedness index	Openness
Power Distance Index (HCD)	Power distance Index measures the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally.	Horizontality
Masculinity (HCD)	Masculinity versus its opposite, femininity refers to the distribution of roles between the genders which is another fundamental issue for any society to which a range of solutions are found.	Opposite of mutual care and affective tone (the higher masculinity in a society the less fraternity)
Political violence (ACLED)	Number of political violence events;	Captures the erosion of social cohesion and the breakdown of fraternal relations.
Number civilian fatalities (ACLED)	Number of reported civilian fatalities (aggregated at the country–year level).	Reflects the extreme negation of mutual care and the collapse of social protection.

2.1 Data and methods

Building on the conceptual foundations laid out in the previous section, we now describe the empirical strategy adopted to measure fraternity across countries. This section presents the data sources, operational definitions, and harmonization procedures used to translate the subjective and objective dimensions of fraternity into a consistent, cross-national dataset suitable for constructing the Fraternity Index.

Data

To construct the Fraternity Index, we draw on a broad set of internationally comparable datasets that capture social values, preferences, cultural orientations, online behavior, and

indicators of political conflict. The backbone of the analysis is provided by the World Values Survey (WVS - https://www.worldvaluessurvey.org), a long-standing cross-national survey that documents social, political, and moral values through repeated waves since 1981. The WVS offers essential variables for measuring the subjective and relational dimensions of fraternity, including the importance attributed to family and friends, attitudes toward tolerance and respect, generalized trust, happiness, views on immigration, and perceptions of national priorities such as equality and poverty reduction. It also includes items derived from the Schwartz value scale, such as the importance of "doing something good" and "behaving properly." The dataset covers approximately 100 countries, with the most recent available wave retained for each.

Complementing these attitudinal measures, the Global Preferences Survey (GPS) provides experimentally validated indicators of economic preferences across 76 countries (Falk et al., 2018). Collected between 2008 and 2016, the GPS offers globally comparable measures of patience, risk-taking, positive reciprocity, altruism, and trust. These variables are particularly useful for approximating the behavioral foundations of reciprocity, mutual care, and affective tone, contributing to the operationalization of several dimensions of fraternity.

To capture the role of conflict and violence as negative signals of social cohesion, we rely on the Armed Conflict Location & Event Data Project (ACLED - https://acleddata.com). ACLED compiles high-resolution information on political violence, protests, and civilian harm across more than 200 countries from 1997 to the present, updated weekly. Two indicators are used in this report: the annual number of political violence events and the number of reported civilian fatalities at the country–year level. Both serve as proxies for the breakdown of fraternal relations and the erosion of mutual protection.

The analysis also incorporates Google Trends Data (GTD), which provide a dynamic measure of online search behavior across countries. Google Trends tracks the relative frequency with which users search for specific terms and indexes these values on a scale from 0 to 100, where 100 represents the peak search interest for that term within the selected time frame and location. In this report, GTD are used to capture public attention to relational and moral concepts, specifically we recovered the search intensity for terms such as "fraternity," "mutual care," "reciprocity," "relational goods," and "cultural proximity." Because these searches reflect spontaneous, real-time expressions of interest, they offer an indirect but timely proxy for the salience of relational notions in different societies. The data cover more than 100 countries from 2004 to 2025 and were extracted via the Google Trends API.

Google Trends is particularly valuable in this context for at least two reasons. First, it provides behavioral evidence that complements survey responses: search behavior is less prone to social desirability bias and reveals what individuals actively seek to know or understand. Second, the data allow for global comparability, as Google Trends applies a consistent normalization method across countries. At the same time, the use of GTD comes with important limitations. The index reflects relative, not absolute search volumes, making it difficult to compare intensity across terms without careful normalization. Internet

penetration varies widely across countries, meaning that GTD may overweight digitally connected populations and underrepresent groups with limited access. Searches for moral or relational concepts may also be influenced by contextual events—for instance, news reports, political speeches, or viral content—rather than underlying social attitudes. Moreover, search terms may have different meanings across languages and cultures, introducing ambiguity that cannot always be resolved even with multilingual search strategies. Despite these constraints, when combined with survey-based measures and other structural indicators, GTD provide a valuable behavioral complement that enriches the multidimensional assessment of fraternity across countries.

Cultural and organizational norms are introduced through the Hofstede Cultural Dimensions (HCD - https://geerthofstede.com/research-and-vsm/) dataset, which provides cross-country measures of values shaping social and institutional life. Two dimensions are particularly relevant for fraternity: Power Distance, which reflects hierarchical versus horizontal social structures, and Masculinity, whose reversed values capture orientations linked to care, cooperation, and affective tone. These indicators are available for more than 90 countries using the most recent estimates.

