



Research paper

Competitiveness at the intersection of gender and sexual orientation[☆]Billur Aksoy^{ID}*, Ian Chadd^{ID}

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ABSTRACT

We study the relationship between sexual orientation, gender, and competitiveness in the United States using an online experiment. We document a novel sexual minority gap in willingness to compete, wherein gay and lesbian individuals compete less than their heterosexual counterparts. Furthermore, we find that the well-documented gender gap in competitiveness does not depend on sexual orientation: both lesbian and heterosexual women compete less than their male counterparts. Differences in competitiveness are mostly explained by differences in self-confidence, with the exception of the gender gap between lesbian and gay participants. Additionally, we study the consequences of inferring sexual orientation through associated indicators. We find that inference based on sexual attraction produces estimates similar to our main analysis based on identity; inference using sexual experience does not. Our findings highlight how the increased availability of self-reported identity data can provide new economic insights into these historically understudied populations.

1. Introduction

A large literature in economics documents gender differences in competitiveness, showing that women are generally less willing to compete than men of equal ability. Separately, a growing body of literature focuses on the economic lives of LGBTQ+ individuals. Research at the intersection of the two is nascent. In this paper, we contribute to this burgeoning body of knowledge by studying how individual's willingness to compete may differ across both gender and sexual identity in the United States.

The propensity to compete may differ based on sexual identity through various channels and, ex ante, the direction of this relationship is unclear. On one hand, competitiveness has been shown to be impacted by social status. For example, [Gneezy et al. \(2009\)](#) find that the gender gap in willingness to compete is reversed in a matrilineal society, where women are typically more venerated and respected, and [Siddique and Vlassopoulos \(2020\)](#) document competitiveness gaps based on ethnicity in Bangladesh. [Almås et al. \(2016\)](#) find that the competitiveness gap depends on socioeconomic status in Norway, with no gender gap among children in low socioeconomic families and a large gap for those from better-off families. These findings suggest that social factors play an important role in influencing individuals' willingness to compete. Thus, considering the historical treatment

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and marginalization of sexual minorities in the United States, it is possible that they are less competitive than their heterosexual counterparts. On the other hand, gender-based behavioral norms may vary with sexual identity.¹ Indeed, there is evidence that gay and lesbian individuals are less “gender typical” than their heterosexual counterparts (Burn and Martell, 2022).² Assuming that competition is perceived to be a gender typical behavior for men,³ gay men may compete less than heterosexual men, while the opposite could be true for women.

To explore the relationship between gender, sexual identity, and willingness to compete in the United States, we run an online experiment via Prolific, recruiting a balanced sample of self-identified heterosexual and gay/lesbian men and women. Prolific allows researchers to recruit participants based on sexual orientation and gender without participants knowing of the screening criteria, allowing us to recruit a relatively large sample of self-identified gay men and lesbian women without priming them regarding their identity. Otherwise, our experiment closely follows the Niederle and Vesterlund (2007) design, which is a well-established, incentivized method for measuring competitiveness in the literature. Following their design, our primary measure of a participant's willingness to compete is the choice of entry into a “competitive” tournament payment scheme for a real-effort task, as opposed to a piece rate payment scheme that offers a safe but lower payment.

Our primary findings can be summarized as follows. First, we document a novel *sexual minority gap* in willingness to compete based on sexual identity wherein gay and lesbian individuals compete less frequently than their heterosexual counterparts. The gender gap in competitiveness does not depend on sexual orientation: both heterosexual and lesbian women compete less than their male counterparts. Second, we find that the sexual minority gap is explained by a difference in confidence, wherein gay and lesbian participants have more pessimistic beliefs about their relative performance. The gender gap for heterosexual participants similarly arises from women's under-confidence relative to men. However, the gender gap in competitiveness between gay and lesbian participants cannot be fully explained by differences in confidence. Third, after investigating this residual gender gap between gay men and lesbian women, we find that the gap is reduced and only marginally significant when we control for related preferences (e.g., risk and feedback aversion).

In addition to studying competitiveness preferences per se, we also contribute to an important conversation in the study of minority sexual identities regarding the impacts of using inferred versus self-reported identity. Given that most observational data has historically lacked self-reported sexual orientation, researchers have relied on associated indicators. Most commonly, building on the seminal work of Badgett (1995), researchers relied on co-habitation status where same-sex households were broadly classified as sexual minorities. Researchers also relied on sexual attraction and sexual experience to infer sexual orientation whenever such data was available. However, inferring sexual identity using such indicators may lead to misclassification as these measures may not perfectly correlate with identity (Park, 2016), having consequences for estimates of economic disparities (Martell, 2021; Medina, 2023). Our use of the Prolific platform to recruit participants based on self-reported identity circumvents these issues. This approach aligns with recent trends in LGBTQ+ economics, prioritizing the self-identification of individuals when available. Nevertheless, to investigate the consequences of inferring sexual identity using sexual attraction and experience indicators in our context, we conduct a counterfactual analysis. We find that the gender gaps in competitiveness are stable across different identity measures. However, while the sexual minority gap persists when identity is inferred through sexual attraction, it disappears when using sexual experience.

Our study builds on the important work of Buser et al. (2018), the first to consider sexual orientation and competitiveness. In their data collected in the Netherlands, they found that sexual minority men competed less than heterosexual men, but that the same was not true for women. We expand on their pioneering work by (i) focusing our primary analysis on the gaps based on self-reported sexual identity in the United States, (ii) exploring the sources of gender gaps among gay and lesbian individuals, and (iii) exploring the sensitivity of estimated gaps to the use of inferred, rather than self-reported, sexual identity. Buser et al. (2018) collect responses from participants in the LISS panel, a representative online survey conducted in The Netherlands. They identify sexual minorities by using two questions in this survey: one regarding sexual attraction and another regarding the gender of the respondent's romantic partner (if any). While “inferring identity” from associated indicators (attraction and dating history in their case) is common in economic studies of sexual minorities, it can lead to measurement error in categorizing individuals and resultant estimates of economic disparities between groups; we discuss this at more length in Section 2.2.⁴ In contrast, we leverage Prolific to recruit individuals based on self-reported sexual identity. This results in a large ($N = 1136$), balanced sample of heterosexual and gay/lesbian men and women. Our estimated competitiveness gaps differ from those of Buser et al. (2018) in that we find a sexual minority gap among women and a gender gap among gay/lesbian individuals, where they find evidence of neither in The Netherlands. As a result, we further contribute to the literature by examining several potential sources of the gender gap between gay and lesbian individuals in the United States, finding that this gap shrinks when we control for related preferences, such as risk and feedback aversion (see Section 4.3). As a final distinct contribution relative to the work of Buser et al. (2018), and especially in light of the differences in our recruitment procedures and subsequent results, we explore the sensitivity of estimated competitiveness

¹ Moreover, adherence to gender-based behavioral norms matters for various economic outcomes. For example, in a global study of adherence to masculinity norms, De Haas et al. (2024) find that adherence to dominance masculinity norms can yield economic benefits (e.g., higher labor supply) as well as constraints (e.g., occupational segregation).

