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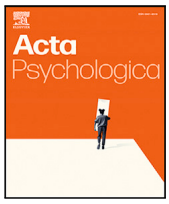

Measuring norm strength: The specificity of fairness under meritocracy in Europe☆

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ABSTRACT

What makes a norm strong? Its strength depends not only on the level of agreement about its content (consistency) and its ability to predict behaviour (accuracy), but also on how clearly that content is defined (specificity). This study focuses on the strength of the fairness norm, specifically its specificity, using data from the European Social Survey. I apply Hierarchical Multidimensional Scaling to quantify the cognitive differentiation between merit-based and non-merit-based considerations, providing a direct measure of norm specificity. The results reveal a clear regional pattern: Nordic societies exhibit high fairness norm specificity, with sharply defined categories, while post-communist societies show low specificity, with more ambiguously bounded categories. This variation is negatively associated with the prevalence of rule violations, linking norm specificity to institutional integrity. Crucially, this relationship is distinct from general cultural tightness–looseness, demonstrating that fairness norm specificity operates as a domain-specific phenomenon. By shifting attention from normative content to normative architecture, the study identifies specificity as a measurable dimension of norm strength and highlights how clarity in normative boundaries shapes social coordination and enforcement.

1. Introduction

What defines a norm? Social scientists have long recognised that normative systems are defined not only by *what* they prescribe, but by *how forcefully* they prescribe it Bicchieri (2005) and Rauhut and Winter (2010). Two societies may share the same rule—"treat others fairly"—yet differ profoundly in the sharpness of that rule, the strictness of its enforcement, and the clarity with which deviations are sanctioned. In some cultural contexts, the boundaries between fair and unfair conduct are crisp and well-guarded; in others, they are fuzzy, negotiable, and situationally elastic (Gelfand et al., 2006). This distinction between normative *content* and normative *strength* is fundamental to understanding how social order is maintained. Despite its importance, it remains undertheorised and, in most domains, empirically unmeasured.

This study addresses that gap by investigating the specificity of fairness norms across European societies. Fairness offers an ideal lens for this investigation because it encompasses multiple, potentially competing principles—equity, equality, need, seniority—whose relationships can be more or less sharply defined (Deutsch, 1975). Extensive cross-cultural research has documented systematic variation in *which* fairness principles different societies prioritise (Fischer, 2016). Post-communist societies, for example, often exhibit different distributive preferences than their Western European counterparts (Kluegel & Mason, 2004). Yet this focus on *content* has left a crucial dimension unexplored: the *specificity* of these norms. How clearly do they define the range of acceptable behaviours?

Answering these questions has implications beyond the study of fairness itself. Research on cultural tightness–looseness has demonstrated that societies differ in the overall strength of their normative enforcement, with consequences ranging from social order to creativity to public health (Gelf et al., 2011). This picture, however, is complicated by recent evidence showing that norm strength operates in domain-specific ways that can diverge sharply from generalised measures. Emotional expression norms, for instance, show patterns opposite to general tightness predictions (Smith et al., 2025), while pro-environmental norms exert stronger influence in societies typically

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characterised as "loose" (Bergquist et al., 2019). These findings suggest that normative specificity must be measured within specific domains rather than inferred from general indices (Eriksson et al., 2022). With their multiple principles and tangible stakes in hiring, taxation, and social policy, fairness norms offer a strategic site for advancing this domain-specific understanding.

To address this question, I introduce a novel approach: Hierarchical Multidimensional Scaling (HMDS). This method, adapted from Yanchenko and Hoff (2020), quantifies how sharply European societies cognitively differentiate between merit-based and non-merit-based factors in two related domains: recruitment practices and principles of distributive justice. By using this approach, I move beyond documenting *what* people consider fair to measuring *how clearly* these categories are bounded in the mind—a direct operationalisation of normative specificity at the level of mental representation (Bicchieri & Demo, 2025). The results reveal a continental divide within Europe. Nordic countries exhibit high-specificity, sharply defined fairness norms, while post-communist societies display low-specificity, more ambiguously bounded categories. An intermediate position is occupied by Western European societies, with Switzerland, Germany, and the Netherlands showing moderately high specificity, and France, Belgium, and Austria clustering near the middle of the distribution. Hungary presents a particularly revealing case of decoupled specificity: it exhibits high τ_p for fairness principles alongside very low τ_p for recruitment. This pattern suggests a political culture where descriptive norms are imposed from above while prescriptive norms remain only weakly internalised among citizens (Krekó & Enyedi, 2018).

Crucially, this domain-specific measure is distinct from general cultural tightness. Weak and non-significant correlations with established tightness–looseness indices (Gelf et al., 2011; Uz, 2015) demonstrate that fairness norm specificity operates independently of the broader normative climate. This finding refines the tightness–looseness framework itself: rather than a unitary dimension, norm strength appears to be a family of domain-specific phenomena whose profiles vary across societies. Sweden exemplifies this complexity. Often characterised as culturally loose due to permissive norms regarding sexuality and gender roles, it paradoxically exhibits high-specificity fairness norms and is perceived as tighter than the United States due to strict norms in public-facing domains (Eriksson et al., 2022). This pattern illustrates a central claim of this study: domain-specific specificity can diverge from global tightness.

The analysis also identifies a relationship between normative specificity and institutional integrity. The τ_p specificity measure correlates negatively with the Prevalence of Rule Violations index (Gächter & Schulz, 2016). This link suggests that sharper cognitive boundaries are associated with more reliable enforcement. It resonates with Tyler (2006)'s argument that clear, consistently enforced rules enhance legitimacy and compliance. In contexts where institutions reliably penalise rule-breaking—the Nordic societies—the cognitive boundaries around fairness become sharper. In post-communist societies where institutional breakdown undermined reliable enforcement throughout much of the twentieth century (Ledeneva, 1998; Sztompka, 1999), these boundaries remain more fluid. This relationship should not, however, be interpreted as endorsing high specificity; lower-specificity structures may represent adaptive flexibility in environments where formal rules cannot be trusted (Ledeneva, 1998).

These findings contribute to a broader theoretical project: understanding how normative systems are structured and function. By distinguishing normative content from normative specificity, and by demonstrating that the latter can be measured and varies systematically across societies, this study provides both a framework and a tool for investigating other normative domains. The results also clarify the distinction between specificity and consensus, a distinction central to the theoretical framework. Low specificity does not indicate disagreement about fairness principles—indeed, the data show broad cross-national consensus that merit should matter. Rather, it reflects a normative landscape where boundaries are inherently more fluid and context-dependent. This interpretation is consistent with accounts of post-communist societies, where flexible adaptation to unreliable formal rules became an adaptive strategy (Ledeneva, 1998), and with recent findings that norms can become more permissive while remaining widely recognised (Eriksson et al., 2025).

The paper proceeds as follows. Section 2 reviews the theoretical background of distributive justice and cultural tightness–looseness, clarifying the distinction between normative content, consistency, specificity, and accuracy. Section 3 describes the European Social Survey data and introduces the Hierarchical Multidimensional Scaling methodology. Section 4 presents the cross-country patterns in fairness norm specificity, including validation against institutional integrity measures and comparison with existing tightness indices. Section 5 discusses the theoretical and practical implications of these findings, acknowledges limitations, and suggests directions for future research.

2. Theoretical background

Why do people obey the law? On the surface, the answer seems straightforward: we follow rules because we fear getting caught. This instrumental view, rooted in deterrence theory, portrays individuals as rational calculators who comply primarily to avoid punishment. Yet this explanation falters when we consider the countless times we refrain from illegal behaviour even when detection is impossible, or when we follow rules simply because doing so feels right. Normative perspectives address this gap by suggesting that internalised values and moral obligations often guide conduct more powerfully than the threat of sanctions (Tyler, 2006). Central to this view are *social norms*—shared understandings about appropriate behaviour sustained by expectations of enforcement (Bicchieri, 2005). Compliance with such norms is typically conditional: we are more likely to follow a rule when we believe others are also complying (empirical expectation) and when we sense they expect us to conform (normative expectations) (Andrighetto & Vriens, 2022). The motivation to meet these expectations can be understood along a spectrum. It ranges from fear of informal sanctions such as gossip or ostracism (Andrighetto & Vriens, 2022), through the desire for social approval (Bicchieri, 2005), to the strongest form of compliance—internalisation. In this final state, individuals recognise others' expectations as legitimate and accept the obligation as binding regardless of whether anyone is watching (Gelfand et al., 2024).

This distinction between agreeing with a rule and actually following it is also relevant for understanding fairness. Meritocracy—the principle that rewards should reflect qualifications—commands widespread endorsement as the proper way to allocate opportunities, particularly in Western societies (Almås et al., 2025). Yet this consensus reveals nothing about whether the principle exerts actual behavioural force. Some organisations formally declare that recruitment should reflect qualifications, yet silently tolerate managers who favour personal connections. Others embrace the same ideal but actively sanction deviations through oversight, reputational consequences, or informal signals when a selection feels wrong (Gelfand, 2018). This is what we mean by *norm strength*: the degree to which social norms are powerful, clearly defined, and actively enforced within a group (Gelfand et al., 2017). The motivation to transform abstract ideals into binding obligations depends not on what people say, but on what they are willing to enforce. This willingness is revealed by whether a hiring manager will resist pressure to hire an underqualified connection, or whether an observer will challenge a decision that rewarded connections over competence.