Finally, we incorporate the Social Connectedness Index (SCI - https://data.humdata.org/dataset/social-connectedness-index), which provides a structural measure of social integration derived from anonymized and aggregated Facebook friendship links. Developed by Bailey et al. (2020), the SCI estimates the relative probability that individuals in two geographic areas—such as countries, regions, or even ZIP codes—are connected through Facebook friendships. These probabilities are normalized to account for population size and platform penetration, yielding a comparable metric of social connectedness across diverse contexts. The SCI thus captures both within-country ties (e.g., urban–rural linkages, regional integration) and cross-border relationships, offering a unique lens into how people connect across spatial, cultural, and political boundaries.

The SCI is particularly useful in the measurement of fraternity for several reasons. First, it taps into actual social networks, rather than self-reported ties, providing an objective structural indicator of proximity and openness. Unlike attitudinal data, which capture perceptions, the SCI reflects behavioral evidence of relational integration, as friendships on social media often reflect real-world connections, migration patterns, historical legacies, and diasporic linkages. Second, because it is available at multiple geographic scales, the index allows researchers to examine both local cohesion and the degree to which societies are connected beyond their borders—two dimensions central to the concept of fraternity. Third, its global coverage makes it possible to compare connectivity patterns across countries with vastly different demographic and institutional profiles.

Despite its strengths, the SCI also has limitations that need to be acknowledged. The measure depends on Facebook usage, which varies substantially across countries, age groups, and socioeconomic segments. In contexts where Facebook penetration is low, the SCI may disproportionately reflect the networks of more connected, urban, or younger populations. Cultural differences in how people use social media—for instance, whether

they "friend" acquaintances or only close contacts—can also affect comparability. Moreover, although Facebook friendships are indicative of relational ties, they do not reveal their quality, depth, or frequency, and may capture weak ties as much as strong ones. Finally, since the SCI focuses on online networks, it may not fully capture offline forms of social cohesion, particularly in societies where digital divides persist. Yet, despite these limitations, when triangulated with survey-based indicators and other behavioral measures, the SCI remains a powerful and innovative proxy for proximity and openness, offering structural insight into two core pillars of fraternal relationships.

Together, these datasets provide a rich, multidimensional basis for translating the conceptual features of fraternity into measurable empirical indicators, allowing for a comprehensive cross-country assessment of relational cohesion and cooperative orientation.

Methods

For each source, country-year panels were sorted chronologically and missing values were forward-filled within countries. The most recent available observation for each variable and country was retained, yielding one record per country. All merges were executed by country name or ISO3 code, keeping only matches present in all key datasets. The resulting dataset represents the most recent, harmonized cross-section of available indicators across more than 100 countries.

We assessed reliability on the full indicator set (z-scored and direction-aligned). The scale shows good internal consistency (Cronbach's $\alpha = 0.861$), with an average inter-item correlation of 0.186. Item–test and item–rest correlations are generally positive and moderate; the strongest contributors include world closeness (WVS close to world/continent), priority to poverty (WVS), Google queries on fraternity/relational goods, and the conflict harm proxies (political-violence and civilian-fatalities, both reversed), as well as Hofstedes' dimensions retained for the analysis.

A small subset of items shows weak item–rest correlations and would marginally increase α if removed (α_if_deleted > 0.861). The weakest are WVS tolerance/respect (item–rest = −0.055; α_if_deleted = 0.869), WVS priority to equality (0.024; 0.867), WVS friends important (0.027; 0.867), happiness (0.044; 0.866), and mean trust in science (0.133; 0.864). Modestly weaker contributors include Masculinity (reversed) (0.188; 0.862), GPS trust (0.226; 0.861), behave properly (0.225; 0.861), and patience (0.234; 0.861).Given the small gains in α ($\leq$ +0.008), we retain the full set for breadth of construct coverage; however, as a robustness check, we excluded the weakest items (tolerance, equality priority, friends, happiness, mean_sci), obtaining qualitatively unchanged results.

All continuous variables were standardized (z-scores). Variables representing undesirable phenomena—political violence events, civilian fatalities, and Hofstede's Masculinity—were sign-reversed so that higher values always indicate more relationally cohesive and cooperative contexts.

We then computed two complementary composite indices:

1. Equal-weight index (index_eq) – The simple arithmetic mean of all standardized indicators;
2. Geometric-mean index (index_geo) – The exponential of the mean of log-transformed, positively shifted z-scores, which reduces sensitivity to extreme values;
3. Inverse-variance weighted index (index_ivw) - Weights are set to the inverse of each indicator's cross-country variance (computed on z-scores), then normalized to sum

1. The index is the weighted sum of z-scores. This down-weights noisier dimensions and up-weights more stable ones.

The three composite measures are highly correlated, indicating that they capture a largely common underlying construct of relational and cooperative orientation across countries. The equal-weight and geometric-mean indices are most closely aligned ($r = 0.80$), suggesting that the geometric aggregation, while slightly penalizing imbalance among indicators, produces results consistent with the unweighted average. The inverse-variance weighted index also correlates strongly with both the equal-weight ($r = 0.75$) and the geometric-mean versions ($r = 0.74$), confirming that the relative weighting of more stable versus more variable indicators does not substantially alter the overall pattern. These high pairwise correlations support the robustness of the Fraternity Index to alternative aggregation methods.