² There is also a body of literature in psychology on “implicit inversion theory” which posits that gay and lesbian individuals are often stereotyped as being more similar to the opposite sex (e.g., gay men are perceived as more “feminine” than heterosexual men) (Blashill and Powlishta, 2009).

³ “Competitive” was among the “masculine items” deemed by respondents to be desirable for men, but not for women, in the landmark study of androgyny in Bem (1974).

⁴ As an example of the implications of this inference, Buser et al. (2018) categorize individuals with equal attraction to men and women (i.e., likely bisexual individuals) in the same group as gay/lesbian individuals, which we avoid by relying on self-reported identity.

gaps to the method of identifying sexual minority individuals, finding that the sexual minority gap persists when we infer identity using attraction, but not with sexual history.⁵

We contribute to the literature on the economic lives of LGBTQ+ individuals by further developing knowledge of behavioral differences based on sexual identity. Partially thanks to the increased visibility of LGBTQ+ individuals in the United States,⁶ research on this demographic has increasingly gained economists' attention (Badgett et al., 2021, 2023).⁷ The majority of this body of literature focuses on the treatment of and economic disparities facing the LGBTQ+ population (e.g., Acquisti and Fong, 2020; Carpenter and Eppink, 2017; Sabia et al., 2017; Aksoy et al., 2018, 2019; Schneebaum and Badgett, 2019; Sansone and Carpenter, 2020; Aksoy et al., 2025, 2023; Sarzosa, 2023). Research focused on differences in economic preferences and behavior is nascent, with only a few papers using controlled experiments to investigate the same.⁸ To the best of our knowledge, we are the first to study the competitiveness behavior across gender and sexual orientation in the United States and the first to do so relying primarily on self-reported sexual identity. We also complement our primary analysis by exploring the consequences of inferring sexual orientation, which is a critical methodological contribution to the LGBTQ+ economics literature. As policymakers, statistical agencies and other organizations, and academic researchers aim to study the economic outcomes of LGBTQ+ individuals, our results highlight the importance of self-identification for more accurate estimates.

We also contribute to the existing body of research on competitiveness preferences (Niederle and Vesterlund, 2007).⁹ Competitiveness has been shown to have both social (e.g., Gneezy et al., 2009; Siddique and Vlassopoulos, 2020; Sutter and Glätzle-Rützler, 2015; Flory et al., 2018) and biological (e.g., Apicella et al., 2011; Buser, 2012) determinants.¹⁰ We advance our understanding of the determinants of competition differentials by illuminating a gap based on self-reported sexual orientation, as well as providing evidence that the under-confidence of sexual minorities underpins this gap in the United States. Studying these gaps in competitiveness has broader implications since an individual's propensity to compete has been shown to significantly correlate with their education choices, earnings expectations, wages, job-entry decisions, and investment decisions (Zhang, 2013; Buser et al., 2014; Berge et al., 2015; Reuben et al., 2015; Flory et al., 2015; Reuben et al., 2017; Kamas and Preston, 2018; Buser et al., 2022, 2024). Thus, understanding the competitiveness behavior of heterosexual and sexual minority individuals separately could help illuminate the determinants of socio-economic disparities based on sexual minority status.

2. Experiment

In this section we present our experimental design, our methods of identifying sexual minority individuals, and our study protocol.

2.1. Design

Our main experimental design is broadly similar to Niederle and Vesterlund (2007), where participants complete a real-effort task several times under different payment schemes. While Niederle and Vesterlund (2007) use an addition task (i.e., participants solve as many two-digit addition tasks as possible within a certain amount of time), we instead use a Counting Task (Abeler et al., 2011). This task has previously been used by Apicella et al. (2017) to study competitiveness in an online environment similar to ours.¹¹ In the Counting Task, each participant is shown a matrix of 49 zeros and ones and must count how many ones are displayed. Once the participant enters their count, they are shown a new matrix. Their score for the Counting Task is equal to the number of correct counts submitted within 120 s. Fig. 1 displays one such matrix. This Counting Task has been shown to be gender-neutral in terms of stereotypes regarding performance among many commonly used real effort tasks (Fisher et al., 2023). Thus, we view our estimates of gender differences in competition as relatively conservative compared to the body of literature, which typically relies on male stereotyped tasks (see, e.g., Halladay and Landsman, 2022).

⁵ In addition to the differences between the studies mention this section, it is also worthwhile to note that our experimental design differs from that of Buser et al. (2018) in several minor ways. Among them are the choice of real-effort task (we use a "counting zeros and ones" task that has been shown to have no gender stereotype) and the set of included incentivized games (we mirror the original (Niederle and Vesterlund, 2007) design).

⁶ The LGBTQ+ population in the United States is sizable: according to the latest Gallup poll, 7.6% of U.S. adults consider themselves to be of some identity under the LGBTQ+ umbrella (see <https://news.gallup.com/poll/611864/lgbtq-identification.aspx>). This number is especially striking, more than 20%, for Generation Z adults (born 1997–2004). Note also that measuring the size of the LGBTQ+ population comes with challenges due to issues with constructing the right survey questions as well as reluctance to report a stigmatized characteristic, so numbers reported are most likely to be a lower bound for the actual size of this population. See Badgett et al. (2021) for a detailed discussion.

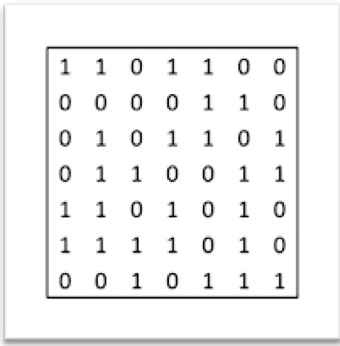
⁷ Additionally, the American Economic Association (AEA) set up the Committee on the Status of LGBTQ+ Individuals in the Economics Profession in 2016 and the European Economic Association (EEA) set up the Committee on Minorities in Economics in 2021 with the aims to advocate the representation of minority individuals and to improve the economic outcomes of LGBTQ+ individuals.

⁸ These include Buser et al. (2018), Fornwagner et al. (2022), Aksoy et al. (2023, 2024b), Coffman et al. (2024).

⁹ See also (Niederle and Vesterlund, 2011) for a survey and Markowsky and Beblo (2022) for a meta-analysis.

¹⁰ Other factors that appear to play a role in determining competitiveness behavior include agency (Fornwagner et al., 2023; Ifcher and Zarghamee, 2023) as well as timing and time constraints (Shurchkov, 2012; Charness et al., 2022).