From a micro-level perspective of individuals' expectations, norm strength comprises three dimensions: *consistency*, *specificity*, and *accuracy* (Andrighetto & Vriens, 2022; Bicchieri & Demo, 2025; Szekely et al., 2021). Consider the context of an Ultimatum Game,[1] where a

[1] In this game, a Proposer receives a sum of money (e.g., 10 USD) and must propose how to divide it with a Responder. The Responder can either accept or reject the proposal — if rejected, both players receive nothing.

Proposer receives $10 and must propose a division with a Responder. An intuitive interpretation of the fairness norm in this game is equal sharing (5/5). However, a norm's instantiation does not have to be singular. For instance, researchers presented participants with three different sharing options (Bicchieri & Chavez, 2010): (5/5); (8/2); and Coin, where a fair coin flip determined the proposal (heads for 5/5; tails for 8/2). They found that while (5/5) was universally perceived as fair, the Coin option was also considered fair by a significant majority. In this scenario, *consistency* refers to the extent of agreement about social expectations. Although there were two distinct interpretations of fairness—equal split and the procedurally fair coin flip—the norm remained strong. It remained strong because there was implicit agreement among Responders about the fairness of the Coin choice, as well as shared understanding between Proposers and Responders regarding these normative expectations. *Specificity* captures how precisely the norm defines the range of acceptable behaviours. In the Coin condition, the acceptable behaviours are clearly defined: the Proposer must offer the Coin option, and the subsequent division is strictly determined by the coin flip, leaving no room for other arbitrary splits. Finally, *accuracy* refers to whether expectations correctly predict the behaviour and personal normative beliefs of others. If, despite the shared belief that the Coin procedure is fair, actual play reveals that Proposers rarely offer it and instead consistently propose the selfish (8/2) split, then the norm would be inaccurate: the social expectation would not correspond to observed behaviour.

While the micro-level perspective examines norm strength through these three dimensions for particular behaviours, the macro perspective adopts a different approach. Most often studied through cultural tightness–looseness (CTL) theory (Bicchieri & Demo, 2025; Gelfand et al., 2017; Gelf et al., 2011), it abstracts from specific behaviours to examine the overall strictness of rules across an entire society. Tight cultures are characterised by many strong norms and low tolerance for deviance; in such societies, expectations are clear across most situations and deviations invite severe censure. Conversely, loose cultures have weak norms and high tolerance for deviance, allowing greater individual discretion. The pioneering approach by Gelf et al. (2011) measured CTL through self-reported perceptions of social norms, asking individuals how strict their society was.[2] Although influential, this method relies on subjective judgements, which are vulnerable to cognitive biases such as false consensus and social desirability. To address this limitation, Uz (2015) introduced a more objective behavioural measure, defining CTL as the degree of heterogeneity in values and behaviours within cultures. By calculating the standard deviation of responses in large cross-national surveys, Uz inferred tightness from low variation and looseness from high variation. At this macro level, norm strength is operationalised through homogeneity: societies with strong norms exhibit little variation in the values, attitudes, and behaviours adopted by their members, while high variation suggests a loose society where norms are not sufficiently pervasive to be consistently enforced.

This macro-level operationalisation (response homogeneity) primarily captures consensus. At the societal level, norm consensus is defined as "the extent to which members of a society share a specific norm" (Rauhut & Winter, 2010). This concept aligns closely with what is termed consistency at the micro level, one of three key dimensions of norm strength alongside specificity and accuracy. Consistency reflects "the agreement between expectations of group members" (Andrighetto & Vriens, 2022; Bicchieri & Demo, 2025; Szekely et al., 2025), thereby encompassing the same fundamental notion of sharedness. Although consistency is typically discussed in reference to individual-level expectations and consensus in terms of societal-level agreement, this distinction is largely a matter of analytical scale rather than conceptual divergence. Cross-cultural research on norm strength often operationalises this construct through behavioural homogeneity (Chatman et al., 2014; Uz, 2015; Vishkin et al., 2023): low variability in values, attitudes, or behaviours across individuals is interpreted as reflecting strong consensus, whereas high variability suggests weak or contested norms. As a result, norm consensus has frequently been treated as equivalent to macro-level norm strength. However, this conflation overlooks the fact that consensus captures only one dimension of norm strength—consistency. While the original CTL framework proposed by Gelf et al. (2011) and the norm strength framework by Bicchieri and Demo (2025) encompass additional elements beyond consensus—such as enforcement, compliance motivations, and the clarity of expectations—the emphasis on homogeneity in measurement has often narrowed the focus to consensus alone.

However, norm strength does not necessarily translate into stability. The pandemic provided a clear example of this strength-stability divide: norms such as elbow-bumping became strong—exhibiting high consistency and specificity—due to immediate health threats, but proved highly unstable, disappearing rapidly once the crisis subsided (Bicchieri & Demo, 2025). Conversely, underlying macro-cultural features such as tightness or looseness remained largely stable despite the pandemic, suggesting that cultural stability is distinct from the rapid adoption of prudential behaviours (Szekely et al., 2025). For a norm to endure, it typically requires enforcement mechanisms that increase the costs of deviation or the benefits of compliance. Punishment is a canonical enforcement tool, but gossip and reputation are equally fundamental for maintaining stability (Andrighetto & Vriens, 2022; Eriksson et al., 2021; Gelfand et al., 2024). Perceived legitimacy also plays a critical role: when individuals acknowledge the legitimacy of others' expectations, they are motivated to comply even in the absence of observers (Bicchieri, 2005; Tyler, 2006). Moreover, norm sensitivity—the degree to which an individual cares about the values a norm represents—shapes internalisation, where behaviour becomes habitual, requiring less cognitive processing and providing high resistance to change (Bicchieri, 2005; Conte et al., 2010). Norm change itself is rarely linear; it follows a tipping point dynamic (Andrighetto & Vriens, 2022). The shift from smoking being widely accepted in public to being socially frowned upon followed a non-linear path, driven by clusters of health-conscious individuals and network effects (Nyborg & Rege, 2003).

Norm strength is therefore distinct from norm stability. Strength captures a norm's status quo at a specific point in time. Stability, however, is a dynamic concept referring to a norm's ability to endure from one time period to the next (Bicchieri & Demo, 2025). But they are not entirely independent. Research in evolutionary game theory suggests that consistency is a necessary precondition for a norm to be evolutionarily stable (Morsky & Akçay, 2019): when people's expectations consistently match observed behaviour, the norm gains a foothold that enables its reproduction over time. Once a social norm reaches stability, it undergoes internalisation, transitioning from an external rule into an automatic, "built-in" habit that eliminates the need for constant environmental monitoring (Bicchieri, 2005; Tyler, 2006). This shift maximises accuracy by aligning individual defaults with group expectations, ensuring stable and precise compliance even in the absence of external authority (Gelfand et al., 2024). Specificity also relates to stability in complex ways. High specificity helps a group stabilise on a single coordination equilibrium; if specificity is low with too many acceptable behaviours, it can seed instability. In such cases, the lack of a clear focal point makes it harder for members to predict each other's actions over time (Bicchieri & Demo, 2025; Szekely et al., 2021). Low specificity also increases situational ambiguity, which can

[2] Respondents indicated agreement on a 6-point scale with items such as: "There are many social norms that people are supposed to abide by in this country"; "In this country, there are very clear expectations for how people should act in most situations"; "People agree upon what behaviours are appropriate versus inappropriate in most situations in this country"; "People in this country have a great deal of freedom in deciding how they want to behave in most situations" (reverse-scored); "In this country, if someone acts in an inappropriate way, others will strongly disapprove"; and "People in this country almost always comply with social norms".

weaken a norm's grip and lead individuals to ignore the norm in favour of personal preferences or self-serving biases (Bicchieri & Demo, 2025).

While consistency and accuracy are operationalised relatively clearly, specificity requires more careful theoretical handling. Bicchieri and Demo (2025) highlight a conceptual mismatch in current measurement: whereas specificity is defined as "how specific the norm is concerning the range of acceptable behaviours", it is often operationalised as the closeness of individual expectations to the group average (Szekely et al., 2021). This conflation is problematic because a group average may conceal meaningful variation when multiple legitimate interpretations of a norm coexist. Crucially, the presence of multiple instantiations does not inherently weaken a norm—ambiguity does (Bicchieri & Demo, 2025). In the case of meritocracy, fairness can be instantiated through equity, equality, or need. These interpretations can coexist without eroding normative strength, provided they are locally clear and collectively acknowledged. Specificity, therefore, should be reconceptualised as the implicit agreement on the boundaries of acceptable behaviour—the "sharpness" of the category—rather than simple statistical convergence.

This paper introduces a macro-level operationalisation of specificity as a distinct dimension of norm strength, addressing this persistent gap. While consensus is captured through response homogeneity, I define specificity as the degree of cognitive differentiation between related normative concepts. I adapt the hierarchical multidimensional scaling framework (Yanchenko & Hoff, 2020) to quantify this differentiation between merit-based and non-merit-based fairness across 29 European countries. The resulting parameter, τ_p, provides a direct estimate of the sharpness of normative boundaries. By using this approach, I move beyond behavioural proxies to reveal the underlying cognitive structure of normative clarity. Empirically, I show that specificity varies independently of both consensus and cultural tightness, underscoring its theoretical and empirical distinctiveness.

