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Patriotic bias in sports judging – A matter of juror and athlete socialization at the national level

Patrick Alexander Braeunig

Sports Science Institute, Saarland University, Saarbrücken, Germany

ABSTRACT

This study examines the causes of patriotic bias in sports judging, where jurors favor athletes from their own country. It uses Olympic scoring data from figure skating and snowboarding, which represent sports with distinct socialization contexts. It tests the hypothesis that shared national-level socialization between jurors and athletes fosters such bias. This shared socialization is conceptualized as arising from frequent interactions, including jurors' advisory roles during training, shared cultural influences, and the jurors' engagements with their respective national federations. The study thus contributes to understanding the socio-cultural roots of judging bias and provides insights for the development of judging frameworks and interventions aimed at reducing patriotic bias and safeguarding judging integrity. The findings demonstrate a significantly stronger patriotic bias among figure skating jurors, linked to their national-level socialization, whereas snowboarding jurors – socialized and operating within a more globalized environment – exhibited negligible bias. These results support the hypothesis that national-level socialization fosters patriotic bias, which may arise through both deliberate and inadvertent mechanisms. Accordingly, conventional countermeasures such as sanctions or rule modifications may prove insufficient to fully mitigate this bias, highlighting the need for structural reforms within judging systems to preserve the integrity of sports performance judging.

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1. Introduction

In 'aesthetic sports' (McFee, 2013, p. 2), where performance is evaluated subjectively rather than through objective measurement, jurors serve as human instruments of measurement (Haase, 1972). Their role involves assessing athletes using qualitative criteria and assigning scores to determine rankings (Heinen, 2008; Klein et al., 2014). This evaluation process is executed under significant time constraints and relies heavily on sophisticated cognitive skills, which can result in heuristic-based errors and biases (Plessner, 1997,2004). One prevalent form of bias is 'patriotic bias' (Sala et al., 2007, p. 18), wherein jurors tend to award inflated scores to athletes of their own nationality. Evidence of patriotic bias has been documented across multiple sports, including ski jumping (Lyngstad et al., 2020; Scholten et al., 2020; Zitzewitz, 2006), dressage (Sandberg, 2018), gymnastics (Ansorge & Scheer, 1988; Heiniger & Mercier, 2019; Morgan & Rotthoff, 2014), figure skating (Campbell & Galbraith, 1996; Seltzer & Glass, 1991; Whissell et al., 1993; Zitzewitz, 2006, 2014), diving (Emerson et al., 2009; Emerson & Meredith, 2011), and Muay Thai (Myers et al., 2006).

While the term *bias* often implies intentional distortion (Emerson et al., 2009), the mechanisms underlying patriotic bias are not fully understood and may extend beyond mere nationalistic tendencies. For instance, process-sociological perspectives propose that the shared socialization of athletes and jurors at the national level fosters patriotic bias via various mechanisms (Lyngstad et al., 2020). It may, for example, produce common performance expectations and stylistic preferences that are not universally

CONTACT Patrick Alexander Braeunig patrick.braeunig@uni-saarland.de Fakultät für empirische Humanwissenschaften und Wirtschaftswissenschaft, Arbeitsbereich Sportökonomie und Sportsoziologie, Universität des Saarlandes, Campus Geb. B8 1, Raum 0.13, D-66123 Saarbrücken, Germany

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recognized (Bassett & Persky, 1994; Emerson & Meredith, 2011; Lyngstad et al., 2020). Correlations between the scoring of West and East German figure skating jurors suggest that cultural influences may outweigh political considerations in shaping judging behavior (Fenwick & Chatterjee, 1981). Similarly, findings by Scholten et al. (2020) show that younger ski jumping judges – socialized in a more globalized sporting environment – exhibit less national bias than their older colleagues, potentially reflecting an erosion of biases linked to national and subnational socialization contexts.

In addition, a two-process model posits that repeated exposure to a sports performance facilitates the processing of perceptual stimuli, leading jurors to prefer these familiar stimuli over others (Moreland & Zajonc, 1977; Ste-Marie & Lee, 1991). This bias mechanism is considered particularly relevant in non-analytical assessments, such as the formation of overall impressions (Ste-Marie, 1996; Ste-Marie & Lee, 1991). A potentially related, 'affiliation bias' (Litman & Stratmann, 2018, p. 6) has been observed in regional and national competitions, where jurors favor athletes from their own local clubs due to shared stylistic preferences (Litman & Stratmann, 2018). Jurors' frequent interactions with athletes and national associations, often through training sessions, evaluations, and advisory roles, further reinforce such nationalistic biases (Sala et al., 2007). These interactions create strong bonds that may contribute to patriotic bias, as jurors rely on their national sports associations for career advancement and support (Lyngstad et al., 2020): 'The current system prevents a judge from being fair. To be fair may cost a judge's team dearly' (Scheer & Ansorge, 1987, p. 6). In this context, jurors in international competitions may experience a role conflict as they balance the expectations of their national and international federations (Sala et al., 2007). As 'quasi-state representatives' (Sala et al., 2007, p. 20), jurors are influenced by the expectation to advance their national associations' success: 'Some judges are tightly controlled by the presidents of their national federations… They know that if they don't follow orders, their federation president will never give them a good judging assignment' (Goodwin, 2004, pp. 189–190). However, they are also required by the international federation rules to uphold impartiality, sometimes even taking an oath to this effect, as seen in artistic gymnastics (see Fédération Internationale de Gymnastique [FIG], 2022a, p. 18, 2022b, Section 5, p. 4). Lastly, jurors may exhibit bias through an informal scoring practice, consistently favoring compatriots when choosing between scoring alternatives, which results in a measurable patriotic bias of approximately half a scoring increment (Campbell & Galbraith, 1996).

