LGBTQ Identity in Adolescence and the Peer Effects of "Coming Out"

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Abstract

LGBTQ identities begin developing in adolescence and LGBTQ students face significant educational disparities. This paper uses unique panel data from one of the largest school districts in the US from 2017-2020 to study (1) how LGBTQ identities and these educational disparities evolve in adolescence and (2) how having LGBTQ peers affects identity development and educational outcomes using within-school, cross-cohort variation in the share of 9th-grade peers who identified as LGBTQ in 8th grade. First, cross-sectional statistics understate the share of students likely affected by policies targeting LGBTQ students: while 5-9 percent of students identify as LGBTQ in a given year, 14 percent of students ever do so and at least 20 percent of students are ever uncertain of their identity. Students who eventually, but have not yet, "come out" have substantially higher bullying risk even five years earlier. Second, having more LGBTQ peers has striking effects for LGBTQ students: it weakly increases the likelihood of continuing to identify as LGBTQ, substantially reduces bullying and improves feelings of belonging and perceptions of LGBTQ acceptance, and reduces the likelihood of leaving the district. Increasing the share LGBTQ by 10pp reduces disparities in bullying and school belonging between LGBTQ students and their cisgender and heterosexual peers by 50 percent and eliminates other gaps.

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1 Introduction

LGBTQ identities begin developing in adolescence and there are large educational disparities between students who identify as LGBTQ and their cisgender and heterosexual (Cis/Het) peers: they are substantially more likely to be bullied and less likely to graduate from high school and attend college (Kim, 2009; Kosciw et al., 2013; Thoreson, 2016; Sansone, 2019; Kosciw et al., 2018; Bishop et al., 2020; Hall et al., 2021). This paper uses unique data from one of the largest school districts in the US to address two gaps in our knowledge about LGBTQ students' school experiences: first, it provides the first large-sample, quantitative evidence on the evolution of LGBTQ identities in adolescence, and second, it provides causal evidence on one potential determinant of LGBTQ-Cis/Het gaps: how the share of students that identify as LGBTQ affects LGBTQ-Cis/Het gaps in bullying, perceived acceptance of LGBTQ identities, school belonging, attendance, and district and school retention.

Quantitative research on LGBTQ identities—including the estimation of LGBTQ-Cis/Het gaps in bullying and other educational disparities described above—is constrained by the fact that most (rare) data on LGBTQ individuals is collected at one point in time. This misses a key complexity: sexual orientation and gender identity (SOGI) is fluid. This is particularly relevant in adolescence: retrospective surveys show crucial LGBTQ identity-development milestones happening on average from ages 13-20 (Bishop et al., 2020; Hall et al., 2021). Mittleman (2023) provides the first quantitative evidence on SOGI fluidity among adults in a nationally-representative sample, and shows that 14 percent of people aged 18-24 in 2013 changed their reported SOGI at least one time in a five-year period; this supports qualitative evidence from smaller populations (for a review, see Katz-Wise and Todd, 2022). Understanding SOGI fluidity and how adolescent identity formation affects our estimates of LGBTQ-Cis/Het gaps in educational outcomes requires a panel dataset of repeatedly-reported SOGI that can be linked to data on student outcomes; to my knowledge the data I use from the Los Angeles Unified School District (LAUSD) is the first to meet this criteria.[1] In addition to documenting systematic patterns related to adolescent SOGI development, I provide new causal evidence on whether having LGBTQ peers affects how other students identify.[2]

LGBTQ students experience substantially more bullying at school, which causes worse educational outcomes and a higher risk of suicide and substance abuse (Kosciw et al., 2013; Goldbach et al., 2014; Kosciw et al., 2018; Humphries et al., 2021; Rees et al., 2022). LGBTQ students are also less likely to graduate from high school and attend college (Sansone, 2019). In LAUSD during my sample period (2017-2020), LGBTQ students on average were 1.4 times as likely to be bullied as Cis/Het students, 1.3 times as likely to be chronically absent, and 1.3 times as likely to leave the

[1] Of course, this sample is not nationally representative, and I discuss the particular context of LAUSD further in Section 2. As the second-largest school district in the US, however, it provides a large population of LGBTQ students among whom I can document systematic patterns.

[2] Having more LGBTQ peers (especially if they publicly identify as LGBTQ) may de-stigmatize these minority identities or change heteronormative or gender norms, changing other students' willingness to openly express their own identity. Exposure to LGBTQ students may also help students learn about non-cisgender, non-heterosexual identities and allow them to begin to use that language to identify their own SOGI. This may not be as relevant when exposure to LGBTQ identities through other mechanisms is more common (e.g. through pop culture or exposure to LGBTQ adults in the community).

district. Understanding whether peer support can help mitigate these gaps is increasingly important—while school-based support is related to less victimization and better outcomes (e.g. Szalacha, 2003; Goodenow et al., 2006; Kim, 2009; Kosciw et al., 2013, 2018), these types of supports are being eroded in many places (ACLU, 2024).

There are several reasons why having more openly-LGBTQ peers might affect LGBTQ-Cis/Het educational disparities. First, having a larger group of students with the same minority identity may increase resilience, support, or feelings of belonging for LGBTQ students directly; larger groups may also be less likely to be targeted by bullies—an "affinity group hypothesis." Second, larger numbers of LGBTQ students may reduce stigma or weaken heteronormativity or gender norms and therefore decrease bullying of LGBTQ students; in addition, when there are more LGBTQ students, other students are more likely to know an LGBTQ student and this may lower prejudice or increase tolerance—the "contact hypothesis" (see e.g. Paluck et al., 2020). Finally, if the size of the group of LGBTQ students is related to differences in the other characteristics of those who identify as LGBTQ, the resulting perceptions of the minority group might change.[3]

The data I use from LAUSD is uniquely suited to understanding SOGI fluidity in adolescence and the effects of having more LGBTQ peers. I observe a panel dataset of students who report their SOGI every year,[4] collected in a district-run School Experience Survey (SES) alongside questions about bullying, belonging at school, and perceptions of LGBTQ acceptance. This survey data is merged with administrative data on enrollment, attendance, and other demographics. The size of LAUSD—enrolling 36,000-40,000 students per grade per year during my sample period, 5-9 percent of whom identify as LGBTQ in a given year—ensures that I observe a large enough sample of LGBTQ students to be able to document systemic patterns.

First, to understand the development of SOGI in adolescence, I compare how the cross-sectional share of students who identify as LGBTQ in a given year compares to the number of students who ever identify as LGBTQ, and document the paths along which SOGI is most likely to develop. This analysis relies on a panel of about 43,000 students who were in 6th-9th grade in 2017 and took the SES every year over the next four years.

One and a half to three times as many students ever identify as LGBTQ as identify as LGBTQ in any given year: 14 percent versus 4.6-8.5 percent. Thus, cross-sectional statistics vastly understand the number of students who might be affected by policies targeting LGBTQ students because SOGI is very fluid between 6th and 12th grade—32 percent of students ever change their reported SOGI over this four-year period. By observing students of different ages over the same four-year window, I can isolate the effect of age and show that the degree of fluidity is monotonically decreasing

[3]There are also two mechanical possibilities. First, LGBTQ students may have other demographic characteristics that cause changes in the classroom environment. For example, in my sample, students who identify as LGBTQ are much more likely to be female. Female students are known to be less disruptive which improves student outcomes (e.g. Lavy and Schlosser, 2011). In my analysis, I control for the share of students with all observable demographic characteristics and so this mechanism should not explain my effects. Second, if LGBTQ students are less likely to be bullies, more LGBTQ students mechanically reduces bullying. In my analysis, reducing the number of LGBTQ students who are bullied negatively spills over into higher numbers of other at-risk Cis/Het students being bullied, suggesting that this mechanism does not explain my results.

[4]Students are asked, "Do you identify as lesbian, gay, bisexual, transgender, and/or queer (LGBTQ)?" In 2017 and 2018, they could answer "Yes," "No," or "I'd rather not say;" "I don't know" was added as an option in 2019 and 2020. I pool the latter two options and call these students "uncertain of their SOGI."

in age. I use multiple robustness tests to show that the fluidity I document is not driven by inattention during the survey or other types of measurement error.

Observing students in a panel dataset also allows me to estimate educational disparities separately by whether students currently, ever but not currently, or never identify as LGBTQ. Students who ever, but do not yet, identify as LGBTQ are substantially more likely to be bullied than their always-Cis/Het peers, up to 5 years before they ever "come out" on the survey. That said, they also experience a marked increase in bullying in the year that they start identifying as LGBTQ. Finally, students who always identify as LGBTQ are much more likely to be the target of bullying than other students who exhibit uncertainty or come out at later ages.

Next, I turn to understanding the effects of having more LGBTQ peers. I follow the recent peer effects literature—described more below—and study within-school, cross-cohort variation in the share of one's 9th-grade cohort who identified as LGBTQ *in 8th grade*, separately by students' own 8th-grade SOGI. Focusing on exposure to students who identified as LGBTQ in the year before, and taking advantage of the substantial mixing of students between middle and high school, I eliminate concerns that identifying as LGBTQ may itself depend on exposure to other LGBTQ students.[5] I use both a leave-one-out linear-in-means model (following the majority of the literature), as well as a model that relaxes the linearity assumption.[6] Multiple simulation and robustness tests support the validity of the assumption that deviations from school averages in the share of students who identify as LGBTQ are quasi-random.[7] The analysis sample includes students who were in 9th grade in 2018, 2019, or 2020 in a set of 127 traditional high schools (around 85,000 students, 56,000 of whom took the SES in 9th grade).

First, I test whether having more LGBTQ peers changes how students report their own SOGI. Students who identified as Cis/Het in 8th grade are not affected, but students who identified as LGBTQ or uncertain in 8th grade are about 8 and 14 percent more likely to continue to do so in 9th grade—and 5 and 10 percent less likely to identify as Cis/Het—when they have 10pp more Cis/Het peers, respectively, though the point estimates are not statistically significantly different from zero.

Having more LGBTQ peers substantially improves the school experiences of LGBTQ students. Increasing the share LGBTQ by 10pp (close to the range of the share LGBTQ in LAUSD) shrinks large LGBTQ-Cis/Het gaps in bullying and feelings of belonging at school by 50 percent. Increasing the share LGBTQ from 0-3 percent (the 15th percentile) to just 3-6 percent (the 50th percentile) is enough to close large LGBTQ-Cis/Het gaps in whether

[5] In fact, I test whether this is the case by looking at how students identify in 9th grade as an outcome.

[6] In both specifications, I regress the 9th-grade outcome of interest on year fixed effects, 9th-grade school fixed effects, 8th-grade school fixed effects, leave-one-out measures of all other observed cohort demographics, individual demographic characteristics, cohort size, the share of students in a cohort who took the SES in 8th grade, the share who were new to the district in 9th grade, the share of students in the cohort who came from the same 8th-grade school as the student, and my share-LGBTQ variable(s) interacted with students' own 8th-grade SOGI. In the linear specification, the share-LGBTQ variable is the linear share LGBTQ. The non-linear model uses indicators for being below the 15th percentile (0-3 percent LGBTQ), from the 15-50th percentile (3-6 percent LGBTQ), 50-85th percentile (6-9 percent LGBTQ) or above the 85th percentile (9-15 percent LGBTQ). Changing these cutoffs or the number of bins yields the same conclusions.

[7] The key assumption is effectively that, while students may sort into schools based on average shares LGBTQ, they do not sort into schools based on the demographics of their particular cohort at that particular school.

students think that LGBTQ students are accepted and whether they leave the district the following year. The results are more consistent with effects that operate through having a larger "affinity group" and learning about relatively high acceptance of LGBTQ identities through observations of other students, rather than through changes in actual tolerance or prejudice on the part of bullies or other students.

Unfortunately, some of the positive effects for LGBTQ students seem to have negative spillovers onto other students. Students who identify as Cis/Het and previously reported being bullied are somewhat *more* likely to be bullied when there are more LGBTQ students, and feel much less like they belong at school. Similar spillovers on belonging occur for students who were previously uncertain of the SOGI. Having a higher share of LGBTQ students also causes higher rates of chronic absenteeism for these students, but does not affect whether they leave the district. Surprisingly, given the effects on bullying and belonging, LGBTQ students are also more likely to be chronically absent when there are more LGBTQ students; one potential explanation is that they are more likely to have friends who encourage them to skip school.

This paper primarily contributes to the growing economic literature on disparities facing LGBTQ individuals. In addition to the work in demography, psychology, and sociology on the fluidity of LGBTQ identities that is described above, it also contributes to the economic literature concerning the effects of social identities on economic and educational outcomes. Finally, it extends the economic literature on peer effects, being the first to focus on the effects of having more peers with a stigmatized social identity.

Badgett et al. (2024) review the economic literature on the disparities facing LGBTQ individuals in recent decades, focusing on educational and labor market disparities and family formation. In the domain of education, the evidence is somewhat paradoxical: LGBTQ adolescents tend to have worse school experiences across the board, but gay and lesbian adults tend to have more years of schooling, whereas bisexual and transgender adults have less.[8] The majority of research focuses on the educational attainment or college outcomes of adults (e.g. Black et al., 2007; Carpenter, 2009; Sansone and Carpenter, 2020; Burn and Martell, 2020; Badgett et al., 2021). Sansone (2019) shows that sexual minority youth have lower educational achievement during and are less likely to graduate from high school, and are less likely to attend college. As described above, research has consistently demonstrated that LGBTQ students are more likely to be bullied which contributes to a higher risk of suicide and substance abuse (Kosciw et al., 2013; Goldbach et al., 2014; Kosciw et al., 2018; Humphries et al., 2021; Rees et al., 2022). This paper provides causal evidence that having a larger peer group of other LGBTQ students is a potential protective factor against these negative outcomes. I also show that the magnitude of these disparities varies among LGBTQ students conditional on when and whether they "come out," highlighting the importance of considering the fluidity of SOGI in adolescence.

[8]There are several potential explanations supported by various pieces of evidence, most convincingly, that those who identify as LGBTQ at young ages may have worse educational outcomes and potentially are less likely to identify as LGBTQ as adults, whereas individuals who begin identifying as LGBTQ later in life are more educated (e.g. Pearson and Wilkinson, 2017). This emphasizes the importance of accounting for SOGI fluidity in understanding these disparities.

Second, this paper provides evidence that norms and social costs affect the choice to (publicly) identify with a particular social group that this decision can have externalities, as described in the seminal economics paper on identity by Akerlof and Kranton (2000). Having more 10pp more LGBTQ peers weakly increases the likelihood that students who previously identified as LGBTQ continue to do by 4.6pp (8 percent of the mean, se = 4.4pp).[9] This result likely reflects changes in the (real or perceived) costs of disclosure, since having more LGBTQ peers also strongly reduces bullying of LGBTQ students and increases LGBTQ students' feelings of school belonging and perceptions of acceptance of LGBTQ students at their school.[10] Interestingly, there is no change in perceived acceptance among *Cis/Het students*, suggesting that changes in norms on a larger social scale are unlikely to be driving the reduction in bullying, despite the importance of norms and peer influence on bullying in other contexts (Paluck, 2011; Paluck and Shepherd, 2012; Tankard and Paluck, 2016).

Finally, I extend the methodology of the recent literature on peer effects to consider the effects of exposure to LGBTQ peers. A number of papers use similar within-school, cross-cohort variation in a particular demographic characteristic to estimate the effects of exposure to peers with that characteristic (Hoxby, 2000; Angrist and Lang, 2004; Figlio, 2007; Ammermueller and Pischke, 2009; Gould et al., 2009; Carrell and Hoekstra, 2010; Lavy and Schlosser, 2011; Lavy et al., 2012; Cools and Patacchini, 2021; Cools et al., 2022). These papers study the effects of exposure to peers of a certain gender or race, or peers with particular parent characteristics—highly educated parents, working mothers, or parents undergoing a domestic violence case. Peers are extremely important for educational outcomes. For example, having more disruptive peers worsens test scores (Figlio, 2007; Carrell and Hoekstra, 2010; Carrell et al., 2018) and having more peers with working mothers increases girls later labor supply and family formation (Olivetti et al., 2020). I build on this literature to study how having more peers who identify as LGBTQ affects student outcomes and gaps between Cis/Het and LGBTQ students. I show that exposure to students with this stigmatized identity largely affects only students in the same group—with some negative spillover effects on other students—highlighting the importance for considering heterogeneity when evaluating peer effects (similar to Cools et al., 2022). I adjust the methodology of these papers to account for the fact that SOGI is self-reported and may itself be affected by the share of peers who identify as LGBTQ.

This paper proceeds as follows. Section 2 provides key policy context affecting LGBTQ students in LAUSD and Section 3 discusses the unique data from LAUSD that allows me to carry out this analysis. Section 4 provides descriptive evidence on SOGI fluidity in middle and high school. Section 5 describes the empirical strategy used to estimate the causal effect of having more LGBTQ peers, and Section 6 describes those results. Section 7 discusses

[9] Given the nature of how SOGI is measured, I cannot separate whether the change is in how students identify privately versus their willingness to identify as LGBTQ on the survey or more publicly. Gromadzki and Siemaszko (2023) find that adults are more likely to disclose their LGBTQ identity on Twitter when others do so, which is more likely to be due to pure changes in disclosure rather than self-identification.

[10] Social norms around other salient social identities have also been shown to affect behavior at school. Students avoid behaviors that associate them with the stigmatized "high-achiever," unless they are in a context in which achievement is valued (Bursztyn and Jensen, 2015). There is mixed evidence around the controversial "acting white" hypothesis that this effect might be larger for Black students if their racial identity is oppositional to performing well at school (e.g. Fordham and Ogbu, 1986; Austen-Smith and Fryer, 2005; Fryer and Torelli, 2010; Tyson et al., 2005).

robustness and Section 8 concludes.

2 Setting and policy background

As described in more detail in the next section, this paper relies on unique data available from the Los Angeles Unified School District (LAUSD), the second-largest school district in the United States. The data links survey data on students' SOGI and school experiences with administrative data on enrollment and attendance, and follows students over time. The size of LAUSD also provides a unique opportunity to study LGBTQ students with sufficient statistical power.[11]

The analysis in this paper therefore needs to be interpreted through the lens of the particular LAUSD context. In this section, I provide details on a key aspect: policy protection for and acceptance of LGBTQ students in LAUSD and how these compare nationwide and across California. Section 3.3 provides summary statistics for my sample and discusses the demographic composition of LAUSD.

LGBTQ students in LAUSD live in a state with some of the most comprehensive laws protecting LGBTQ students. In 2024, California is one of 21 states (plus DC) with laws preventing bullying on the basis of SOGI and one of 18 states (plus DC) with explicit guidance for the treatment and inclusion of transgender students (Movement Advancement Project).[12] In 2012, California required schools to adopt strong anti-bullying policies that describe the prohibited bases for bullying, including SOGI.[13] Legal protections for LGBTQ individuals made great progress throughout the 2000s and 2010s, but have backslid in recent years. In 2024, the ACLU tracked 533 proposed anti-LGBTQ state bills in the US (209 explicitly targeting schools), none of which were in California.[14] LAUSD has its own district policies supporting LGBTQ students. Sexual orientation and gender identity were added as to their anti-bullying policy in 2009, three years ahead of the state-wide law. Their office of Human Relations, Diversity and Equity oversees efforts to create affirming learning and working environments for LGBTQ students, staff, and families.

Within California, there are regional differences in acceptance and LGBTQ-Cis/Het gaps, with more acceptance—proxied by smaller Cis/Het-LGBTQ gaps in school connectedness and victimization—in urban areas than rural areas (Choi et al., 2017). Urban areas are generally perceived as more accepting of LGBTQ individuals and have larger LGBTQ populations.[15] Bullying, perceived school safety, and suicidal ideation gaps between LGB and heterosexual

[11] In 2020, the last year in my data, LAUSD enrolled 36,000-40,000 students per grade in middle and high school.

[12] In 2020, the US Supreme Court held that discrimination on the basis of SOGI is sex discrimination (*Bostock v. Clayton County)*. Thus, Title IX now protects LGBTQ students from discrimination in schools nation-wide (https://www.aclu.org/know-your-rights/lgbtq-rights). California introduced discrimination protections for LGBTQ students in the Student Civil Rights Act in 2007.

[13] https://www.aclusocal.org/en/seths-law

[14] 49 were passed into law, 454 were defeated, and the remainder are unresolved. Those targeting schools restrict student or educator rights through e.g. curriculum censorship, forced outing, and sports or facility bans; 120 additional bills aimed to weaken civil rights laws by redefining sex or providing religious exemptions (https://www.aclu.org/legislative-attacks-on-lgbtq-rights-2024). The rise in anti-LGBTQ bills began after my sample period, which ends in 2020.

[15] The share of adults in California who identify as LGBTQ is higher than the US average and the highest of the ten most populated states (Public Policy Institute of California, 2024). Of the large Metropolitan Statistical Areas in California, Los Angeles has the largest LGBTQ population and the second-highest LGBTQ population share (5.1 percent, following San Francisco's 6.7 percent) (Conron et al., 2021).

students in LAUSD are similar to or slightly better than the state on average: Across the state in 2019, 41 percent of LGB 9th-graders and 57 percent of heterosexual 9th-graders felt safe at school, compared to 46 percent (LGB) vs 57 percent (heterosexual) in LAUSD. Statewide, 27 percent (LGB) and 13 percent (heterosexual) of 9th graders reported being afraid of being beaten up and 50 percent (LGB) and 30 percent (heterosexual) of students reported experiencing verbal harassment, compared to 19 percent (LGB) vs 12 percent (heterosexual) (physical) and 36 percent (LGB) and 23 percent (heterosexual) (verbal) in LAUSD. Finally, across the state, 42 percent of LGB 9th-graders and 11 percent of heterosexual 9th graders considered suicide; in LAUSD this was 34 percent and 10 percent, respectively.[16]

These statistics make clear that LGB students across the state experience substantially worse mental health and have worse school experiences than heterosexual students, despite the legal protections for LGBTQ students in California. While these gaps are smaller in LAUSD than California as a whole, the gaps are still strikingly large. In LAUSD in 2019, 25 percent of 9th-graders did not agree, 43 percent agreed, and 32 percent strongly agreed that LGBTQ students are accepted at school.

In summary, my results are most generalizable to urban school districts in states with strong protections for LGBTQ students and a fair amount of perceived acceptance among students.[17] However, even in districts like this, LGBTQ students experience substantially worse outcomes than their non-LGBTQ peers.