3. Data and methodology

3.1. Establishing shared content

To isolate the measurement of norm specificity from norm *content*, the first analytical step is to establish that European societies share a common understanding of the fairness principles under investigation. Without this shared cognitive map of *what* the norms are, comparing the *clarity* of their boundaries would be invalid. This analysis uses data from Round 9 of the European Social Survey (European Social Survey, 2018), collected between August 2018 and January 2020. The module "Timing of Life, Justice and Fairness" provides nationally representative data from 49,519 individuals across 29 European countries (see Appendix A), with post-stratification weights ensuring cross-national comparability. The analysis focuses on two domains where fairness perceptions are critical, capturing both descriptive and prescriptive norms as outlined in the theoretical framework:

- **Recruitment decisions (descriptive norms):** Respondents were asked about hiring practices in their country. The exact prompt was: "In your opinion, how much influence does each of the following factors have on the decision to recruit or not recruit a person for a job in [country]?" They then rated the influence of five factors: (1) a person's knowledge and skills; (2) a person's on-the-job experience; (3) whether a person knows someone in the organisation; (4) whether a person has an immigrant background; and (5) a person's gender. Responses were given on a 4-point Likert scale. These items capture perceptions of *what actually occurs* in hiring decisions—the typical behaviour of organisations in society. As such, they measure a *descriptive norm*, which refers to perceptions of what most others actually do Savani et al. (2015).
- **Fairness principles (prescriptive norms):** To capture abstract notions of distributive justice, respondents indicated their agreement with four foundational principles. The prompt was: "There are many different views on what makes a society fair or unfair. How much do you agree or disagree with each of the following statements?" The four statements were: (1) "Society is fair when income and wealth are equally distributed" (Equality); (2) "Society is fair when hard-working people earn more than others" (Equity); (3) "Society is fair when it takes care of the poor and needy regardless of what they give back" (Need); and (4) "Society is fair when people from high-status families enjoy privileges" (Seniority). Agreement was measured on a 5-point Likert scale. These items tap approval or disapproval of different principles for how society *should be* organised. As such, they measure a *prescriptive (injunctive) norm*, which refers to what most others approve or disapprove (Savani et al., 2015).

To examine the shared understanding of these concepts, I calculate weighted Spearman rank correlations for each country $c \in C$:

$$\rho_w^{(c)}(X_i, X_j) = 1 - \frac{6\sum_{k=1}^{N} w_k^{(c)}\left(R_k(X_i) - R_k(X_j)\right)^2}{N(N^2-1)},$$

where $R_k(X_i)$ and $R_k(X_j)$ are respondent ranks, $w_k^{(c)}$ is the post-stratification weight, and N is the sample size per country. These correlations are then converted into distances $d_{ij}^{(c)} = 1 - \rho_w^{(c)}(X_i, X_j)$, creating country-specific distance matrices. These matrices are analysed using unidimensional scaling (Mair & De Leeuw, 2015), a method that finds positions x_i to minimise:

$$\sigma(x) = \sum_{i<j} w_{ij}\left(d_{ij}^{(c)} - |x_i - x_j|\right)^2.$$

This procedure produces a unified "fairness perception" scale, revealing which principles and factors are most valued across European societies. By doing so, it confirms the shared *content* of these norms.

The results confirm a shared understanding across Europe. Merit-based factors (Skills: −0.82; Experience: −0.54) are strongly preferred, while non-merit factors (Network: 0.81) are perceived as problematic (see Fig. 1). Similarly, equity principles (0.73) receive the strongest endorsement, while seniority (−0.83) is broadly rejected (see Fig. 2). This common framework establishes that Europeans recognise the same basic fairness categories—providing the essential foundation for measuring how *specifically* these categories are distinguished across cultures.

3.2. Specificity as cognitive differentiation

The core contribution of this study is to move beyond *what* people consider fair (content) to measuring *how sharply* they delineate these concepts. This provides a direct operationalisation of normative *specificity* at the macro level. As theorised in Section 2, specificity refers to "how specific the norm is concerning the range of acceptable behaviours" (Bicchieri & Demo, 2025). I argue that this property should manifest cognitively in the mental distance between related but distinct normative concepts. In societies with high specificity, individuals will draw sharp boundaries between, for example, merit-based and non-merit-based considerations. Where norms are weak and lack specificity, these conceptual boundaries will be blurred, allowing greater overlap in how different principles are perceived.

Existing approaches to measuring cultural tightness–looseness face significant limitations for capturing this cognitive dimension. The perceptual approach of Gelf et al. (2011) relies on subjective self-reports vulnerable to various biases, while the behavioural method of Uz (2015) measures response variation. Although this variation serves as a proxy for *consensus*, it does not reveal the underlying cognitive structure of *specificity*. Neither approach captures how clearly people

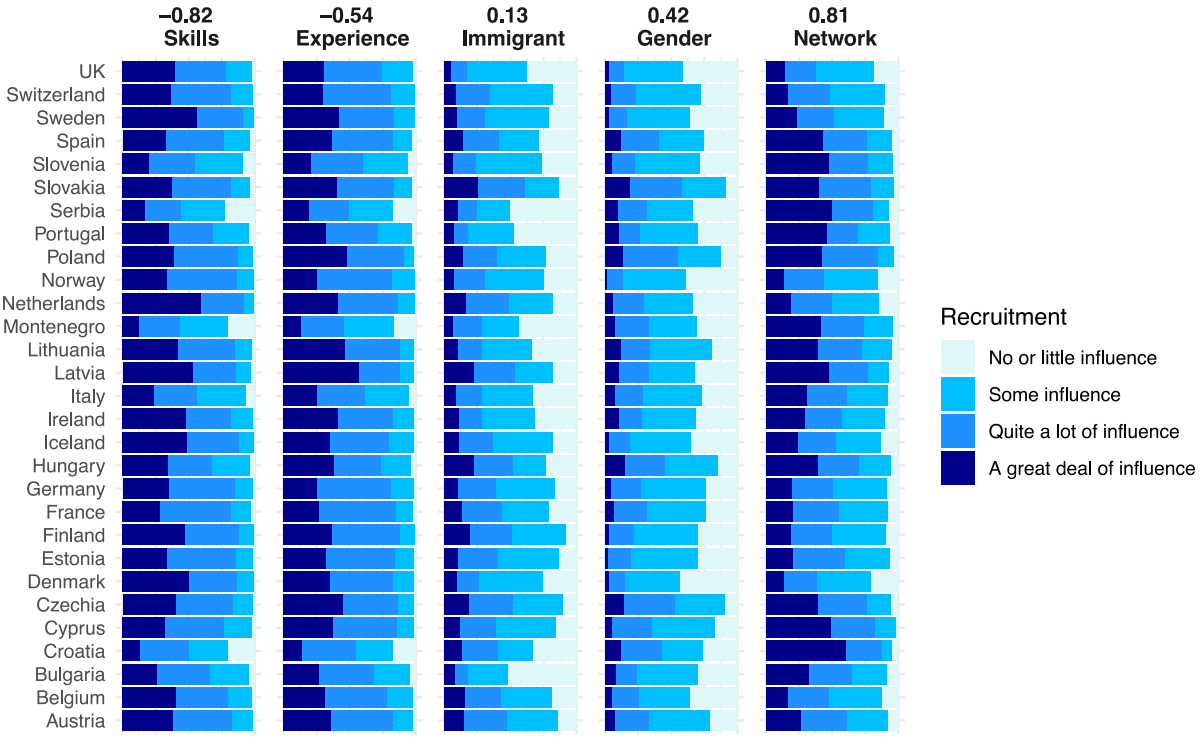

Fig. 1. Perceived fairness in recruitment decisions
Source: European Social Survey Round 9 Data (2018). The unidimensional scaling of recruitment decisions is shown at the top of the chart.