In conclusion, while few studies suggest that jurors consciously exhibit nationalist tendencies (Heiniger & Mercier, 2019; Whissell et al., 1993), research indicates that shared national-level socialization of jurors and athletes is a primary contributor to patriotic bias, whether through intentional or unintentional mechanisms (Fenwick & Chatterjee, 1981; Lyngstad et al., 2020; Sala et al., 2007; Ste-Marie, 1996). However, this hypothesis has not been systematically tested. To address this gap, a statistical estimation and a subsequent comparison of patriotic bias are conducted between two sports with differing athlete and juror socialization processes: figure skating and snowboarding. These sports were selected due to their contrasting socialization environments (Hines, 2011; Smith, 2015).

Snowboarding is characterized as an 'American Youth Culture without Borders' (Barjolin-Smith, 2020, p. 2), where athletes primarily socialize on an international level, often relocating to specific areas to immerse themselves in the snowboarding community and its opportunities, such as employment to support their athletic pursuits (Thorpe, 2012). This global environment fosters a strong emphasis on individuality in performances (Stern, 2010), with team or national affiliations being less prominent, even though team competitions are common (Barjolin-Smith, 2020). Professional snowboarders continue to engage with this international community, spending much of the year abroad to develop new techniques at renowned snowboarding locations worldwide (Ojala, 2014). The extensive array of specialized snowboarding media further enables these athletes to maintain a degree of independence from traditional sports associations (Ojala, 2014). Through online forums and media profiles, snowboarders actively participate in intra-sport discourse, influencing peers by sharing their tricks and techniques (Ojala, 2014; Stern, 2010). In addition to their competitive performances and training, elite snowboarders serve as trendsetters, contributing to the ongoing evolution of snowboarding style (Barjolin-Smith, 2020).

By contrast, figure skating emphasizes national-level training and hierarchical career progression, with athletes and jurors forming strong bonds within local clubs and national associations before progressing to the international stage (Sala et al., 2007; Smith, 2015). Figure skaters often specialize from a young age to meet national objectives of achieving high performance levels in international competitions

(Smith, 2015). Access to international competitions is typically attained through exemplary performances at national championships organized by their respective national federations (Hines, 2011). Athletes progress through a hierarchical qualification system, beginning at regional and national levels before advancing to international stages (Litman & Stratmann, 2018). Consequently, figure skaters initiate their careers within local clubs and associations, only gradually interacting with international organizations as they advance. Similarly, jurors commence their careers at the local club level, progressing to the national level after completing various training stages and evaluations (International Skating Union [ISU], 2022a; Sala et al., 2007). It is only after undergoing international training that they become eligible to represent their national federations in international competitions (ISU, 2022a).

In summary, figure skating athletes and jurors typically start their careers by joining local clubs and gradually progress to national and international levels, fostering stronger social bonds at the national level. Conversely, snowboarding athletes and jurors begin their careers in an already international environment, socializing globally through direct interactions and media engagement. This international socialization exposes them to widely shared ideas about performance quality and style, potentially reducing the influence of national affiliations. In snowboarding, community bonds are driven by a shared commitment to style, while in figure skating, these bonds are reinforced through formal club memberships and local affiliations, which promote regional and national cohesion (Stern, 2010).

According to process-sociological perspectives on the mechanisms leading to patriotic bias, the illustrated differences between socialization processes in figure skating and snowboarding suggest differences in patriotic bias between the two sports. It is hypothesized that patriotic bias is more pronounced in figure skating than in snowboarding:

$$H_1 = \mathrm{PB}_{\text{Figure Skating}} > \mathrm{PB}_{\text{Snowboarding}}$$

$$H_0 = \mathrm{PB}_{\text{Figure Skating}} \leq \mathrm{PB}_{\text{Snowboarding}}$$

Section 2 describes the scoring data and statistical methods employed to estimate and compare patriotic bias between figure skating and snowboarding. Section 3 presents the empirical results, followed by a discussion of the findings in Section 4.

2. Materials and methods

2.1. Scoring data and systems

Scoring data for figure skating and snowboarding events at the 2022 Olympic Games were sourced from the official *Book of Results* (Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games, 2022a, 2022b). The dataset includes scores from jurors in Ladies' Singles Skating, Men's Singles Skating, Pair Skating, and Ice Dance events in figure skating, as well as Big Air and Halfpipe events in snowboarding for both men's and women's competitions. Scores from the Slopestyle event in snowboarding were excluded because individual juror scores were not disclosed. Athlete and juror nationalities were obtained from the *Book of Results* for snowboarding and from the official ISU *List of Referees, Judges, Technical Controllers, Technical Specialists, Data & Replay Operators for the 2021/22 Season* for figure skating (ISU, 2021). A summary of the scoring data is presented in Table 1.

The dataset comprises 25,164 scores, including 14,373 element scores and 8,325 program component scores from 46 figure skating jurors evaluating 100 athletes. Additionally, eight snowboarding jurors provided 2,466 overall impression scores for 103 athletes.

In figure skating, a panel of nine individual jurors evaluated each routine during a single competition round. Routines ranged from 2 min and 30 s to 4 min and 10 s and consisted of up to 13 individual elements scored on a scale from −5 to +5 points in 1-point increments. After the routine, five program components—Skating Skills, Transitions, Performance/Execution, Composition/Choreography and Interpretation/Timing—were scored separately on a 0.25 to 10-point scale, with 0.25-point increments. Thus, each juror provided up to 18 scores per routine. Final scores for elements and program components were calculated as the trimmed mean, excluding the two highest and two lowest scores from the

Table 1. Figure skating and snowboarding scoring data.