¹¹ For our experiment, we chose the Counting Task, where an encrypted image file is displayed (see Fig. 1 for an example). This choice was made to prevent any issues with cheating and related confounds. The use of an addition task in an online experiment risks the possibility that the decision to compete may be influenced by beliefs about the likelihood of cheating in the task (e.g., using a calculator when instructed not to). These beliefs may also vary by identity, presenting an additional confound.



1	1	0	1	1	0	0
0	0	0	0	1	1	0
0	1	0	1	1	0	1
0	1	1	0	0	1	1
1	1	0	1	0	1	0
1	1	1	1	0	1	0
0	0	1	0	1	1	1

Fig. 1. An example counting task box.

In the Counting Task, participants had 120 s to solve as many boxes as possible. A box was considered “solved” if the participant submitted the correct number of ones that were contained in the displayed box. As soon as a submission was entered, the participant was shown a new box, regardless of whether the submission was correct. Their current score was displayed on the screen.

Following [Niederle and Vesterlund \(2007\)](#), participants complete five incentivized games. Participants were paid for only one of the first four games, chosen at random at the end of the experiment. All participants were paid for Game 5.

In **Game 1 - Piece-Rate**, each participant completes the Counting Task and is paid 25 cents for each box solved correctly. This game serves as a baseline for performance in the real-effort task. In **Game 2 - Tournament**, participants are placed into a group of four individuals, including themselves. Participants again complete the Counting Task, but are paid \$1 per box solved only if their score is the highest in their group, using a random tiebreaking rule.¹² This tournament game serves as a baseline to measure performance under competition. In **Game 3 - Choice**, before each participant performs the Counting Task, they choose their desired payment scheme (piece-rate or tournament, as described above) to be applied to their future performance. Importantly, participants who choose the tournament scheme are paid \$1 per box solved if their performance in Game 3 is ranked first compared to the past performance of their group members in Game 2; otherwise they receive nothing.¹³ The choice made in this game is our measure of competitiveness. In **Game 4 - Choice for Past Performance**, each participant is asked to choose between the piece-rate and tournament compensation schemes to apply to their previous performance in Game 1. Finally, in **Game 5 - Belief Elicitation**, participants are asked to guess their rank (1st, 2nd, 3rd, or 4th) in Game 1 and Game 2. They are paid 20 cents per correct guess. By eliciting participants’ beliefs, we can measure their level of confidence in their relative performance.

In addition to these main experimental tasks, we administer a survey which includes standard demographic questions as well as other survey questions for risk preferences, sexual attraction, sexual history/experience, and the degree to which a sexual minority individual is public or “out” regarding their sexual identity. Screenshots of our instructions can be found in Online Appendix C.

2.2. Identifying sexual minorities: Self-reported versus inferred identity

Sexual orientation is different from many other natural identities since it is impossible to perfectly observe in the absence of direct information from the individual. Although the use of self-identification would be ideal, historically, such data has not been widely collected.¹⁴ Thus, researchers often have to *infer* sexual identity through associated indicators such as sexual attraction, co-habitation status (same- or different-sex households), and sexual experience. This can result in misclassification since sexual attraction and behavior do not perfectly overlap with sexual identity ([Park, 2016](#)). For example, [Martell and Eschelbach Hansen \(2017\)](#) report that misclassification of women can run in two directions. On the one hand, many self-identified lesbian women are not classified as such because researchers cannot perfectly infer this identity through available data. Conversely, many self-identified heterosexual women are classified as lesbian because of reported sexual experiences with women. Such misclassification can then affect estimates of economic outcomes; [Martell \(2021\)](#) finds that inferring sexual identity from behavior results in inflated estimates of wage premiums for lesbian and bisexual women. In a similar vein, using data from the General Social Survey, [Medina \(2023\)](#) finds no difference in earnings between self-identified gay or bisexual men and heterosexual men, in contrast to previously estimated disparities based on inferred sexual orientation.

¹² Since this was an online experiment, we could not form these groups in real time. Instead, the three group members are chosen randomly from a group of previous participants. Prior to the actual experimental sessions, we ran a pilot session with a small group of participants (data not included in this paper). We use these participants in forming groups. Our participants in the actual experiments are informed about this procedure.

¹³ Note that participants do not compete against the performance of group members in the current game; they instead compete against the past performance of group members. [Niederle and Vesterlund \(2007\)](#) note that this aspect of the design has several advantages: (1) it has participants compete against performance they know to have been done under the same compensation scheme (tournament) and (2) it removes potential confounds such as social preferences and biased beliefs (both direct and higher order) about others’ choices of compensation scheme.

¹⁴ Additionally, stigmatization, discrimination, or anticipated discrimination also disincentivizes individuals from truthfully revealing their sexual orientation in many settings ([Aksoy et al., 2023](#)).

Utilizing the online platform Prolific, we conduct our primary analysis identifying gay men and lesbian women based on their self-reported sexual orientation per their Prolific profiles. This is in line with more recent research in LGBTQ+ economics that uses self-reported sexual orientation when available. Nevertheless, since we also collected both attraction and sexual experience data, we can then investigate to what extent our estimates depend on the method of identification. In Section 4.3 we explore the consequences of inferring sexual orientation for estimated competitiveness differentials.

2.3. Protocol

In order to recruit a large sample of gay, lesbian, and heterosexual participants, we conducted our experiment on Prolific. Prolific, a platform for conducting surveys and social science research, has several advantages relative to other platforms (e.g., Amazon Mechanical Turk). First, Prolific participants have been shown to produce high quality data (Palan and Schitter, 2018; Gupta et al., 2021). Second, it allows us to recruit a balanced sample of heterosexual, gay, and lesbian individuals without informing them that their identities are part of the study. This helps avoid many problems associated with recruiting LGBTQ+ participants (e.g., experimenter demand, identity-based priming, and lack of anonymity). Finally, conducting our experiment online allows us to recruit a relatively more representative sample of the LGBTQ+ population compared to a traditional laboratory experiment.¹⁵

We recruited a balanced sample of heterosexual and gay/lesbian men and women who are all U.S. nationals between the ages of 18 and 64 based on their Prolific profiles. On Prolific, we screened on “gender identity” and “sexual orientation”, and only recruited cisgender¹⁶ men and women who are either heterosexual or homosexual as indicated on their profiles.¹⁷

The experiment was run in October and early November of 2020 and 2021. Our sample includes 286 heterosexual men, 287 heterosexual women, 281 gay men, and 282 lesbian women.¹⁸ Table B.1 in the Online Appendix presents the demographics for each of these participant groups. Online sessions lasted approximately 25 min and subjects earned an average of \$4 (including a \$2 show-up fee) which corresponds to \$9.60/hour.