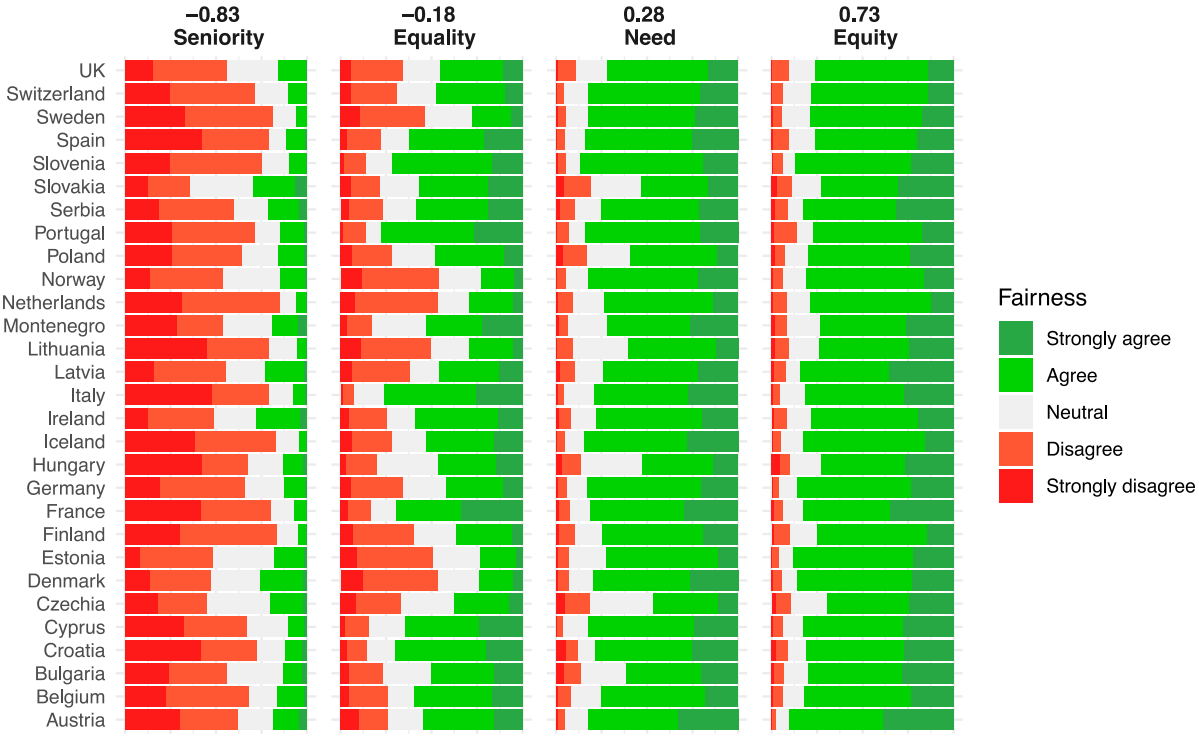

Fig. 2. Principles of distributive justice.
Source: European Social Survey Round 9 Data (2018). The unidimensional scaling of social fairness is shown at the top of the chart.

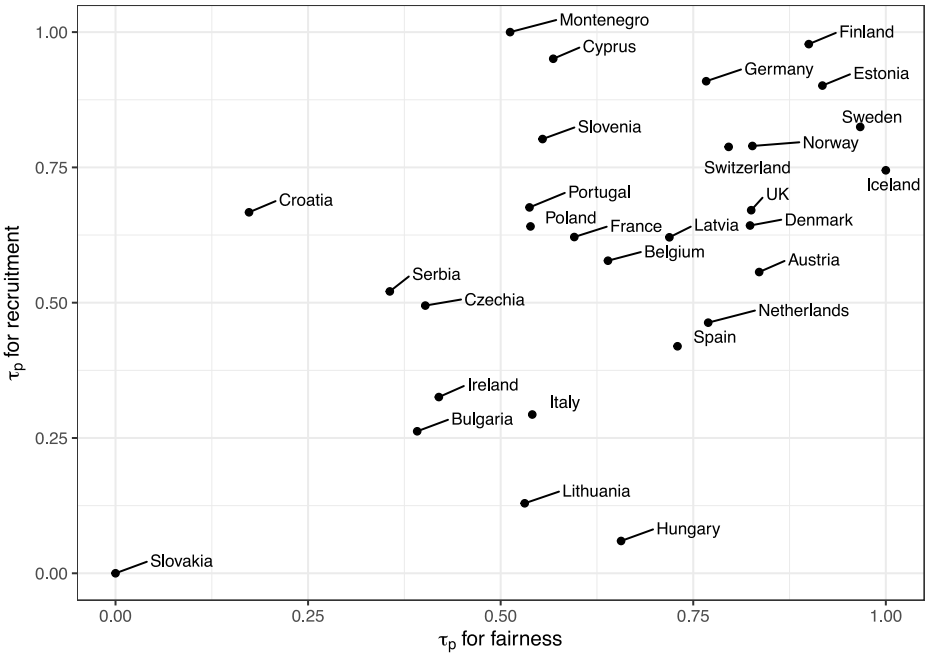

Fig. 3. Country-level specificity τ_p for recruitment and fairness.

conceptually separate different fairness principles—the key to understanding why the same policy might be accepted in one context but rejected in another. My approach directly targets this gap by measuring cognitive differentiation.

Methodologically, I adapt the Hierarchical Multidimensional Scaling (HMDS) framework developed by Yanchenko and Hoff (2020) for cross-cultural justice perceptions. For each country c, I first compute dissimilarity matrices from weighted Spearman correlations between all pairs of fairness concepts:

$$d_{ij}^{(c)} = 1 - \rho_w^{(c)}(X_i, X_j). \tag{1}$$

These $d_{ij}^{(c)}$ represent the perceived distance between any two fairness items (e.g., "skills" and "network") in country c. The HMDS model then decomposes these observed distances into two components: a universal structure shared across all countries, and a country-specific scaling factor. Formally:

$$y_{ijp} \sim \text{Gamma}\left(\psi, \frac{\psi}{\tau_p \delta_{ij}}\right), \quad \mathbb{E}[y_{ijp}] = \tau_p \delta_{ij}, \tag{2}$$

where δ_{ij} represents the universal, latent dissimilarity between items i and j. This is the common cognitive map of fairness content,[3] and τ_p is the country-specific scaling parameter. This parameter τ_p stretches or compresses the universal space for each country. A high τ_p indicates that in country p, the perceived distances between concepts are larger than the European average. In such societies, individuals draw *sharper distinctions* between, say, merit and network. This is interpreted as high specificity. Conversely, a low τ_p suggests that these conceptual boundaries are compressed and blurred, indicating low specificity.

This parameter τ_p serves as my quantitative measure of fairness norm specificity. It directly operationalises the theoretical link between cognitive structure and normative pressure: high-specificity norms create clear mental categories, while low-specificity norms permit conceptual overlap. The final τ_p estimates are min–max normalised for cross-country comparison, with extensive robustness checks (Appendix B) and sensitivity analyses (Appendix C) confirming the stability of results across different model specifications.

4. Results and discussion

The application of the Hierarchical Multidimensional Scaling measure identifies cross-national variation in fairness norm specificity across Europe. The τ_p parameter captures how sharply different societies distinguish between merit-based and non-merit-based considerations. The results demonstrate three distinct regional patterns that reflect deep-seated historical, political, and institutional differences (see Figs. 3 and 4). The Nordic countries show high-specificity, clearly defined fairness norms, with Sweden (0.97, 0.83), Finland (0.90, 0.98), and Norway (0.83, 0.79) showing consistently high τ_p scores across both recruitment and fairness principles. This pattern is consistent with their robust social welfare systems and high institutional trust. In such contexts, fairness norms are well-established and closely monitored (Esping-Andersen, 1990; Gärtner & Prado, 2016), reflecting institutional environments where deviations from meritocratic principles are readily detected and sanctioned.

In contrast, post-communist societies show lower specificity. Slovakia (0.00, 0.00) and Bulgaria (0.39, 0.26) demonstrate low τ_p scores, suggesting blurred conceptual boundaries between fairness principles. This pattern is consistent with Sztompka's analysis of post-communist societies, where the collapse of communist regimes left behind fragile institutional structures and diminished trust in fairness mechanisms (Sztompka, 1999). It indicates that these countries continue to grapple with the legacy of centralised planning and underdeveloped democratic processes. Hungary presents a particularly revealing case of decoupled specificity: it shows high τ_p for fairness principles (0.66) alongside very low τ_p for recruitment (0.06). This pattern suggests a political culture in which descriptive norms are imposed from above, while broader principles of distributive justice (a prescriptive norm) remain only weakly internalised among citizens. This dynamic aligns with Krekó and Enyedi's account of authoritarian regimes that cultivate compliance through top-down norm enforcement while constraining public discourse on fundamental fairness principles.

To empirically validate this interpretation linking norm specificity to institutional foundations, I examine the relationship between the

[3] δ_{ij} represents a statistical abstraction—the common cognitive map that best fits the data across all 29 countries. This does not assume that fairness concepts carry identical meaning everywhere, but rather that there is sufficient structural equivalence to permit meaningful cross-national comparison.

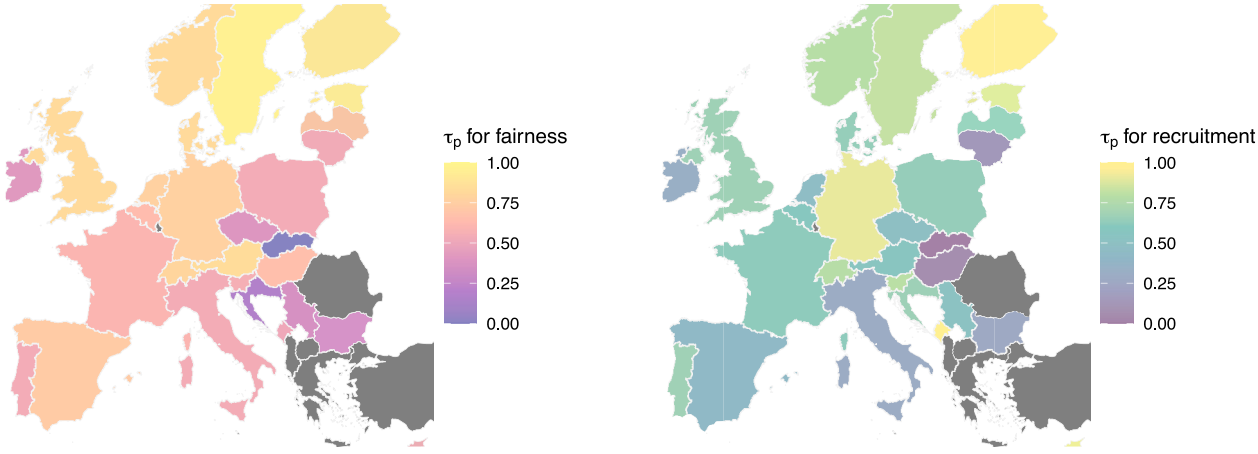

Fig. 4. The geography of norm specificity (τ_p).