	Figure skating	Snowboarding
Unique jurors	**46**	**8**
Thereof in a single panel	9	6
Unique athletes/pairs (unique performances)	**100 (185)**	**103 (411)**
Thereof in men's single skating/men's halfpipe	29 (53)	25 (85)
Thereof in women's single skating/women's halfpipe	30 (55)	22 (80)
Thereof in pair skating/men's aerials	18 (34)	29 (123)
Thereof in ice dance/women's aerials	23 (43)	29 (123)
Scores	**22,698**	**2,466**
Element scores (mean [SD])	**14,373 (1.62 [2.21])**	
Thereof for compatriots	790 (1.94 [2.26])	
Thereof for non-compatriots	13,583 (1.60 [2.21])	
Program component scores (mean [SD])	**8,325 (8.15 [0.93])**	
Thereof for compatriots	470 (8.35 [0.88])	
Thereof for non-compatriots	7,855 (8.14 [0.93])	
Overall impression scores (mean [SD])		**2,466 (50.41 [27.92])**
Thereof for compatriots		222 (52.44 [28.30])
Thereof for non-compatriots		2,244 (50.20 [27.88])

panel. The overall routine score was the sum of the final element and program component scores, after an event- and round-specific weighting. Final standings were determined by summing the scores from qualification and final rounds (Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games, 2022a; ISU, 2022a).

In snowboarding, athletes performed two runs in the qualification round and three runs in the final round of the Halfpipe event. Each run was scored by six jurors on a 0 to 100-point scale in 1-point increments. Final scores were calculated as the trimmed mean, excluding the highest and lowest scores. Advancement or elimination after the qualification round was based on the better of the two runs. Final standings were determined by the best run in the final round. In the Big Air event, athletes performed three jumps in both qualification and final rounds. Advancement and standings were based on the sum of the best two jumps from each round, with final results determined exclusively by the final round performances (Fédération Internationale de Ski [FIS], 2023a; Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games, 2022b).

2.2. Estimating patriotic bias

Drawing on the linear mixed-effects regression approach employed in recent studies on national bias (e.g. Krumer et al., 2022; Sandberg, 2018; Zitzewitz, 2006), patriotic bias is estimated using the following baseline model:

$$S_{jap} = \varnothing_{ap} + Y_j + \beta_1 \phi\left(Nat_a = Nat_j\right) \tag{1}$$

A central challenge in estimating nationalistic bias in sports judging arises from the lack of an objective measure for the true aesthetic quality of a performance (Heiniger & Mercier, 2019, 2021; Sandberg, 2018). To address this issue, the baseline model presented above compares each score assigned by a juror to a performance fixed effect, which reflects the evaluation of the same performance by all other jurors on the panel (Sandberg, 2018). This approach enables the isolation of a juror's deviation from their colleagues. To further control for systematic differences in individual scoring tendencies, a juror fixed effect is included in the model that accounts for variation in scoring leniency across jurors, thereby addressing a major confounding factor in the analysis of national bias (Emerson et al., 2009; Emerson & Meredith, 2011).

Given that figure skating involves the separate evaluation of multiple distinct characteristics of a performance, each separate score (S) assigned by a juror (j) for a specific performance (p) of athlete (a) must be treated as an individual scoring case (S_{jap}). Accordingly, the performance identifier (p) captures not only the sport, event, competition round and run, but also the specific characteristic of a performance being scored (e.g. the individual element or program component being scored in figure skating).

Correspondingly, the performance fixed effect ($\varnothing_{ap}$) captures each unique performance (p) by athlete (a) as a function of the sport, event, competition round, run, athlete and the specific characteristic of the

performance. The juror fixed effect (Y_j) additionally identifies each individual juror (j) and thus captures their overall scoring tendency or leniency, which is assumed to be stable across disciplines and competition rounds.

Lastly, the dummy variable $\phi\left(Nat_a = Nat_j\right)$ identifies scoring cases where juror (j) and athlete (a) share the same nationality. When the nationality of the juror (Nat_j) matches that of the athlete (Nat_a), the dummy variable takes the value of 1. Thus, the coefficient β_1 associated with this indicator quantifies the extent of patriotic bias. Consistent with the modeling strategy proposed by Sandberg (2018), standard errors are clustered on juror (j) and athlete (a).

2.3. Comparing patriotic bias across sports

To test whether figure skating jurors exhibit higher patriotic bias than snowboarding jurors, an additional dummy variable, $\phi\left(\text{Figure Skating} \wedge Nat_a = Nat_j\right)$, is introduced. This variable identifies figure skating scoring cases where the jurors and athletes share the same nationality. When introduced into Model (1), the regression coefficient β_1 now solely represents the amount of patriotic bias exhibited in snowboarding, while β_2, the regression coefficient of the introduced dummy variable, captures the difference in patriotic bias between figure skating and snowboarding jurors:

$$S_{jap} = \varnothing_{ap} + Y_j + \beta_1\phi\left(Nat_a = Nat_j\right) + \beta_2\phi\left(\text{Figure Skating} \wedge Nat_a = Nat_j\right) \tag{2}$$

Due to the differences in scoring scales between figure skating and snowboarding, element scores, program component scores and overall impression scores were z-transformed into z-scores to enable valid comparison. Consequently, the patriotic bias estimates obtained from Model (2) can no longer be interpreted in terms of the original scores. Hypothesis-related p-values were adjusted for one-sided testing following model estimation.

2.4. Exploring juror-specific national bias

To discern whether the estimated patriotic bias originates from individual jurors or represents a broader trend, additional exploratory analyses were conducted to estimate the extent of patriotic bias exhibited by each individual juror. Dummy variables for each juror (ϕ_j) were incorporated into Model (1), leading to Model (3), which provides juror-specific estimates of patriotic bias:

$$S_{jap} = \varnothing_{ap} + \mathrm{Y}_j + \beta_j\phi_j : \phi\left(Nat_a = Nat_j\right) \tag{3}$$

In this model, juror-specific dummy variables (ϕ_j) interact with the dummy variable indicating matching juror and athlete nationality $\left(\phi\left(Nat_a = Nat_j\right)\right)$. Like Model (1), the now juror-specific regression coefficients (β_j) capture the patriotic bias of each juror.

Following model estimation, the alpha error level was manually adjusted using the Bonferroni correction method. To ensure comparability across the different scoring scales, z-scores were employed in the estimation of juror-specific bias. Estimates of juror-specific bias based on the original (non-standardized) scores are presented in Figures A1–A3 of the Appendix.