3 Data

I use survey and administrative data from LAUSD covering all enrolled students from 2015 to 2020. The administrative data includes school enrollment, student demographics, daily attendance, and middle school standardized test scores.[18] The administrative data is merged with student responses to the School Experience Survey (SES), administered annually by LAUSD. The SES includes students' self-reported SOGI (starting in 2017), experiences of bullying, school belonging, and perception of acceptance of LGBTQ students at their school.

To study how LGBTQ identities evolve in middle and high school, I use a panel of students who are in 6th-9th grade in 2017 and respond to the SES every year for the next four years. To study the peer effects of LGBTQ-identifying students, the empirical strategy requires dropping the oldest of these cohorts and making additional sample restrictions based on school characteristics.

[16] Author's calculations using CalSCHLS (2019) public data dashboard. Data for transgender students is collected but not publicly available at the district level due to small sample sizes.
[17] LAUSD serves a majority-Hispanic and low-income population (Table 1), which may also affect generalizability.
[18] High school students in LAUSD only take standardized tests in 11th grade and my analysis is restricted to 9th grade outcomes.

3.1 School Experience Survey

I use data from the SES from 2015 to 2020. The survey is administered district-wide between the end of October and December of each school year,[19] with students taking the SES online via a unique survey link they receive by email. Teachers are encouraged to provide class time for students to take the survey. On average, 78 percent of 6-8th graders and 64 percent of 9-12th graders respond to the survey each year.

Sexual orientation and gender identity and perceived LGBTQ acceptance. The survey began asking students in 6-12th grade about SOGI in 2017.[20] In 2017 and 2018, students were asked to respond "Yes," "No," or "I'd rather not say" to the statement, "I identify as LGBTQ (lesbian, gay, bisexual, transgender, or queer)." They also had the option to skip the question. In 2019 and 2020, the option "I don't know" was added. Throughout, I treat "I'd rather not say" and "I don't know" both as "Uncertain." Students are also asked the extent to which they agree with the statement that "LGBTQ (lesbian, gay, bisexual, transgender, or queer) students at my school are accepted" on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree). If students were unfamiliar with these terms, the instructions provided to teachers administering the survey included definitions of each component of the LGBTQ acronym following best practices for explaining the terms to children.[21]

"LGBTQ" is often used as an umbrella term but the experiences of lesbian, gay, bisexual, and transgender students are not a monolith—in particular, transgender students face substantially more stigma and less support. Given the format of the question measuring SOGI, I cannot separate students based on their gender identity.[22] I do, however, combine the measure of SOGI from the SES with the district's administrative record of students' sex.[23]

All survey measures other than those asking about SOGI have been asked since 2015.[24]

Bullying. Students are asked whether they have (1) had mean rumors or lies spread about them, (2) been teased about what their body looks like, (3) been made fun of because of their looks or the way they talk, (4) been pushed, shoved, slapped, kicked, or hit but someone who wasn't just kidding around, (5) had sexual jokes, comments, or gestures made about them, or (6) been bullied online. In each case, they are asked how many times in the last 12 months they have had that experience at school (for 1-5) or with a peer (for 6).[25] I focus on whether a student reports experiencing any bullying and disaggregate the types of bullying in the appendix.[26]

[19] The SES was administered in the fall during my sample period, and thus was unaffected by Covid-19 in the 2020 school year. After the pandemic, the survey shifted later in the year.

[20] Starting in 2018, only 7th-12th grade students were asked the SOGI questions.

[21] This began in 2018 and could explain the higher rate of non-response in the first year the survey was administered.

[22] Even if I could, the sample of transgender students would be restrictively small.

[23] It is possible for transgender students to change their administrative records in LAUSD, but I cannot separate this from measurement error. I use a students' recorded gender in the first year they enter the district to avoid endogenous gender-marker changes affecting the results. I refer to this as "sex" as its best interpretation seems to be the sex to which a student was assigned at birth. I generally refer to male and female LGBTQ students to reflect this, but occasionally refer to "girls" and "boys" for brevity.

[24] The format of the responses for some variables changes over time (e.g. the number of Likert options increasing from 1-4 to 1-7). I harmonize responses across all years while maintaining the greatest variation possible.

[25] Since the SES is administered in the fall semester, students may be reporting incidents that happened in the previous year, which would bias any effects of exposure to LGBTQ students in the current year towards zero.

[26] I focus on not reporting any of the types of bullying listed on the survey because the options change in some years, for example, in 2019, the

Belonging. Students are asked the extent to which they agree that they are happy to be at their school, feel like they are a part of their school, feel accepted for who they are at their school, feel safe at their school, and think that kids at their school are kind to each other. Due to changes in the Likert scales over time, I create indicators for agreeing with each statement. My measure of school belonging is an index summing the five indicators, standardized to have mean zero and standard deviation one in each grade and year.

3.2 Administrative outcomes

I focus on four main administrative outcomes: daily attendance at school, chronic absenteeism, whether students leave the district in the subsequent year, and whether students move to a different school in the district in the subsequent year. LAUSD defines chronic absenteeism as daily attendance rates under 91 percent. Students who leave the district could be moving to a private or charter school, moving with their family to a new district, or dropping out of school. All of these outcomes are observed through 2019.

All of these administrative outcomes correlate with the survey measures of school belonging and bullying in expected ways (Appendix Table A2): students who are bullied less have higher daily attendance rates and are less likely to be chronically absent, and are less likely to switch schools or leave the district.

3.3 Analysis samples and summary statistics

3.3.1 Panel sample

Multiple observations of students' self-reported SOGI are needed to study the evolution of LGBTQ identities in adolescence. Based on the years and grades in which I observe SOGI in the SES, I use the sample of students who were in 6th-9th grade in 2017 for this analysis and observe them for four years.[27] However, there is substantial movement in and out of the district and many students do not take the SES in a given year. The primary panel sample restricts to students who took the SES in all four years (N=42,922)—40 percent of the population of students in these cohorts who are observed in the district for all four years (N=107,140). An additional 86,634 students are ever present in these cohorts but for at most three years.

Students who take the survey all four years are similar to other students who are in the district for all four years, with a few exceptions, while students who are in the district all four years differ more notably from students who move in or out of the district during this sample period (Table 1). In particular, students who are enrolled in the district for all four years are more likely to be Hispanic and less likely to be Black or White, more likely to speak Spanish at

option of being teased about your body was added and being bullied for the way you look or talk was rephrased as being made fun of for the way you talk, walk, or dress. When combining the measures into a count of how many types of bullying the student experienced, I standardize the variable by grade and year.

[27] I do not drop students who skip or repeat grades after 2017 from the analysis, as this analysis is year-based, not grade-based.

home, more likely to be enrolled in special education or gifted programs, and more likely to be classified as poor by the school district. They also have slightly lower average eighth-grade test scores. On the other hand, students who take the survey in all four years have much higher test scores than the other students in the district all four years, but have otherwise similar demographics. In Section 4, I show that all three groups of students are similarly likely to identify as LGBTQ, Cis/Het, or be uncertain of their SOGI in each year that they take the SES.

3.3.2 Peer effects sample

The peer effects analysis focuses on 9th-grade outcomes and requires knowing whether students identified as LGBTQ in the previous year. Thus, the sample includes students who are in 9th grade in 2018, 2019, or 2020.[28]

The peer effects sample is primarily restricted based on school characteristics to support the validity of the empirical strategy, which relies on quasi-random variation within a school in the fraction of students in cohort (school and year the student was in 9th grade) who identified as LGBTQ in the previous year. I follow the literature (e.g. Lavy and Schlosser, 2011; Lavy et al., 2012; Cools et al., 2022) in dropping schools and cohorts in which this statistic is unreliable (due to small sample sizes) or less likely to be random, but show in Section 7 that all results are robust to these decisions.

First, I restrict the sample to 186 traditional high schools that first enroll students in 9th grade and existed before 2016. Thus, variation in the percent of students who identified as LGBTQ in the year before results from the shuffling of students into new high schools.[29]

Second, I drop small small schools, schools with extremely large changes in enrollment, and schools that do not exist in every year of the sample period to limit endogenous school formation, expansion, or contraction. This includes schools that have any cohort with fewer than 5 students, schools that didn't exist in all three years of the sample, and schools with any change in enrollment of 80 percent or more between consecutive years (dropping 48 additional schools).[30] I also drop 7 Visual and Performing Arts magnet schools from the main analysis sample, based on observations from LAUSD staff that LGBTQ students sort into these schools based on a perception that they are particularly accepting, thought results are not sensitive to this decision.

Third, I drop cohorts in which the share of students with reported 8th-grade SOGI is particularly small. In the main sample, I drop cohorts in which less than 18 percent of students have data on their SOGI in 8th grade (either because they are new to the district, did not take the SES, or did not answer the question about SOGI).[31] This restriction drops

[28] The 2020 9th-grade cohort is dropped from the analysis in the analysis of administrative outcomes, because attendance rates and retention in their school or the district are distorted dramatically by the Covid-19 pandemic. The SES is administered in the fall and so 2020 survey outcomes are unaffected by the pandemic.

[29] I control for 8th-grade-school fixed effects alongside 9th-grade school fixed effects to compare students who were exposed to the same group of students in 8th grade but moved to high schools with different shares LGBTQ. I also control for the share of students in a student's 9th-grade cohort who come from the same 8th-grade school. Section 5 for details.

[30] These are highly correlated and are primarily small schools: 42 of these schools have at least one cohort with fewer than 5 students and 18 do not exist in every year; only 4 schools have enrollment changes larger than 80 percent but do not fit the other two criteria.

[31] The cutoff points was chosen such that 5 percent of cohorts remaining in the sample at this point would be dropped; Section 7 shows that results

11 cohorts (school and year in 9th grade) out of the 393 cohorts remaining after the previous restrictions.

Fourth, I drop 9 outlier cohorts that meet all other criteria but have more than 15 percent of students who identified as LGBTQ in 8th grade—the 99th percentile among the sample that meets all other restrictions. A final 3 cohorts are dropped because only one cohort remains in a given school after these cohort-based restrictions (due to the reliance on school fixed effects in the empirical strategy).

84,410 students in 127 schools and 370 cohorts make up the main peer effects sample, 67 percent of whom take the SES in 9th grade. The sample has similar demographics to the full sample of students who are enrolled in 6th-9th grade in LAUSD in 2017 (Table 1, columns 1 and 4). The analysis disaggregates results based on students' reported SOGI in 8th grade which is observed for 61 percent of the sample; of those with reported SOGI, 42,502 students identified as Cis/Het, 3,000 identified as LGBTQ, and 5,903 were uncertain.[32] Column 5 restricts to the students who took the SES in 9th grade; these students are similar to the full sample across most demographic characteristics but have slightly higher 8th grade test scores and are more likely to have been in the district in 8th grade.

Table 2 shows average outcomes for students in the peer effects sample separately by 8th-grade SOGI. Across the district, there are large gaps in bullying and school belonging between Cis/Het and LGBTQ or uncertain students. LGBTQ students are also more likely to have low attendance rates and move to a new school or leave the district for 10th grade.

Appendix Table A1 separates male and female LGBTQ and Cis/Het students. There are large Cis/Het-LGBTQ gaps in all outcomes for boys and girls, as well as large gaps between male and female LGBTQ-identifying students. Unsurprisingly, boys and girls experience different types of bullying—male students are more likely to be hit or pushed and female students are more likely to be teased about their body, bullied online, or have sexual jokes or gestures made at them. LGBTQ-Cis/Het gaps are larger for whichever sex for whom the type of bullying is more common.

4 The evolution of LGBTQ identity in adolescence

I begin with descriptive analysis of the evolution of LGBTQ identities throughout middle and high school, a period that retrospective surveys suggest is a key period of identity development (e.g. Bishop et al., 2020; Hall et al., 2021). To my knowledge, this is the first large panel dataset with repeated observations of adolescents' SOGI—required for the analysis I undertake.[33] I find substantial fluidity in how students identify throughout middle and high school. Thus,

do not change when stricter cutoffs (dropping 10 or 25 percent of the sample) are used.

[32] I estimate effects for students whose 8th-grade SOGI is not observed (either because they are new to the district or because they did not take the SES) as a fourth category; any effects on these students will be driven by effects on Cis/Het students as they make up such a large majority of the population—among those who took the SES in 9th grade, 7.3 percent of these students identify as LGBTQ, 11.4 percent are uncertain, and 81.3 percent identify as Cis/Het (Table 2). The students whose SOGI is not observed are important to include in the sample to estimate the school fixed effects. Of course, the presence of students whose SOGI is not observed introduces measurement error into my measures of the share of students who identified as LGBTQ in the previous year, which will bias my results towards zero if the variation in the share of these students who identify as LGBTQ is also quasi-random across cohorts within a school (see Section 5 for details).

[33] Almost all (rare) data on LGBTQ individuals at all ages is collected in a cross section, forcing quantitative analysis to treat SOGI as a fixed characteristic. Even among adults, these data mask substantial fluidity in SOGI that has been documented in small samples and qualitative data;

focusing on a cross-sectional statistic—the fraction of students currently identifying as LGBTQ—misses large numbers of students who may be affected by policies targeting LGBTQ students. I also show that cross-sectional estimates of LGBTQ-Cis/Het gaps in bullying or school belonging miss other important gaps, as students who eventually but do not yet identify as LGBTQ are also substantially more likely to be bullied than their always-Cis/Het peers.

4.1 The evolution of LGBTQ identities

I begin by comparing the share of students who identify as LGBTQ in a given year to the share that ever or always identify as LGBTQ (Table 3). The first panel shows how students identify among the full sample of students who took the SES in each year. The share of students identifying as LGBTQ in a given year increases by 1-1.5pp per year from 4.6 percent in 2017 to 8.5 percent in 2020. This trend could reflect either a time trend or a higher likelihood of identifying at LGBTQ at older ages, which I decompose below. The share who are uncertain of their SOGI—answering "I don't know" in 2017 or 2018 or "I don't know" *or* "prefer not to say" in 2019 and 2020—is 10-11 percent across all years. The SES first asked about SOGI in 2017, and it is the only year in which the share of students who took the survey but skipped the question (9.6 percent) exceeded 1.6 percent. This suggests that students who are unfamiliar with the acronym might be more likely to skip the question than respond "I don't know," helping to solidify the interpretation of a student being "uncertain" as not knowing how they want to identify, rather than not knowing what the question means.

The second panel restricts to the sample of students who take the survey in all four years and shows there is substantial fluidity in SOGI that is masked by these cross-sectional statistics. The share of students identifying as LGBTQ or who are uncertain of their SOGI is almost identical in the panel sample and the full sample of students taking the SES in each year. In the panel sample, however, I can compare these cross-sectional statistics to the share of students who ever or always identify in a certain way, as two metrics of SOGI fluidity. In this sample, 14 percent of students ever identified as LGBTQ, whereas only 1.4 percent identified as LGBTQ in every year.[34] Since policies targeting LGBTQ students are likely to affect students who eventually but have not yet come out (either to themselves, on a survey, or publicly)—14 percent is likely closer to the welfare-relevant share of students to consider when implementing these policies.[35] This is 1.5-3 times the share of LGBTQ students that would be accounted for using cross-sectional statistics. 27 percent of students ever identify as uncertain (23 percent of students ever identify as uncertain but never identify as LGBTQ). In total, 32 percent of students ever change their reported SOGI over the

Mittleman (2023) provides the first quantitative evidence on SOGI fluidity among US adults in a nationally representative sample. He documents substantial fluidity, which monotonically decreases with age. Among 18-24 year olds, 18 (9) percent of cisgender women (men) age 18-24 changed their reported sexual orientation at least once in a five-year panel.

[34] In the US in 2023, 22 percent of US adults born between 1997 and 2012 (Gen Z; surveyed at ages 18-26) identified as lesbian, gay, bisexual, transgender or something other than heterosexual Gallup Inc (2024). Students in my sample were both between 2001 and 2005.

[35] In a population of adults (e.g. Mittleman, 2023), one could argue that the most relevant population is people who always identify as LGBTQ as this is most likely to affect family formation or discrimination, for example. Among a population of adolescents, I propose that any student questioning their SOGI is likely to be impacted by policy or stigma affecting LGBTQ students and the "ever" statistic is the key indicator.

four-year period (Appendix Table A5).[36] In a nationally representative sample, Mittleman (2023) finds that about 14 percent of people aged 18-24 in 2013 changed their reported SOGI at least one time in a five-year period.[37]

One would expect both non-Cis/Het identities and fluidity to be less common as students age. I estimate these statistics separately by cohort but over the same sample period to remove the confound of time trends and isolate age (Figure 1). The share of students who identify as LGBTQ—either on average, ever, or always—is always monotonically increasing in student age. For example, 4.8 percent of students observed from 6th-9th grade identify as LGBTQ on average each year, 12.8 percent ever identify as LGBTQ, and 0.3 percent always identify as LGBTQ. On the other extreme, 7.8 percent of students who are observed from 9th-12th grade identify as LGBTQ on average each year, 15.3 percent ever identify as LGBTQ, and 2.6 percent always identify as LGBTQ. By several metrics, older students also exhibit more certainty about their SOGI. First, the ratio of students who ever identify as LGBTQ to students who always identify as LGBTQ falls from 43 to 12 to 8 to 6 from the youngest to oldest cohort. Second, the share of students who report being uncertain of their SOGI—on average or ever—falls monotonically in student age. Finally, the share of students ever changing their reported SOGI also decreases monotonically with age, from 35 percent for the youngest cohort to 29 percent for the oldest cohort.

Next, I turn to understanding *how* SOGI changes over time. First, Appendix Figure A1 visualizes the distribution of SOGI each year in each bar—which appears relatively stable without accounting for the flows between each year. Panel A presents the full sample, while Panel B zooms in by dropping students who *always* identify as Cis/Het. From Panel B, the majority of students who identify as LGBTQ continue to do so or report uncertainty the next year, whereas students who are uncertain are about equally likely to identify as Cis/Het or not in the next year. The flows from each category to the others are relatively constant shares over the four years observed.

Second, Appendix Figure A2 visualizes the distribution of all possible individual student SOGI trajectories over the four years and shows that while SOGI is fluid, students are generally making consistent changes to how they identify over time. The top graph depicts students who identified as LGBTQ in 2017. Of those students, 52 percent continued to identify as LGBTQ, 18 percent reported being uncertain, and 29 percent identified as Cis/Het in 2018. In 2019, among students who identified as LGBTQ in both of the previous two years, 76 percent continued to identify as LGBTQ, 13 percent reported being uncertain, and 10 percent identified as Cis/Het. Of those who started identifying as Cis/Het in 2018 Cis/Het, the majority continued to identify that way in 2020. On the other hand, students who initially identified as LGBTQ and then identified as uncertain in 2018 were about equally likely to then identify as LGBTQ, Cis/Het, or continue to be uncertain in 2019. When students switch from a non-Cis/Het identity to a Cis/Het identity, they tend to continue to identify as Cis/Het in the following years. When students switch from identifying as

[36] This includes students who skip the question as "changing SOGI," however, the fraction is exactly the same if I drop students who ever skip the question (most common in the first year of the sample).

[37] Author's calculations based on shares disaggregated by age and sex for cisgender men and women, using the fraction of the full sample (all ages) that is cisgender male and cisgender female. 35 percent of gender minorities of all ages change SOGI at least once, but this is such a small sample that including this statistic in the weighted average (even though it is not broken down by age) does not change the statistic.

Cis/Het to a non-Cis/Het identity, they similarly tend to continue to identify that way in following years. The other panels show similar patterns. Broadly, Appendix Figure A2 shows that students who "switch" from any initial identity to identifying as either LGBTQ or Cis/Het tend to continue to identify that way going forward, while students who are uncertain tend to be equally likely to be identify as LGBTQ, Cis/Het, or be uncertain in the following year and demonstrate the most subsequent fluidity.

4.2 Accounting for measurement error

Of course, it is impossible to separate "real fluidity" from inattention on the survey. While much of the evidence discussed so far suggests that the fluidity I observe is not purely driven by measurement error, I also carry out several robustness checks, which do not change my conclusions.

First, the analysis in Appendix Figure A2 shows students' changes in reported SOGI are largely stable and consistent with an interpretation of "real fluidity." Students do not bounce around all three possible responses indiscriminately. Once a student reports a "certain" identity, they subsequently follow very stable, consistent trajectories. Students who are uncertain subsequently display more fluidity.

Second, the analysis in the next section shows that several demographic variables strongly predict SOGI fluidity, including quantifying the large differences in fluidity for uncertain versus certain LGBTQ or Cis/Het students just discussed. True measurement error would not be correlated with SOGI or other demographics in the observed ways.

Third, Appendix Table A4 replicates the results in Table 3, dropping students who may be the most likely to have "mis-clicked" and are therefore misclassified as changing SOGI when they did not. First, I drop students who identify as Cis/Het in three out of four years, including one year on either end of the sample (Panel B).[38] The share of students identifying as LGBTQ in each year, ever, or always is unchanged. Now, 8-10 percent of students identify as uncertain in each year and 23 percent ever identify as uncertain (compared to 27 percent in the full sample). Next, Panel C further drops any student who identified as LGBTQ or was uncertain in 2017 but then did identify as Cis/Het in the subsequent three years.[39] Again, the share of students identifying as LGBTQ in each year, ever, or always is unchanged. Now, 7-10 percent of students identify as uncertain in each year and 20 percent ever identify as uncertain.

Of course, some of the changes in the SOGI data surely represent mis-clicks. Altogether, however, these results suggest that the changes in SOGI documented here represent real fluidity and thoughtful and accurate student survey responses.

[38] That is, they identified as Cis/Het in 2017, 2018, and 2020 but not 2019, or they identified as Cis/Het in 2017, 2019, and 2020 but not 2018—7.9 percent of the panel sample.

[39] This drops an additional 3.7 percent of the sample.

4.3 Correlates of LGBTQ identities

Appendix Table A5 tests how other demographic characteristics are related to ever identifying as LGBTQ or changing SOGI.[40] First, as foreshadowed by Appendix Figure A2, students who identify as LGBTQ or who are uncertain in 2017 are 6.8 and 51 times as likely to change SOGI as a student who identifies as Cis/Het in 2017, respectively. This is conditional on all other demographic characteristics. In the analysis that follows, all correlations between demographics and SOGI *fluidity* are thus accounting for demographic differences in the propensity to identify as LGBTQ or uncertain.