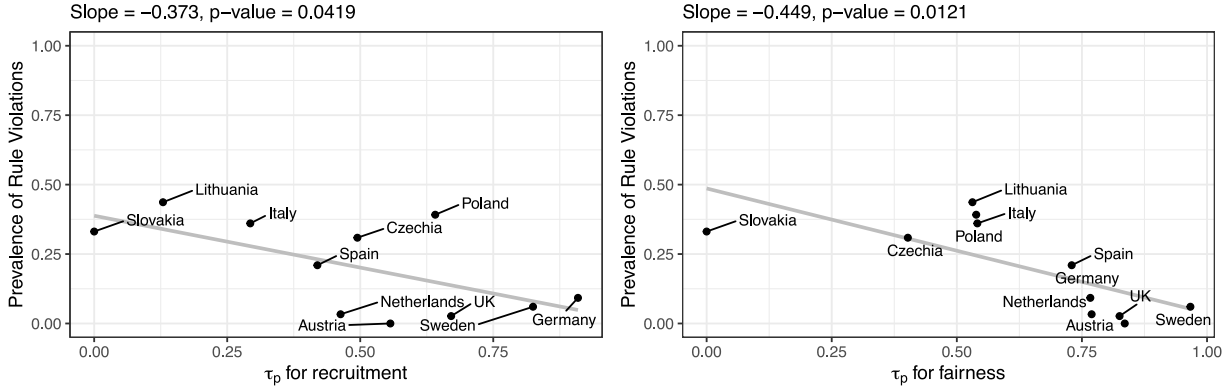

Fig. 5. Comparison of norm specificity τ_p with PRV index of Gächter and Schulz (2016) (higher values = worse).
Notes: The Prevalence of Rule Violations (PRV) index is a composite measure developed by Gächter and Schulz (2016) to quantify the extent of country-level rule-breaking, specifically capturing corruption, tax evasion, and political fraud. Higher PRV values indicate a society with more widespread rule-breaking and weaker institutional integrity. Constructed from 2003 data, the index defines corruption using the World Bank's Control of Corruption Index, measures tax evasion through the estimated size of a country's shadow economy, and assesses political fraud using Freedom House indicators of democratic quality. Data are detailed in Appendix D.

τ_p measure and a theoretically grounded antecedent: institutional integrity. The Nordic pattern of high τ_p scores is consistent with societies characterised by robust institutional frameworks and high social trust, where clear fairness norms are effectively cultivated and enforced. Conversely, the low τ_p scores across post-communist Europe resonate with accounts of institutional breakdown following the collapse of state socialism. This breakdown, according to these accounts, left behind fragile normative boundaries. This association can be tested directly using the Prevalence of Rule Violations (PRV) index developed by Gächter and Schulz (2016), a composite measure capturing country-level corruption, tax evasion, and political fraud that serves as a proxy for institutional weakness. As Fig. 5 illustrates, a significant negative relationship exists between a country's τ_p and its PRV score, for both the recruitment ($\beta = -0.373$, $p < 0.05$) and fairness principles ($\beta = -0.449$, $p < 0.05$) domains. These results offer external validation for the τ_p measure: high-specificity fairness norms are associated with institutional integrity. A potential concern is the temporal gap between the norm measurement and the PRV index. Rather than weakening the finding, this gap strengthens it by demonstrating the remarkable durability of institutional patterns. Thelen (2000) shows institutions persist through "layering" and "conversion", allowing underlying patterns of integrity to shape outcomes over decades. The persistence of post-communist legacies nearly three decades after transition is consistent with this framework.

This negative relationship should not, however, be interpreted as a normative endorsement of high specificity over low specificity. As Szekely et al. (2025) note, norm strength may involve a "sweet spot": norms that are overly rigid may resist necessary adaptation, while those that are excessively loose may fail to coordinate behaviour effectively. The diagnostic value of τ_p lies in its capacity to map a society's normative landscape, not to prescribe a singular "correct" position. The high-specificity fairness norms of Nordic countries may provide clarity and consensus that fit their context of high institutional trust. In contrast, the lower-specificity normative structures of post-communist societies may reflect flexibility developed over decades of navigating institutional instability. In environments where formal rules are unreliable and trust in institutions remains low, a more flexible approach to fairness—one that might permit greater weight on personal networks or demonstrated loyalty as substitutes for formal credentials—can be a pragmatic response to uncertainty (Ledeneva,

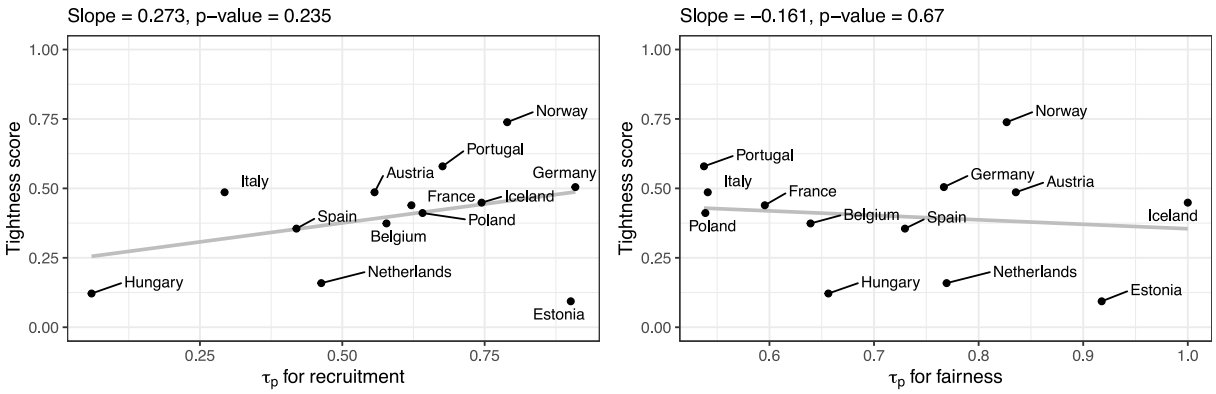

Fig. 6. Comparison of norm specificity τ_p with Gelf et al. (2011) (higher values = tighter).
Notes: Gelf et al. (2011) measured cultural tightness–looseness (CTL) using a 6-item perceptual scale where respondents rated their agreement with statements about the clarity, pervasiveness, and enforcement of social norms in their country (e.g., "In this country, there are very clear expectations for how people should act"). National CTL scores were derived by aggregating individual responses, reflecting perceived normative strength. Data are detailed in Appendix E.

1998). The τ_p measure thus illuminates these different adaptive logics. It reinforces that the specificity of a fairness norm is not a measure of a society's moral development, but a reflection of its unique historical and institutional path. This domain-specific understanding, distinct from generalised cultural tightness–looseness, provides the theoretical precision necessary for diagnosing why universal policies fail and for developing context-sensitive organisational strategies that can sustain legitimacy across diverse European institutional environments.

Having established that τ_p correlates with institutional antecedents as theorised, I now examine its relationship with existing measures of general cultural tightness to demonstrate domain specificity (see Figs. 6 and 7). This relationship reveals the domain-specific nature of fairness norm specificity and provides crucial validation for the novel measure. Comparison with Gelf et al. (2011) shows weak, non-significant relationships (recruitment: $r = 0.273$, $p = 0.235$; fairness: $r = -0.161$, $p = 0.67$), indicating that perceived general norm strength does not necessarily translate into sharp fairness boundaries. Similarly, comparison with Uz (2015) reveals inconsistent and non-significant correlations across all three indices. The domain-general index shows weak negative correlations (fairness: $r = -0.226$, $p = 0.246$; recruitment: $r = -0.105$, $p = 0.562$), while the domain-specific and combined indices exhibit near-zero relationships. These patterns demonstrate that behavioural uniformity in general attitudes does not predict the cognitive differentiation central to fairness norm specificity.

This finding aligns with an emerging literature suggesting that cultural norms, including those governing fairness, can operate in domain-specific ways. This means that broad cultural labels like "tight" or "loose" can be misleading. Instead, the strength of social norms varies significantly across different areas of life, revealing complex cultural profiles. Sweden serves as an ideal example of this phenomenon. Despite being internationally known for very permissive norms regarding sexuality and gender roles—a domain where it is quite "loose"—it is paradoxically perceived as generally "tighter" than the United States. This perception is driven by Sweden's high degree of tightness in specific public-facing domains, such as considerate behaviour in public spaces and adherence to norms of politically correct speech (Eriksson et al., 2022). This domain-specific perspective also helps explain counter-intuitive findings in other areas. Research on emotional expression, for instance, finds that individualistic cultures, often broadly classified as "loose", actually exhibit higher levels of emotional conformity. Because these cultures prioritise internal attributes and authentic self-expression, they develop stronger prescriptive norms for how individuals should feel, leading to greater homogeneity of internal states (Smith et al., 2025). Similarly, meta-analytic evidence shows that pro-environmental norms exert stronger behavioural influence in individualistic countries than in collectivistic ones. This directly contradicts the general predictions of tightness–looseness theory and further highlights the need to examine norms domain by domain (Bergquist et al., 2019).