All statistical analyses were conducted using R Statistical Software (v4.3.2; R Core Team, 2021). Data manipulation was performed with the *dplyr* package (v1.1.4; Wickham et al., 2023), while score modeling was executed using the *lfe* package (v3.1.1; Gaure, 2013).

3. Results

The results from model (1) indicate that jurors assign inflated scores to athletes from their own country in both figure skating (Figures 1 and 2) and snowboarding (Figure 3). In figure skating, patriotic bias is estimated at approximately 0.27 points per element ($\beta = 0.272$; $t(14{,}372) = 7.632$; $p < .001$) and 0.11 points per program component ($\beta = 0.113$; $t(8{,}324) = 5.225$; $p < .001$). In snowboarding, jurors award an additional 0.36 points to compatriots ($\beta = 0.357$; $t(2{,}465) = 2.872$; $p < .05$). However, when contextualized

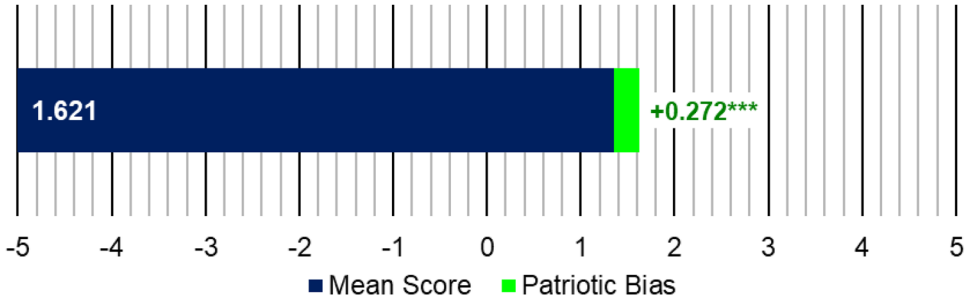

Figure 1. Magnitude of patriotic bias in figure skating element scores. ***$p < .001$.

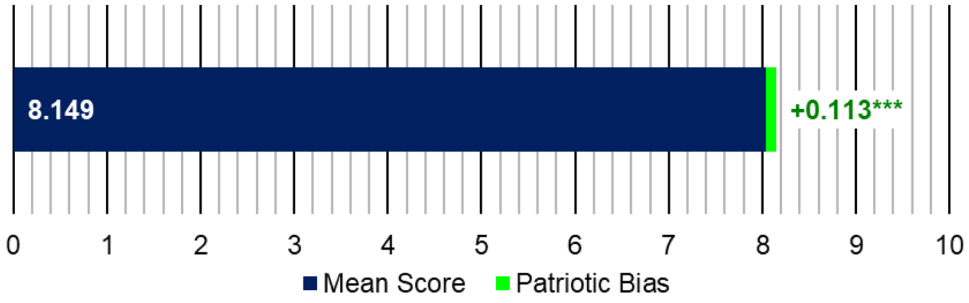

Figure 2. Magnitude of patriotic bias in figure skating program component scores. ***$p < .001$.

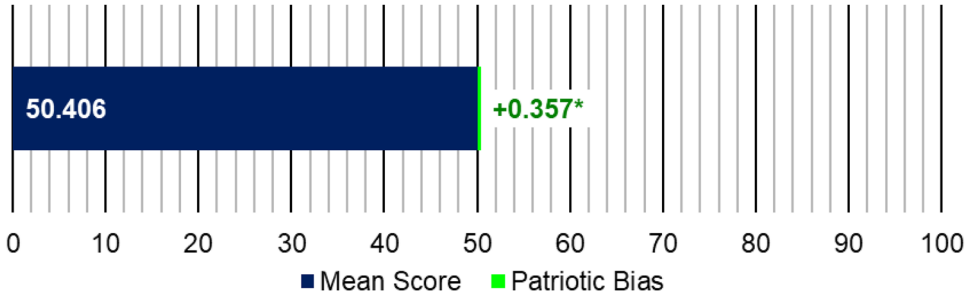

Figure 3. Magnitude of patriotic bias in snowboarding. *$p < .05$.

within the respective rating scales and average scores, the bias in snowboarding appears substantially less pronounced than that observed in figure skating.

Figure 4 illustrates patriotic bias estimates calculated using *z*-scores. In figure skating, bias magnitudes appear consistent across element scores ($\beta = 0.123$; $t(14{,}372) = 7.632$; $p < .001$) and program component scores ($\beta = 0.122$; $t(8{,}324) = 5.225$; $p < .001$).

When combining both performance aspects, patriotic bias in figure skating amounts to approximately 0.12 *z*-points ($\beta = 0.122$; $t(22{,}697) = 7.309$; $p < .001$). In snowboarding, the corresponding bias is considerably smaller, at 0.01 *z*-points ($\beta = 0.013$; $t(2{,}465) = 2.872$; $p < .05$).

Model (2) further confirms that the observed difference in patriotic bias between figure skating and snowboarding jurors is statistically significant ($\beta_2 = 0.110$; $t(25{,}162) = 6.359$; $p < .001$). A summary of Model (2) results is provided in Table 2, with key results for hypothesis testing emphasized in bold.

The additional exploratory analyses conducted via Model (3) highlight distinct patterns in the judging behavior of individual figure skating jurors, with many of them systematically awarding higher scores to athletes from their own country. This finding suggests that patriotic bias in figure skating is not confined to a small subset of highly biased jurors but represents a broader phenomenon (Figures 5 and 6). In contrast, snowboarding jurors displayed mostly insignificant patriotic bias of overall minute magnitude (Figure 7). For comparability, juror-specific patriotic bias estimates are presented in z-scores. Results based on the original scores are detailed in the Appendix (Figures A1–A3).