3. Hypotheses

To provide a conceptual framework, we develop some hypotheses regarding how the intersection of gender and sexual orientation might affect individuals’ propensity to compete.

First, we expect to see a gender gap in competitiveness for heterosexual individuals. We posit that the gender gap previously documented in the literature applies to the behavior of heterosexual individuals in our sample given that the majority of the U.S. population identifies as heterosexual or straight.¹⁹ We formalize this as [Hypothesis 1](#).

Let $\mu_g^s \in [0, 1]$ be the proportion of individuals who choose to compete of gender $g \in \{Male, Female\}$ and sexual orientation $s \in \{H, GL\}$ where H indicates heterosexual individuals and GL indicates gay/lesbian individuals.

Hypothesis 1.

$$\mu_{Male}^H > \mu_{Female}^H$$

We also posit two alternative stylized narratives concerning competitiveness across heterosexual and gay/lesbian individuals.

Gay men and lesbian women are often stereotyped as being more similar to the opposite sex than their heterosexual counterparts. This “implicit inversion theory” (see, e.g., Blashill and Powlishta, 2009) posits that gay men (lesbian women) are often stereotyped as more feminine (masculine) than heterosexual men (women). Within economics, leading models of stereotypes rest on the assumption that a stereotype emerges from a “kernel of truth” that is irrationally reinforced via the representativeness heuristic (Bordalo et al., 2016). If this kernel is indeed true,²⁰ we may then expect to see a smaller or reversed gender gap in competition for gay/lesbian individuals. This leads us to [Hypothesis 2](#):

¹⁵ Students in the United States self-select into universities, which may present problems for running lab experiments for LGBTQ+ related research. For example, LGBTQ+ students at a university that is known to be less diverse and/or LGBTQ+ unfriendly may be systematically different (e.g., in terms of confidence, likelihood of disclosing sexual minority status) than LGBTQ+ students at a more accepting university.

¹⁶ “Cisgender” refers to individuals whose current gender identity matches that typically associated with their sex assigned at birth.

¹⁷ Specifically, the screener questions we used are as follows: *Gender*: “How do you describe yourself?” with options of {Male, Female, Trans Male/Trans Man, Trans Female/Trans Woman, Genderqueer/Gender Non Conforming, Different Identity, Rather not say}. *Sexual Orientation*: “What is your sexual orientation?” with options of {Heterosexual, Homosexual, Bisexual, Asexual, Other}. We only recruited individuals who responded with either Male or Female for gender and Heterosexual or Homosexual for sexual orientation.

¹⁸ For the main analysis, we use the subjects’ gender and sexual orientation information as reported on their Prolific profiles. Overall, 61 (8) participants (5.4% (<1%) of the sample) have Prolific profiles that are inconsistent with their responses to the sexual orientation (gender) question in the survey. However, our findings are qualitatively similar if we instead use subjects’ gender and sexual identities as reported in the questionnaire.

¹⁹ Most of the studies in this literature do not report data on the sexual orientation of their participants, except Buser et al. (2018), who find a gender gap in competitiveness for individuals inferred to be heterosexual.

²⁰ There is evidence that gay and lesbian individuals are less “gender typical” than their heterosexual counterparts (Burn and Martell, 2022). Recent research by Banan et al. (2022) also shows that gender typicality correlates with gender gaps in life outcomes.

Hypothesis 2.

$$\mu_{Male}^H - \mu_{Female}^H > \mu_{Male}^{GL} - \mu_{Female}^{GL}$$

It is worth noting that [Hypothesis 2](#) subsumes a couple of interesting cases. The first is where gay/lesbian individuals “move to the middle” in their propensity to compete ($\mu_{Male}^H > \mu_{Male}^{GL} > \mu_{Female}^{GL} > \mu_{Female}^H$). This means that the gender gap in competition is smaller for gay/lesbian individuals relative to heterosexual individuals. Moreover, it also means that while heterosexual men compete more than gay men, the reverse is true for women. Another interesting case occurs when the gender gap for gay/lesbian individuals is reversed such that lesbian women compete more than gay men ($\mu_{Female}^{GL} > \mu_{Male}^{GL}$).

Alternatively, it is also possible that individuals’ propensity to compete is reflective of their lived experiences of marginalization: marginalized individuals may be less willing to compete in mixed-identity settings. Given that women have been marginalized and discriminated against in many economic domains, this could explain why women compete less in the United States (and similar countries).²¹ This differential treatment and social status of women might impact their propensity to compete and could help explain the well-documented gender gap in competitiveness. Indeed, this idea of marginalization impacting competitiveness is also consistent with findings in the literature of an ethnic minority gap in Bangladesh ([Siddique and Vlassopoulos, 2020](#)) and a reversed gender gap in a matrilineal society in India ([Gneezy et al., 2009](#)).

In the same vein, sexual minority populations in the United States experience, and have historically endured, persistent discrimination. Recent research in LGBTQ+ economics documents discrimination in both formal (such as hiring decision, rental offers) ([Badgett et al., 2021](#)) and informal domains (such as prosocial behavior) ([Aksoy et al., 2023](#)).²² Similar to women in the U.S., the marginalization of sexual minority individuals might also decrease their propensity to compete. In our context, this may imply that they compete less than their heterosexual counterparts because of their sexual minority status. Crucially, this narrative further predicts that the gender gap in propensity to compete may persist even in sexual minority populations: lesbian women may compete less than everyone due to the intersection of two marginalized identities. We formalize this in [Hypotheses 3a](#) and [3b](#):

Hypothesis 3a (Gender Gap).

$$\mu_{Male}^H > \mu_{Female}^H \text{ and } \mu_{Male}^{GL} > \mu_{Female}^{GL}$$

Hypothesis 3b (Sexual Minority Gap).

$$\mu_{Male}^H > \mu_{Male}^{GL} \text{ and } \mu_{Female}^H > \mu_{Female}^{GL}$$

[Hypothesis 3a](#) indicates that we expect to see a gender gap for both heterosexual and gay/lesbian individuals. [Hypothesis 3b](#) indicates that we expect to see a sexual orientation gap where heterosexual individuals are expected to compete more than their gay/lesbian counterparts. These results would be consistent with [Gonzalez et al. \(2022\)](#), who find that exogenously assigning individuals to a low social status group compete less than those of high status.

4. Results

Our results are centered around three main findings. First, we find evidence for a novel sexual minority gap based on self-reported sexual identity, as well as a gender gap that is similar in magnitude across sexual identity. These gaps in competitiveness can mostly be explained by differences in confidence, with the exception of the gender gap between gay men and lesbian women. Second, we further investigate this residual gender gap between gay men and lesbian women, and find that it is reduced, and only marginally significant, when we control for related preferences (e.g., risk and feedback aversion). Finally, we explore the consequences of inferring sexual orientation through associated indicators. We find that the gender gap persists regardless of the method used, but not the sexual minority gap. In particular, inference through sexual attraction, but not sexual experience, leads to a similarly sized sexual minority gap as in our main analysis using self-reported identity.