The findings also relate to broader debates about normative change. Recent longitudinal evidence reveals that everyday norms across societies have followed a complex trajectory over the past two decades: while overall permissiveness has increased globally, norms have grown stricter for behaviours that raise concerns about inconsiderateness and vulgarity (Eriksson et al., 2025). This directional change has unfolded with remarkable consistency across societies, yet it has not erased persistent cross-sectional variation. This pattern is exemplified by the Nordic and post-communist societies in this study, which maintain distinct normative profiles despite participating in shared global trends. This underscores a crucial distinction: normative specificity—the sharpness with which a norm delineates acceptable from unacceptable conduct—is not the same as permissiveness.[4] A norm can be crisply defined yet remain permissive in what it allows. Conversely, a "blurry" norm can constrain behaviour through the very uncertainty of where the line lies. The findings of Eriksson et al. (2025) thus remind us that the cross-sectional variation I document between high-specificity Nordic and low-specificity post-communist societies exists within a broader context of directional change towards greater permissiveness. They also demonstrate that specificity and permissiveness vary independently.

5. Conclusion

What does it mean for a norm to be strong, and how can it be measured? This study has pursued these questions by developing and testing a novel approach to quantifying normative strength in the domain of fairness. Building on the foundational distinctions of norm theory (Andrighetto & Vriens, 2022; Bicchieri, 2005), I separate the content of a norm—what it prescribes—from its strength, which is further decomposed into consistency, specificity, and accuracy. While prior research has extensively documented cross-national variation in

[4] Understood here as the degree to which behaviours are considered appropriate and acceptable within a society, typically operationalised by averaging appropriateness ratings across situated behaviours; higher ratings indicate a more permissive norm.

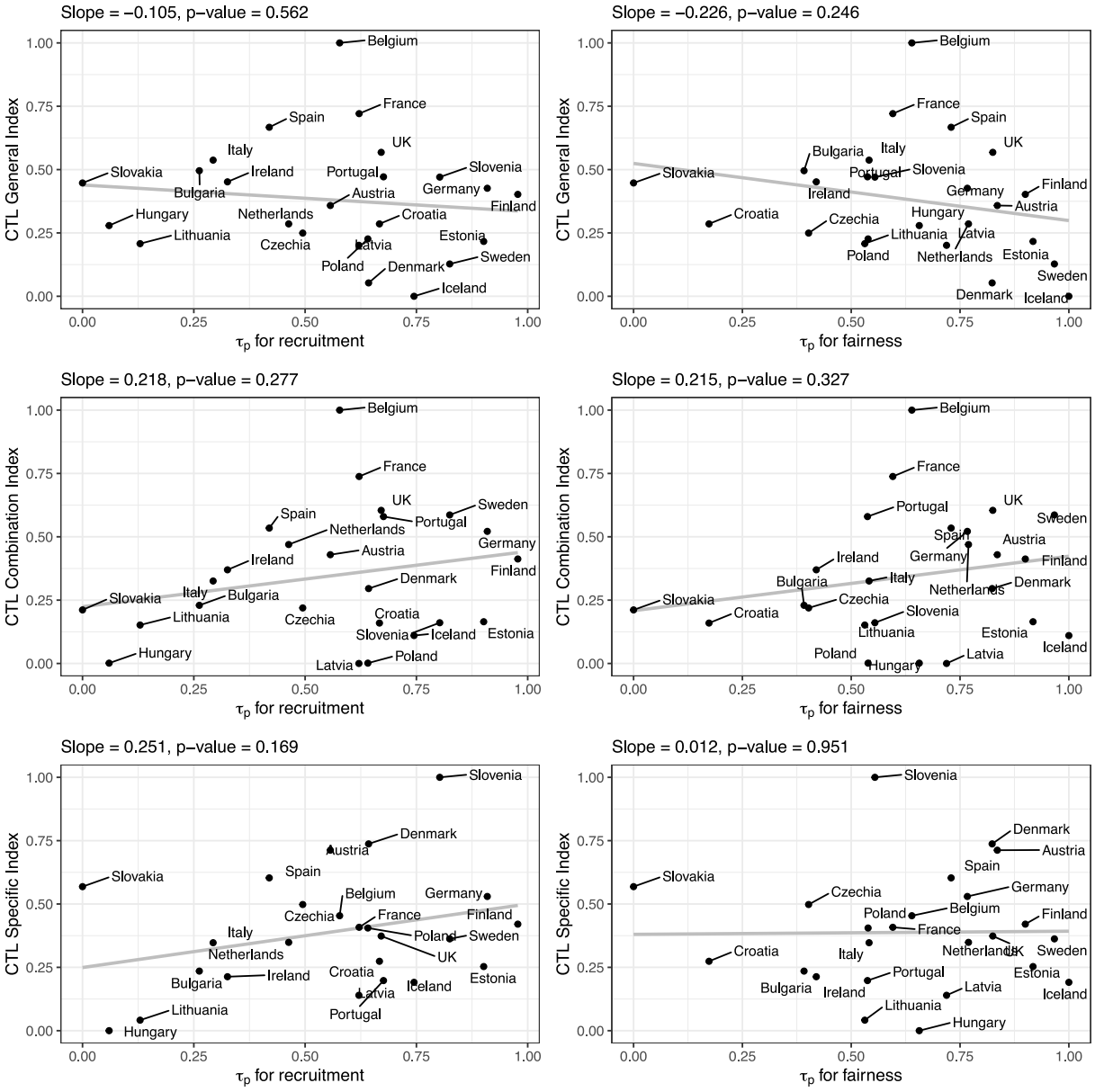

Fig. 7. Comparison of norm specificity τ_p with Uz (2015) (higher values = looser).
Notes: Uz (2015) calculates the standard deviation of selected items from the 4th wave of the World Values Survey, with higher values indicating looser societies. She constructs three indices: the domain-specific index (tolerance for moral deviations, e.g., abortion, divorce), the domain-general index (mean SD across items), and the combination index (aggregating scores across work, family, and religion). Data are detailed in Appendix F.

the content of fairness norms, the specificity of these norms has remained largely unexamined. Using data from the European Social Survey (European Social Survey, 2018), I operationalised normative specificity as the cognitive distance between merit-based and non-merit-based considerations in two domains: recruitment and distributive justice. Applying Hierarchical Multidimensional Scaling (Yanchenko & Hoff, 2020), I estimated a specificity parameter, τ_p, for 29 European societies. This parameter captures the sharpness with which individuals distinguish between admissible and inadmissible justifications—the narrowness of the admissible action set that Bicchieri (2005) theorised as central to norm strength.

The results reveal systematic variation across European societies. Nordic countries—Denmark, Finland, Norway, Sweden—consistently exhibit high τ_p scores, indicating sharply defined normative boundaries. In these societies, merit-based considerations are cognitively segregated from non-merit factors. This pattern is consistent with their robust social welfare systems and high institutional trust (Esping-Andersen, 1990; Gärtner & Prado, 2016). At the opposite end, post-communist societies—Slovakia, Bulgaria, Lithuania—show low τ_p scores, suggesting more fluid categories and less sharp distinctions between merit and non-merit considerations. This finding resonates with analyses of post-communist societies where institutional breakdown undermined reliable enforcement (Ledeneva, 1998; Sztompka, 1999). Between these poles, Western European societies occupy intermediate positions. Hungary presents a revealing case of decoupled specificity: it exhibits high τ_p for fairness principles alongside very low τ_p for recruitment. This pattern suggests a political culture where descriptive norms are

imposed from above while prescriptive norms remain only weakly internalised among citizens (Krekó & Enyedi, 2018).

This variation carries several theoretical implications. First, it suggests that the content-specificity distinction is empirically meaningful. Societies that agree on the importance of merit—and the ESS data show broad cross-national consensus that merit should matter—may differ fundamentally in how rigidly they distinguish merit from non-merit. This finding indicates that norm strength may not be directly inferable from norm content: knowing what people believe may not fully capture how sharply they believe it. By separating these dimensions, the present study reveals that two societies may endorse identical fairness principles while differing dramatically in the cognitive architecture that governs their application.

Second, the pattern of variation is consistent with institutional explanations. The Nordic high-specificity cluster corresponds to societies characterised by high institutional trust and low corruption, while the post-communist low-specificity cluster corresponds to societies where institutional breakdown undermined reliable enforcement (Gächter & Schulz, 2016). This alignment echoes Tyler's argument that clear, consistently enforced rules enhance legitimacy. It points to a potential alignment between normative expectations and actual enforcement: where institutions reliably penalise rule-breaking, individuals may draw sharper boundaries; where enforcement is unreliable, blurred boundaries may represent an adaptive response to uncertainty. Indeed, τ_p correlates negatively with the Prevalence of Rule Violations index (Gächter & Schulz, 2016), providing empirical evidence that societies with sharper normative boundaries have fewer rule violations. This relationship should not, however, be interpreted as endorsing high specificity; lower-specificity structures may represent adaptive flexibility in environments where formal rules cannot be trusted (Szekely et al., 2025).