To identify meaningful patterns in the multidimensional fraternity structure, we applied clustering techniques to eight normalized subindexes derived from the indicator set. Hierarchical clustering (Ward's method, Euclidean distance) was used to explore the dendrogram and determine candidate solutions, supported by Calinski–Harabasz and Duda–Hart stopping rules. Both criteria suggested that a solution between six and eight clusters captures the most structure without overfragmentation. We selected a six-cluster solution for interpretability and policy relevance. K-means clustering ($k = 6$) was then applied as a robustness check, yielding highly consistent group assignments.

The resulting clusters reveal distinct profiles of relational orientation across countries, ranging from globally inclusive care systems to traditional family-centered structures. These clusters were mapped geographically to visualize regional patterns and inform policy implications.

3. Results

What does fraternity look like when measured across the world? In this section, we explore the empirical patterns revealed by the Fraternity Index. We begin by examining how countries are distributed along the fraternity scale and what this distribution tells us about global relational cohesion. We then compare country rankings across different versions of

the index to assess the robustness of the findings. Finally, we introduce the Fraternity Gap, a measure that highlights which regions stand out—positively or negatively—in their levels of social connectedness and cooperative orientation.

The histogram in Figure 1 shows the cross-country distribution of the Fraternity Index, computed as the equal-weighted mean of standardized indicators and rescaled to a 0–100 scale. Most countries cluster between 30 and 50, with a modal group around 40, indicating moderate fraternity globally. The kernel density curve closely follows a unimodal pattern with a slightly longer right tail, suggesting limited asymmetry, while the normal overlay confirms an approximately normal distribution centered on the mid-range. Countries with the lowest values, such as Palestine, Ukraine, Myanmar, Haiti, and Nicaragua, reflect contexts affected by conflict, institutional fragility, or limited social trust, whereas high-income democracies like Japan, Ireland, and Lithuania also appear in the lower decile, showing that economic development alone does not guarantee relational cohesion. At the upper end, small islands and microstates—Grenada, Antigua and Barbuda, Micronesia, Guam, French Guiana, Barbados, and Aruba—achieve the highest scores, illustrating how dense social networks, communal norms, and strong local cohesion foster fraternity across diverse geographic and economic contexts. The scatterplot in Figure 2 compares country rankings derived from equal-weight and geometric-mean indices. Alignment along the diagonal demonstrates high consistency between the two aggregation methods, with minor deviations, confirming that country rankings are robust to the choice of index construction.

To assess relative performance across countries, we calculate the Fraternity Gap, defined as the standardized deviation of each country's index value from the global mean of the Fraternity Index, expressed in standard deviation units (z-scores). Positive values indicate countries with higher-than-average fraternity, while negative values denote below-average fraternity. By situating countries along this standardized continuum, the Fraternity Gap provides a clear comparative framework for understanding how social connectedness varies worldwide and for identifying regions where interventions to strengthen cooperative norms and relational cohesion may be most needed. In the accompanying map (depicted in Figure 3), blue shades represent countries exceeding the global mean, red shades indicate those falling below it, and white areas correspond to missing or unavailable data. This visualization reveals pronounced regional disparities in line with the rankings shown above: higher fraternity levels are visible in small island nations and parts of Northern Europe, where dense social networks, egalitarian values, and inclusive practices prevail, whereas lower fraternity scores appear in regions affected by conflict, social fragmentation, or institutional fragility, including parts of the Middle East, Sub-Saharan Africa, and Eastern Europe.