Girls in LAUSD are 2.2 times as likely as boys to ever identify as LGBTQ, 1.6 times as likely to ever be uncertain, and 1.5 times as likely to ever change their reported SOGI. This is similar to overall patterns among the Gen Z and Millennial generations in the US, where women are 2-3 times as likely to identify as LGBTQ (Gallup Inc, 2024); Millennial women surveyed between ages 18-24 are also twice as likely to change their reported SOGI in a five-year window than men (Mittleman, 2023).

Asian, Black, and Hispanic students are 0.8-0.9 times as likely to ever identify as LGBTQ as White students, but there are no significant differences by race in whether students ever change their SOGI. In a nationally representative survey, Hispanic and White 18-34 year olds surveyed in 2020-2021 were similarly likely to identify as LGBTQ and Black respondents were 0.8 times as likely (Gallup Inc, 2022); Mittleman (2023) finds minimal racial differences in the likelihood of changing SOGI (though not disaggregated for younger adults). Of course, the LAUSD sample is not nationally representative; in particular, 82 percent of students in this sample are Hispanic (Table 1) and this may affect the results.

Students in special education programs are 1.4 times as likely to identify as LGBTQ, 2 times as likely to be uncertain, and 1.8 times as likely to change their reported SOGI as students not in special education programs. Students in gifted programs are 1.2 times as likely to identify as LGBTQ as students not in gifted programs, though math and reading achievement predict or negatively predict identification as LGBTQ conditional on gifted status.

Two measures of socioeconomic status—whether students are classified as poor by the district and whether students' parents have a college degree—do not predict SOGI or SOGI fluidity conditional on all other demographics.[41]

[40] I regress each binary outcome variable on all observed demographic characteristics, using a linear probability model, a linear probability model that includes school fixed effects, and a logistic regression (without fixed effects to avoid the incidental parameter problem). Results are meaningfully and statistically the same across all models.

[41] Recall that 90 percent of this sample is classified as poor and only 17 percent of students have a parent with a college degree (compared to 84 percent and 20 percent in the district overall, respectively—Table 1); parent education is also missing for 34 percent of students, though this does not predict any of the SOGI variables.

4.4 Bullying and belonging gaps after accounting for SOGI fluidity

Students who eventually "come out" (as measured on the SES) are far more likely to be bullied than students who always identify as Cis/Het, long before they start identifying as LGBTQ. They are also, however, more likely to be bullied after coming out than they were before. Finally, students who "come out" at younger ages are more likely to be bullied than those who come out at later ages, after both have "come out." Figure 2 plots the share of students in the panel sample who are never bullied in each year, separately by when they start identifying as LGBTQ on the SES, alongside standard errors.[42]

First, students who ever identify as LGBTQ or who are uncertain of their SOGI are substantially more likely to be bullied than students who always identify as Cis/Het in *every year*. In the most extreme case, even students who do not identify as LGBTQ until 2020 are 5-10pp more likely to be bullied than Cis/Het students in every year, beginning 5 years before they start identifying as LGBTQ. Students who always identify as LGBTQ are at least 20pp more likely to be bullied than Cis/Het students in every year. Thus, a cross-sectional estimate of the Cis/Het-LGBTQ bullying gap misses gaps between always Cis/Het students and students who eventually but do not currently identify as LGBTQ, and will understate the gap between students who always identify as Cis/Het and those who currently identify as LGBTQ.[43] This occurs as early as elementary school—Appendix Figure A6 separates the sample by cohort and shows that these bullying gaps for students who ever identify as LGBTQ arise in 2015 and 2016 when the youngest cohorts are in 4th and 5th grade.

Second, this ever LGBTQ-Cis/Het bullying gap is monotonically increasing in the age at which students start identifying as LGBTQ. Thus, students that are more certain of their identities—those who come out at earlier ages and those who always identify as LGBTQ—are more likely to be bullied than other LGBTQ peers. In 2017, for example, 81 percent of students who always identify as LGBTQ report being bullied, compared to 76 percent of students who also identify as LGBTQ in that year but later are uncertain or identify as Cis/Het. This compares to 70 percent of students who do not identify as LGBTQ until the subsequent year. Thus, while bullying rates for all groups are substantially higher than their Cis/Het peers, there is also heterogeneity among LGBTQ students.

Third, gaps between ever-LGBTQ students based on the year in which they come out shrink dramatically in the year that a student starts identifying as LGBTQ on the survey. Thus, to the extent that beginning to identify as LGBTQ on the SES is a proxy for beginning to publicly identify as LGBTQ, there is an additional "bullying penalty" to coming out. To continue the example from the previous paragraph, the 6pp bullying gap in 2017 between students who identify as LGBTQ for the first time in 2017 versus 2018 is eliminated in 2018. This pattern is observed for every group in

[42] Since questions about bullying were asked on the SES starting in 2015, I add 2015 and 2016 to this graph even though data on SOGI is not available until 2017. The sample remains students who do not leave the district between 2017-2020; the statistics from before 2017 are calculated for those students who have already entered the district at that time.

[43] In 2017, 40 percent of students currently identifying as Cis/Het report not being bullied compared to 22 percent of students currently identifying as LGBTQ and 31 percent of students who are uncertain of their SOGI in 2017. In the same year, 42 percent of students who always identify as Cis/Het report not being bullied compared to 35 percent of students who identify as Cis/Het in 2017 but eventually do not.

every year.

What drives these patterns? The explanation that is most consistent with all three results is that students who do not yet identify as LGBTQ (privately or publicly) attract the attention of bullies for some perceived differences before a label can be attached to those differences, while the label itself then attracts further attention. A similar pattern could arise without students actively identifying as LGBTQ at school if beginning to identify as LGBTQ on the survey indicates a change in student behavior that makes them more identifiable to bullies.[44]

Appendix Figure A7 separates the sample by sex; all of the patterns are generally similar for boys and girls. Since fewer boys identify as LGBTQ, those results are noisier. The most notable difference is that the gap between always-LGBTQ and ever-LGBTQ students is largely driven by boys.

Other variables in which there are disparities between LGBTQ and Cis/Het students in the cross-section demonstrate similar properties. Appendix Figure A3 shows that the patterns are strikingly similar when looking at whether students feel that they belong at school, and Appendix Figures A4 and A5 show that students who ever identify as LGBTQ have lower attendance rates, are more likely to be chronically absent, and are more likely to change schools within the district, regardless of whether they currently identify as LGBTQ. Note that the panel sample is necessarily restricted to students who do not leave the district over this time period—so this sample may be particularly immobile.

5 The effects of LGBTQ peers: Empirical strategy

I follow the recent peer effects literature to estimate the effect of having more LGBTQ peers by taking advantage of within-school, cross-9th grade cohort variation in the share of students with some particular characteristic.[45] The key assumption to interpreting this exposure variable as quasi-random is that while students or their parents may select into schools based on particular characteristics, they are not selecting into schools based on the characteristics *of their particular cohort.*[46] In my case, for example, a school may be known to have an overall high share of students who identify as LGBTQ or to be particularly accepting, and students may select into that school accordingly.[47] However, students do not know whether the share of students in their particular cohort will be above or below average for that

[44] Another potential explanation for the fact that students who ever but do not currently identify as LGBTQ are more likely to be bullied before they identify as LGBTQ on the survey is that they are publicly identifying as LGBTQ at school before indicating so on the survey. This could be the case if they were nervous that their response to the SES could be linked to them and released to an unsupportive parent, teacher, or administrator, for example. This seems unlikely given the emphasis put on privacy and anonymity when taking the SES (as students are also reporting other information that they would want to keep private from teachers or peers, in particular). This is also not consistent with the marked increase in bullying rates in the year a student starts identifying as LGBTQ on the survey.

[45] Hoxby (2000); Angrist and Lang (2004); Figlio (2007); Ammermueller and Pischke (2009); Gould et al. (2009); Carrell and Hoekstra (2010); Lavy and Schlosser (2011); Lavy et al. (2012); Cools and Patacchini (2021); Cools et al. (2022)

[46] Starting in 2012, LAUSD operates 16 "Zones of Choice," geographic regions within the district in which students can apply to any school in the zone. About 40 percent of students in LAUSD live within a ZOC. Within each zone, students' (parents') rank-order preferences over schools are collected and a centralized immediate acceptance mechanism assigns students to schools. Campos and Kearns (2024) provides a more detailed history of the ZOC program and evidence on the effects of the ZOC program on school quality and student outcomes. Most relevant for this paper, Campos (2024) gives insight on parent preferences for schools. Parents in LAUSD are more responsive to school quality in their preferences for schools (rather than peer characteristics, as has been found in other settings). As discussed by Campos (2024), this may be due to the relative racial and socioeconomic homogeneity in LAUSD compared to other districts, where parents put more weight on peer characteristics.

[47] I drop Visual and Performing Arts magnet schools as they particularly have this reputation, though results are similar if I include them.

school.

Unlike the other papers in this literature, however, I study a peer characteristic that is self-reported each year and (as described in the previous section) highly fluid. There are reasons to expect that exposure to other LGBTQ peers would affect how a student identifies on the survey. Then, studying how variation in how (deviations from the school average of) the share LGBTQ in a given year relates to outcomes would be confounded by the effects of exposure to LGBTQ students on how many students identify as LGBTQ.

I take two steps to solve this concern. First, in this analysis I focus only on exposure to LGBTQ peers and outcomes in 9th grade—in traditional high schools serving grades 9-12—to take advantage of the shuffling of students between middle and high schools. I compare students who attended the same school in 8th grade (or who are new to the district) but who attended high schools with shares of students who identify as LGBTQ that deviate from the school average in different ways. Second, this focus on 9th grade and the reshuffling of students lends itself to a second solution: I study variation in (deviations from the school average of) the share of students in a 9th-grade cohort who identified as LGBTQ *in 8th grade*.[48] This further allows me to quantify whether exposure to LGBTQ students affects how students identify, by looking at how this exposure variable affects how students identify in 9th grade.

The effects of exposure to LGBTQ peers are likely to be different for those who identify as Cis/Het, LGBTQ, or are uncertain of their SOGI. I estimate the effects separately for all of these groups, again using how students identified *in 8th grade* to estimate these heterogeneous treatment effects.

Specifically, I estimate the following regression model:

$$y_{i,s,s-1,t} = \alpha_t + \eta_s + \delta_{s-1} + yi, s-1, t-1 + f(\%LGBTQ8_{s,t}, SOGI8_{i,s-1}) + X'\eta + Z'\zeta + \varepsilon_i,$$

for student i attending 9th grade at school s in year t, who attended 8th grade at school $s-1$ in the previous year. The model controls for year, 9th-grade school, and 8th-grade school fixed effects as α_t, β_s, and δ_{s-1}, respectively. The 9th-grade school fixed effects isolate variation stemming from cross-cohort differences in the share of students who identified as LGBTQ in 8th grade, within the same school. The 8th-grade school fixed effects isolate variation stemming from students who attended the same 8th-grade school but went to different high schools. For attendance rates and all survey outcomes, I include a lagged dependent variable (which is recoded to zero with a missing indicator, if missing). Finally, I control for a vector of individual controls, X, and a vector of cohort controls, Z. The individual controls include all observed demographics and 8th-grade test scores (see Table 1 for summary statistics), as well as the share of students in the 9th-grade cohort who attended the same school as the student for 8th grade (or who are new to the district, if the student is new to the district). The cohort controls include the leave-one-out averages of all individual-level demographic controls as well as the share of students who took the SES in 8th grade, the share of

[48] This introduces noise, as variation in the share of students who do not take the SES in 8th grade or who are new to the district who identify as LGBTQ is unaccounted for. I control for both of these cohort characteristics.

students who are new to the district, and the size of the cohort. Standard errors are clustered by cohort throughout.

I use two different functions to estimate the effects of exposure to LGBTQ students (which includes interactions of the exposure variable(s) with students' self-reported SOGI in 8th grade). First, as is most common in this literature, I estimate a linear specification where

$$f(\%LGBTQ8_{s,t}, SOGI8_i) = \beta_{CH}\%LGBTQ8_{s,t} + \sum_{SOGI8 \in \{Q,U,NR\}} \beta_{SOGI8}\%LGBTQ8_{s,t} \times SOGI8_{i,s-1} + \lambda_{SOGI8}SOGI8_{i,s-1}$$

is the leave-one-out percent of students in a cohort who identified as LGBTQ in the previous year, interacted with three variables indicating whether students reported being LGBTQ (Q) or uncertain (U) in 8th grade or having no reported (NR) 8th grade SOGI, and their main effects.[49] The omitted category is students who identified as Cis/Het in 8th grade. Thus, β_{CH} is the effect of exposure to LGBTQ students for those previously identifying as Cis/Het, $\beta_{CH} + \beta_Q$ is the effect for those previously identifying as LGBTQ, $\beta_{CH} + \beta_U$ is the effect for those who were previously uncertain, and $\beta_{CH} + \beta_{NR}$ is the effect for students whose SOGI in 8th grade is not observed. I multiply $\%LGBTQ8_{s,t}$ by 10 so that the β coefficients are interpreted as the effect of increasing $\%LGBTQ8$ by 10pp. The λ coefficients provide estimates of gaps in each outcome between Cis/Het and non-Cis/Het students in this sample, conditional on all controls.

The effect of exposure to LGBTQ students may, however, be non-linear in the share of LGBTQ students. On one hand, perhaps just having some small share of LGBTQ students greater than zero is what matters. On the other, perhaps there is no effect until you reach some larger critical mass. More flexible specifications suggest that indeed these effects may be non-linear.

The second specification relaxes this linearity assumption. The less-parametric "binned" specification replaces the linear $\%LGBTQ8$ variable with fixed effects for having a share $\%LGBTQ8$ in one of four different bins.[50] In the main text, I focus on a specification that splits the sample into cohorts with $\%LGBTQ8$ under 3 percent, between 3 and 6 percent, between 6 and 9 percent, or above 9 percent (up to 15 percent). These cutoff points represent the 15th, 50th, and 85th percentile of the cohort distribution of $\%LGBTQ8$, respectively. I have estimated the results using seven other sets of cutoff points for four bins, including quartiles, and find similar results. I also split the sample into more bins—quartiles, septiles, deciles, and hexadeciles—and while the results are noisier, conclusions are largely the same. I do *not* use the leave-one-out measure of $\%LGBTQ8$ to put cohorts into bins, as this only puts LGBTQ and non-LGBTQ students into different bins in extreme edge cases. The results from these alternative fixed effects specifications are available upon request.

Throughout the remainder of the paper, I refer to the $\%LGBTQ8$ variable as the "share LGBTQ," rather than "share of 9th-grade cohort who identified as LGBTQ in 8th grade," for brevity. This is not meant to detract from the findings

[49] Specifications where I split NR into indicators for being in the district and not taking the survey or not being in the district yield the same results.
[50] The results of the fixed effects specifications suggest that a concave relationship may be more appropriate for some variables. Replacing $\%LGBTQ8$ in the linear specification with $ln(\%LGBTQ8)$ yields similar results (available upon request).

in the previous section that SOGI is extremely fluid at this age.

Estimating these specifications requires sufficient residual variation in the main variables after accounting for 8th- and 9th-grade school fixed effects. First, Figure 3 shows the across- and within-school variation in the share of 9th-grade students who identified as LGBTQ in 8th grade in the main sample. Across schools, 80 percent of cohorts have a share between 2.5 percent and 10 percent. The distributions are similar across years, though the distribution shifts to the left from 2018 to 2019 and then to the right in 2020. There is also substantial within-school variation in the share LGBTQ at all levels of school average share LGBTQ, with within-school standard deviations averaging 2.3pp.[51] Unsurprisingly, the relationship is slightly upwards-sloping. Within-school *residual* variation after accounting for 8th- and 9th-grade school fixed effects is quantified in Table 4 using individual-level data for the main sample. The first panel provides summary statistics for the raw share LGBTQ, which averages 6 percent with a standard deviation of 2.4pp in the full sample (column 1). The second panel provides summary statistics for the residual share LGBTQ after removing 8th- and 9th-grade school fixed effects and year fixed effects. The standard deviation of the residual is 1.8pp—about 75 percent of the raw standard deviation. The raw variation and share of residual variation remaining are identical for each SOGI subgroup (columns 2-5).

The share-LGBTQ fixed effects specification relies on their being sufficient variation in which *bin* a cohort falls into, rather than just sufficient variation in the underlying continuous variable. 20 schools have cohorts that are all in one bin, and are therefore not used in estimating the treatment effects of interest; I keep them in the sample to estimate other coefficients. 38 schools have cohorts in all different bins. 69 schools have cohorts in two different bins.[52]

Next, I investigate the validity of the assumption underlying the identification strategy: that within-school, cross-cohort variation in the share of students who previously identified as LGBTQ is quasi-random. I follow the tests used in the literature (e.g. Lavy and Schlosser, 2011; Cools et al., 2022). Appendix Table A6 regresses the cohort share LGBTQ jointly on all other observed cohort demographics with and without school fixed effects. With school fixed effects, only two variables are statistically significantly related to the share LGBTQ at the 10 percent level—the same number that would be expected by chance. This is the share of students who did not take the SES in 8th grade and the share of parents with a college degree. All of these cohort-level demographic characteristics are included in the main specification.

Next, I test for balance at the individual level using the main linear specification, separately by students' 8th-grade reported SOGI (Appendix Table A7). Each demographic characteristic is substituted for the outcome variable in the main specification, though I exclude the controls for all other individual demographic characteristics. Among each group, two or three of the 15 demographic characteristics are significantly related to the share LGBTQ at the 10 percent

[51] 25th percentile: 1.2pp, 50th percentile: 2pp, 75th percentile: 3pp, 99th percentile: 5.4pp

[52] 11 schools have only two cohorts in the main analysis; 4 of these have cohorts in two different bins. The rest of the schools have three cohorts; 29 of these have cohorts in three different bins and 71 have cohorts in two different bins. In the analysis of administrative outcomes I observe maximum two cohorts per school, who are in 9th grade in 2018 and 2019. 118 schools have two cohorts in those two years. 87 schools have two cohorts in different bins.

level, slightly more than would be expected by chance (in columns 1, 6, and 7). All of these demographic controls are included in the main specification; the threat to the identification strategy is that there are unobserved characteristics that are correlated with the share LGBTQ conditional on all observed characteristics.

Still following the literature, I next use a Monte Carlo simulation to test whether the standard deviation of the share LGBTQ across cohorts within each school falls within the bounds of what would be expected by chance given the average number of LGBTQ students at that school. I randomly assign students (conditional on actually observing their SOGI) as LGBTQ or not assuming the variable is binomially distributed with a probability of success equal to the average at that school across cohorts, and calculate the standard deviation of the resulting randomly-assigned share LGBTQ across cohorts. I repeat this 1000 times and compare the true standard deviation in the share LGBTQ to the school-specific simulated distribution of standard deviations. 92 percent of schools have a cross-cohort standard deviation between the 5th and 95th percentile of the simulated standard deviation for their school; 78 percent have a standard deviation between the 10th and 90th percentile. Panel B compares the true distribution of standard deviations across schools to 50 random simulated distributions; the true distribution is not a marked outlier, though there are "missing" schools with both very high and very low standard deviations and some unusual bunching around a standard deviation of 5pp.

Finally, I test whether I obtain the same results using a placebo measure of the share LGBTQ—the share of the *subsequent* 9th-grade cohort that identified as LGBTQ in 8th grade. If the variation in the share LGBTQ was related to time trends or unobserved cohort characteristics, this placebo measure would yield similar results as the true share LGBTQ in a students' own cohort. This is not the case (see Section 7).

6 The effects of LGBTQ peers: Results

6.1 Sexual orientation and gender identity

I find no robust evidence that having more LGBTQ peers affects students' reported SOGI in 9th grade, though point estimates suggest that having more LGBTQ peers might increase the likelihood that students who identified as LGBTQ or were uncertain in 8th grade continue to do so in 9th grade. I can reject even small effects of having more LGBTQ peers on the likelihood that students who identified as Cis/Het in 8th grade identify as LGBTQ or are uncertain of their SOGI in 9th grade.

Figure 4 plots the results from the binned specification and Table 5 shows the results of the linear specification.[53] I can reject that increasing the share LGBTQ by 10pp increases the share of previously-identified Cis/Het students

[53]The figures plot the coefficients on separate axes for students who previously identified as LGBTQ, Cis/Het, or were uncertain since the share identifying in each way is highly persistent and cannot be visually represented on one axis. The plots show the expected value of the outcome for each group calculated from the coefficients obtained by estimating the binned specification, with 95 percent confidence intervals.

by more than 0.5pp or decreases it by more than 1.9pp at the 95 percent confidence level. Similarly, I can reject that the share who are uncertain of their SOGI increases or decreases by more than 1.6pp (Table 5, columns 1 and 2). The binned specification yields the same conclusions (Figure 4, in green). I also split previously-identified Cis/Het students by whether they reported being bullied or not in 8th grade to try to identify Cis/Het students with a higher propensity to be (privately or publicly) "closeted," but can reject a positive effect of increasing the share LGBTQ by 10pp on whether these students identify as LGBTQ that is larger than 0.9pp (Appendix Table A9).

On the other hand, the effects of having more LGBTQ peers on students who previously identified as LGBTQ or were uncertain of their SOGI suggest that having more LGBTQ peers may reinforce these non-Cis/Het identities, though they are imprecisely estimated. Increasing the share LGBTQ by 10pp increases the share of previously-identified LGBTQ students who continue to identify as LGBTQ by 4.6pp (8 percent, se = 4.4pp) and reduces the likelihood they are uncertain of their SOGI or identify as Cis/Het by 1.8 (se = 3.5pp) and 2.7pp (se = 4.1pp), respectively (Table 5). The binned specification shows that the linearity assumption is reasonable, and moving from a cohort that is 0-3 percent LGBTQ to 9-15 percent LGBTQ increases the share of previously-identified LGBTQ students who continue to identify as LGBTQ by 5pp (9 percent); though again the effect is not statistically significant (p=0.42) (Figure 4, in pink).