4.1. Competitiveness across sexual orientation and gender

We first investigate participants’ willingness to compete by studying their choice of compensation scheme – Piece-Rate or Tournament – in Game 3.²³ [Fig. 2](#) displays the frequency with which each group chose the tournament scheme. First, consistent with [Hypothesis 3b](#), we observe a sexual minority gap in competitiveness: gay men and lesbian women compete less than their

²¹ See [Jacobsen \(2007\)](#) for a review of extant literature through 2007. Also, the 2020 American National Election Survey (ANES) confirms that women are significantly more likely than men to report experiencing gender-based discrimination ([Aksoy et al., 2023](#)).

²² See [Badgett et al. \(2021\)](#) for a review of LGBT economics, including evidence of discrimination, as well as [Badgett \(2009\)](#) for a more focused survey of discrimination studies.

²³ An interested reader may wonder whether this measure of competitiveness has external relevance within our dataset. While not part of our primary analysis, in line with previous research discussed in Section 1, we also find external relevance of the laboratory measure of competitiveness. Choosing to compete in our experiment is positively correlated with likelihood of high income and high education levels. We present and discuss these findings, as well as their implications for estimated income and education gaps based on identity, in Online Appendix A.

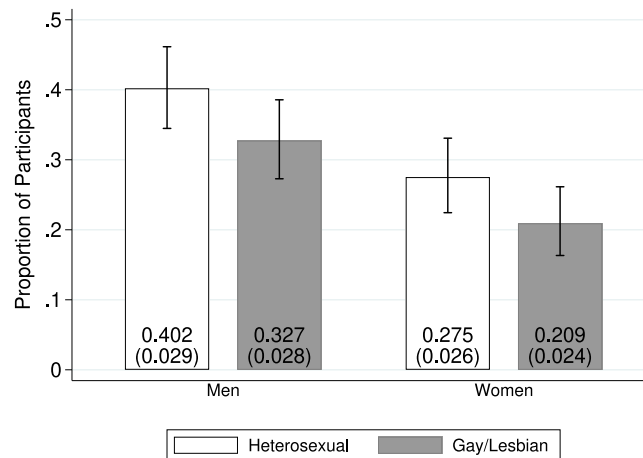


Fig. 2. Competitiveness across sexual orientation and gender.

The height of each bar indicates the proportion of participants who chose the tournament payment scheme in Game 3, separately presented across sexual orientation and gender. These proportions and their corresponding standard errors (in parentheses) are shown at the bottom of each bar. 95% confidence intervals are reported with vertical lines.

heterosexual counterparts, regardless of gender. This sexual minority gap in competitiveness is 7 percentage points (pp) for both men and women and is marginally significant when separated by gender (Fisher's exact tests: p -values = 0.068 and 0.078 for men and women, respectively), but significant when men and women are pooled within sexual orientation (Fisher's exact test: p -value = 0.012). Second, consistent with [Hypotheses 1](#) and [3a](#), we find a gender gap for heterosexual individuals: 40% of heterosexual men choose to compete, compared to 28% of heterosexual women (Fisher's exact test p -value = 0.001).²⁴ Consistent with [Hypothesis 3a](#), there is a similar gender gap in competition for sexual minority participants: 33% of gay men choose to compete, compared to 21% of lesbian women (Fisher's exact test p -value = 0.002). Interestingly, the magnitude of this gender gap is the same across sexual identities — women uniformly compete 12 pp less frequently than men, inconsistent with [Hypothesis 2](#).²⁵

It is possible that these differences in willingness to compete arise due to differences in performance in the Counting Task. Table B.2 in the Online Appendix reports the average scores under piece rate (Game 1) and tournament (Game 2) schemes where we see that average performances in both games are similar across all groups with one exception: heterosexual men score the lowest in both games. This performance difference is especially stark given that heterosexual men choose to compete more frequently than any other group. Given these performance differences, we report the results of OLS regression analysis of willingness to compete in [Table 1](#) where we control for performance.²⁶ In each column, the dependent variable is an indicator variable that takes a value of one if the participant chose the tournament payment scheme in Game 3 and zero otherwise. For each model, we also report the estimated gender gap for sexual minority individuals (sum of *Female* and *Female * Gay/Lesbian*) as well as the sexual minority gap for women (sum of *Gay/Lesbian* and *Female * Gay/Lesbian*) in Panels B and C, respectively. The first two columns report regression results controlling only for demographics. The results from column 1 confirm our main findings from [Fig. 2](#): gay/lesbian participants are about 7 pp less likely to compete than heterosexual participants and women are about 12 pp less likely to compete than men. In column 2 we include the interaction term *Female * Gay/Lesbian* to investigate whether one's propensity to compete is different based on the intersection of their gender and sexual identity. The coefficient on *Female * Gay/Lesbian* is insignificant, indicating that this is not the case. Gay men are about 7 pp less likely and lesbian women are 6 pp less likely to compete relative to their heterosexual counterparts, both of these are marginally significant. Next, in column 3, we include additional controls for individual performance in Game 2 (*Tournament Score*) and the difference in performance between Games 1 and 2 (*Tournament - Piece Rate Score*), and find that both the gender and sexual minority gaps persist. All in all, these results show that the sexual minority and gender gaps in competitiveness are not attributable to demographics or performance differences between groups.

We also investigate whether the observed sexual minority and gender gaps are attributable to any differences in confidence. Measures of confidence have been used extensively in the body of literature on competitiveness to estimate residual gender gaps in competitiveness.²⁷ Tables B.4 and B.5 in the Online Appendix document that there are indeed confidence differences between groups, with heterosexual men having higher confidence than any other group.

²⁴ We note that the frequency with which heterosexual men and women choose to compete in our experiment is close to those reported in [Apicella et al. \(2017\)](#) (40% vs. 27.8% for men and women, respectively, in their *other* treatment which is most similar to our experiment) where the authors collected their data online using the same Counting Task.

²⁵ The overall picture is different in the Netherlands per the findings of [Buser et al. \(2018\)](#). They find a sexual minority gap for men only and no gender gap for sexual minorities.

²⁶ For robustness, Table B.3 in the Online Appendix presents probit regression estimates of these models which are consistent with the results in [Table 1](#).

²⁷ Several studies find that overconfidence is an important driver of the gender gap in competitiveness ([Niederle and Vesterlund, 2011](#); [Van Veldhuizen, 2022](#); [Gillen et al., 2019](#)). Moreover, beliefs appear to be an important channel through which information interventions can close the gender gap in

Table 1
OLS Regressions of willingness to compete.