Importantly, fairness norm specificity appears empirically distinct from generalised cultural tightness–looseness (Gelf et al., 2011; Uz, 2015). Weak and non-significant correlations suggest that the sharpness of fairness boundaries operates independently of the broader normative climate. This finding contributes to an emerging literature demonstrating domain-specificity in norm enforcement (Bergquist et al., 2019; Eriksson et al., 2022; Smith et al., 2025) and refines the tightness–looseness framework itself. Rather than a unitary dimension, norm strength appears to be a family of domain-specific phenomena whose profiles vary across societies. Sweden exemplifies this complexity. Often characterised as culturally loose due to permissive norms regarding sexuality and gender roles, it paradoxically exhibits high-specificity fairness norms and is perceived as tighter than the United States due to strict norms in public-facing domains (Eriksson et al., 2022). The findings also speak to broader debates about normative change: while overall permissiveness has increased globally, norms have grown stricter for behaviours that raise concerns about inconsiderateness and vulgarity (Eriksson et al., 2025). This directional change has not erased persistent cross-sectional variation—a pattern exemplified by the Nordic and post-communist societies in this study.

Several limitations counsel caution. First, the τ_p parameter captures cognitive representations rather than enforcement behaviours; the link between cognitive specificity and actual sanctioning remains inferred rather than directly observed. Second, the country-level focus, while revealing broad regional patterns, obscures within-country variation that may be substantial and theoretically significant. Third, the European focus limits generalisability to other regions or normative domains. Although empirical tests support sufficient equivalence in fairness concepts across European societies to allow comparison, subtler semantic or conceptual differences cannot be ruled out entirely. Future work should address these limitations by incorporating behavioural measures of enforcement, examining subnational variation, extending the framework beyond Europe and the fairness domain, and employing longitudinal designs to assess whether sharp boundaries erode during institutional upheaval or whether blurred boundaries sharpen under sustained reform.

These limitations notwithstanding, the study makes several contributions. Theoretically, it demonstrates the value of distinguishing content from strength, and specificity from consensus, in analysing normative systems. It responds to Bicchieri and Demo (2025)'s call to reconceptualise specificity beyond statistical convergence, treating it instead as the sharpness of categorical boundaries. Methodologically, it introduces a novel approach to quantifying normative specificity that moves beyond behavioural proxies to reveal underlying cognitive structure. Empirically, it documents systematic variation in fairness norm specificity across European societies and links this variation to institutional integrity, while showing that this dimension is distinct from both consensus and generalised cultural tightness. By shifting analytic attention from content to specificity, this study draws attention to a dimension of social life that may influence how rules are recognised, enforced, and internalised. The specificity of a norm is not merely a matter of agreement but of architecture: the sharpness of its boundaries determines its force. And this architecture may be connected to the institutions within which it develops—suggesting that normative systems are sustained not only in minds but also in the reliable enforcement of rules. Where institutions are strong, boundaries tend to be sharper. Where institutions are weak, boundaries tend to be more blurred. The sharpness of our categories depends on the reliability of our world.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the author(s) used Deepseek for language polishing and NotebookLM for summarisation. After using these tools/services, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the published article.

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Declaration of competing interest

The author(s) declare no competing interests.

Appendix A. Data description

Missing data is addressed during the calculation of distances. For each country, only complete cases (for each variable pair) are considered in the analysis, meaning that any rows with missing values are excluded from the calculation. This ensures that the calculation reflects only valid data points, preventing missing data from skewing the results. The distance is calculated using Spearman's rank correlation, which is robust to outliers and appropriate for ordinal data. The analysis also incorporates weighted correlations, using survey weights to ensure the results are representative of the population.

No.	Country	Observations	Recruitment (% missing)	Fairness (% missing)
1	Austria	2499	2.10	2.01
2	Belgium	1767	1.49	0.82
3	Bulgaria	2198	17.32	11.95
4	Switzerland	1542	3.44	2.56
5	Cyprus	781	3.74	1.47
6	Czechia	2398	6.41	4.02
7	Germany	2358	2.58	1.30
8	Denmark	1572	2.24	1.92
9	Estonia	1904	1.30	0.33

10	Spain	1668	5.18	4.59
11	Finland	1755	1.71	1.11
12	France	2010	2.67	1.48
13	Croatia	1810	4.04	2.27
14	Hungary	1661	6.18	1.78
15	Ireland	2216	2.99	1.32
16	Iceland	861	2.42	1.36
17	Italy	2745	4.77	2.22
18	Lithuania	1835	6.79	3.41
19	Latvia	918	9.43	5.39
20	Montenegro	1200	4.15	1.65
21	Netherlands	1673	1.65	1.43
22	Norway	1406	0.83	0.71
23	Poland	1500	5.89	3.03
24	Portugal	1055	4.55	2.13
25	Serbia	2043	9.31	2.84
26	Sweden	1539	1.78	1.71
27	Slovenia	1318	3.35	1.75
28	Slovakia	1083	5.84	2.70
29	UK	2204	2.03	0.74

Appendix B. Robustness check

To ensure the robustness of the country-specific scale parameter τ_p, model diagnostics were performed to verify MCMC convergence and sampling adequacy. Key checks included divergences, the R-hat statistic, and Effective Sample Size (ESS). Divergences indicate issues in exploring the posterior, often due to over- or underfitting. R-hat values close to 1 indicate proper convergence, while values above 1.1 suggest misalignment between model complexity and data. ESS measures the number of effectively independent samples, with values above 400 per parameter desirable. These diagnostics allow identification of convergence or model fit issues, ensuring reliable estimates of τ_p.

Fairness. Over 20,000 iterations, no divergent transitions occurred, no samples reached the maximum tree depth of 10, and E-BFMI showed no issues. The minimum ESS was 1284 and the maximum R-hat was 1.00, indicating well-mixed chains and proper convergence.

Country	Mean	Lower bound	Upper bound	ESS	R-hat	Normalised
Slovakia	1.01	0.65	1.49	1298.26	1.00	0.00
Croatia	1.08	0.70	1.60	1294.94	1.00	0.17
Serbia	1.16	0.75	1.71	1303.43	1.00	0.36
Bulgaria	1.17	0.76	1.74	1296.21	1.00	0.39
Czechia	1.18	0.77	1.74	1304.33	1.00	0.40
Ireland	1.18	0.77	1.75	1291.60	1.00	0.42
Montenegro	1.22	0.79	1.81	1292.66	1.00	0.51
Lithuania	1.23	0.81	1.82	1295.64	1.00	0.53
Portugal	1.23	0.80	1.83	1304.01	1.00	0.54
Poland	1.23	0.80	1.83	1291.58	1.00	0.54
Italy	1.24	0.81	1.83	1284.48	1.00	0.54
Slovenia	1.24	0.81	1.84	1306.60	1.00	0.55
Cyprus	1.25	0.81	1.85	1302.50	1.00	0.57
France	1.26	0.82	1.87	1286.26	1.00	0.60
Belgium	1.28	0.83	1.89	1293.76	1.00	0.64
Hungary	1.28	0.84	1.90	1305.75	1.00	0.66
Latvia	1.31	0.85	1.95	1314.08	1.00	0.72
Spain	1.32	0.86	1.95	1305.23	1.00	0.73
Germany	1.33	0.87	1.96	1317.29	1.00	0.77
Netherlands	1.33	0.87	1.98	1314.34	1.00	0.77
Switzerland	1.34	0.87	2.00	1317.98	1.00	0.80
Denmark	1.36	0.88	2.01	1301.61	1.00	0.82
UK	1.36	0.89	2.01	1292.74	1.00	0.83
Norway	1.36	0.88	2.01	1301.29	1.00	0.83
Austria	1.36	0.89	2.02	1292.83	1.00	0.84

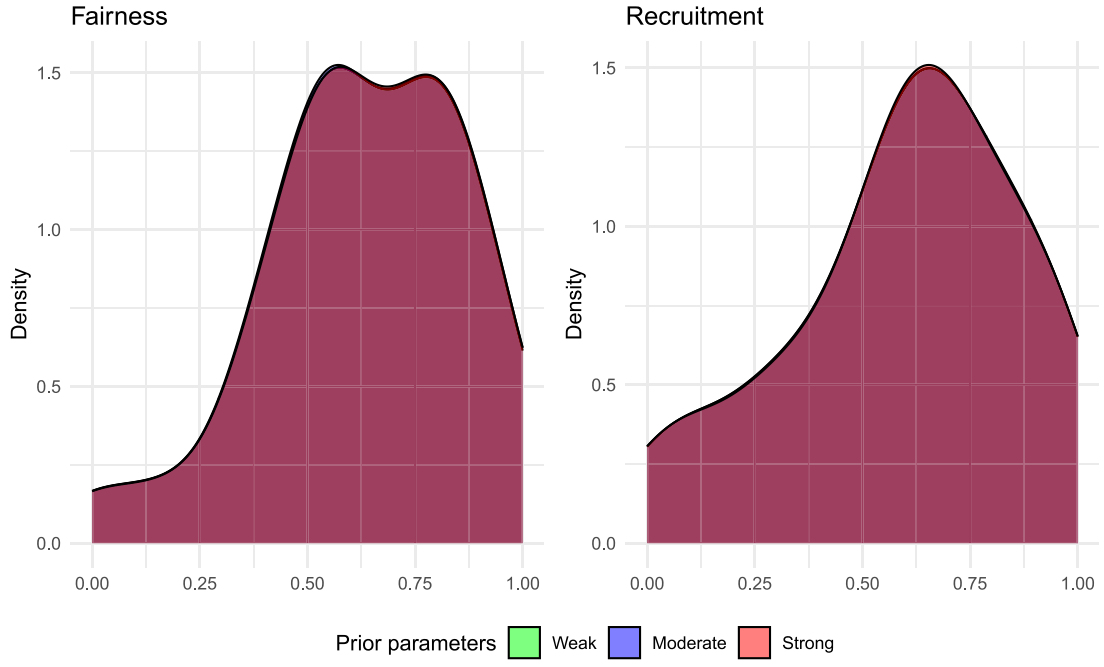

Fig. C.1. Sensitivity Analysis.