The results are parallel for students who were uncertain of their SOGI in 8th grade. In the linear specification, increasing the share LGBTQ by 10pp increases the likelihood that they continue to be uncertain by 4.2pp (13 percent, se = 3.1pp) and decreases the likelihood of identifying as LGBTQ or Cis/Het in 9th grade by 1.4pp (se = 2.1pp) and 2.7pp (se = 3pp), respectively (Table 5). In the binned specification, moving from the lowest- to highest-share-LGBTQ cohort increases the likelihood that a previously-uncertain student continues to be uncertain by 5pp (16 percent, p=0.12) and decreases the likelihood that they identify as Cis/Het by 6pp (11 percent, p=0.12) (Figure 4, in blue).

These results are suggestive that having more LGBTQ peers might affect how SOGI minority students identify, but do not yield strong conclusions. I find relatively large, positive, but noisy effects of having more LGBTQ peers on whether students who previously identified as LGBTQ or were uncertain continue to do so. These estimates are quite stable across various sample and specification decisions (Appendix Figure A10) and attain statistical significance at the 5 percent level when the sample is larger or when dropping cohorts in which the share-LGBTQ is particularly noisy (when a large share of students is missing 8th-grade SOGI data). On the other hand, I find a precise null effect on how students who previously identified as Cis/Het identified in 9th grade, including those who might be expected to be "higher-risk" for being LGBTQ (as they reported being bullied in 8th grade). Even so, this null result may be due to such a small fraction of the population ever identifying as LGBTQ making it impossible to pick up changes for this population when they are pooled with students who consistently identify as Cis/Het.

6.2 School experiences

Next, I turn to bullying and school belonging: outcomes in which there are the largest LGBTQ-Cis/Het gaps, and which have been proposed as potential explanations for the disparities in LGBTQ high school graduation and college attendance rates (Kim, 2009; Kosciw et al., 2013; Thoreson, 2016; Sansone, 2019).[54] Having more LGBTQ peers substantially reduces the Cis/Het-LGBTQ gap in both bullying and feelings of belonging at school and increases the likelihood that LGBTQ students feel that LGBTQ students are accepted at school. The binned specification provides a visualization of both the treatment effect and Cis/Het-LGBTQ gaps conditional on school fixed effects and all other controls, so is the focus of this section, though the results are consistent in the linear specification.

6.2.1 Bullying

In cohorts with the fewest LGBTQ students (0-3 percent), 52 percent of Cis/Het students report never being bullied and LGBTQ students are 17pp less likely to report never being bullied (p=0.001) (Figure 5, Panel A). The gap estimated in this specification—which is conditional on the school fixed effects and all other control variables—shrinks to 11-12pp by increasing the share LGBTQ to 3-9 percent, and to 8pp by increasing the share LGBTQ to 9-15 percent—a gap that is half the size and no longer statistically significant (p=0.16). The positive linear relationship between the share LGBTQ and likelihood of never being bullied is of a consistent magnitude but not statistically significantly different from zero—increasing the share LGBTQ by 10pp increases the likelihood that LGBTQ students are not bullied by 6.9pp (se = 4.3; Table 6, Column 1). Conclusions are the same if I instead look at an index measuring the types of bullying a student reports experiencing (Appendix Figure A9 and Table 6, Column 2).

I disaggregate the types of bullying in Appendix Table A10. The reduction in bullying of LGBTQ students seems to be driven by a lower likelihood of being teased about your body or having rumors spread about you, though point estimates are positive for all six types of bullying. These are two of the four more common types of bullying, with 75 percent of Cis/Het students never experiencing these and LGBTQ students being 12-16pp more likely to experience them on average.

One concern is that bullies change their targets rather than bullying less. I disaggregate Cis/Het students by whether they report having been bullied in the previous year as previously-bullied students are the most at-risk non-LGBTQ students who might experience this negative spillover. I find mixed evidence of spillovers on this population: increasing the share LGBTQ by 10pp decreases the likelihood that previously-bullied Cis/Het students are not bullied in 9th grade by 1.3pp (se = 1.8pp)—3 percent of the gap in 9th-grade bullying between Cis/Het students who were or were not previously bullied (Appendix Table A11). However, these students are now 2.2pp more likely to experience one of the rarer forms of bullying—physical altercations (se = 1.3pp, 50 percent of the initial gap with other Cis/Het

[54] Appendix Table A2 shows that these survey measures predict attendance and school and district retention in expected ways.

students) (Appendix Table A12).

6.2.2 Perceived LGBTQ acceptance

Having just a few LGBTQ peers strongly increases whether LGBTQ students feel that LGBTQ students are accepted at their school. This makes sense—without LGBTQ peers, it is very hard to know whether LGBTQ students are accepted—particularly if one is not publicly identifying as LGBTQ. Figure 5, Panel B plots the results of the binned specification. When 0-3 percent of a cohort identifies as LGBTQ, 19 percent of LGBTQ students strongly agree that LGBTQ students are accepted, compared to 33 percent when 3-6 percent of a cohort identifies as LGBTQ (a difference of 13pp, p=0.008). Increasing the share to 6-9 or 9-15 percent has no further effect). There is also a weakly positive effect for students who were uncertain of their SOGI in 8th grade.

The effect for Cis/Het students suggests that the mechanism behind these effects is the ability to learn that peers are accepting by observing their encounters with other LGBTQ students, rather than increasing actual acceptance: there is no effect of having more LGBTQ peers on whether Cis/Het students agree that LGBTQ students are accepted. If Cis/Het students were becoming more accepting, their second-order beliefs about acceptance would likely increase as well. They are much less likely to be affected by the "learning" mechanism, if they are less attuned to the treatment of LGBTQ students.

The results from the linear specification are in Table 6; the estimates are of similar sign and magnitude, but not statistically significant. Increasing the share LGBTQ increases the share of LGBTQ students who strongly agree that LGBTQ students are accepted by 6.7pp (se = 4.2pp) and the share of uncertain students who agree by 5.1pp (se = 3.5). I can reject that increasing the share LGBTQ by 10pp decreases the share of Cis/Het students who agree that LGBTQ students are accepted by more than 3.2pp or increases it more than 3.4pp at a 95 percent confidence level.

6.2.3 Belonging

It is to be expected that reductions in bullying and increased perceived acceptance of LGBTQ students would increase feelings of belonging for LGBTQ students. Having more LGBTQ peers could also increase feelings of belonging through other channels, for example if LGBTQ students now have more friends at school. I find large positive effects of having more LGBTQ peers on LGBTQ students' feelings of belonging at school. Unfortunately, I cannot cleanly separate whether this arises through the two clear mechanisms already described or represents other changes in school experiences.

Increasing the share LGBTQ monotonically closes the gap in school belonging between Cis/Het and LGBTQ students from 0.2sd in the cohorts with the fewest LGBTQ students to only 0.02sd in the cohorts with the most LGBTQ students—a gap which is no longer statistically significant (Figure 6). However, increasing the share LGBTQ seems

to decrease Cis/Het students feelings of belonging at school at the same time it increases LGBTQ students' belonging. In the linear specification (Table 6), increasing the share LGBTQ by 10pp increases feelings of school belonging for LGBTQ students by 0.16sd (se = 0.10sd) whereas it decreases belonging for Cis/Het students by 0.08sd (se = 0.03sd). Interestingly, having 10pp more LGBTQ appears also *reduces* feelings of belonging for uncertain students by 0.14sd (se = 0.08sd). There is also a particularly negative effect on Cis/Het students who reported being bullied in 8th grade—again, a group of students who seem the most "at risk" for spillovers resulting from changes in bullying towards LGBTQ students—increasing the share of LGBTQ students by 10pp lowers their feelings of belonging by 0.09sd (se = 0.04sd) (Appendix Table A11).

The positive effects on the school belonging index for LGBTQ students are largely driven by effects on whether students feel part of their school: increasing the share LGBTQ by 10pp increases the share of LGBTQ students who agree that they feel part of their school by 12pp (se = 4.6pp) which entirely closes the baseline LGBTQ-Cis/Het gap (Appendix Table A13). There are also positive and economically but not statistically significant effects on whether they feel safe at school (4.5pp, se = 4.3pp) and accepted for being themselves (6.4pp, se = 4.6pp). Each of these is equivalent to about 40 percent of the baseline LGBTQ-Cis/Het gap in that variable. The effects on whether students are happy at school or think kids are nice are have coefficients close to zero but with similar standard errors.

The negative effects on school belonging for previously-bullied Cis/Het students and uncertain students are driven by feeling less safe at school, less accepted for being themselves when there are more LGBTQ students, and thinking that kids at school are less nice (Appendix Table A13). Increasing the share LGBTQ by 10pp decreases the likelihood that previously bullied Cis/Het students feel safe at school by 4.1pp (40 percent of the initial gap with other Cis/Het students) and that they feel accepted as they are by 2.5pp (se = 1.5) and that kids are nice by 3.6pp (se = 1.9pp), both of which increase the initial gap in that variable by 25 percent. Increasing the share LGBTQ by 10pp decreases the likelihood that students who are uncertain of their SOGI feel safe at school by 10.4pp (90 percent of the initial gap with non-bullied Cis/Het students, se=3.2pp) or accepted for being themself by 5.7pp (35 percent of the gap, se = 3.4pp).

Taken together, the results suggest that increasing the number of LGBTQ students increases LGBTQ students' feelings of belonging, but there may be negative effects on other students. In part, this seems to arise from changes in the composition of who is targeted by bullies. It also seems to arise in part from feeling like a "part of your school" rather than entirely through a sense of safety—indicating that just having more peers like yourself, or a larger "affinity group" may partly drive the effects.

6.3 Daily attendance and chronic absenteeism

Bullying and belonging are related to attendance rates in my data and have been proposed as potential drivers of lower educational attachment for LGBTQ students (e.g. Kim, 2009; Kosciw et al., 2013; Sansone, 2019). Despite leading to lower bullying rates and higher feelings of belonging at school for LGBTQ students, having more LGBTQ peers does not improve LGBTQ students' attendance rates and *increases* chronic absenteeism; however, there are no LGBTQ-Cis/Het gaps in attendance rates in the cohorts with the fewest LGBTQ students and LGBTQ students in those cohorts are, if anything, 4pp less likely to be chronically absent (missing more than 15 days of school, or attendance rates under 91 percent, as defined by LAUSD) than their peers, though this gap is not statistically significant.[55]

Figure 7 plots the results from the binned specification, which illustrates the lack of an effect of having LGBTQ peers on daily attendance rates (Panel A) and the perhaps surprising evidence that increasing the share LGBTQ from 0-3 percent to 3-6 percent *increases* the rate at which LGBTQ students are chronically absent from 10 to 16 percent (p=0.08, Panel B). This leads to chronic absenteeism rates that are similar for LGBTQ, uncertain, and Cis/Het students at all other shares LGBTQ. This is surprising given the reduction in bullying and increase in belonging caused by the same increase in the share LGBTQ. However, the linear specification suggests that increasing the share LGBTQ also increases chronic absenteeism for Cis/Het and uncertain students (Table 7); the effect on Cis/Het students arises only for Cis/Het students who were previously bullied (and who face more bullying and have lower feelings of school belonging when they have more LGBTQ peers) (Appendix Table A14). In particular, increasing the share LGBTQ by 10pp increases chronic absenteeism for previously-bullied Cis/Het students by 2.5pp (se = 1.3pp) and for uncertain students by 2.2pp (se = 2.3pp) and LGBTQ students by 5.2pp (se = 4.0pp). Only the effect for previously-bullied Cis/Het students is statistically significant.

The effects on chronic absenteeism for previously-bullied Cis/Het students and uncertain students are consistent with the fact that a higher share LGBTQ reduces these groups' feelings of belonging and increases bullying rates. The effects for LGBTQ students are more surprising. One potential explanation is that they have more friends who encourage them to skip school when there is a larger group of LGBTQ students.

6.4 School and district retention

When there are relatively few LGBTQ students, increasing the share LGBTQ eliminates gaps between Cis/Het and LGBTQ students in whether they leave the district for 10th grade. In the binned specification, 5 percent of Cis/Het students in cohorts with the lowest share LGBTQ (0-3 percent) leave the district the next year, compared to 13 percent of LGBTQ students, an 8pp difference with p=0.004 (Figure 8, Panel A). Increasing the share LGBTQ to 3-6 percent

[55] Note that these estimates restrict to the cohorts in 9th grade in 2018 and 2019, as attendance in 2020 was affected greatly by the Covid-19 pandemic.

eliminates this gap, reducing the share of LGBTQ students who leave the district to 8pp (a 5pp reduction, p=0.029) and eliminating the gap (the gap between Cis/Het and LGBTQ students is no longer statistically significant, with p=0.770). Subsequent increases in the share LGBTQ have no effect. In the linear specification, the magnitude is consistent but statistically insignificant; increasing the share LGBTQ by 10pp reduces the likelihood that LGBTQ students leave the district by 2.7pp (se = 2.6pp) (Table 7). The fact that the effect is driven by moving from the lowest to next-lowest share LGBTQ in the binned specification is consistent with the largest effects on bullying and belonging also occurring when the share LGBTQ is lowest.

On the other hand, increasing the share LGBTQ has no effect on whether students move between schools in the district (Figure 8, Panel B). However, there are also no Cis/Het-LGBTQ gaps in this variable conditional on school fixed effects and all other individual and cohort controls. The linear specification (Table 7) yields the same conclusion.

6.5 Heterogeneity by sex

LGBTQ students are not a monolith, and the effects of LGBTQ peers may vary greatly based on whether a student identifies as lesbian, gay, bisexual, or transgender. While I cannot isolate the effects of LGBTQ peers based on students' more specific SOGI, I can separate LGBTQ students based on their sex as recorded in LAUSD's administrative data. Section 3.3 discusses and Appendix Table A1 shows that while there are differences in the types of bullying that male and female LGBTQ students tend to experience, both sexes experience large gaps with their Cis/Het peers. I focus on the linear specification to identify whether there is gender heterogeneity in the effects of having more LGBTQ peers.

Appendix Tables A15, A16, and A17 show that some effects seem to be driven by female LGBTQ students but others are of similar magnitude for male or female students. Recall that the sample of female LGBTQ students is about twice as large as the sample of male LGBTQ students; the standard errors on the estimates for male students are also correspondingly larger.

The effects on how students identify in the next year are similar for LGBTQ girls and boys, both being more likely to continue identifying as LGBTQ when they have more LGBTQ peers.

The reduction in bullying and increase in feelings of belonging are driven by girls, both being substantially larger in magnitude than the effect for boys and attaining statistical significance at the 5 percent level. The effect on perceived acceptance of LGBTQ students is of similar magnitude for girls and boys. Correspondingly, the reduction in whether students leave the district in the following year is also driven by girls. The effects on chronic absenteeism are of similar magnitude for male and female LGBTQ students.

7 Robustness

This section presents two robustness checks. First, I show that the results are extremely robust to changing the choice of control variables and sample definitions using a series of specification charts. Second, I show that a "placebo" measure of school-based LGBTQ exposure does not generate the same pattern of results, supporting the assumption that the variation I use to identify the effects of having more LGBTQ peers is quasi-random.

7.1 Specification choices

I present the robustness of the estimated effect of increasing the share LGBTQ by 10pp in the linear specification, for brevity. Appendix Figures A10, A11, A12, and A13 present the estimated coefficient for every main outcome when I iterate through various sample definitions and sets of control variables. All of the coefficients are remarkably stable, suggesting that these decisions did not influence the results, and when they do change, often become larger in magnitude. In larger samples, many of the linear estimates maintain the same magnitude but attain more traditional levels of statistical significance due to smaller standard errors. The least stable estimate is the effect on whether students leave the district in the next year.

7.2 Placebo test

If school trends over time were explaining my results, then replacing the share LGBTQ in a student's own 9th-grade cohort with the share LGBTQ in the *next year's* 9th-grade cohort would yield similar apparent effects. If there are not such trends, then the share LGBTQ in the next year's 9th-grade cohort—who have not yet arrived at the school one's own cohort is in 9th grade—should not yield similar effects.

Unfortunately, having information about next years' 9th grade cohort requires that I drop the youngest cohort from the sample. Thus, the figures presenting these results show robustness in two ways: first, I replicate the main analysis using only these two cohorts and find the same results. Second, I carry out the placebo analysis and show that the estimated "effects" are null or opposite the effects I find using the true share LGBTQ. Appendix Figures A14-A21 present these results using the fixed effects specification.

The placebo effects on SOGI in 9th grade are generally flat or opposite the effects estimated using the true share LGBTQ (Appendix Figures A14-A16).

Turning to the school experience outcomes, again, I first replicate the main results using the younger two cohorts. Then, I turn to the placebo percent LGBTQ. Unsurprisingly, the LGBTQ-Cis/Het gaps in bullying and belonging remain; the test is that they do not change with the placebo share LGBTQ—which is what I find (Appendix Figures A17 and A18). In the case of perceived acceptance, I find no gaps and no change in gaps depending on the placebo

share LGBTQ (Appendix Figure A19).

In the case of the attendance and district retention, I am no longer changing the sample, as the outcome was only defined for the first two cohorts in the main analysis to start with. I still replicate the main results in the figures for ease of comparison. In the case of chronic absenteeism, I do find an increasing gradient for LGBTQ students based on the placebo share LGBTQ, but it is driven by students with high placebo shares LGBTQ, rather than low placebo shares (Appendix Figure A20). In the case of district retention, I find no LGBTQ-Cis/Het gap in the lowest placebo share LGBTQ or trends in whether students leave the district that depend on the placebo share (Appendix Figure A21).

8 Conclusion

I use unique data from the Los Angeles Unified School District to study the development of LGBTQ identities in adolescence and document substantial fluidity. As a result of this fluidity, cross-sectional statistics that focus on the share of students who identify as LGBTQ in a given year largely understate the share of the population who is likely to be affected by policies targeting LGBTQ students—14 percent of students ever identify as LGBTQ in a four-year period, compared to 5-9 percent in each given year. 32 percent of students change their reported sexual orientation and gender identity at least once.

Substantial evidence documents the existence of large educational disparities facing LGBTQ students. Existing estimates of LGBTQ-Cis/Het gaps—which are also calculated based on point-in-time identification as LGBTQ—miss important considerations that cannot be observed without accounting for the fluidity of sexual orientation and gender identity in adolescence. I show that students who eventually, but do not yet, identify as LGBTQ are substantially more likely to be bullied and have much lower feelings of school belonging than their always-Cis/Het peers, up to 5 years before they start to identify as LGBTQ and starting as early as elementary school. That said, students who identify as LGBTQ at younger ages are much more likely to be bullied at all ages than other peers who come out later, and may require particular support.

Finally, I show that the educational disparities facing LGBTQ students are mitigated substantially when they have more LGBTQ peers. Having more LGBTQ peers reduces bullying rates, increases feelings of belonging and perceptions of LGBTQ acceptance at school for LGBTQ students, and reduces the likelihood that LGBTQ students leave the district. Increasing the share LGBTQ by 10pp closes gaps in bullying and feelings of belonging between LGBTQ and Cis/Het students by about 50 percent. Increasing the share LGBTQ from 0-3 to 3-6 percent eliminates LGBTQ-Cis/Het gaps in perceived LGBTQ acceptance and whether students leave the district in the next year.The effects seem to arise through a channel of increased resilience and belonging to a larger "affinity group" and changing *perceptions* of acceptance, rather than through changing stigma or acceptance itself. This result does not provide a policy prescription for improving LGBTQ student outcomes directly through the channel of peers, but like above,

suggests that particular attention should be paid to supporting students in cohorts or classrooms with few LGBTQ peers or support systems. I also find that the reduction in bullying of LGBTQ peers negatively affects non-LGBTQ students, increasing the likelihood that previously-bullied Cis/Het students continue to be bullied and lowering their feelings of school belonging. When shares of LGBTQ students are high, extra support should be provided to other marginalized or isolated students.

References

ACLU, "Mapping Attacks on LGBTQ Rights in U.S. State Legislatures in 2024," 2024.

Akerlof, George A. and Rachel E. Kranton, "Economics and Identity," *The Quarterly Journal of Economics*, 2000, *115* (3), 715–753. Publisher: Oxford University Press.

Ammermueller, Andreas and Jorn-Steffen Pischke, "Peer Effects in European Primary Schools: Evidence from the Progress in International Reading Literacy Study," *Journal of Labor Economics*, July 2009, *27* (3), 315–348. Publisher: The University of Chicago Press.

Angrist, Joshua D and Kevin Lang, "Does School Integration Generate Peer Effects? Evidence from Boston's Metco Program," *American Economic Review*, November 2004, *94* (5), 1613–1634.

Austen-Smith, David and Roland G. Fryer Jr., "An Economic Analysis of "Acting White"," *The Quarterly Journal of Economics*, May 2005, *120* (2), 551–583.

Badgett, M. V. Lee, Christopher S. Carpenter, Maxine J. Lee, and Dario Sansone, "A Review of the Economics of Sexual Orientation and Gender Identity," *Journal of Economic Literature*, September 2024, *62* (3), 948–994.

Badgett, M.V. Lee, Christopher S. Carpenter, and Dario Sansone, "LGBTQ Economics," *Journal of Economic Perspectives*, 2021, *35* (2), 141–170.

Bishop, Meg D., Jessica N. Fish, Phillip L. Hammack, and Stephen T. Russell, "Sexual identity development milestones in three generations of sexual minority people: A national probability sample," *Developmental Psychology*, 2020, *56* (11), 2177–2193. Place: US Publisher: American Psychological Association.

Black, Dan A., Seth G. Sanders, and Lowell J. Taylor, "The Economics of Lesbian and Gay Families," *Journal of Economic Perspectives*, June 2007, *21* (2), 53–70.

Burn, Ian and Michael E. Martell, "The role of work values and characteristics in the human capital investment of gays and lesbians," *Education Economics*, May 2020, *0* (0), 1–19. Publisher: Routledge _eprint: https://doi.org/10.1080/09645292.2020.1758039.

Bursztyn, Leonardo and Robert Jensen, "How Does Peer Pressure Affect Educational Investments? *," *The Quarterly Journal of Economics*, August 2015, *130* (3), 1329–1367.

CalSCHLS, "The Californial School Climate, Health, and Learning Survey (CalSCHLS) System," 2019.

Campos, Christopher, "Social Interactions, Information, and Preferences for Schools: Experimental Evidence from Los Angeles," *Working paper*, 2024.

_ **and Caitlin Kearns**, "The Impact of Public School Choice: Evidence from Los Angeles' Zones of Choice," *The Quarterly Journal of Economics*, 2024, *139* (2), 1051–1093.