Panel A: Regression results	(1)	(2)	(3)	(4)
<i>Choosing to compete in game 3</i>				
Female	-0.123*** (0.027)	-0.127*** (0.039)	-0.139*** (0.039)	-0.051 (0.037)
Gay/Lesbian	-0.068** (0.027)	-0.073* (0.040)	-0.085** (0.040)	-0.018 (0.038)
Female * Gay/Lesbian		0.010 (0.054)	0.024 (0.054)	-0.029 (0.051)
Tournament score			0.019*** (0.007)	-0.004 (0.007)
Tournament - Piece rate score			0.013 (0.009)	0.009 (0.009)
Guessed Rank: Game 2 - Tournament				-0.181*** (0.014)
Constant	0.450*** (0.052)	0.452*** (0.054)	0.315*** (0.070)	0.754*** (0.077)
<i>Panel B: Gender gap for sexual minorities</i>				
Female + Female * Gay/Lesbian		-0.118*** (0.038)	-0.116*** (0.038)	-0.080** (0.036)
<i>Panel C: Sexual minority gap for women</i>				
Gay/Lesbian + Female * Gay/Lesbian		-0.064* (0.036)	-0.061* (0.036)	-0.047 (0.034)
Observations	1136	1136	1136	1136
Demographic controls	✓	✓	✓	✓

Standard errors in parentheses. Panel A presents the estimated coefficients from OLS regressions. The dependent variable in each model is the indicator variable which takes the value of one if the participant chose to compete in Game 3. Demographic controls are age and ethnicity (indicator for whether the participant is white). Panels B and C present the post-estimation tests for sums of coefficients corresponding to the gender gap for sexual minority individuals and the sexual minority gap for women, respectively.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

Given this difference in confidence, in column 4 of Table 1, we include the participant's (incentivized) belief of their rank in their group for Game 2 - Tournament as a measure of confidence. It takes values from one to four, with one (four) indicating that they believed they were the highest (lowest) performer in their group. Unsurprisingly, we find that participants with lower confidence are less likely to compete (as indicated by the negative coefficient on *Guessed Rank*). We also find that the gender gap in willingness to compete for heterosexual individuals can be explained by differences in confidence: the coefficient for *Female* in column 4 is no longer significant. However, the story is different for gay/lesbian participants: a gender gap for sexual minority individuals of 8 pp remains after controlling for beliefs in column 4. Thus, for gay men and lesbian women, even though beliefs are a significant predictor for individual's willingness to compete, gender still plays a significant role. Finally, we find that the sexual minority gaps disappear after controlling for beliefs, as evidenced by the coefficient estimates of *Gay/Lesbian* in column 4, as well as the sum of coefficient estimates in Panel C.

We summarize these findings below:

Result 1. We document a novel **sexual minority gap** in the propensity to compete: self-identified gay men and lesbian women compete less than their heterosexual counterparts. The analogous **gender gap** is independent of sexual identity. Most of these gaps emerge from differences in confidence, with the sole exception of the gender gap between gay men and lesbian women.

Both the gender and sexual minority gaps are consistent with Hypotheses 3a and 3b. While we did not make a specific prediction about beliefs, the fact that the relative underconfidence of gay men and all women explains most of these gaps is consistent with recent work on the effects of social status on economic behavior through biased beliefs. González-Jiménez (2022) posits, and finds experimental support for the idea that marginalized groups may have worse economic outcomes in part due to biased beliefs about their own abilities.

competitiveness (Alan and Ertac, 2019). Nevertheless, a recent meta-analysis of competitiveness revealed that most gender gaps in the willingness to compete remain even after controlling for confidence (Markowsky and Beblo, 2022).

Table 2
Investigating the gender gap for gay and lesbian individuals.

	(1)	(2)	(3)	(4)
<i>Choosing to compete in Game 3</i>				
Female	−0.081** (0.036)	−0.070** (0.034)	−0.063* (0.034)	−0.061* (0.036)
Tournament score	−0.006 (0.011)	−0.006 (0.010)	−0.004 (0.009)	0.000 (0.009)
Tournament - Piece rate score	0.009 (0.012)	0.015 (0.011)	0.014 (0.011)	0.020* (0.011)
Guessed Rank: Game 2 - Tournament	−0.154*** (0.020)	−0.103*** (0.019)	−0.097*** (0.019)	−0.093*** (0.019)
Submit Past Perf. into Tournament		0.352*** (0.046)	0.335*** (0.046)	0.327*** (0.047)
Survey risk			0.030*** (0.007)	0.029*** (0.008)
Out to family				−0.019 (0.022)
Out to friends				−0.004 (0.031)
Out at work				0.006 (0.021)
Constant	0.684*** (0.119)	0.457*** (0.110)	0.246** (0.119)	0.261* (0.133)
Observations	563	563	563	536
Demographic controls	✓	✓	✓	✓
Sample	G/L	G/L	G/L	G/L

Standard errors in parentheses. This table presents the estimated coefficients of OLS regressions. The dependent variable in each model is the indicator variable which takes the value of one if the participant chose to compete in Game 3. All models are conducted using only gay/lesbian participants. Demographic controls are age and ethnicity (indicator for whether the participant is white).

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

4.2. Exploring the gender gap for sexual minorities

Our dataset allows us to further examine additional factors that may affect one's propensity to compete, especially those that may differ between gay men and lesbian women. In this section, we look at standard preferences that are known to explain some of the gap in competition entry (risk, feedback aversion) as well as behaviors specific to sexual minority individuals (to what extent a participant is public or "out" regarding their sexual identity). Table 2 presents the estimated coefficients from OLS regressions using only gay/lesbian participants, incrementally controlling for these preferences and behaviors. Column 1 presents the primary model specification without these preferences for comparison. We find that the inclusion of these controls, specifically the related preferences (e.g., risk and feedback aversion), accounts for about 25% of the gender gap for gay and lesbian individuals.

Submission of past performance into tournament

In Game 4, participants decide whether to submit their past performance in Game 1 to a competitive or non-competitive payment scheme.²⁸ Niederle and Vesterlund (2007) posit that controlling for participant's decisions in Game 4 when investigating the determinants of competitiveness (choice in Game 3) eliminates the impact of preferences that may be determinants of tournament entry, such as risk and feedback aversion. The resultant residual gender gap in tournament entry is commonly interpreted as a the gap in competitiveness preference.²⁹ We examine whether controlling for this choice has an impact on the gender gap in choosing to compete in Game 3 for gay men and lesbian women; column 2 of Table 2 shows that the gender gap persists when we control for the choice of a tournament payment scheme in Game 4 (*Submit Past Perf. into Tournament*).³⁰

²⁸ Table B.6 in the Online Appendix presents decisions in Game 4 across gender and sexual orientation. Note that gay men are 6pp more likely to submit past performance to the tournament payment scheme than lesbian women, though this difference is not statistically significant (p -value = 0.145).