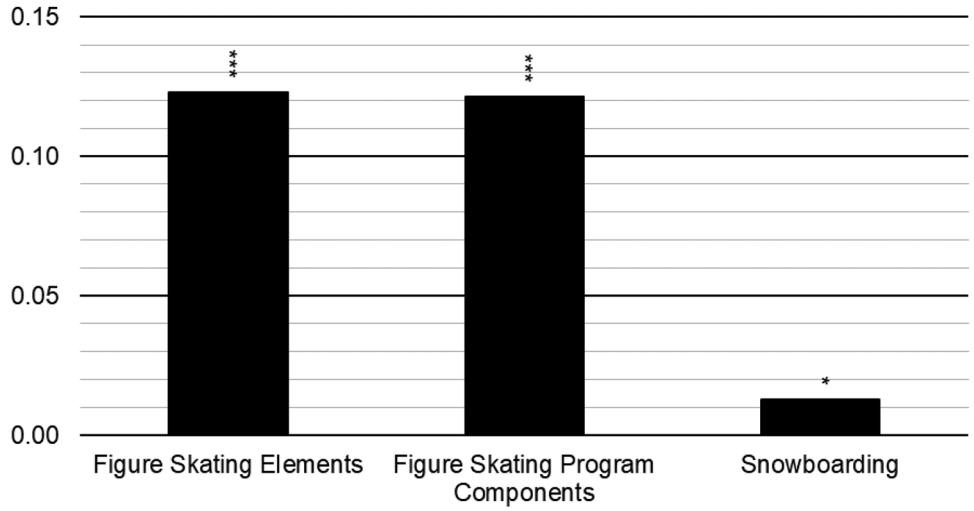

Figure 4. Patriotic bias in *z*-points of figure skating and snowboarding jurors. ***$p < .001$, *$p < .05$.

Table 2. Model (2) results.

Coefficients	Estimate (β)	t	Pr(>|t|)	Adj. R^2
Performance fixed effect				0.924
Juror fixed effect				
National bias in snowboarding $[\phi(Nat_a = Nat_j)]$	0.013	3.042	.004	
Δ National Bias: Figure Skating – Snowboarding $[\phi(\mathbf{FigureSkating} \wedge Nat_a = Nat_j)]$	**0.110**	**6.359**	**<.001**	

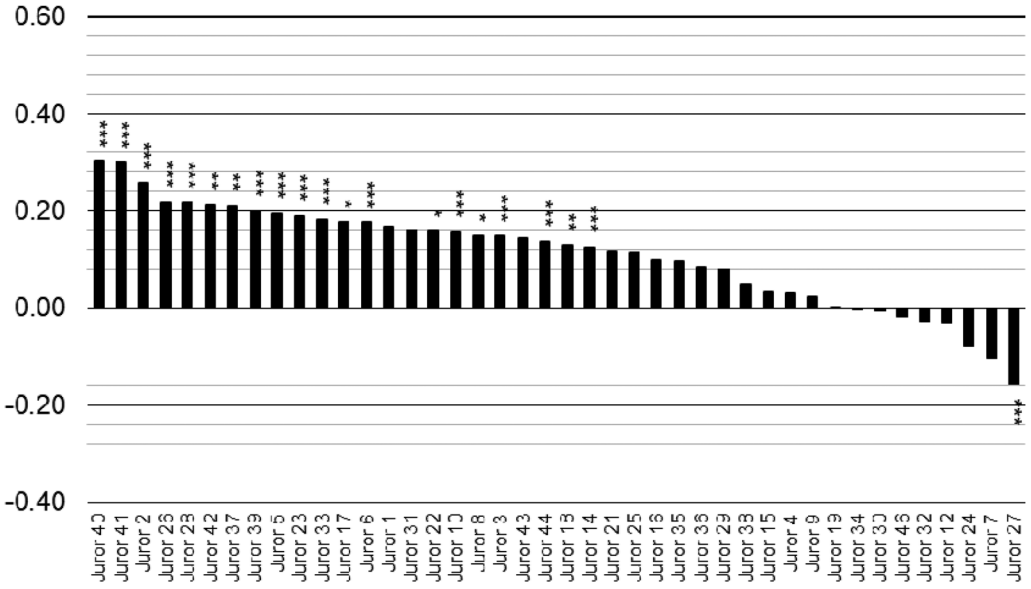

Figure 5. Patriotic bias of individual figure skating jurors in element *z*-scores. ***$p < .001$, **$p < .01$, *$p < .05$.

4. Discussion

The aim of this study was to explore the hypothesis that the shared national-level socialization of jurors and athletes contributes to patriotic bias in international sports judging. To investigate this hypothesis, a linear mixed-effects regression modeling approach was followed to analyze scoring data from recent Olympic events in figure skating and snowboarding. Given the highly internationalized socialization

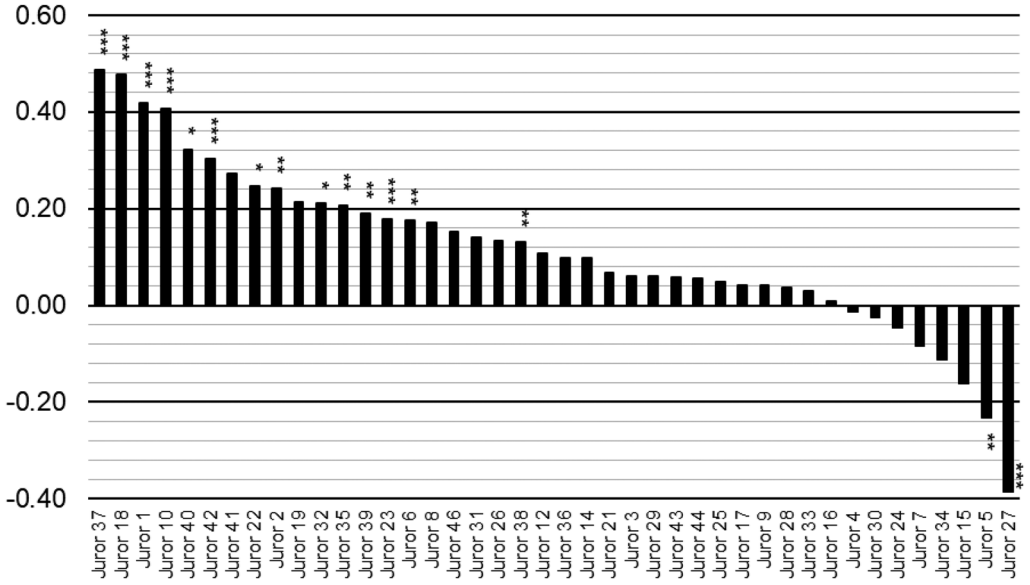

Figure 6. Patriotic bias of individual figure skating jurors in program component *z*-scores. ***$p < .001$, **$p < .01$, *$p < .05$.