Carpenter, Christopher S., "Sexual orientation and outcomes in college," *Economics of Education Review*, December 2009, *28* (6), 693–703.

Carrell, Scott E. and Mark L. Hoekstra, "Externalities in the classroom: How children exposed to domestic violence affect everyone's kids," *American Economic Journal: Applied Economics*, January 2010, *2* (1), 211–228.

_ **, Mark Hoekstra, and Elira Kuka**, "The Long-Run Effects of Disruptive Peers," *American Economic Review*, 2018, *108* (11), 3377–3415.

Choi, Soon Kyu, Laura Baams, and Bianca D M Wilson, "Youth in California's public schools: Differences across the state," Technical Report, The Williams Institute, Los Angelos 2017.

Conron, Kerith, Luhur, and Shoshana Goldberg, "LGBT Adults in Large Metropolitan Statistical Areas," Technical Report 2021.

Cools, Angela and Eleonora Patacchini, "Peer Effects in Education 1," in "The Routledge Handbook of the Economics of Education," Routledge, 2021. Num Pages: 23.

_ **, Raquel FernÃ¡ndez, and Eleonora Patacchini**, "The asymmetric gender effects of high flyers," *Labour Economics*, December 2022, *79*, 102287.

Figlio, David N, "BOYS NAMED SUE: DISRUPTIVE CHILDREN AND THEIR PEERS," *EDUCATION FINANCE AND POLICY*, 2007, p. 19.

Fordham, Signithia and John U. Ogbu, "Black students' school success: Coping with the "burden of acting white"," *The Urban Review*, September 1986, *18* (3), 176–206.

Fryer, Roland G. and Paul Torelli, "An empirical analysis of "acting white"," *Journal of Public Economics*, June 2010, *94* (5), 380–396.

Gallup Inc, "Growing LGBT ID Seen Across Major U.S. Racial, Ethnic Groups," 2022.

_ , "LGBTQ+ Identification in U.S. Now at 7.6%," 2024.

Goldbach, Jeremy T., Emily E. Tanner-Smith, Meredith Bagwell, and Shannon Dunlap, "Minority stress and substance use in sexual minority adolescents: a meta-analysis," *Prevention Science: The Official Journal of the Society for Prevention Research*, June 2014, *15* (3), 350–363.

Goodenow, Carol, Laura Szalacha, and Kim Westheimer, "School support groups, other school factors, and the safety of sexual minority adolescents," *Psychology in the Schools*, 2006, *43* (5), 573–589. Publisher: Wiley Online Library.

Gould, Eric D., Victor Lavy, and M. Daniele Paserman, "Does immigration affect the long-term educational outcomes of natives? Quasi-experimental evidence," *The Economic Journal*, 2009, *119* (540), 1243–1269. Publisher: Oxford University Press Oxford, UK.

Gromadzki, Jan and Przemslaw Siemaszko, "#IamLGBT: Social Networks and Coming Out," *SSRN Electronic Journal*, 2023.

Hall, William J., Hayden C. Dawes, and Nina Plocek, "Sexual Orientation Identity Development Milestones Among Lesbian, Gay, Bisexual, and Queer People: A Systematic Review and Meta-Analysis," *Frontiers in Psychology*, October 2021, *12*, 753954.

Hoxby, Caroline, "Peer Effects in the Classroom: Learning from Gender and Race Variation," Working Paper 7867, National Bureau of Economic Research August 2000. Series: Working Paper Series.

Humphries, Kayleigh D., Li Li, Gary A. Smith, Jeffrey A. Bridge, and Motao Zhu, "Suicide Attempts in Association With Traditional and Electronic Bullying Among Heterosexual and Sexual Minority U.S. High School Students," *The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine*, June 2021, *68* (6), 1211–1214.

Katz-Wise, Sabra L. and Kieran P. Todd, "The current state of sexual fluidity research," *Current Opinion in Psychology*, December 2022, *48*, 101497.

Kim, Robert, "A report on the status of gay, lesbian, bisexual and transgender people in education: Stepping out of the closet, into the light," Technical Report, National Education Association 2009.

Kosciw, Joseph G, Emily A Greytak, Adrian D Zongrone, Caitlin M Clark, and Nhan L Truong, *The 2017 National School Climate Survey: The experiences of lesbian, gay, bisexual, transgender, and queer youth in our nation's schools*, Gay, Lesbian and Straight Education Network (GLSEN). 121 West 27th Street Suite 804, New York, NY 10001. Tel: 212-727-0135; Fax: 212-727-0254; e-mail: glsen@glsen.org; Web site: http://www.glsen.org, 2018. OCLC: 8061953228.

Kosciw, Joseph G., Neal A. Palmer, Ryan M. Kull, and Emily A. Greytak, "The effect of negative school climate on academic outcomes for LGBT youth and the role of in-school supports," *Journal of School Violence*, 2013, *12* (1), 45–63. Publisher: Taylor & Francis.

Lavy, Victor and Analia Schlosser, "Mechanisms and Impacts of Gender Peer Effects at School," *American Economic Journal: Applied Economics*, April 2011, *3* (2), 1–33.

_ , M. Daniele Paserman, and Analia Schlosser, "Inside the Black Box of Ability Peer Effects: Evidence from Variation in the Proportion of Low Achievers In the Classroom," *The Economic Journal*, March 2012, *122* (559), 208–237. Publisher: Oxford Academic.

Mittleman, Joel, "Sexual Fluidity: Implications for Population Research," *Demography*, 2023, *60* (4), 1257–1282.

Movement Advancement Project, "Movement Advancement Project Safe Schools Laws."

Olivetti, Claudia, Eleonora Patacchini, and Yves Zenou, "Mothers, peers, and gender-role identity," *Journal of the European Economic Association*, 2020, *18* (1), 266–301. Publisher: Oxford University Press.

Paluck, Elizabeth Levy, "Peer pressure against prejudice: A high school field experiment examining social network change," *Journal of Experimental Social Psychology*, March 2011, *47* (2), 350–358.

_ and Hana Shepherd, "The salience of social referents: A field experiment on collective norms and harassment behavior in a school social network.," *Journal of Personality and Social Psychology*, December 2012, *103* (6), 899–915.

_ , Roni Porat, Chelsey S. Clark, and Donald P. Green, "Prejudice Reduction: Progress and Challenges," *Annual Review of Psychology*, 2020, *72*.

Pearson, Jennifer and Lindsey Wilkinson, "Same-Sex Sexuality and Educational Attainment: The Pathway to College," *Journal of Homosexuality*, 2017, *64* (4), 538–576.

Public Policy Institute of California, "California's LGBTQ+ Population," 2024.

Rees, Daniel I., Joseph J. Sabia, and Gokhan Kumpas, "Anti-Bullying Laws and Suicidal Behaviors Among Teenagers," *Journal of Policy Analysis and Management*, 2022, *41* (3), 787–823. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1002/pam.22405.

Sansone, Dario, "LGBT students: New evidence on demographics and educational outcomes," *Economics of Education Review*, 2019, *73*, 101933. Publisher: Elsevier.

_ **and Christopher S. Carpenter**, “Turing’s children: Representation of sexual minorities in STEM,” *PLOS ONE*, November 2020, *15* (11), e0241596. Publisher: Public Library of Science.

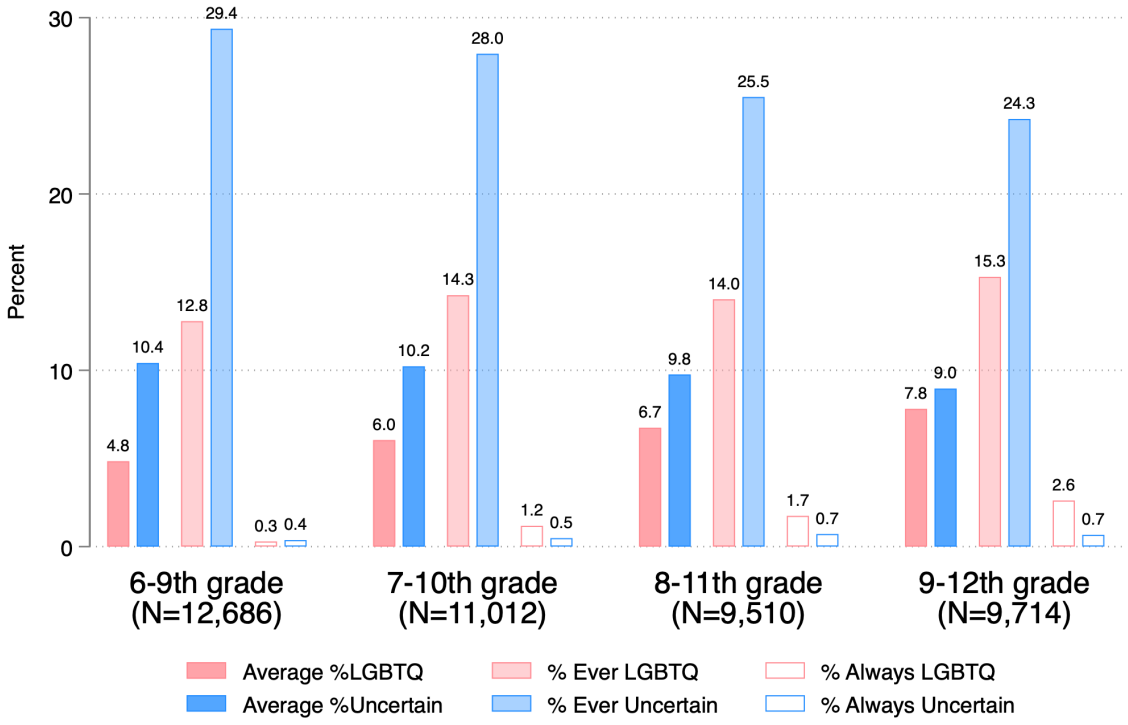
Szalacha, Laura A., “Safer sexual diversity climates: Lessons learned from an evaluation of Massachusetts safe schools program for gay and lesbian students,” *American journal of education*, 2003, *110* (1), 58–88. Publisher: The University of Chicago Press.

Tankard, Margaret E. and Elizabeth Levy Paluck, “Norm Perception as a Vehicle for Social Change,” *Social Issues and Policy Review*, 2016, *10* (1), 181–211. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/sipr.12022.

Thoreson, Ryan Richard, *"Like walking through a hailstorm": Discrimination against LGBT youth in US schools*, New York, N.Y.: Human Rights Watch, 2016. OCLC: ocn969770319.

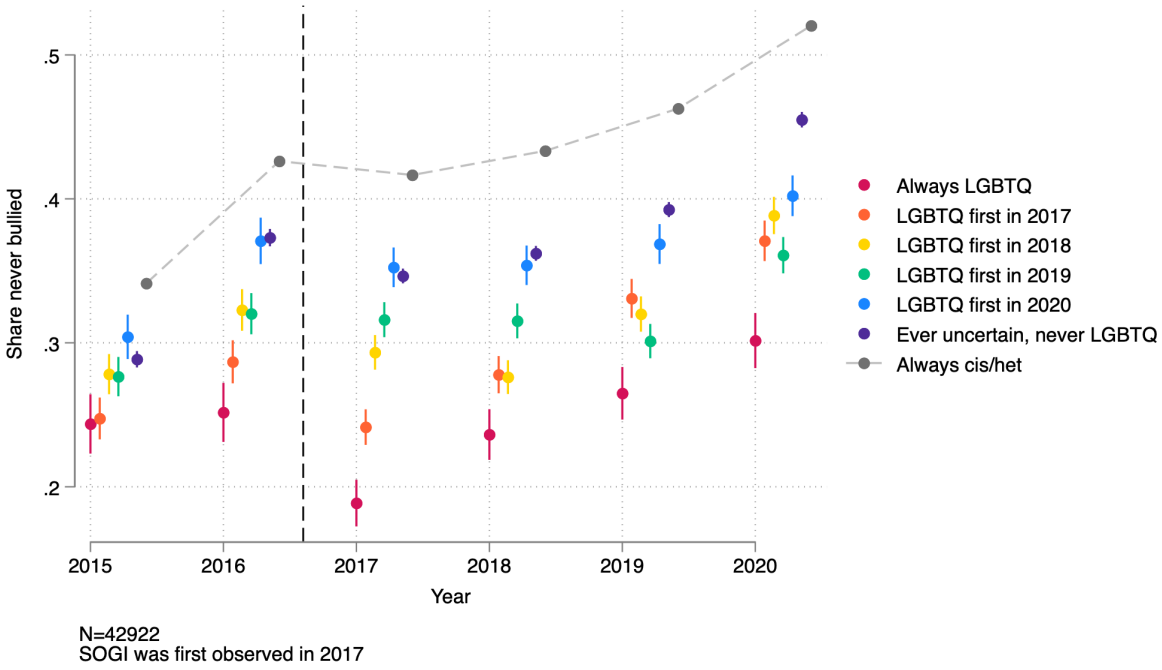
Tyson, Karolyn, William DarityJr., and Domini R. Castellino, “It’s Not "a Black Thing": Understanding the Burden of Acting White and Other Dilemmas of High Achievement,” *American Sociological Review*, August 2005, *70* (4), 582–605. Publisher: SAGE Publications Inc.

Figure 1: LGBTQ identity evolution by cohort



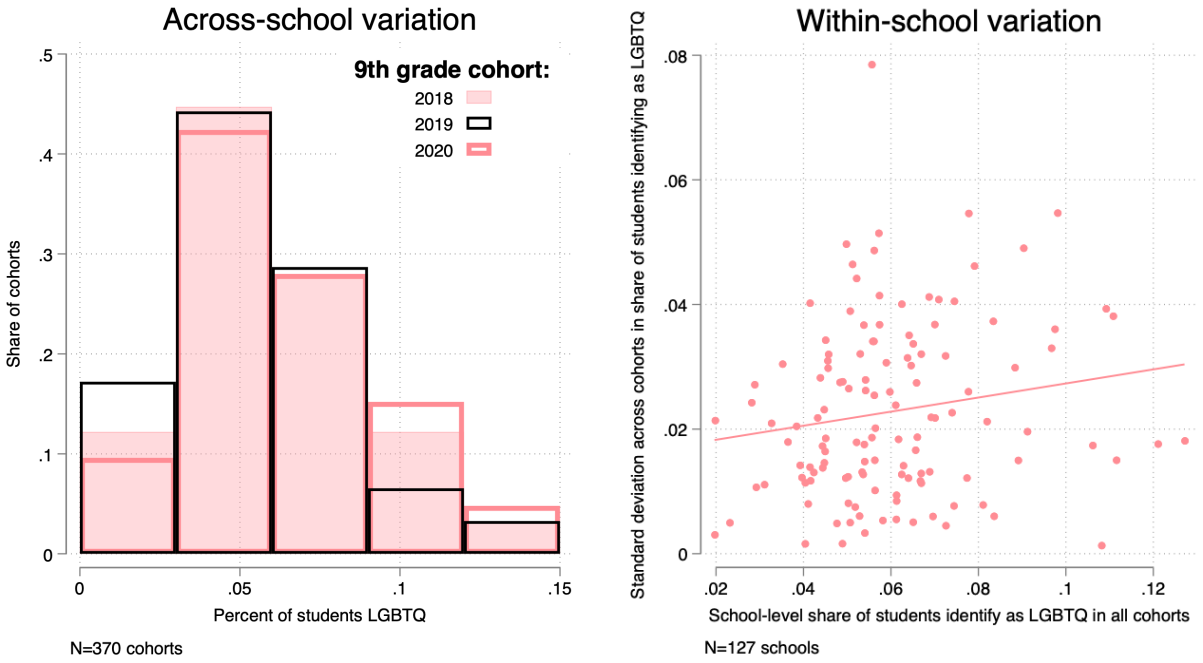
Note: This figure provides statistics that are analogous to those in Table 3 but separately by students' grade in 2017. It aggregates the cross-sectional statistic across all four years. That is, the bars showing the average %LGBTQ show the average share reporting a certain SOGI in each year across 2017-2020 (the "cross-sectional statistics"). In this time frame the youngest cohort was in 6th-9th grade and the oldest cohort was in 9th-12th grade. The largest standard error on any of the above means is 0.5%, so all estimates are statistically significantly different from each other at a less than a 1% confidence level.

Figure 2: Bullying gaps accounting for fluid SOGI



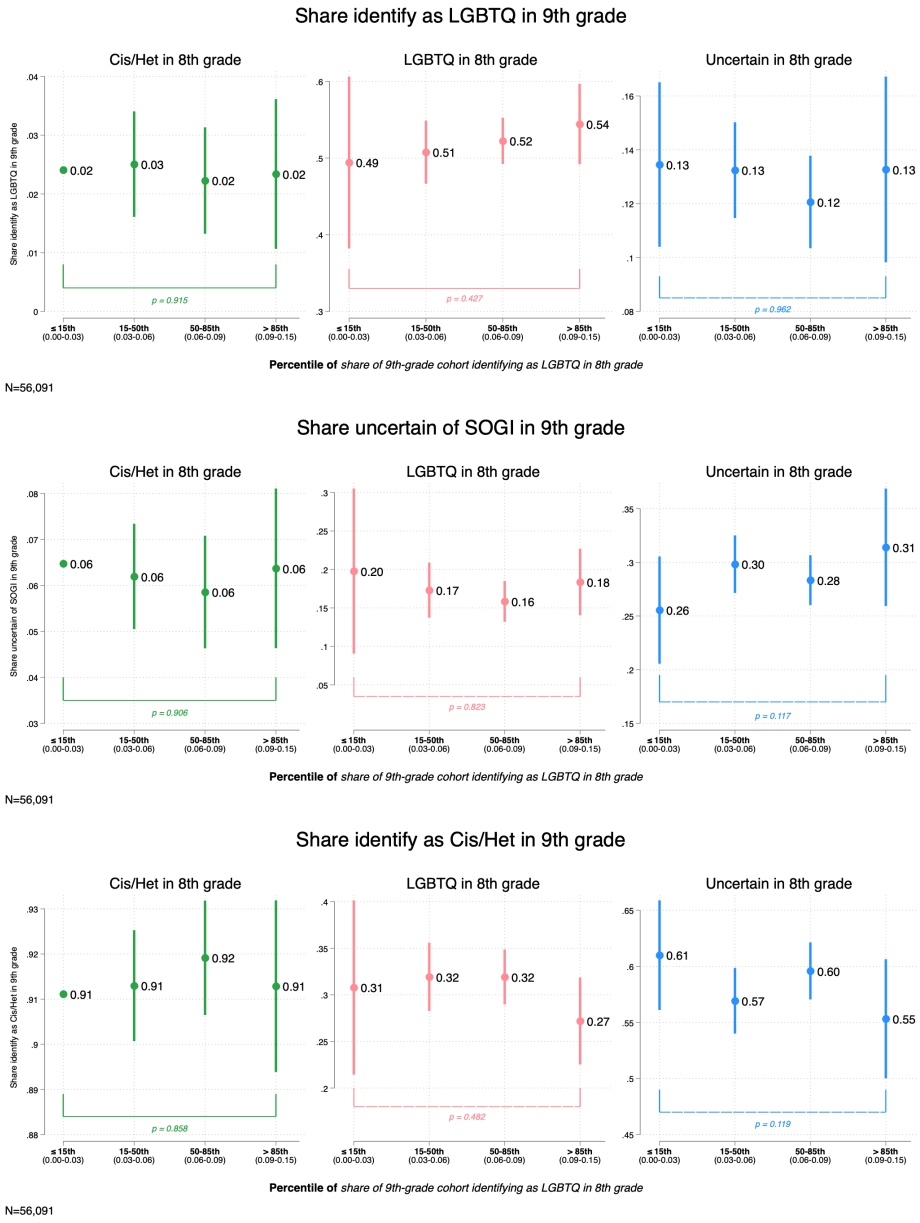
Note: This figure compares the share of students who are never bullied in each year, separately by when they first (or ever) identify as LGBTQ. Spikes indicate upper and lower bounds equal to one standard error above or below the mean, respectively. I observe reported bullying starting in 2015 but do not observe SOGI until 2017. The sample is students in 6th-9th grade in 2017 who answer the survey each year from 2017-2020 (see Section 3.3.1). Students who are classified as "first identifying as LGBTQ" in a particular year first identify as LGBTQ in that year but may change how they identify in subsequent years.

Figure 3: Variation in the share of students identifying as LGBTQ



Note: The figure on the right plots the distribution of the share of students in a cohort (students in the same school in 9th grade in the same year) who identified as LGBTQ in 8th grade, separately by the year that students are in 9th grade. The figure on the left plots the standard deviation of the share-LGBTQ across cohorts in each school against the average (cross-cohort) share LGBTQ at that school. The sample in both figures is all cohorts in the peer effects sample (see Section 3.3.2).