²⁹ The competitiveness literature generally uses these controls in OLS regression analysis to estimate the gap in competitiveness preferences. Markowsky and Beblo (2022) provide evidence that competitiveness is a distinct trait via a meta-analysis of the literature using this technique. However, Van Veldhuizen (2022) controls for risk preference (and overconfidence) by design and finds no evidence of a residual gender gap in competitiveness.

³⁰ For robustness, Table B.7 in the Online Appendix presents probit regression estimates of these models which are consistent with the results in Table 2.

Risk preferences

Gay men and lesbian women differ in their tolerance to risk in our sample. While choices in Game 4 may partially reflect this difference in risk preference, multiple measures may be necessary to control for this effect on the competitiveness gap in case of measurement error (Gillen et al., 2019). When asked on a 10-point Likert scale to “rate [their] willingness to take risks in general”, gay men respond slightly higher than lesbian women, indicating more risk tolerance (mean response of 6.11 and 5.79, respectively; p -value = 0.088).³¹ Controlling for this survey measure of risk preferences (*Survey Risk*) in column 3 of Table 2 yields additional explanatory power such that the gender gap is only marginally significant.

Outness

Finally, it is possible that the extent to which a gay/lesbian participant is “out” may correlate with their propensity to compete. On the one hand, coming out may more closely tie an individual to sexual identity-based prescriptions of behavior. On the other, being publicly out may be a function of general confidence, at least some of which may be reflected in relative beliefs in this competitive environment. In our sample, lesbian women are less likely to be out in the workplace and to their families than gay men ($p = 0.015$ and $p = 0.008$, respectively).³² There is no such difference in coming out to friends ($p = 0.491$). To account for this gender difference, we include the variables “Out to Family”, “Out to Friends”, and “Out at Work” to reflect how out a participant is to their family, to their friends, and in the workplace. Each is a measure of whether the participant is out to no one (equal to 0) up to everyone (equal to 3) in the relevant life context. In column 4 of Table 2, we find that including these outness measures yields no additional explanatory power and does not substantially affect the magnitude of the gender gap.

We summarize these findings as follows:

Result 2. *After controlling for differences in related preferences (e.g., risk and feedback aversion), the gender gap in competitiveness between gay and lesbian individuals is reduced and only marginally significant. Controlling for outness yields no additional explanatory power.*

4.3. Self-reported versus inferred identity

As explained in Section 2.2, the existing literature on the economic well-being of sexual minority individuals predominantly infers sexual identity through associated indicators due to the limited availability of data on self-reported identity. Our main analysis relies on self-reported sexual identity, which is becoming standard practice as such data becomes available. In this section, we re-investigate estimated competitiveness differentials using two alternative methods to infer sexual identity. Specifically, we use our data on sexual attraction and experience which were collected as part of our post-experiment survey. This analysis allows us to study the consistency of estimates when inferring sexual identity through these indicators.

We asked two questions to measure sexual attraction: “Are you sexually attracted to men (women)?” with binary responses of “Yes” or “No” for each. Using responses to these questions, we create the indicator variable *Same Sex Attraction*, which is equal to one if the participant is male (female) and responds that they are attracted to men (women); it is zero otherwise.

We asked one question to measure sexual experience in the past year: “In the last year, with whom have you had sex?” with available responses of “Men only”, “Women only”, “Both men and women”, “I have not had sex”, and “I prefer not to say”. Using these responses, we create the indicator variable *Same Sex Experience*, which is equal to one if the participant is male (female) and responds that they have had sex with men (women) or both men and women in the last year. This approach is similar to that used in recent work on misclassification of sexual identity based on experience with data from the General Social Survey (Martell and Eschelbach Hansen, 2017).

First, we examine the extent to which participants would be misclassified if their sexual identity were inferred using these indicators. Fig. 3 displays the proportion of participants who are miscategorized for each identity group. We say that a participant is “miscategorized” if the participant is heterosexual (gay or lesbian) and the relevant indicator, either attraction- or experience-based, is equal to one (zero).

There are two items of note. First, a significant number of individuals would be misclassified if their orientation were inferred through either attraction or experience indicators alone. This misclassification is asymmetric across identities and indicators. For example, only 3% of heterosexual men report attraction to men and would thus be inferred to be non-heterosexual using the attraction-based indicator. On the other end of the spectrum, roughly 39% of lesbian women would be miscategorized as heterosexual based on their sexual experience. Second, broadly speaking, attraction seems to be a better predictor of self-identity than experience.

Next, we study the consistency of our findings when inferring sexual identity. Table 3 presents the estimated coefficients for our main regression specification looking at the effects of self-reported and inferred identity on competition entry. Columns 2 and 3 include the variables *Same Sex Attraction* and *Same Sex Experience* along with interaction terms with *Female*, respectively. Column 1 presents our central finding from column 2 of Table 1 regarding the effect of identity for comparison.³³

³¹ We also note that gay men and lesbian women in our sample are less tolerant of risk than their heterosexual counterparts (mean response of 5.95 and 6.53, respectively; p -value < 0.001).

³² Lesbian women are also less likely to be out in the workplace in a nationally representative sample of bachelor’s degree recipients (Folch, 2022). Furthermore, Aksoy et al. (2023) document that women are more likely to hide signals about their affinity with the LGBTQ+ community, especially in environments where they may expect to be discriminated against.

³³ For robustness, Table B.8 in the Online Appendix presents probit regression estimates of these models which are consistent with the results in Table 3.

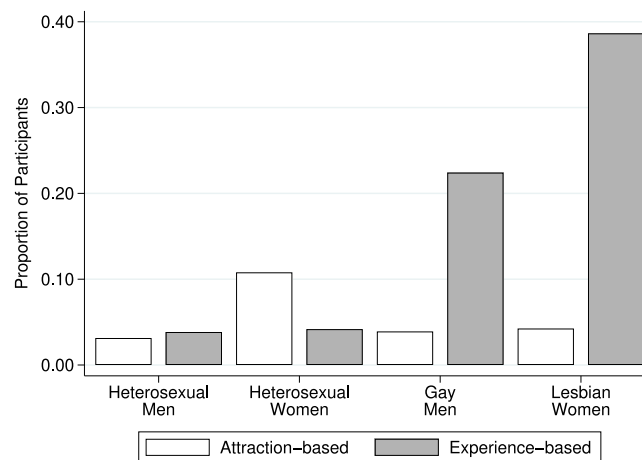


Fig. 3. Miscategorization of sexual identity using sexual attraction and experience indicators.