Finland	1.39	0.90	2.06	1307.65	1.00	0.90
Estonia	1.40	0.91	2.07	1283.92	1.00	0.92
Sweden	1.42	0.92	2.10	1305.22	1.00	0.97
Iceland	1.43	0.94	2.12	1298.46	1.00	1.00

Recruitment. Over 20,000 iterations, no divergences occurred, no samples reached the maximum tree depth, and E-BFMI showed no issues. The minimum ESS was 749 and the maximum R-hat was 1.00, confirming convergence and sufficient sampling.

Country	Mean	Lower bound	Upper bound	ESS	R-hat	Normalised
Slovakia	1.16	0.75	1.73	670.67	1.00	0.00
Hungary	1.18	0.76	1.77	665.12	1.00	0.06
Lithuania	1.20	0.78	1.80	668.29	1.00	0.13
Bulgaria	1.24	0.80	1.86	664.67	1.00	0.26
Italy	1.25	0.81	1.87	665.26	1.00	0.29
Ireland	1.26	0.81	1.88	667.86	1.00	0.33
Spain	1.29	0.83	1.93	669.58	1.00	0.42
Netherlands	1.30	0.84	1.95	668.47	1.00	0.46
Czechia	1.31	0.85	1.96	664.98	1.00	0.50
Serbia	1.32	0.85	1.97	668.59	1.00	0.52
Austria	1.33	0.86	1.98	667.37	1.00	0.56
Belgium	1.34	0.86	2.00	664.49	1.00	0.58
Latvia	1.35	0.87	2.01	662.59	1.00	0.62
France	1.35	0.87	2.01	661.92	1.00	0.62
Denmark	1.35	0.88	2.02	670.20	1.00	0.64
Poland	1.35	0.88	2.03	664.81	1.00	0.64
Croatia	1.36	0.88	2.04	666.07	1.00	0.67
UK	1.36	0.89	2.04	665.29	1.00	0.67
Portugal	1.36	0.88	2.04	664.00	1.00	0.68
Iceland	1.39	0.89	2.08	667.79	1.00	0.75
Switzerland	1.40	0.91	2.09	664.94	1.00	0.79
Norway	1.40	0.91	2.10	664.23	1.00	0.79
Slovenia	1.40	0.91	2.10	665.94	1.00	0.80
Sweden	1.41	0.91	2.11	665.38	1.00	0.82
Estonia	1.43	0.93	2.15	667.46	1.00	0.90
Germany	1.44	0.93	2.16	666.92	1.00	0.91
Cyprus	1.45	0.93	2.17	664.39	1.00	0.95
Finland	1.46	0.95	2.19	667.74	1.00	0.98
Montenegro	1.46	0.95	2.19	659.50	1.00	1.00

Appendix C. Sensitivity analysis

A sensitivity analysis is conducted to assess how prior assumptions affect the estimation of the scale parameter τ_p, which is modelled using an inverse-gamma distribution, $\tau_p \sim \text{Inv-Gamma}(\alpha, \beta)$, where the hyperparameters α and β control the strength of the prior belief. The analysis systematically varies these hyperparameters across three configurations representing weak ($\alpha = 1, \beta = 1$), moderate ($\alpha = 2, \beta = 5$), and strong ($\alpha = 3, \beta = 10$) prior beliefs, while keeping other model parameters fixed. For each configuration, the model is estimated using MCMC sampling, and the resulting posterior means of τ_p are extracted, normalised to the $[0, 1]$ range, and compared across prior settings using kernel density plots. This approach allows evaluation of how changes in prior strength influence the posterior distribution. The results show substantial overlap in the density curves across all three prior configurations, indicating that the posterior estimates of τ_p are robust and not highly sensitive to the choice of prior, suggesting that the conclusions are driven primarily by the data rather than prior assumptions (see Fig. C.1).

Appendix D. Prevalence of Rule Violations (PRV) of Gächter and Schulz (2016)

Code	Country	PRV index	Fairness	Recruitment
LT	Lithuania	0.437	0.531	0.129
UK	United Kingdom	0.027	0.825	0.671
SE	Sweden	0.060	0.967	0.825
DE	Germany	0.092	0.767	0.909
IT	Italy	0.360	0.541	0.293
SK	Slovakia	0.331	0.000	0.000
ZA	South Africa	0.408		
MY	Malaysia	0.590		
NL	Netherlands	0.033	0.769	0.463
AT	Austria	0.000	0.836	0.557
GT	Guatemala	0.847		
ES	Spain	0.210	0.730	0.419
CZ	Czech Republic	0.309	0.402	0.495
CO	Colombia	0.668		
ID	Indonesia	0.581		
GE	Georgia	1.000		
KE	Kenya	0.764		
VN	Vietnam	0.697		
PL	Poland	0.392	0.539	0.641
TR	Turkey	0.614		
CN	China	0.651		
MA	Morocco	0.698		
TZ	Tanzania	0.912		

Note: All values are min–max normalised into the $[0, 1]$ range. Fairness and Recruitment are based on my calculations in the EU region. Source: Gächter and Schulz (2016).

Appendix E. Cultural Tightness and Looseness of Gelf et al. (2011)

Code	Country	Tightness	Fairness	Recruitment
AU	Australia	0.262		
AT	Austria	0.486	0.836	0.557
BE	Belgium	0.374	0.639	0.578
BR	Brazil	0.178		
EE	Estonia	0.093	0.918	0.901
FR	France	0.439	0.596	0.621
DE	Germany	0.505	0.767	0.909
GR	Greece	0.215		
HK	Hong Kong	0.439		
HU	Hungary	0.121	0.656	0.060
IS	Iceland	0.449	1.000	0.745
IN	India	0.879		
IL	Israel	0.140		
IT	Italy	0.486	0.541	0.293
JP	Japan	0.654		
MY	Malaysia	0.953		
MX	Mexico	0.523		
NL	Netherlands	0.159	0.769	0.463
NZ	New Zealand	0.215		
NO	Norway	0.738	0.827	0.790
PK	Pakistan	1.000		
CN	China	0.589		
PL	Poland	0.411	0.539	0.641
PT	Portugal	0.579	0.537	0.676
SG	Singapore	0.822		
KR	South Korea	0.785		
ES	Spain	0.355	0.730	0.419
TR	Turkey	0.710		
UA	Ukraine	0.000		
GB	United Kingdom	0.495		
US	United States	0.327		
VE	Venezuela	0.196		

Note: Germany represents the average between former East and West Germany. All values are min–max normalised into the $[0, 1]$ range. Fairness and Recruitment are based on my calculations in the EU region. Source: Gelf et al. (2011).

Table F.1
Cultural Tightness and Looseness of Uz (2015).

Code	Country	Specific index	General index	Combination index	Fairness	Recruitment
LV	Latvia	0.140	0.201	0.000	0.719	0.621
HU	Hungary	0.000	0.279	0.001	0.656	0.060
PL	Poland	0.405	0.226	0.001	0.539	0.641
IS	Iceland	0.191	0.000	0.110	1.000	0.745
LT	Lithuania	0.041	0.208	0.152	0.531	0.129
HR	Croatia	0.274	0.286	0.160	0.173	0.667
SI	Slovenia	1.000	0.470	0.161	0.554	0.802
EE	Estonia	0.253	0.216	0.165	0.918	0.901
SK	Slovakia	0.568	0.447	0.211	0.000	0.000
CZ	Czech Republic	0.498	0.249	0.219	0.402	0.495
BG	Bulgaria	0.235	0.496	0.230	0.392	0.262
DK	Denmark	0.737	0.053	0.296	0.824	0.643
IT	Italy	0.347	0.537	0.326	0.541	0.293
IE	Ireland	0.213	0.452	0.370	0.420	0.326
FI	Finland	0.420	0.402	0.412	0.900	0.978
AT	Austria	0.712	0.358	0.429	0.836	0.557
NL	Netherland	0.349	0.286	0.470	0.769	0.463
DE	Germany	0.530	0.426	0.521	0.767	0.909
ES	Spain	0.603	0.667	0.534	0.730	0.419
PT	Portugal	0.198	0.471	0.580	0.537	0.676
SE	Sweden	0.362	0.127	0.586	0.967	0.825
UK	Great Britain	0.373	0.568	0.604	0.825	0.671
FR	France	0.408	0.721	0.738	0.596	0.621
BE	Belgium	0.454	1.000	1.000	0.639	0.578

Note: All values are min–max normalised into the $[0, 1]$ range. Fairness and Recruitment are based on my calculations in the EU region. Source: Uz (2015).

Appendix F. Cultural Tightness and Looseness of Uz (2015)

See Table F.1.

Data availability

The data and replication code supporting this study are openly available.

Research data (Figshare)
Replication code (Figshare)

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