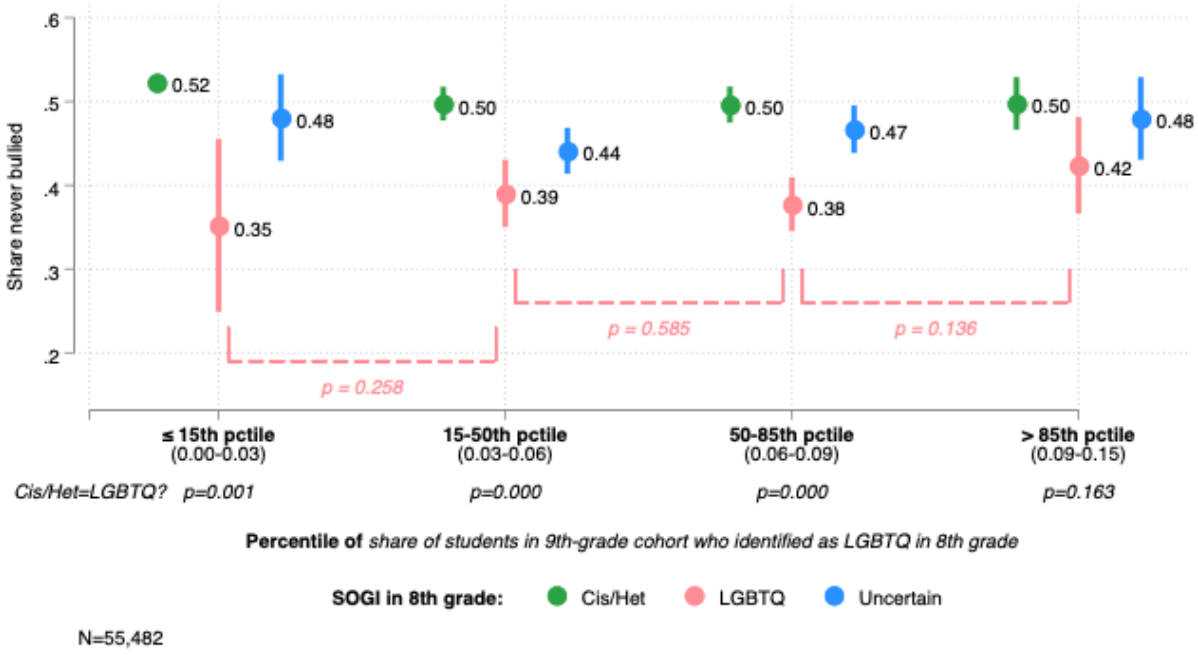
Figure 4: How having LGBTQ peers affects reported SOGI



Note: This figure plots the results from the non-parametric peer effects specification for all SOGI outcomes. The y-axis plots the share identifying as LGBTQ, who are uncertain, or identifying as LGBTQ, Uncertain, or Cis/Het (in rows 1, 2, and 3, respectively) *in 9th grade,* conditional on whether they identified as Cis/Het, LGBTQ, or were uncertain of their SOGI (in columns 1, 2, and 3, respectively) *in 8th grade*, where the share is calculated as the fitted value from a regression of the 9th-grade SOGI variable on indicators for having the share of students in your 9th grade cohort who identified as LGBTQ in 8th grade that is below the 15th percentile (3-0 percent identify as LGBTQ), between the 15 and 50th percentiles (3-6 percent), between the 50 and 85th percentiles (6-9 percent) or above the 90th percentile (9-15 percent), all interacted with students' 8th-grade SOGI. 8th-grade SOGI main effects are included in the regression, as well as 9th-grade school fixed effects, 8th-grade school fixed effects, year fixed effects, the share of the cohort that took the SES in 8th grade, the share of students who were in the district in 8th grade, the cohort size, the share of students in a student's 9th-grade cohort who came from the same 8th-grade-school, 8th grade math and reading scores, whether the home language is English or Spanish (omitted: other), whether the student is in the gifted or special education programs or has been classified as poor by the district, are female, were born in the US, have a parent with a college degree, and are Asian, Black, Hispanic, or Native American (omitted: White, non-Hispanic). All demographic controls are recoded to zero if missing with missing indicators included. The regression also includes controls for the leave-one-out share of the cohort that has each of these demographic characteristics and the average 8th grade math and reading scores. The sample is all students in qualifying cohorts (see Section 3.3.2) who took the SES in 9th grade. Note that the estimates are plotted separately by 8th-grade SOGI due to allow for different scales, but all coefficients are estimated from one regression. The figure includes 95-percent confidence intervals, which are calculated from standard errors that are clustered by cohort.

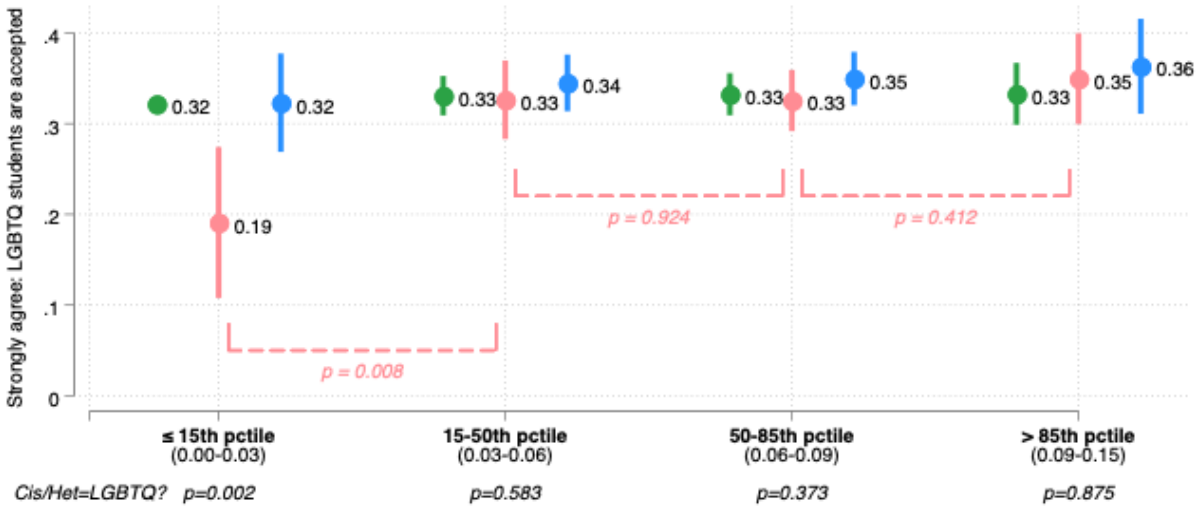
Figure 5: How having LGBTQ peers affects bullying and perceived LGBTQ acceptance

Panel A: Share never bullied



N=55,482

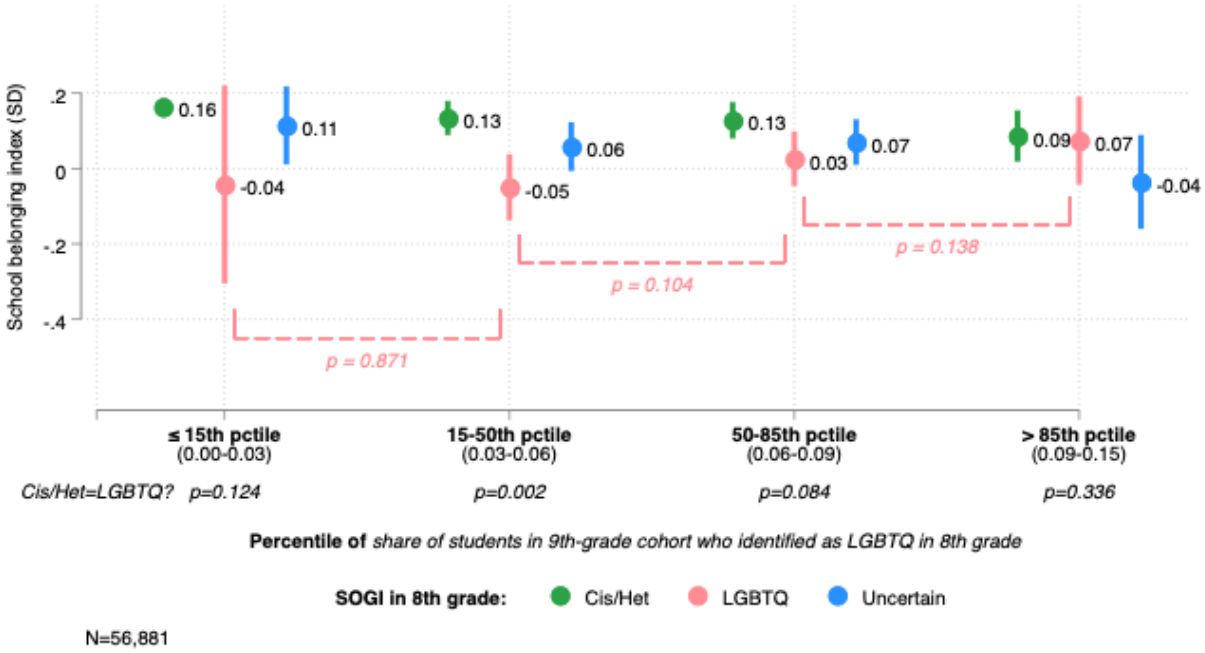
Panel B: Share strongly agree that LGBTQ students are accepted



N=56,010

Note: This figure plots the results from the non-parametric specification when the outcome is whether students report never being bullied (Panel A) or strongly agree that LGBTQ students are accepted (Panel B). The specification and sample are the same as in Figure 4, but the fitted values for students for all three 8th-grade SOGI groups can now be plotted on the same scale. The figure includes 95-percent confidence intervals, which are calculated from standard errors that are clustered by cohort. *p*-values testing whether there is an effect of increasing the share LGBTQ from 0-3 to 3-6, 3-6 to 6-9, or 6-9 to 9-15 are calculated using the estimates from the same regression and provided on the graph in pink. *p*-values testing whether there is a Cis/Het-LGBTQ gap in each percentile bin are calculated using the estimates from the same regression and are provided below the horizontal axis.

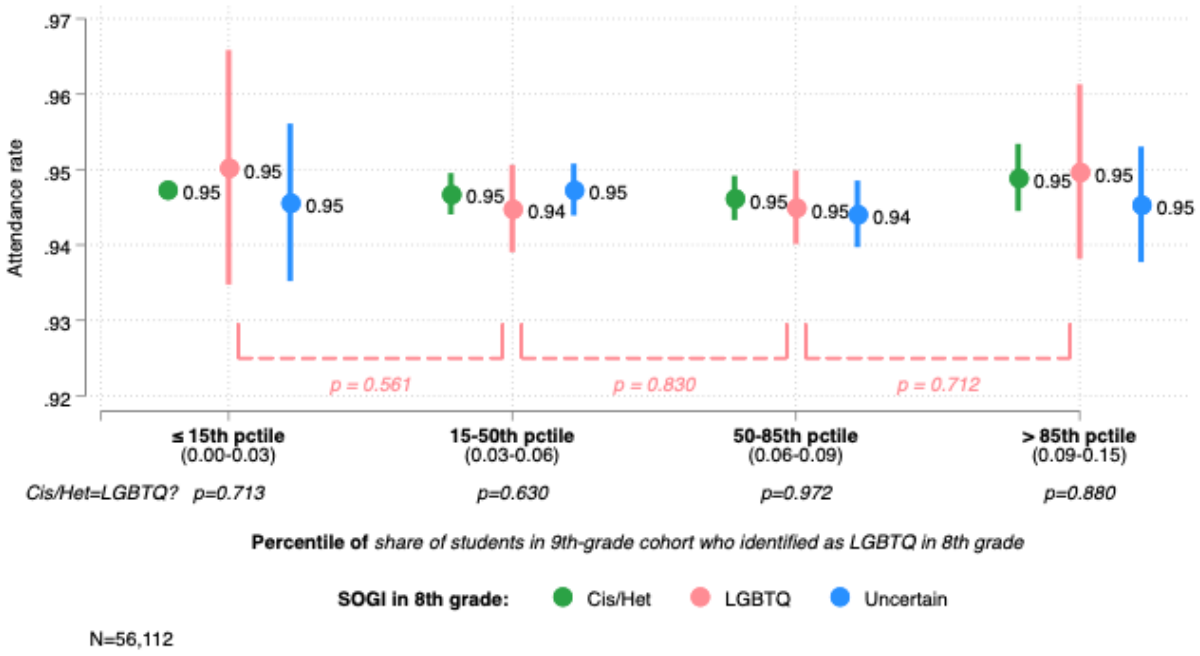
Figure 6: How having LGBTQ peers affects overall school belonging index



Note: This figure plots the results from the non-parametric specification when the outcome is the overall index of school belonging. The sample, specification, and plotted fitted values are otherwise equivalent to Figure 5. The figure includes 95-percent confidence intervals, which are calculated from standard errors that are clustered by cohort. *p*-values testing whether there is an effect of increasing the share LGBTQ from 0-3 to 3-6, 3-6 to 6-9, or 6-9 to 9-15 are calculated using the estimates from the same regression. *p*-values testing whether there is a Cis/Het-LGBTQ gap in each percentile bin are calculated using the estimates from the same regression and are provided below the horizontal axis.

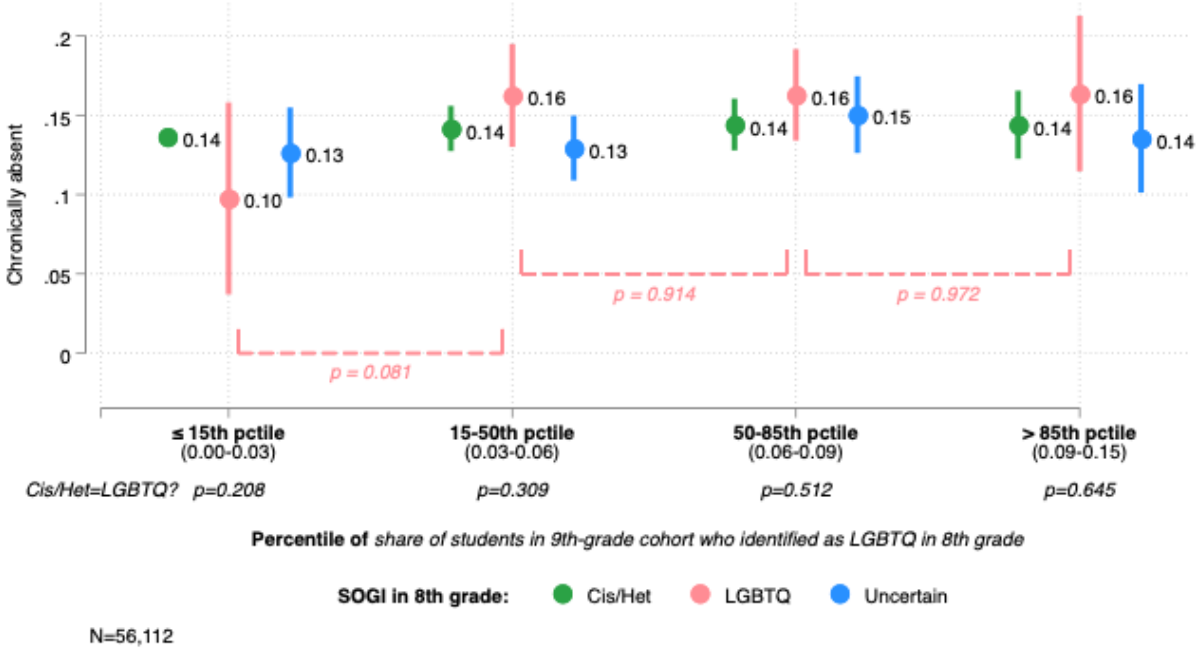
Figure 7: How having LGBTQ peers affects daily attendance

Panel A: Daily attendance rates



N=56,112

Panel B: Chronic absenteeism

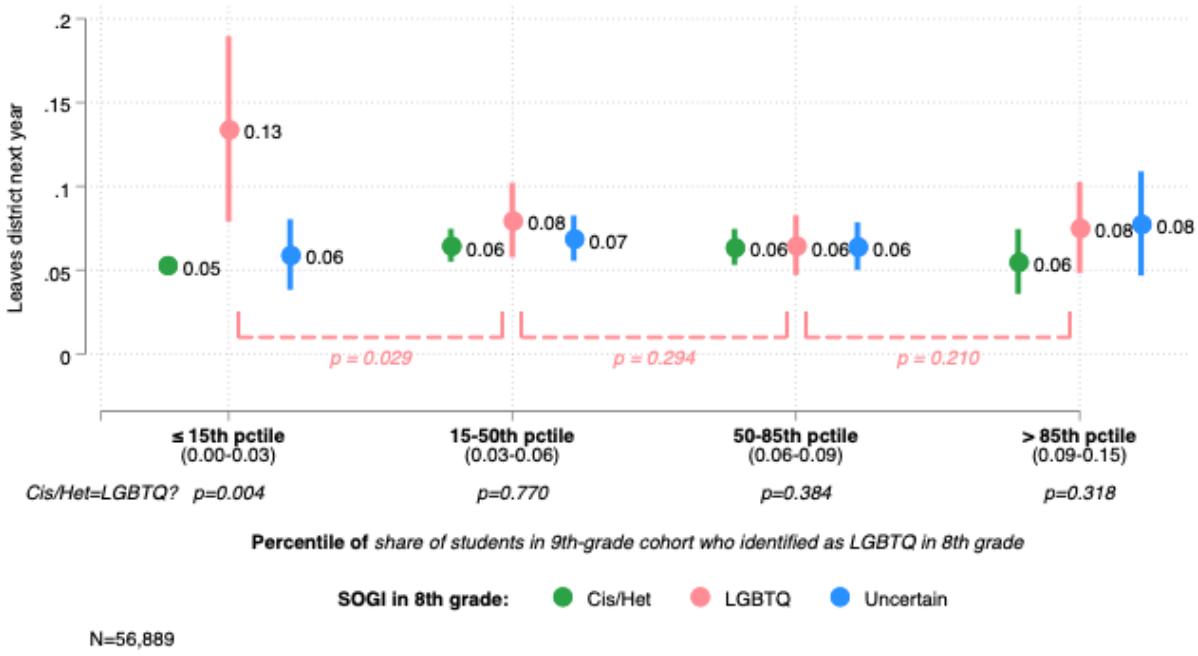


N=56,112

Note: This figure plots the results from the non-parametric specification when the outcome is daily attendance rates (Panel A) or an indicator for chronic absenteeism as defined by the district (daily attendance less than 92 percent, Panel B). The specification and plotted fitted values are otherwise equivalent to Figure 5. The sample differs: these administrative outcomes are observed for all students (not just those who took the SES) but are only available in 2018 and 2019, so the youngest cohort is dropped. The figure includes 95-percent confidence intervals, which are calculated from standard errors that are clustered by cohort. *p*-values testing whether there is an effect of increasing the share LGBTQ from 0-3 to 3-6, 3-6 to 6-9, or 6-9 to 9-15 are calculated using the estimates from the same regression. *p*-values testing whether there is a Cis/Het-LGBTQ gap in each percentile bin are calculated using the estimates from the same regression and are provided below the horizontal axis.

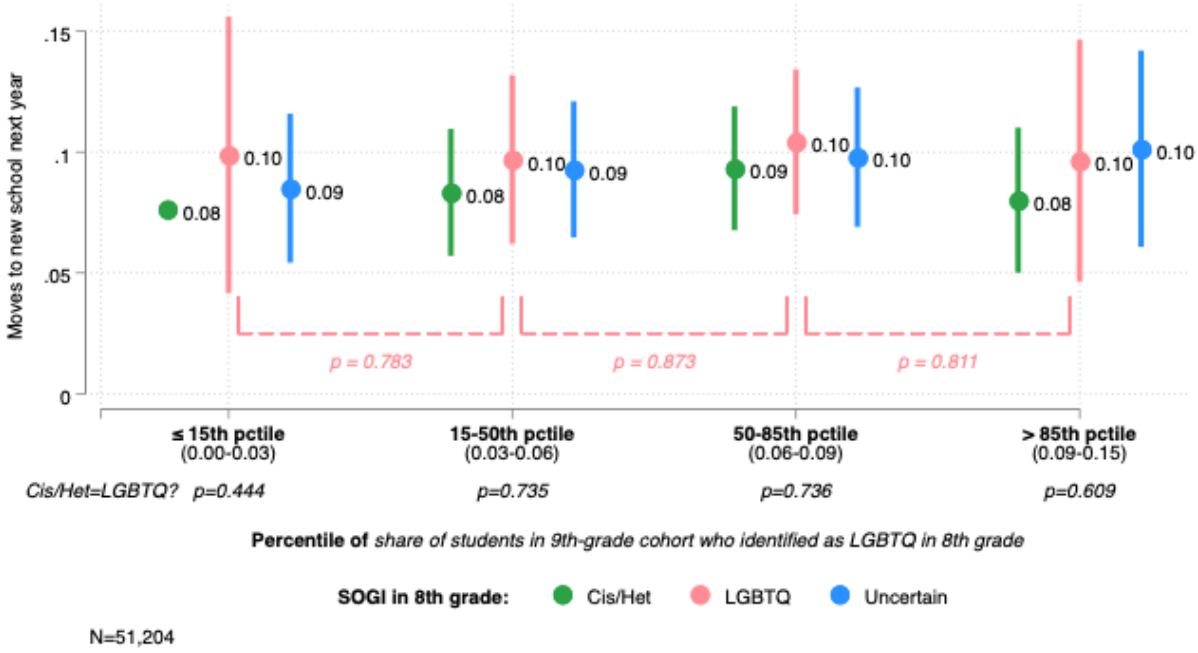
Figure 8: How having LGBTQ peers affects retention at school and in the district

Panel A: Share leave the district the next year



N=56,889

Panel B: Share move to a new school in the district next year



N=51,204

Note: This figure plots the results from the non-parametric specification when the outcome is the share of students who leave the district for 10th grade (Panel A) or change schools within the district (Panel B). The specification and plotted fitted values are otherwise equivalent to Figure 5. The sample differs: these administrative outcomes are observed for all students (not just those who took the SES) but are only available in 2018 and 2019, so the youngest cohort is dropped. The figure includes 95-percent confidence intervals, which are calculated from standard errors that are clustered by cohort. *p*-values testing whether there is an effect of increasing the share LGBTQ from 0-3 to 3-6, 3-6 to 6-9, or 6-9 to 9-15 are calculated using the estimates from the same regression. *p*-values testing whether there is a Cis/Het-LGBTQ gap in each percentile bin are calculated using the estimates from the same regression and are provided below the horizontal axis.