The height of each bar indicates the proportion of participants who are miscategorized in terms of their sexual identity using the Sexual Attraction and the Sexual Experience indicators. *Sexual Attraction* data comes from post-experiment survey questions “Are you sexually attracted to men (women)?” with binary responses of “Yes” or “No” for each. *Sexual Experience* data comes from the question “In the last year, with whom have you had sex?” See Table B.9 for the breakdown of responses to each of these questions by gender and sexual orientation.

First, we find a significant gender gap in all three specifications (see *Female* in Panel A as well as the sum of coefficients in Panel B). However, the sexual minority gap only exists when classifying participants based on identity and attraction; it disappears when we classify participants based on their sexual experience (see *Same Sex Experience* in Panel A and sum of coefficients in Panel C).³⁴

We summarize these findings below:

Result 3. *The estimated gender gap is not sensitive to whether sexual identity is self-reported or inferred. However, while the sexual minority gap persists when inferring identity using sexual attraction, it disappears when using sexual experience.*

Findings presented in this section provide fruitful insights into the consequences of inferring sexual identity using attraction- and experience-based indicators. Although, we are able to replicate our findings when using sexual attraction, we find that the sexual minority gap disappears when using sexual experience.

5. Discussion and concluding remarks

In this paper, we investigate differences in willingness to compete by sexual orientation and gender in the US using an online experiment, which allows us to recruit a relatively large number of participants using their self-reported sexual identity. First, we document a novel *sexual minority gap* in competitiveness: self-identified gay men and lesbian women both compete less than their heterosexual counterparts. We also document a gender gap in competitiveness where both heterosexual and gay men compete more than their female counterparts.

Our experimental protocol allows us to uncover that confidence is a key determinant of these gaps: beliefs about relative ability explain the gender gap for heterosexual individuals and the sexual minority gap. This is in line with recent research that posits that “low social status” individuals may have lower confidence, affecting a range of economic behaviors (González-Jiménez, 2022). However, the gender gap in competitiveness persists for gay/lesbian participants even after we control for beliefs. Controlling for other related preferences (e.g., feedback and risk aversion) reduces the gender gap such that it is only marginally significant, but additionally controlling for the degree to which a participant is out regarding their sexual identity does not yield additional explanatory power.

It is possible that the residual gender gap in competitiveness among gay and lesbian individuals may be related to measurement error in the elicited preferences used as controls. Gillen et al. (2019) discuss the role of measurement error, specifically with respect to residual gender gaps in competition, and suggest the collection of multiple measures of preferences to be used as controls. While we include multiple measures reflective of some correlates of competitiveness (e.g., risk, beliefs), the limitations of our protocol prevent us from doing more of this style of analysis ex-post and we leave it to future research to further investigate the source of gender gaps among sexual minorities in competitiveness.

The finding that lesbian women compete less than any other group could be the result of the intersection of two marginalized identities. There exists research in psychology and sociology, for example, that examines how the intersectionality of multiple social identities affect individuals’ lived experiences (e.g., Bowleg, Huang, Brooks, Black, and Burkholder, 2003). In this vein, it is possible

³⁴ Results are qualitatively similar if we exclude participants who responded either “I have not had sex” or “I prefer not to say” in column 3.

Table 3
Competition differentials: Self-Identity vs. Inferred identity.

Panel A: Regression results	(1)	(2)	(3)
<i>Choosing to compete in Game 3</i>			
Female	−0.139*** (0.039)	−0.137*** (0.040)	−0.132*** (0.035)
Gay/Lesbian	−0.085** (0.040)		
Female * Gay/Lesbian	0.024 (0.054)		
Same sex attraction		−0.092** (0.040)	
Female * Same sex attraction		0.025 (0.054)	
Same sex experience			−0.045 (0.041)
Female * Same sex experience			0.006 (0.055)
Tournament score	0.019*** (0.007)	0.019*** (0.007)	0.018*** (0.007)
Tournament - Piece rate score	0.013 (0.009)	0.014 (0.009)	0.015 (0.009)
Constant	0.315*** (0.070)	0.317*** (0.070)	0.290*** (0.069)
<i>Panel B: Gender gap for sexual minorities</i>			
Female + Female * Gay/Lesbian	−0.116*** (0.038)		
Female + Female * Same sex attraction		−0.112** (0.037)	
Female + Female * Same sex experience			−0.126*** (0.044)
<i>Panel C: Sexual minority gap for women</i>			
Gay/Lesbian + Female * Gay/Lesbian	−0.061* (0.036)		
Same sex attraction + Female * Same sex attraction		−0.066* (0.037)	
Same sex experience + Female * Same sex experience			−0.039 (0.037)
Observations	1136	1136	1136
Demographic controls	✓	✓	✓

Standard errors in parentheses. Panel A presents the estimated coefficients from OLS regressions. Panels B and C present the post-estimation tests for sums of coefficients corresponding to the gender gap for sexual minority individuals and the sexual minority gap for women, respectively. The dependent variable in each model is the indicator variable which takes the value of one if the participant chose to compete in Game 3. Demographic controls are age and ethnicity (indicator for whether the participant is white).

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

that the effects of gender and sexual minority status are stronger when jointly present (i.e., in lesbian women). Future research may then focus on how multiple dimensions of identity jointly affect economic preferences.

We note that our experiment utilized the Counting Task, previously shown to have gender-neutral stereotypes regarding performance (Fisher et al., 2023). While we document both gender and sexual minority gaps in competitiveness, due to the gender-neutrality of this task, we view these differentials as conservative estimates relative to the body of literature. The task stereotype matters (Halladay and Landsman, 2022), with smaller gaps estimated using neutral- or female-stereotyped tasks. To what extent the sexual minority gap is similarly sensitive to differently stereotyped tasks is a worthy question for future research.

It is also worth noting that the gaps in competitiveness documented herein are specific to an environment where the returns to competition are known and invariant with respect to identity. Given the extensive evidence of discrimination against sexual minorities, it is possible that the expected or realized returns to competition in the field are lower for gay men and lesbian women. Competitiveness behavior may also be shaped by these potential differences in returns to competition in the field, in which case, our estimated sexual minority gap may only be a lower-bound for analogous gaps in the field. Investigating how the competitiveness behavior of sexual minorities is shaped by both believed and actual returns to competition could provide a fruitful avenue of future research.

Finally, our study highlights the feasibility of recruiting a sizeable number of self-identified sexual minority participants and demonstrates that estimated behavior differentials can depend on the ability to do so. We are hopeful that this endeavor may inspire further research into the economic behavior and traits of these historically understudied populations.

Declaration of competing interest

The author have nothing to declare

Appendix A. Supplementary data

Supplementary material related to this article can be found online at <https://doi.org/10.1016/j.jebo.2025.106987>.

Data availability

Data will be made available on request.

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