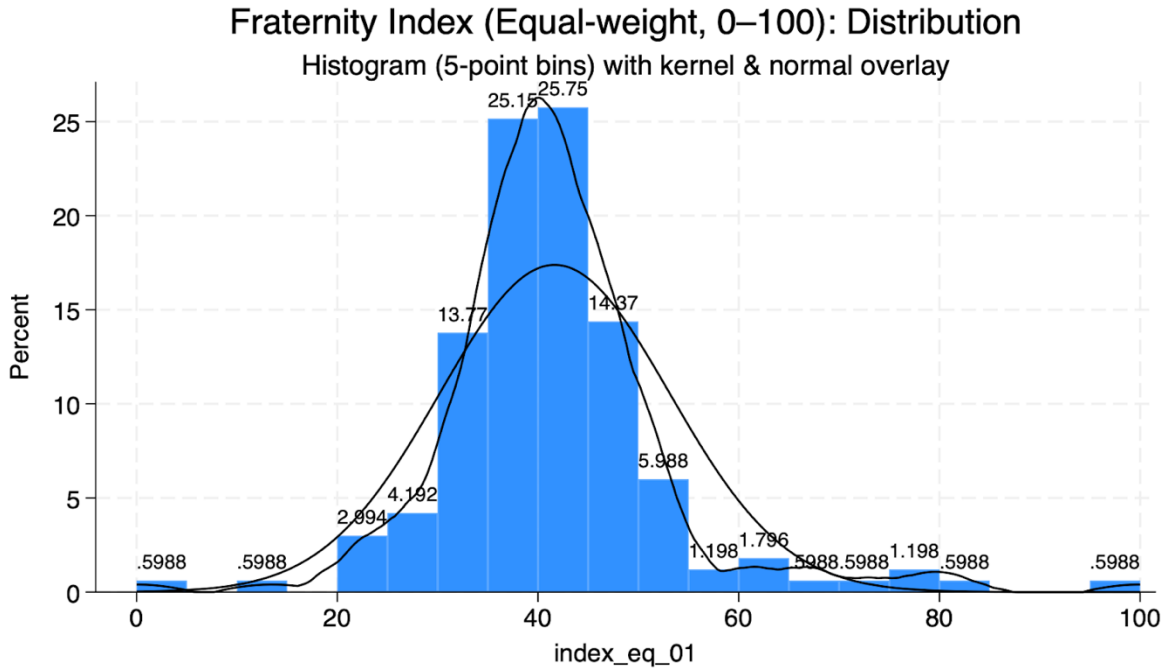

Figure 1. Distribution of the Fraternity Index (Equal-weight, 0–100).

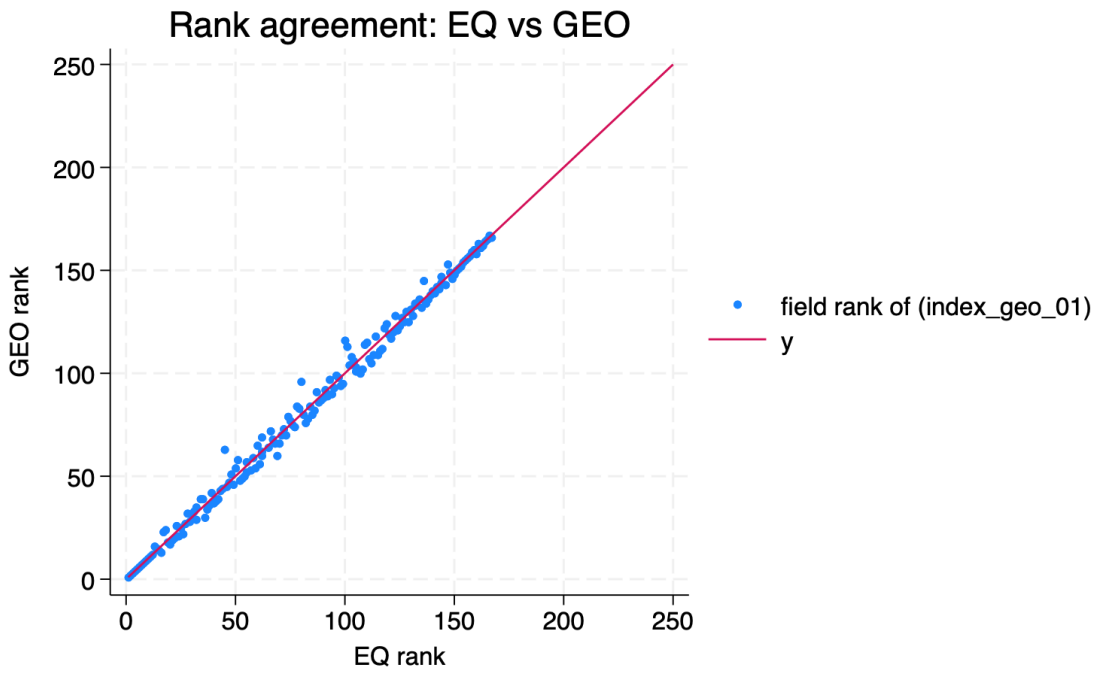

Figure 2. Rank agreement between Equal-weight and Geometric-mean Fraternity Indices.