Table 1: Sample demographic characteristics

	SOGI fludity sample			Peer effects sample	
	Full sample ever in cohort	In district all years	Took survey all years	Full sample	Has SES outcomes
Panel A: Share with variable=1 if not missing					
Female	0.479	0.486	0.514	0.472	0.490
Asian	0.066	0.069	0.074	0.059	0.064
Black	0.097	0.067	0.042	0.076	0.061
Hispanic	0.742	0.792	0.824	0.796	0.807
White	0.092	0.069	0.058	0.065	0.065
Native American	0.004	0.003	0.003	0.003	0.003
Home language English	0.365	0.319	0.284	0.316	0.305
Home language Spanish	0.567	0.616	0.650	0.623	0.632
Special education flag	0.091	0.134	0.095	0.119	0.107
Gifted flag	0.145	0.220	0.256	0.154	0.183
Poverty flag	0.841	0.891	0.907	0.903	0.901
Born in USA	0.853	0.896	0.912	0.846	0.884
Parent college degree	0.204	0.180	0.170	0.165	0.168
In district in 2016	0.901	0.928	0.952	—	—
In district in 8th grade	—	—	—	0.797	0.852
Panel B: Average grade 6-8 standardized test scores if not missing					
Ave. middle school math score	-0.035	-0.038	0.120	—	—
Ave. middle school reading score	-0.037	-0.044	0.110	—	—
8th grade math score	—	—	—	-0.104	-0.030
8th grade reading score	—	—	—	-0.106	-0.032
Panel C: Share missing variable					
Female	0.007	0.000	0.000	0.006	0.001
Race/ethnicity	0.003	0.000	0.000	0.002	0.001
Home language	0.003	0.000	0.000	0.005	0.001
Special education flag	0.000	0.000	0.000	0.000	0.000
Gifted flag	0.000	0.000	0.000	0.000	0.000
Poverty flag	0.008	0.000	0.000	0.003	0.000
Born in USA	0.000	0.000	0.000	0.000	0.000
Parent college degree	0.475	0.365	0.338	0.372	0.330
Ave. middle school math score	0.408	0.286	0.227	—	—
Ave. middle school reading score	0.414	0.288	0.228	—	—
8th grade math score	—	—	—	0.239	0.164
8th grade reading score	—	—	—	0.246	0.170
N	193,774	107,140	42,922	84,410	56,903

Note: This table shows demographic characteristics for various analysis samples. The first three columns concern the sample of students in the cohorts that are in 6th-9th grade in 2017. The first column is all students who ever appear in any of those cohorts between 2017 and 2020. The second restricts to students who are in the district in all four of those years. The third restricts to the main sample used in the fluidity analysis; the set of students who take the SES in all four years. The fourth and fifth columns concern the peer effects sample; this is students who were in 9th grade in 2018, 2019, or 2020 and are in cohorts that meet the sample restriction criteria (see Section 3.3.2). The fourth column shows all students in this sample; the fifth column restricts to the subset of students who took the SES in 9th grade and therefore have observed SOGI, bullying, perceived acceptance, and school culture outcomes. Panel A shows the share of students with each demographic variable; each variable is recorded from the first year the student appears in the district. Panel B shows average middle school standardized test scores. Panel C shows the share of students missing each variable.

Table 2: Summary statistics for outcome variables in the peer effects sample

	SOGI in 8th grade			
9th grade outcomes:	Cis/Het	LGBTQ	Uncertain	Missing SOGI
LGBTQ in 9th grade	0.025	0.537	0.134	0.073
Uncertain in 9th grade	0.070	0.188	0.313	0.114
Cis/Het in 9th grade	0.904	0.275	0.553	0.813
Never bullied (0/1)	0.499	0.314	0.424	0.489
Never bullied index	0.060	-0.406	-0.139	0.047
School belonging index	0.063	-0.246	-0.134	0.017
Adults respect/help index	0.047	-0.132	-0.016	0.012
LGBTQ accepted (strong agree)	0.323	0.346	0.347	0.314
Daily attendance rate	0.946	0.938	0.939	0.922
Chronically absent	0.147	0.194	0.170	0.248
New school next year	0.089	0.107	0.099	0.114
Leave district next year	0.063	0.080	0.065	0.153
Missing 9th-grade SES	0.246	0.269	0.257	0.446
N	42502	3000	5903	33005

Note: This table shows the average of each outcome variable separately by students' 8th-grade reported SOGI for the main peer effects sample. When outcomes are measured on the SES, they are averaged only for students who took the SES; the share who did not take the SES in 9th grade is reported in the last row. All indices are reported in standard deviations. Chronic absenteeism is defined as daily attendance less than 92 percent.

Table 3: Comparing SOGI with and without accounting for fluidity

	Fraction in the given year:				Ever	Always
	2017	2018	2019	2020	in Any Wave	in All Waves
If took survey in a given year						
Cis/Het	0.764	0.817	0.806	0.803		
LGBTQ	0.046	0.060	0.075	0.085		
Uncertain	0.094	0.109	0.110	0.096		
Q Non-Response	0.096	0.014	0.010	0.016		
N	116,492	95,961	101,778	101,790		
If took SES all four years (N=42,922)						
Cis/Het	0.777	0.823	0.819	0.817	0.952	0.581
LGBTQ	0.042	0.056	0.071	0.081	0.140	0.014
Uncertain	0.095	0.109	0.103	0.089	0.270	0.005
Q Non-Response	0.086	0.012	0.007	0.013	0.115	0.000

Note: This table compares the share of students reporting each SOGI in a given year (in columns 1-4) to the share of students who ever or always identify as LGBTQ as a measure of fluidity. The first panel includes the full sample of students who ever show up in the cohorts in 6th-9th grade in 2017 who took the survey in each year (and for whom the share ever and always identifying as LGBTQ cannot be consistently calculated). The second panel restricts to the students who took the SES in all four sample years. In 2017 and 2018, students are considered "uncertain" if they answered "I don't know" to the SOGI question; in 2019 the option "I prefer not to answer" was added and these students are additionally categorized as "uncertain."

Table 4: Residual variation in $\%LGBTQ8$

	All students	Cis/Het	LGBTQ	Uncertain	SOGI Unknown
Raw variation:					
Mean	0.059	0.058	0.061	0.060	0.060
SD	0.024	0.023	0.024	0.024	0.025
10th p, 90th p	0.031, 0.089	0.031, 0.086	0.032, 0.090	0.032, 0.091	0.030, 0.092
Min, max	0.000, 0.151	0.000, 0.151	0.000, 0.142	0.000, 0.151	0.000, 0.150
Net of fixed effects:					
Mean	0.000	-0.000	-0.002	0.000	0.000
SD	0.018	0.017	0.018	0.017	0.018
10th p, 90th p	-0.022, 0.023	-0.021, 0.022	-0.023, 0.022	-0.021, 0.022	-0.023, 0.026
Min, max	-0.097, 0.067	-0.071, 0.067	-0.097, 0.047	-0.068, 0.064	-0.068, 0.061
N	84410	42502	3000	5903	33005

Note: This table shows how the variation in the share of students who identify as LGBTQ remaining in the binned specification compares to the raw variation in the same variable. The first panel shows the raw average, standard deviation, 10th and 90th percentile, and minimum and maximum of the share of students in a students' cohort who identified as LGBTQ in 8th grade for all students in the peer effects sample (in column 1) and then separately by 8th-grade SOGI (in columns 2-5). The second panel shows the same statistic for the residual of the share LGBTQ after regressing the variable on year, 9th-grade school, and 8th-grade school fixed effects in the full sample.

Table 5: Linear peer effects specification: SOGI in 9th grade

	LGBTQ	Uncertain	Cis/Het	Missing Survey	Question Non-response
	(1)	(2)	(3)	(4)	(5)
Heterogeneous peer effects:					
Share LGBTQx10	-0.007	-0.001	0.007	-0.057*	0.001
	(0.006)	(0.008)	(0.009)	(0.035)	(0.004)
Share LGBTQx10 * LGBTQ	0.053	-0.018	-0.035	-0.002	-0.002
	(0.045)	(0.036)	(0.042)	(0.032)	(0.010)
Share LGBTQx10 * Uncertain	-0.007	0.042	-0.035	-0.016	0.008
	(0.022)	(0.033)	(0.032)	(0.023)	(0.008)
Share LGBTQx10 * SOGI not known	0.001	0.019	-0.019	0.017	0.001
	(0.009)	(0.013)	(0.015)	(0.024)	(0.005)
Main effects:					
LGBTQ	0.465***	0.118***	-0.583***	0.017	-0.003
	(0.030)	(0.025)	(0.028)	(0.021)	(0.006)
Uncertain	0.108***	0.203***	-0.312***	0.011	-0.003
	(0.014)	(0.021)	(0.021)	(0.016)	(0.005)
SOGI not known	0.050***	0.027***	-0.077***	0.039**	0.001
	(0.006)	(0.009)	(0.009)	(0.015)	(0.003)
N	56,091	56,091	56,091	84,410	56,903
Cis/het mean	0.025	0.070	0.904	0.246	0.013
Share + Share*LGBTQ	0.046	-0.018	-0.027	-0.060	-0.001
	(0.044)	(0.035)	(0.041)	(0.045)	(0.009)
Share + Share*Uncertain	-0.014	0.042	-0.027	-0.073*	0.009
	(0.021)	(0.031)	(0.030)	(0.039)	(0.008)

Note: This table shows the results from the linear peer effects specification for all SOGI outcomes. Outcomes are indicators for identifying as LGBTQ, Uncertain, or Cis/Het, not taking the SES, or taking the survey but not answering the SOGI question *in 9th grade.* Outcomes are regressed on the share of students in the 9th-grade cohort who identified as LGBTQ *in 8th grade*, 8th-grade SOGI main effects, and interactions of the share LGBTQ with the 8th-grade SOGI fixed effects. The share LGBTQ is multiplied by 10 so that coefficients are the effect of increasing the share LGBTQ by 10pp. The omitted group for 8th-grade SOGI is students who identified as Cis/Het. Other controls are the same as those reported the non-parametric specification; see Figure 4. The final two rows show the implied effect of increasing the share LGBTQ by 10pp for LGBTQ and uncertain students, respectively. The sample is all students in qualifying cohorts (see Section 3.3.2) who took the SES in 9th grade. Standard errors that are clustered by cohort. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 6: Linear peer effects specification: Bullying, belonging, and perceived acceptance

	Never bullied indicator	Never bullied index (SD)	School belonging index (SD)	LGBTQ accepted, strong agree
	(1)	(2)	(3)	(4)
Heterogeneous peer effects:				
Share LGBTQx10	-0.002	-0.021	-0.077**	0.001
	(0.015)	(0.027)	(0.034)	(0.017)
Share LGBTQx10 * LGBTQ	0.071*	0.132	0.232**	0.066
	(0.043)	(0.097)	(0.096)	(0.042)
Share LGBTQx10 * Uncertain	0.034	0.072	-0.066	0.050
	(0.032)	(0.079)	(0.072)	(0.032)
Share LGBTQx10 * SOGI not known	0.003	-0.014	0.024	0.002
	(0.022)	(0.041)	(0.038)	(0.017)
Main effects:				
LGBTQ	-0.155***	-0.278***	-0.261***	-0.046
	(0.028)	(0.064)	(0.063)	(0.028)
Uncertain	-0.060***	-0.094*	-0.030	-0.014
	(0.020)	(0.048)	(0.045)	(0.020)
SOGI not known	-0.026	0.058	0.036	0.014
	(0.020)	(0.040)	(0.038)	(0.015)
N	55,482	56,410	56,881	56,010
Cis/het mean	0.499	0.060	0.063	0.323
Share + Share*LGBTQ	0.069	0.112	0.156	0.067
	(0.043)	(0.097)	(0.098)	(0.042)
Share + Share*Uncertain	0.032	0.051	-0.143*	0.051
	(0.030)	(0.075)	(0.075)	(0.035)

Note: This table shows the results from the linear peer effects specification for school experience outcomes. Outcomes are indicators for reporting not experiencing any type of bullying, a standardized count of the number of types of bullying a student reports experiencing, the school belonging index, and an indicator for strongly agreeing that LGBTQ students are accepted at their school. The specification and sample are otherwise the same as Table 5. The final two rows show the implied effect of increasing the share LGBTQ by 10pp for LGBTQ and uncertain students, respectively. Standard errors that are clustered by cohort. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 7: Linear peer effects specification: Daily attendance and school and district retention

	Daily attendance	Chronically absent	New school next year	Leaves district next year
	(1)	(2)	(3)	(4)
Heterogeneous peer effects:				
Share LGBTQx10	-0.001	0.019*	-0.001	-0.007
	(0.002)	(0.011)	(0.015)	(0.009)
Share LGBTQx10 * LGBTQ	0.001	0.032	0.008	-0.020
	(0.008)	(0.040)	(0.032)	(0.026)
Share LGBTQx10 * Uncertain	-0.004	0.009	0.006	0.022
	(0.005)	(0.023)	(0.021)	(0.018)
Share LGBTQx10 * SOGI not known	-0.004	0.004	0.003	-0.006
	(0.003)	(0.014)	(0.015)	(0.011)
Main effects:				
LGBTQ	-0.001	-0.001	0.009	0.023
	(0.004)	(0.023)	(0.020)	(0.017)
Uncertain	0.001	-0.009	0.005	-0.008
	(0.003)	(0.014)	(0.013)	(0.010)
SOGI not known	0.001	0.016*	0.025**	0.027***
	(0.002)	(0.010)	(0.010)	(0.008)
N	56,112	56,112	51,204	56,889
Cis/het mean	0.946	0.147	0.089	0.063
Share + Share*LGBTQ	-0.000	0.051	0.006	-0.027
	(0.008)	(0.041)	(0.035)	(0.026)
Share + Share*Uncertain	-0.005	0.028	0.005	0.015
	(0.005)	(0.023)	(0.023)	(0.017)

Note: This table shows the results from the linear peer effects specification for attendance and retention outcomes. Outcomes are the share of days of the year in which the student was present (daily attendance), an indicator for having a daily attendance rate under 92 percent, an indicator for moving to a new school within the district for 10th grade, and an indicator for leaving the district in 10th grade. The specification is otherwise the same as Table 5. The sample differs: these administrative outcomes are observed for all students (not just those who took the SES) but are only available in 2018 and 2019, so the youngest cohort is dropped. The final two rows show the implied effect of increasing the share LGBTQ by 10pp for LGBTQ and uncertain students, respectively. Standard errors that are clustered by cohort. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

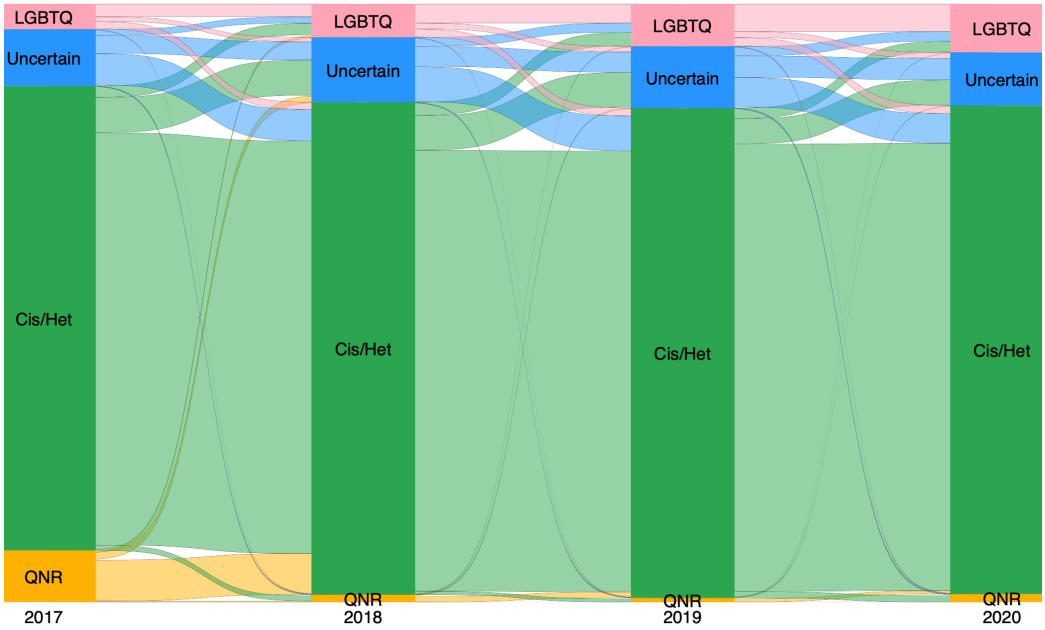
Online Appendix: LGBTQ Identity in Adolescence and the Peer Effects of Coming Out

Hannah Ruebeck

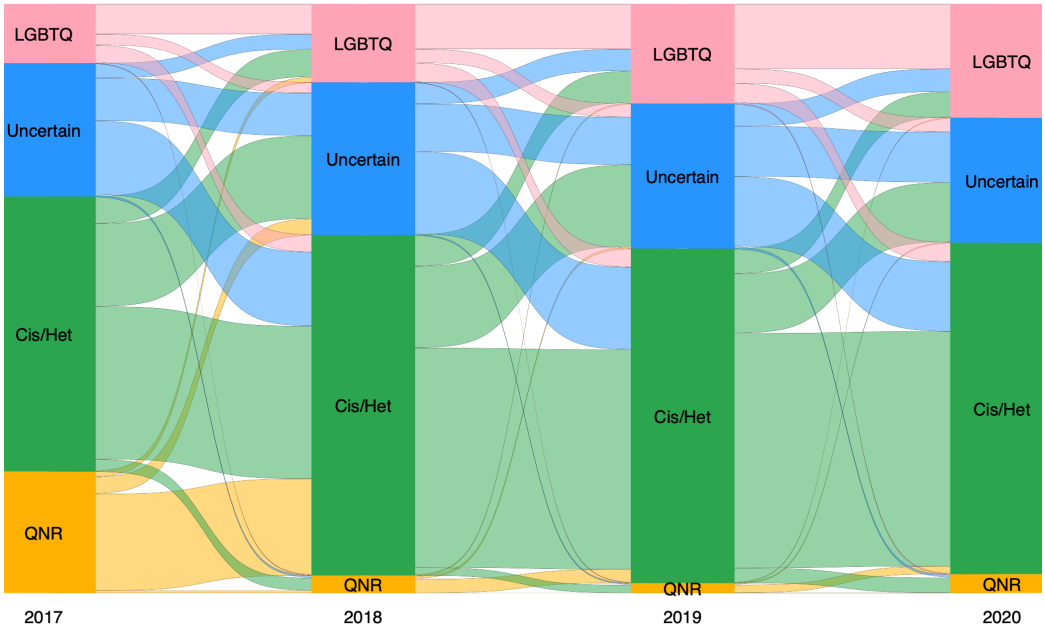
Appendix A contains supplementary tables and figures.

A Supplementary tables and figures

Figure A1: Visualizing SOGI flows
Panel A: Full sample

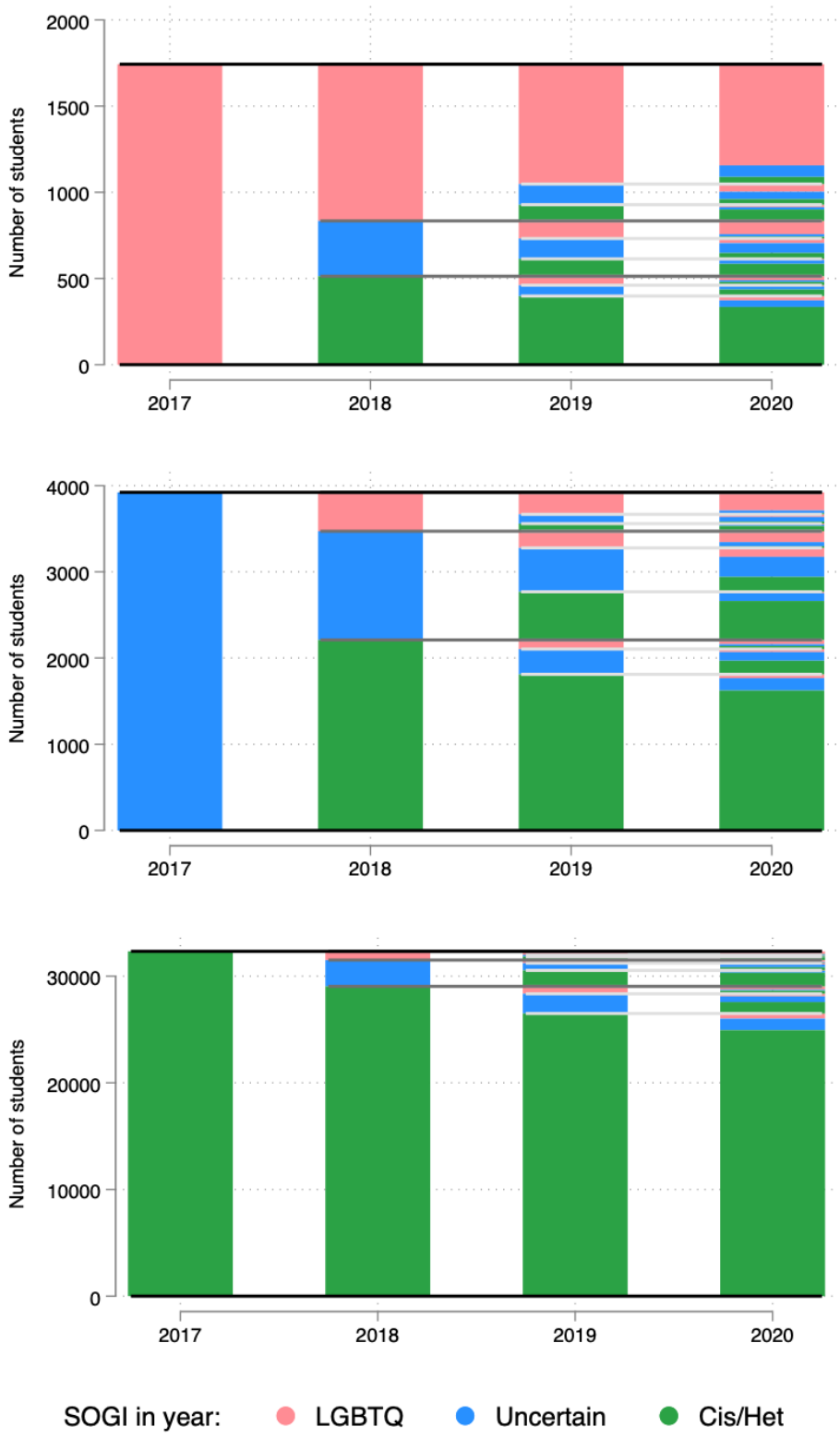


Panel B: Excluding always Cis/Het



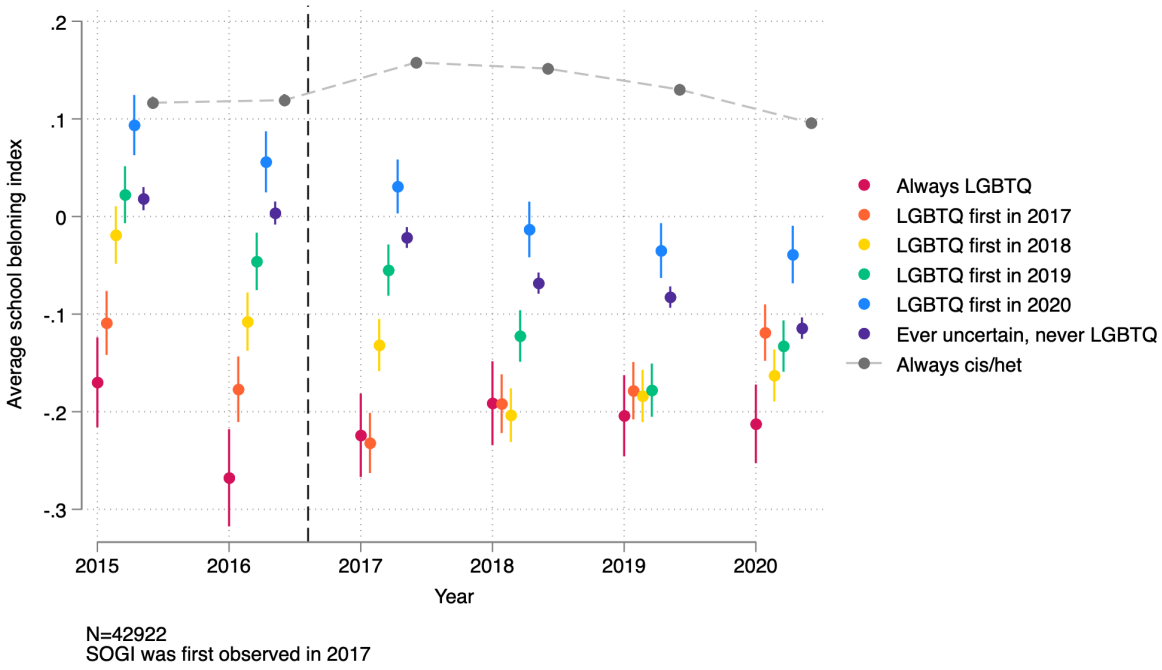
Note: This figure visualizes the average flows in and out of each SOGI identification from year to year using a Sankey plot. Panel A includes all students in the panel fluidity sample who took the SES in all four years (see Section 3.3.1). Panel B excludes students who identify as Cis/Het in all four years. In 2017 and 2018, students are considered "uncertain" if they answered "I don't know" to the SOGI question; in 2019 the option "I prefer not to answer" was added and these students are additionally categorized as "uncertain." QNR indicates question non-response.