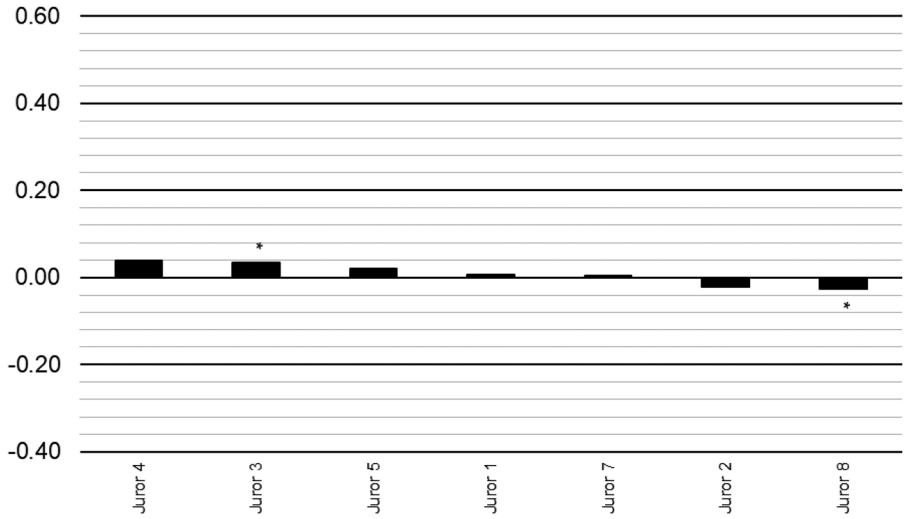

Figure 7. Patriotic bias of individual snowboarding jurors in *z*-scores. *$p < .05$.

process characteristics in snowboarding, in contrast to the nationally embedded structure of figure skating, it was hypothesized that patriotic bias would be more pronounced in figure skating than in snowboarding.

The findings of this study reveal statistically significant differences in patriotic bias between the two sports. Specifically, figure skating jurors exhibited a substantial and statistically significant patriotic bias when scoring their compatriots. In contrast, while snowboarding jurors also demonstrated statistically significant patriotic bias at the 0.05 level, the magnitude of this bias can be considered minute relative to the sport's scoring scale. Exploratory analyses further indicated a broad tendency among figure skating jurors to favor athletes from their own nation, whereas snowboarding jurors displayed mostly insignificant and overall minute individual bias.

These findings lend empirical support to the hypothesis that patriotic bias is more pronounced in figure skating than in snowboarding, suggesting that national-level socialization may contribute to the emergence of such bias among sports jurors. Building on the results of Scholten et al. (2020), the present findings further suggest that ongoing globalization and increasingly internationalized socialization processes in sports—where young jurors and athletes are embedded in more globalized environments

– may contribute to a continued decline in national bias in sports performance judging (Scholten et al., 2020).

However, the limited scope of the present study – restricted to two sports and a narrow selection of Olympic events – warrants cautious interpretation. Moreover, the substantial structural differences between figure skating and snowboarding, which extend beyond the socialization processes of jurors and athletes, may have confounded the observed difference in patriotic bias. In particular, variations in competition rules and regulations, judging criteria, and performance tasks and requirements across the two sports may have influenced the results, thereby precluding definitive causal inferences regarding the role of socialization.

For instance, variations in juror expertise could potentially explain differences in patriotic bias between figure skating and snowboarding. However, all jurors included in this analysis were members of an international juror elite, having undergone rigorous qualification processes and accrued extensive experience in numerous competitions (FIS, 2022; ISU, 2022a). This minimizes the likelihood of significant disparities in expertise. Both sports also include explicit prohibitions against nationality-based favoritism in their respective judging rules (ISU, 2023; FIS, 2022, 2023a), which suggests that potential differences in institutional stance on bias are unlikely to account for the findings.

Moreover, differences in juror appointment processes between the two sports may have contributed to the findings. In snowboarding, jurors are appointed directly by the International Ski Federation, whereas in figure skating, national federations nominate their jurors (ISU, 2022a). The latter system may create incentives for jurors to exhibit patriotic bias to secure future appointments, a phenomenon previously documented in non-Olympic competitions (Soler, 2021; Zitzewitz, 2006). However, prior research also indicates that such strategic behavior tends to diminish or even reverse in Olympic contexts (Zitzewitz, 2006).

An additional confounding influence that was frequently discussed in patriotic bias research is the degree of subjectivity inherent in the judging criteria. Prior research proposes that higher levels of patriotic bias are associated with the evaluation of more subjective performance criteria (Fang & Ho, 2024; Fenwick & Chatterjee, 1981; Lee, 2008; Sandberg, 2018; Yang, 2006; Zitzewitz, 2006, 2014). Notably, the official snowboarding regulations explicitly acknowledge a high degree of subjectivity in the assessment of snowboarding performances, particularly in contrast to disciplines that utilize point-based scoring systems (FIS, 2022). In figure skating, scoring is governed by such a highly structured and prescriptive point system that seeks to minimize subjective interpretation (ISU, 2022a, 2022b). Given these structural differences and the proposition put forth in prior research, one would theoretically expect patriotic bias to be more pronounced in snowboarding than in figure skating. Consequently, differences in the subjectivity of scoring between the two sports are unlikely to account for the present study's findings, which indicate a higher level of bias in figure skating.