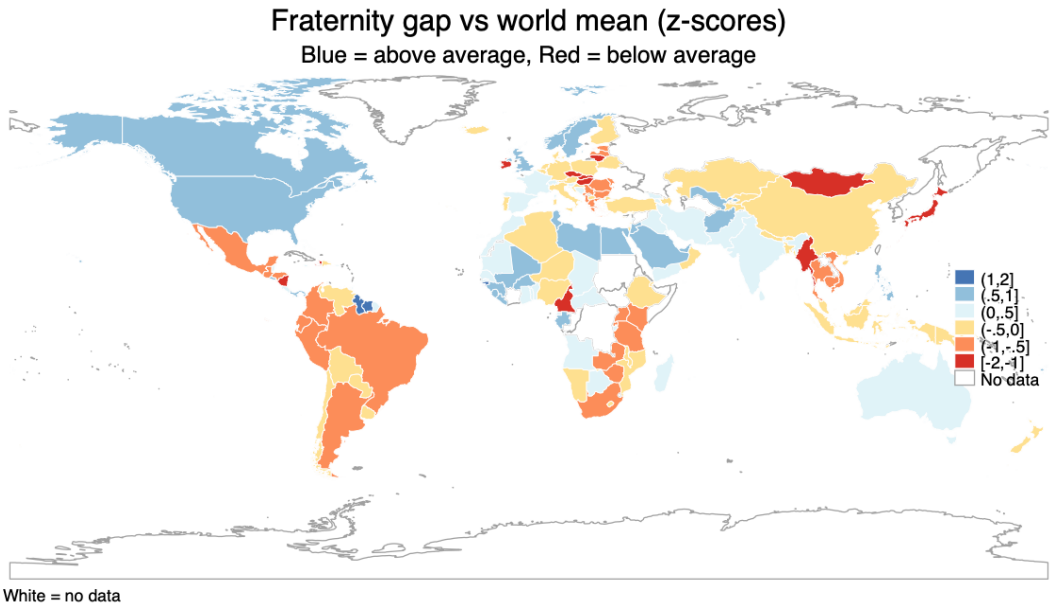

Figure 3. Global distribution and map of the Fraternity Gap (standardized deviations from the world mean).

To uncover underlying patterns in the multidimensional structure of fraternity, we conduct a clustering analysis on the eight subindexes—communion, recognition, proximity, openness, mutual care, horizontality, inclusivity, and care tone. All variables are normalized to a 0–100 scale to ensure comparability. Using hierarchical clustering with Ward's method to guide the selection of the optimal number of clusters, and refining the solution through K-means, we identify six distinct groups of countries with similar relational profiles.

As shown in Figure 4, Cluster 1 exhibits very high mutual care and inclusivity but minimal communion, reflecting societies that prioritize altruistic norms and openness beyond family ties. Cluster 2 combines strong communion and openness with moderate inclusivity and recognition but limited reciprocity, indicating family-oriented yet globally connected contexts. Cluster 3 emphasizes recognition of equality and tolerance, moderate care tone, and inclusivity, characteristic of formal, equality-driven societies. Cluster 4 highlights horizontality and local solidarity with low inclusivity, suggesting inward-focused egalitarianism. Cluster 5 centers on emotional care and reciprocity, strong communion, and care tone, with weaker recognition, reflecting societies where warmth and mutual support dominate. Cluster 6 is marked by strong family ties but low inclusivity and mutual care beyond close circles, indicative of traditional, inward-looking care structures.