However, cognitive demands such as time pressure and the complexity of the assessment tasks are also acknowledged to potentially exacerbate errors and biases (Plessner, 1997, 2004). In figure skating, jurors are required to assign scores for elements within seconds during the ongoing performance, whereas both program components in figure skating and overall scores in snowboarding are assigned post-performance under lower time pressure. Given that the estimated levels of patriotic bias are similar across the scoring of elements and program components in figure skating, the results of this study suggest that differences in time pressure may not have been a decisive confounding influence on the findings of this study. Task complexity, by contrast, may have played a significant role, as the scoring of figure skating performances is highly complex compared to snowboarding and demands strict adherence to many predefined scoring rules (FIS, 2022; ISU, 2022a, 2022b). Thus, differences in task complexity between figure skating and snowboarding may have confounded the findings of this study.

In summary, while certain structural and procedural distinctions between figure skating and snowboarding – previously associated with patriotic bias – can be considered unlikely to have confounded the present analysis, the greater complexity of the scoring system in figure skating may have contributed to the observed differences in bias. Moreover, it is possible that other sport-specific characteristics, which have not yet been empirically linked to patriotic bias, may have influenced the results. Given that patriotic bias likely arises from a multifaceted interplay of various factors shaping juror behavior – many of which may differ across sports and remain insufficiently understood – the observed differences in patriotic bias between figure

skating and snowboarding cannot be definitively attributed to variations in national-level socialization among jurors and athletes. However, beyond these limitations and the potential for alternative explanations stemming from inter-sport differences, the findings of this study lend empirical support to the hypothesis that national-level socialization contributes to the manifestation of patriotic bias in sports judging.

Theoretical frameworks that align with this hypothesis suggest that patriotic bias might be exhibited unintentionally (Bassett & Persky, 1994; Emerson & Meredith, 2011; Fenwick & Chatterjee, 1981; Litman & Stratmann, 2018; Lyngstad et al., 2020; Ste-Marie, 1996; Ste-Marie & Lee, 1991). Addressing patriotic bias, therefore, poses significant challenges.

One highly effective measure to prevent patriotic bias involves prohibiting jurors from officiating in events that include athletes from their own country, a practice implemented in the finals of acrobatic gymnastics. However, this approach is impractical due to the extensive number of nations represented in international sports competitions (Heiniger & Mercier, 2019; Sandberg, 2018; Soler, 2021). Alternative strategies focus on imposing stricter oversight and penalties for biased scoring, such as permanently banning sanctioned jurors from future events (Heiniger & Mercier, 2019; Leskošek et al., 2012; Soler, 2021; Whissell et al., 1993). While these measures may discourage overt bias, they risk inducing affirmation bias due to outlier aversion, where jurors become overly cautious to avoid penalties (Krumer et al., 2022; Sandberg, 2018; Zitzewitz, 2006), potentially skewing scores. Given that most jurors begin their careers within national sports communities, these environments may inadvertently influence their judging behavior, including the potentially unintentional expression of patriotic bias. Consequently, addressing such biases through juror assessments and sanctions may prove as challenging as 'tilting at windmills'.

Different courses of action involve removing scores that are awarded by compatriot jurors from the final score calculation, as suggested by Fenwick and Chatterjee (1981). However, this method can unintentionally advantage or disadvantage athletes depending on the scoring leniency of the excluded jurors. For example, excluding high scores provided by lenient jurors harms compatriot athletes, while removing strict scores benefits them. Mathematical adjustments to account for average patriotic bias (Roetzheim & Muzyczko, 1986; Scheer & Ansorge, 1987) offer another solution, but the variability in patriotic bias across individual scoring cases limits their reliability.

Increasing the number of jurors to dilute individual biases has also been proposed, though this raises logistical and financial concerns while simultaneously increasing the likelihood of same-nationality pairings between jurors and athletes (Soler, 2021; Zitzewitz, 2014). Heavier truncation of scores has also been proposed to help reduce bias (Heiniger & Mercier, 2019; Krumer et al., 2022; Sandberg, 2018; Whissell et al., 1993). This, however, risks discarding valuable data due to the high signal-to-noise ratio in sports judging scores (Zitzewitz, 2006).

In conclusion, this study advances the understanding of the sociocultural foundations of national bias in sports judging. Such insights are essential for the development of effective interventions to mitigate patriotic bias and thereby safeguard the integrity of judging processes. Nevertheless, the mechanisms driving patriotic bias constitute a complex system, likely characterized by interactions among multiple interrelated factors. To potentially disentangle the complex mechanisms underlying patriotic bias and overcome some of the limitations of this study, future research should consider a broader array of sports and events. Emerging disciplines such as surfing, parkour, breaking (breakdancing) and freeskiing – each with varying degrees of national and international socialization – offer promising opportunities to investigate how differing socialization environments influence the presence or absence of patriotic bias in international sports judging.

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Author contributions

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About the author

Patrick Alexander Braeunig, M.Sc., is a Research Associate in the Department of Sport Sociology and Sport Economics at Saarland University. His research focuses on social cognition and decision-making in sports judging.

ORCID

Patrick Alexander Braeunig http://orcid.org/0009-0000-6922-0632

Data availability statement

Research data is available from the author upon reasonable request.

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Appendix

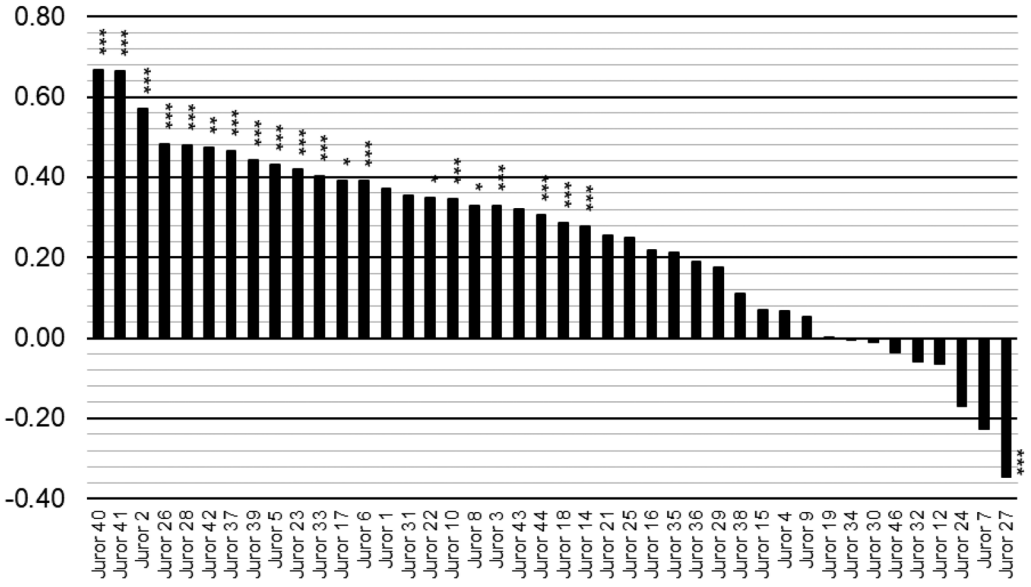

Figure A1. Patriotic bias of individual figure skating jurors in original element scores. ***$p < .001$, **$p < .01$, *$p < .05$.

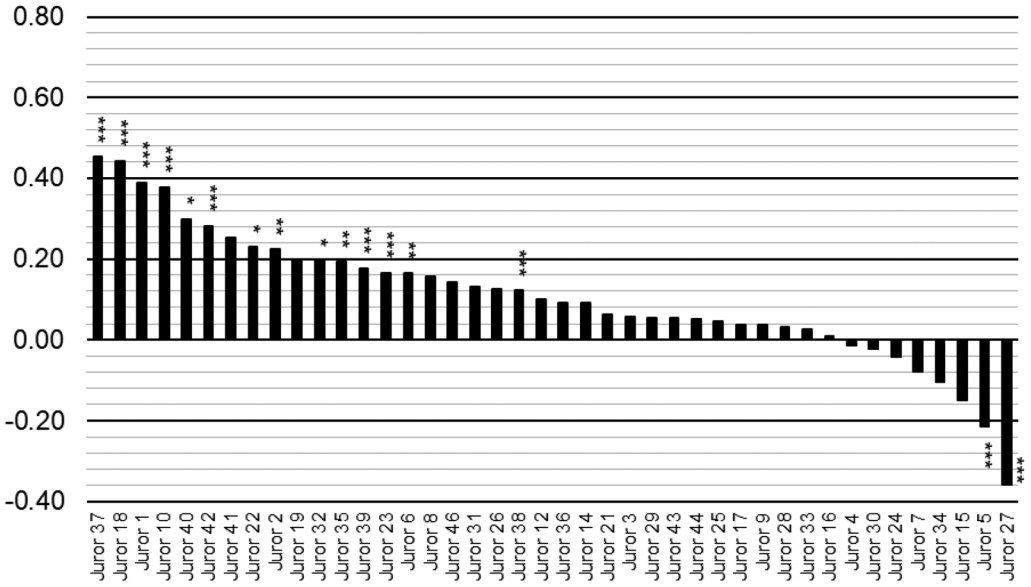

Figure A2. Patriotic bias of individual figure skating jurors in original program component scores. ***$p < .001$, **$p < .01$, *$p < .05$.

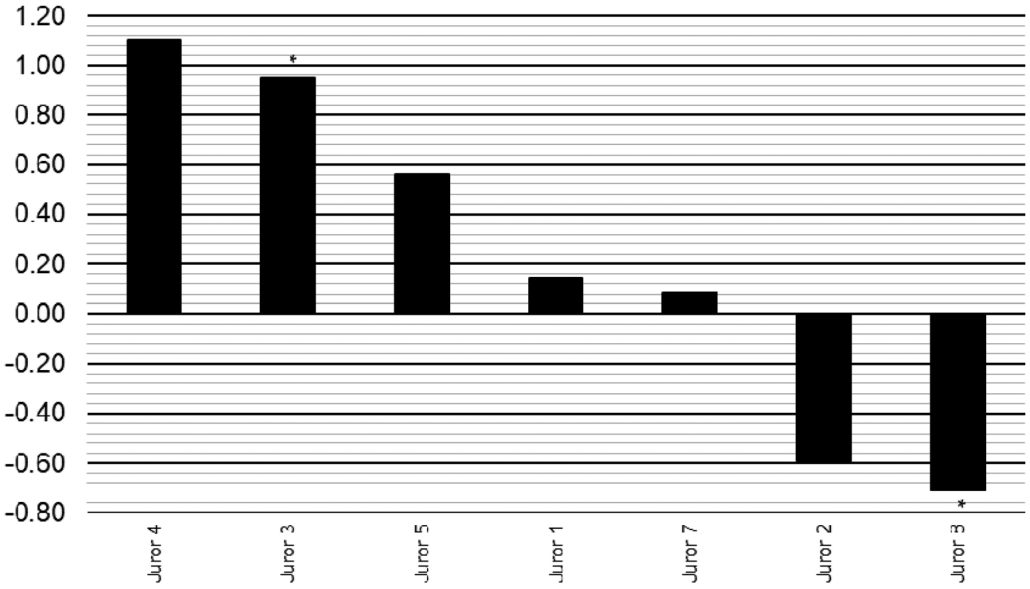

Figure A3. Patriotic bias of individual snowboarding jurors in original scores. *$p < .05$.