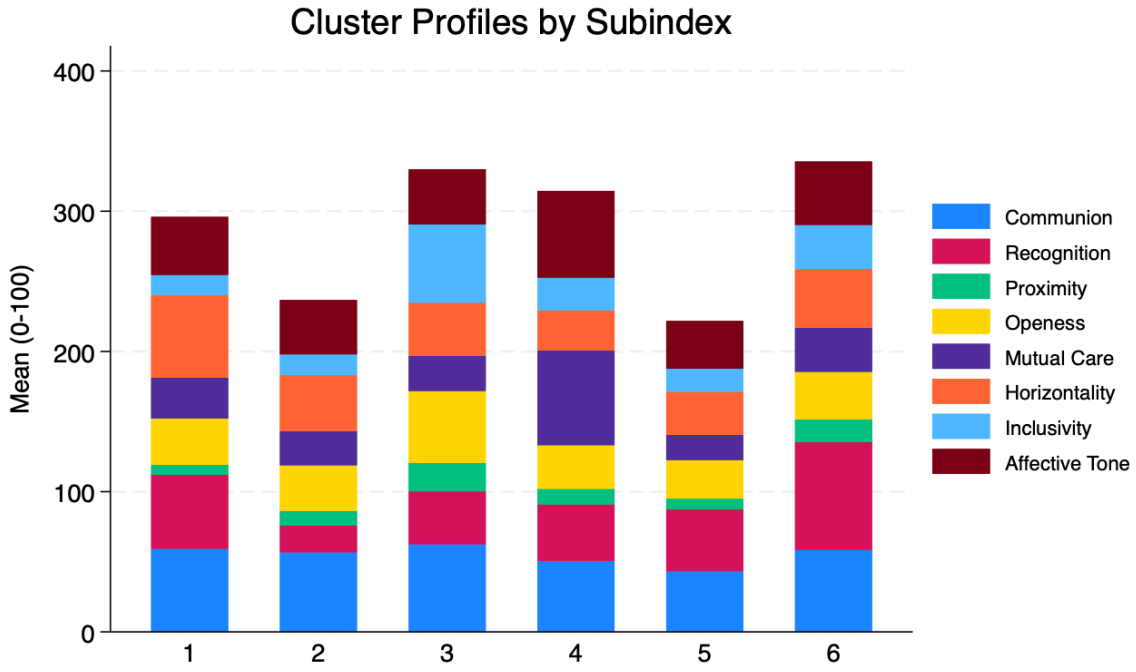

Figure 4: Mean Subindex Scores (0–100) Across Six Clusters. This stacked bar chart shows the average values of eight fraternity subindexes for each cluster, highlighting differences in dimensions such as communion, recognition, proximity, openness, mutual care, horizontality, inclusivity, and care tone.

The heatmap depicted in Figure 5 reveals distinct regional patterns in cluster distribution. Cluster 5 dominates in Asia (12 countries) and the Americas (9), confirming its strong presence in Latin America and parts of Asia. Cluster 3 is concentrated in Europe (8 countries) with limited representation in the Americas (Canada, Trinidad & Tobago). Cluster 6 is heavily represented in Africa (5 countries) and also appears in Asia and Oceania. Cluster 1 spans Europe (8) and Asia (7), with smaller presence elsewhere. Cluster 2 is rare, occurring only in Asia (Maldives) and the Americas (USA). Cluster 4 is minimal, with one country each in Africa, Asia, and Europe.

To evaluate how the Fraternity Index relates to broader economic and social patterns, we examine its correlation structure with GDP and the eight underlying subdimensions. As shown in the heatmap in Figure 6 the Fraternity Index has only a weak positive correlation with GDP (0.19), confirming that it does not simply reflect economic size. Instead, it strongly correlates with social dimensions such as Communion (0.54), Proximity (0.53), Inclusivity (0.48), and Affective Tone (0.45). Correlations between GDP and these subdimensions are mixed, ranging from positive (Mutual Care = 0.49) to negative (Inclusivity = -0.17, Openness = -0.10), highlighting the multidimensional nature of fraternity beyond income.

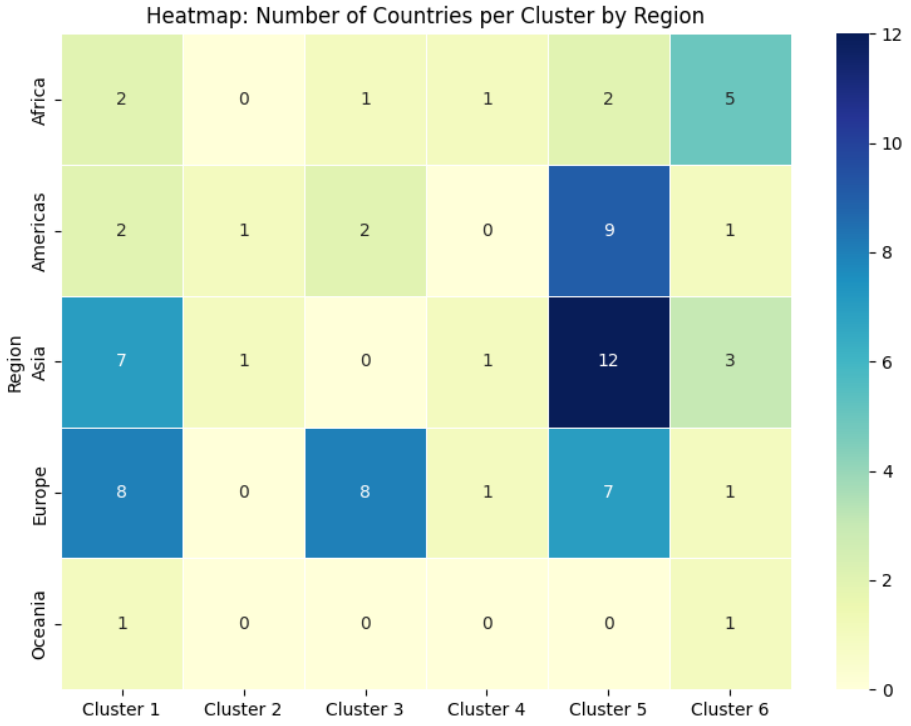

Figure 5: Geographic distribution of clusters across world regions.

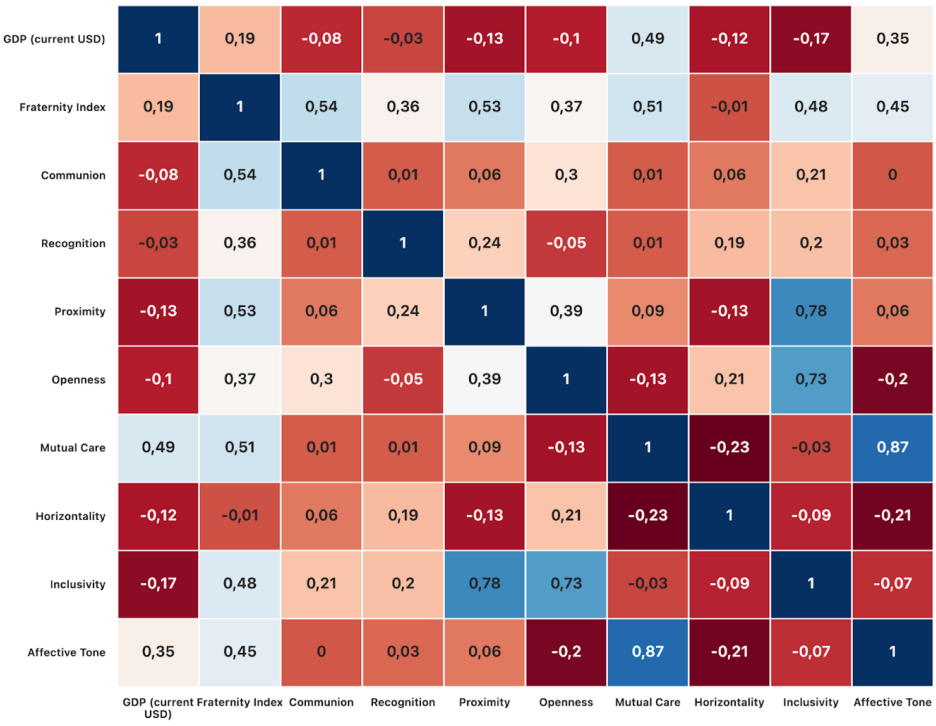

Figure 6: Correlation Matrix

4. Discussion and future research

The empirical patterns presented in the previous section provide the first global portrait of how fraternity manifests across countries. They highlight both the potential of the Fraternity Index to capture meaningful relational dynamics and the challenges inherent in quantifying such a multidimensional concept. Building on these insights, this section discusses the theoretical contribution of the index, reflects on its limitations, and outlines priorities for future research.

A major contribution of this report lies in its theoretical innovation. By grounding the measurement exercise in a comprehensive conceptual framework that draws from philosophy, sociology, relational economics, and the tradition of The Economy of Francesco, the Fraternity Index moves beyond existing indicators of social capital, trust, or cohesion. Rather than treating relationships as secondary outcomes of economic or institutional structures, the framework positions fraternity as a constitutive dimension of social and economic life. This perspective allows for the analysis of forms of relationality—communion, recognition, mutual care, affective tone, proximity, transitivity, openness, horizontality, inclusivity, and relational goods—that remain largely invisible in conventional metrics.

The analysis relies on well-established secondary data sources, including the World Values Survey, Global Preferences Survey, ACLED, Hofstede Cultural Dimensions, Google Trends, and the Social Connectedness Index. These datasets offer broad geographic coverage, methodological rigor, and temporal depth, strengthening the statistical representativeness of the Fraternity Index at both national and global levels. Yet, reliance on existing datasets also imposes important limitations. While the index captures several objective and subjective features of fraternity, it cannot fully operationalize the depth and complexity of the concept as defined in this report.

Several dimensions remain insufficiently represented or entirely absent. The affective tone of fraternity—emotional warmth, empathy, perceived kindness—is only indirectly reflected. Transitivity, the extension of relational ties beyond dyads to broader networks, is not measured at all. Recognition, understood as the ethical acknowledgment of others as ends in themselves, is only partially approximated through items on tolerance or equality. Inclusivity is restricted to attitudes toward migration, neglecting intergenerational exchanges, engagement with vulnerable groups, and environmental responsibility. Horizontality is captured only indirectly through cultural hierarchy, without indicators that reflect institutional or structural equality.

In addition, the current index offers only a cross-sectional view. By relying on the most recent available data, it provides a valuable snapshot but cannot track changes in fraternity over time. Fraternity is dynamic: it evolves in response to political shifts, crises, cultural transformations, and collective experiences. Longitudinal data would allow future research to measure how relational cohesion develops, identify moments of rupture or

strengthening, and evaluate the impact of policies designed to foster cooperative social environments.

Addressing these gaps requires new data collection efforts. Future research should incorporate behavioral and relational data—such as volunteering, civic engagement, or generosity in economic games—that capture concrete expressions of mutual care, reciprocity, and transitivity. Emotional and affective measures, including perceived kindness, empathy, or benevolence, would strengthen the representation of affective tone. Inclusivity measures should also be expanded to capture participation across generations, the social integration of vulnerable groups, and environmental stewardship. Network-based and structural indicators could help operationalize transitivity and horizontality by revealing how cooperative norms circulate and how institutions support or hinder equality.

It is equally important to ask people directly how they understand and interpret fraternity in their own cultural and social contexts. The concept carries different meanings across countries and communities, and these cannot be reconstructed solely from existing quantitative data. Integrating qualitative research, tailored survey items, and experimental methods would help validate the theoretical framework and uncover relational dimensions currently not captured by secondary sources.

Moreover, new data collections should make a deliberate effort to reach hard-to-reach and underserved populations. Communities with limited digital access, marginalized groups, and populations living in fragile or informal settlements are underrepresented in many international datasets. Their experiences of relational life are essential for understanding fraternity, and excluding them risks reinforcing existing gaps and inequalities in knowledge production.

A comparative assessment of the theoretical framework against current empirical coverage shows that some dimensions are well represented—such as communion, proximity, reciprocity, openness, and relational goods—while others, including recognition, mutual care, inclusivity, and horizontality, are only partially operationalized. Affective tone and transitivity remain largely unmeasured. This highlights both the strengths of the index and the need for further development to capture the full complexity of fraternity.

Overall, the report demonstrates that fraternity can be empirically measured and compared across countries, revealing patterns of relational cohesion that do not simply mirror economic development. High fraternity scores appear in small island nations and parts of Northern Europe, while lower scores emerge in conflict-affected or institutionally fragile contexts. The Fraternity Index thus represents an important first step toward quantifying a complex social and moral construct. Future research that integrates behavioral, affective, longitudinal, and network-based measures—ideally collected through new primary data and inclusive research strategies—will allow for a more complete and nuanced assessment. By making fraternity visible and measurable, this work can inform policies and initiatives aimed at strengthening relational bonds, social cohesion, and collective well-being, in line with the vision of *The Economy of Francesco*.

References

Bailey, M., Cao, R., Kuchler, T., Stroebel, J., & Wong, A. (2020). Social connectedness: Measurement, determinants, and effects. *Journal of Economic Perspectives, 34*(3), 259–280.

Bruni, L., & Sugden, R. (2008). Fraternity: Why the market need not be a morally free zone. *Economics & Philosophy, 24*(1), 35–64. https://doi.org/10.1017/S0266267108001720

Bruni, L., & Sugden, R. (2009). Fraternity, intrinsic motivation and sacrifice: A reply to Gui and Nelson. *Economics & Philosophy, 25*(2), 195–198. https://doi.org/10.1017/S0266267109002066

Cataldi, S., & Iorio, G. (Eds.). (2022). *Social love and the critical potential of people: When the social reality challenges the sociological imagination*. Taylor & Francis.

Cohen, G. A. (1992). Incentives, inequality and community. In G. Peterson (Ed.), *The Tanner Lectures on Human Values* (Vol. 13, pp. 263–329). University of Utah Press.

Cupit, G. (2013). Fraternity and equality. *Philosophy, 88*(2), 299–311. https://doi.org/10.1017/S0031819113000130

Donati, P. (2021). Fraternity takes concrete form in generating relational goods. In *Fratelli tutti* (para. 38). Libreria Editrice Vaticana.

Esheté, A. (1981). Fraternity. *The Review of Metaphysics, 35*(1), 27–44.

Francis, Pope. (2020). *Fratelli tutti: On fraternity and social friendship.* Libreria Editrice Vaticana. https://www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20201003_enciclica-fratelli-tutti.html

Gui, B. (1996). On "relational goods": Strategic implications of investment in relationships. *International Journal of Social Economics, 23*(10/11), 260–278. https://doi.org/10.1108/03068299610149511

Hodge, C. (2025). Fraternity as mutual aid or mutual assistance? From political fraternity to Economics of Francesco. *International Review of Economics, 72*(2), 25.

Muñoz-Dardé, V. (2018). Fellow feelings: Fraternity, equality and the origin and stability of justice. *Daimon: Revista Internacional de Filosofía,* 107–123. https://doi.org/10.6018/daimon/326101

Nelson, J. A. (2009). A response to Bruni and Sugden. *Economics & Philosophy, 25*(2), 187–193. https://doi.org/10.1017/S0266267109002054

Pabst, A. (2013). Fraternity. In L. Bruni & S. Zamagni (Eds.), *Handbook on the economics of reciprocity and social enterprise* (pp. 153–162). Edward Elgar. https://doi.org/10.4337/9781781009117.00017

Rawls, J. (1999). *A theory of justice* (Rev. ed.). Belknap Press of Harvard University Press.

Uhlaner, C. J. (1989). "Relational goods" and participation: Incorporating sociability into a theory of rational action. *Public Choice, 62*(3), 253–285. https://doi.org/10.1007/BF02337743

Contributors: Luigino Bruni, Dalila De Rosa, Tracey Freiberg, Serena Ionta, Matteo Rizzolli, Valentina Rotondi, Maria Jordet, Paolo Santori