Figure A2: SOGI changes in consistent ways over time



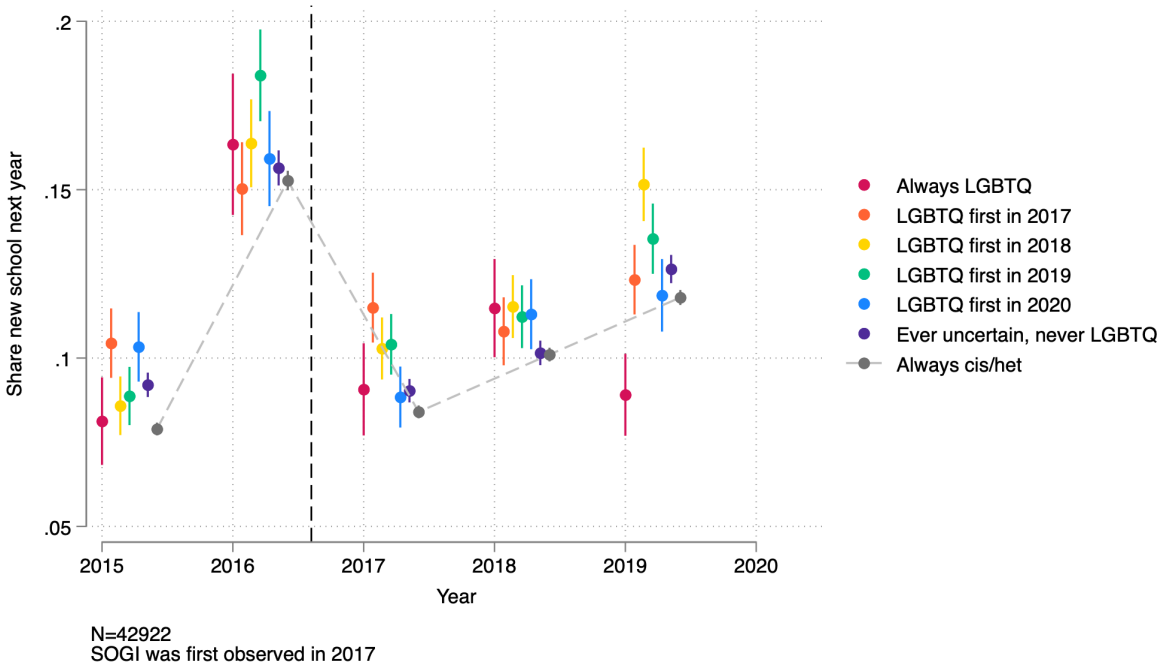
Note: This figure visualizes the flows in and out of each SOGI identification for students over the four-year sample. The sample is all students in the panel fluidity sample who took the SES in all four years (see Section 3.3.1) and identified as LGBTQ, were uncertain of their SOGI, or identified as Cis/Het in 2017. In 2017 and 2018, "uncertain" indicates answering "I don't know" to the SOGI question; in 2019 the option "I prefer not to answer" was added and "uncertain" indicates choosing either option. The first panel is students who identified as LGBTQ in 2017. Those who continue to identify as LGBTQ in 2018 continue to be plotted in pink; those who are uncertain are instead represented in blue, and those who begin identifying as Cis/Het are instead represented in blue. This continues in each year, with the light gray lines splitting the sample based on how they identified in the previous year. Panels B and C are analogous for students who were uncertain of their SOGI or identified as Cis/Het in 2017, respectively.

Figure A3: School belonging gaps accounting for fluid SOGI by age



Note: This figure shows how students' reports of school belonging vary in each year based on the year in which they begin identifying as LGBTQ; it is analogous to Figure 2 but shows gaps in the school belonging index rather than bullying rates. The spikes plot one standard error upper and lower deviations from the mean.

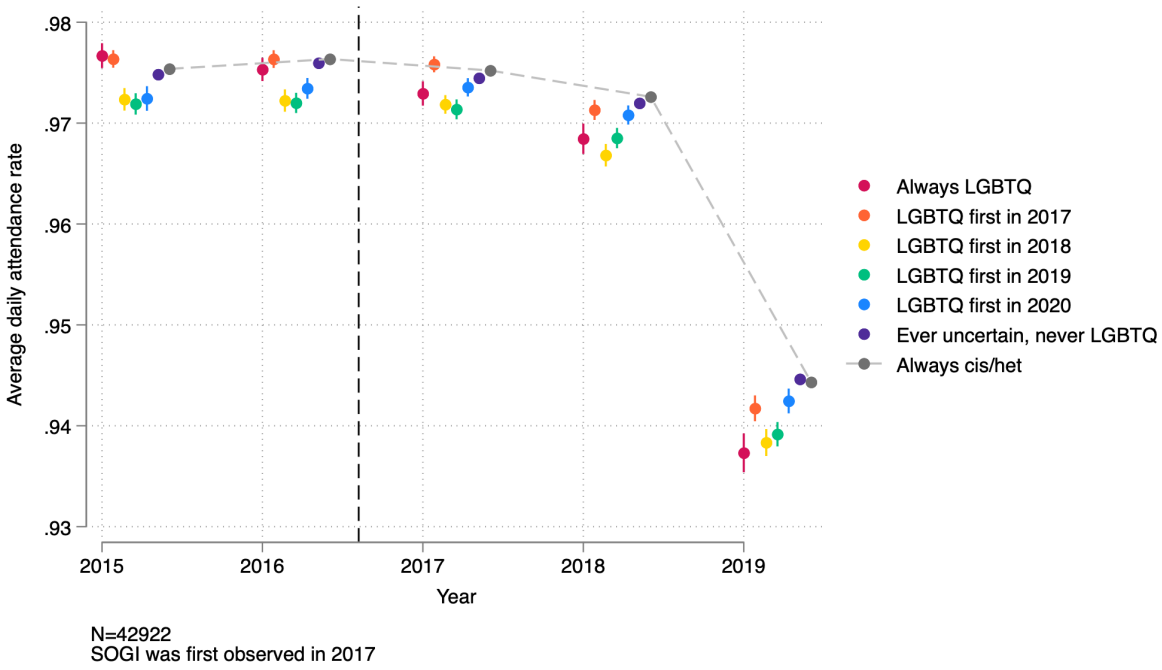
Figure A4: Gaps in school retention in the following year accounting for fluid SOGI



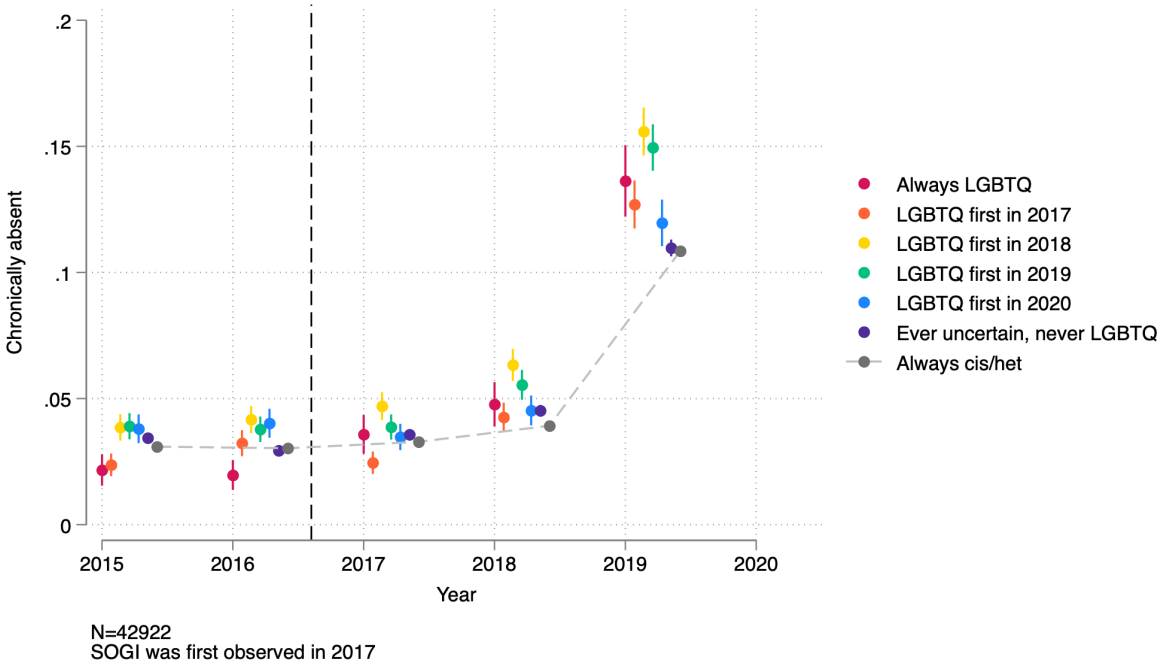
Note: This figure shows how students' likelihood of moving to a new school varies in each year based on the year in which they begin identifying as LGBTQ; it is analogous to Figure 2 but shows gaps in school retention rather than bullying rates. This can only be calculated through 2019. The spikes plot one standard error upper and lower deviations from the mean.

Figure A5: Gaps in attendance rates accounting for fluid SOGI

Panel A: Daily attendance rates

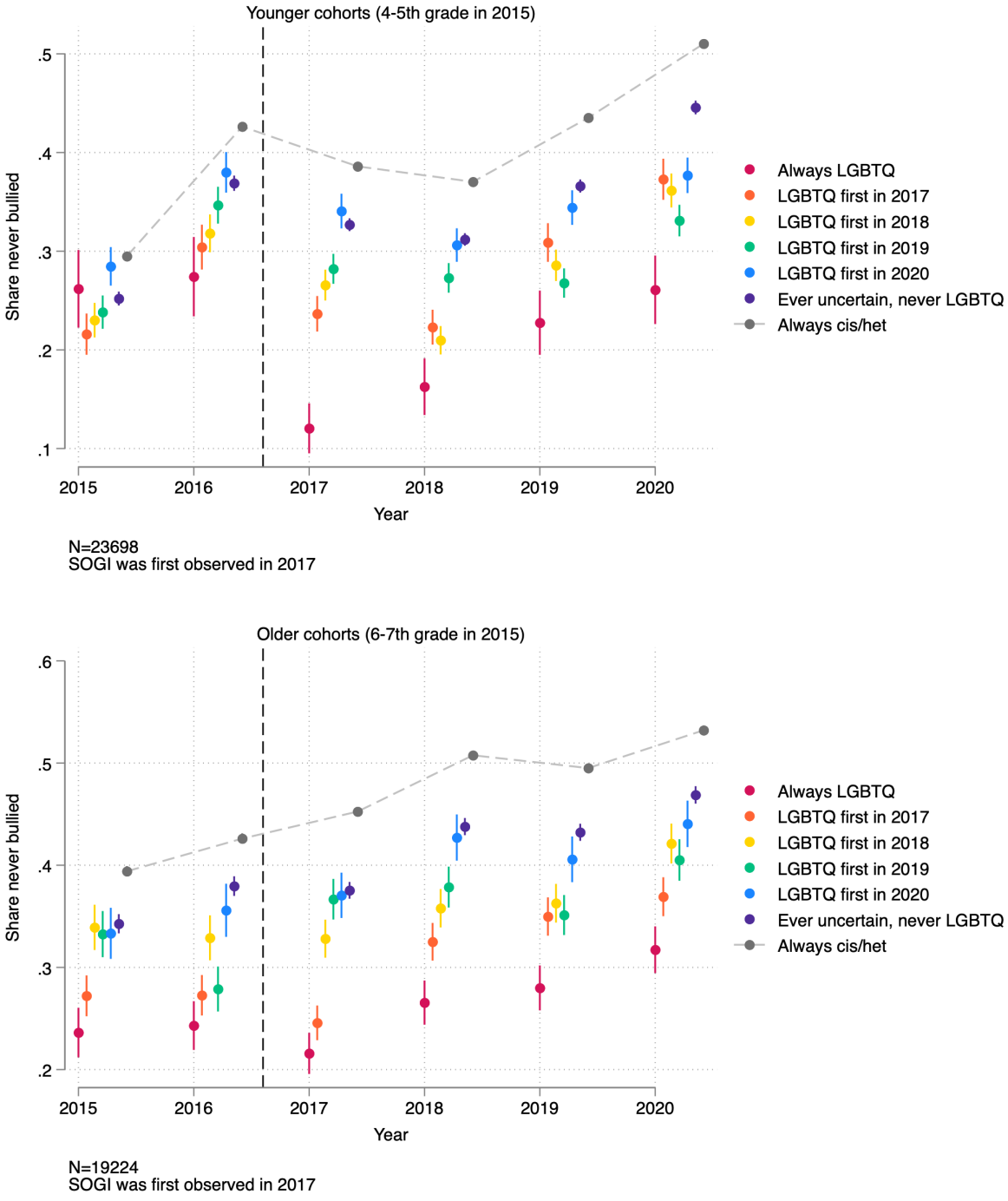


Panel B: Chronic absenteeism



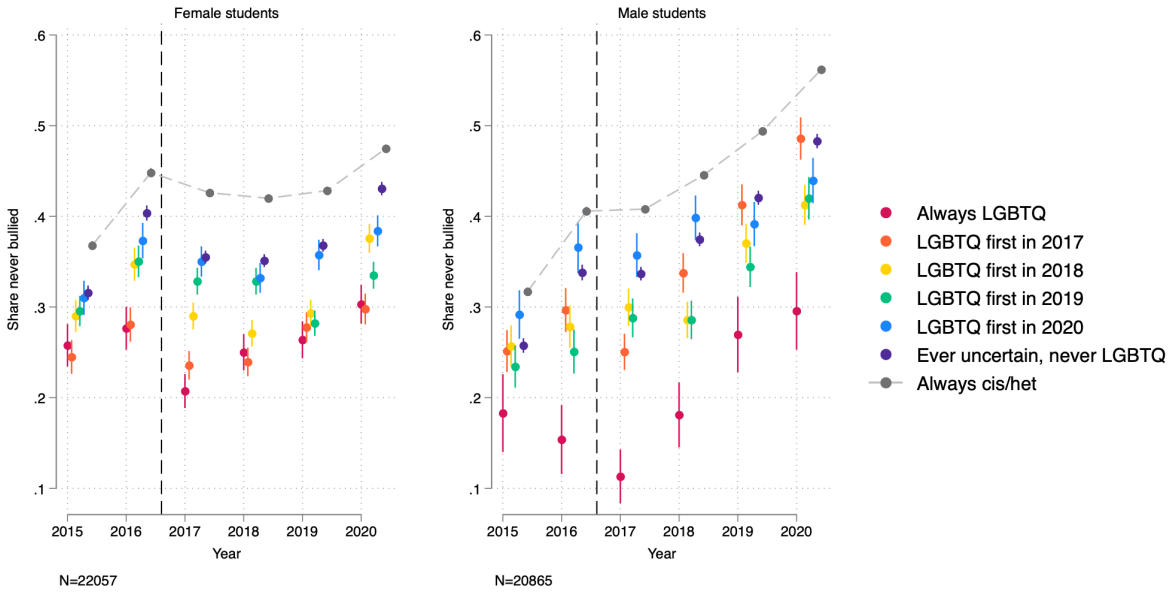
Note: This figure shows how students' attendance at school varies in each year based on the year in which they begin identifying as LGBTQ; it is analogous to Figure 2 but shows gaps in attendance rates rather than bullying. This is only be calculated through 2019 due to the Covid-19 pandemic. Panel A shows gaps in daily attendance rates and Panel B shows gaps in an indicator for having daily attendance below 92 percent (the district's definition of chronic absenteeism). The spikes plot one standard error upper and lower deviations from the mean.

Figure A6: Bullying gaps accounting for fluid SOGI by age



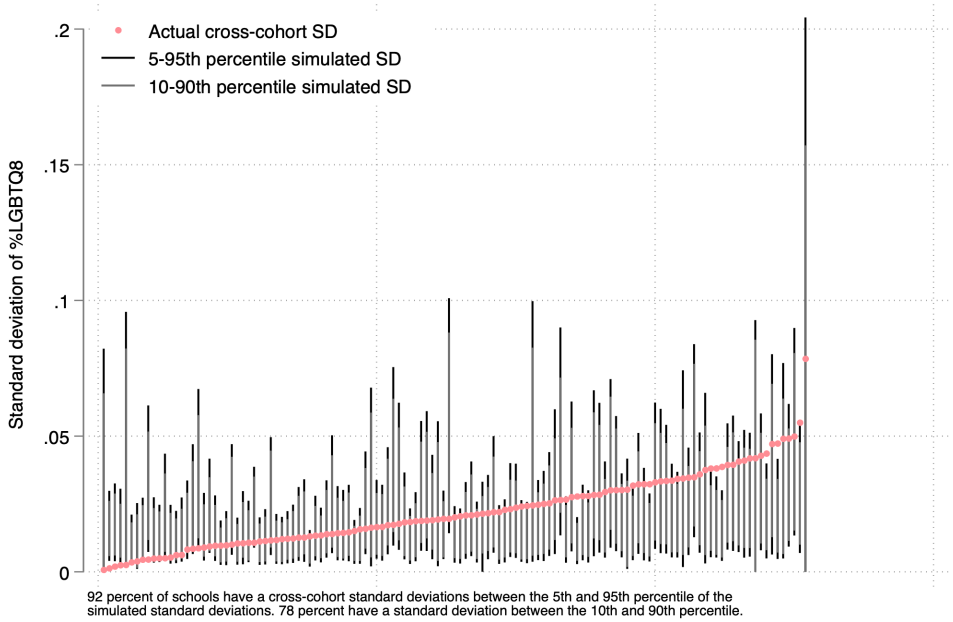
Note: This figure replicates Figure 2 separately for students who were in 6th or 7th grade in 2017 and those who were in 8th or 9th grade. The spikes plot one standard error upper and lower deviations from the mean.

Figure A7: Bullying gaps accounting for fluid SOGI by gender

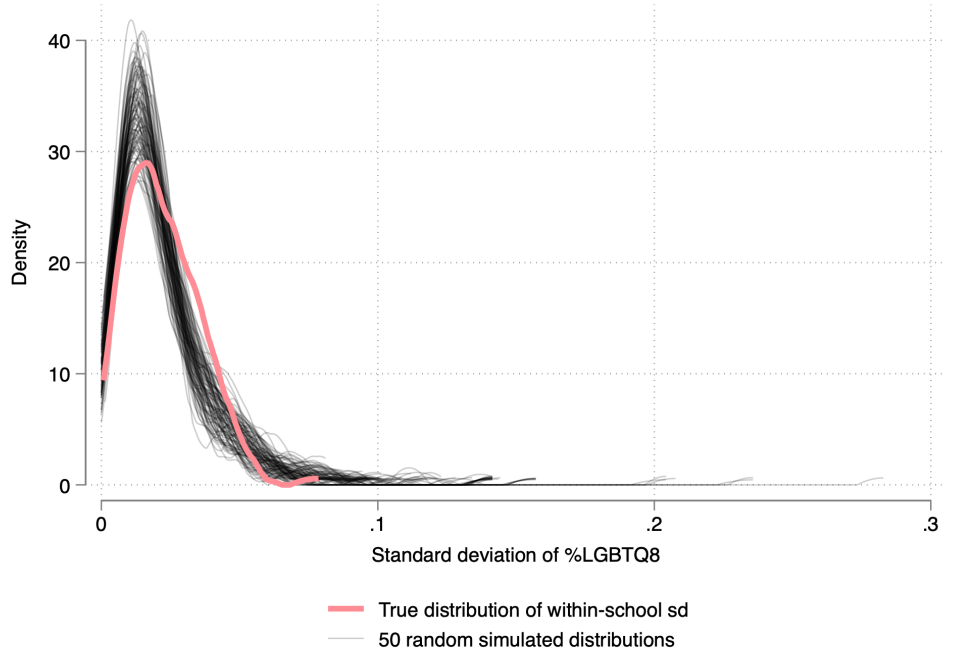


Note: This figure replicates Figure 2 separately for male and female students. The spikes plot one standard error upper and lower deviations from the mean.

Figure A8: Comparing real and simulated within-school standard deviations in the share LGBTQ
Panel A: Comparing true within-school variation to the school-level empirical distribution with random %LGBTQ8

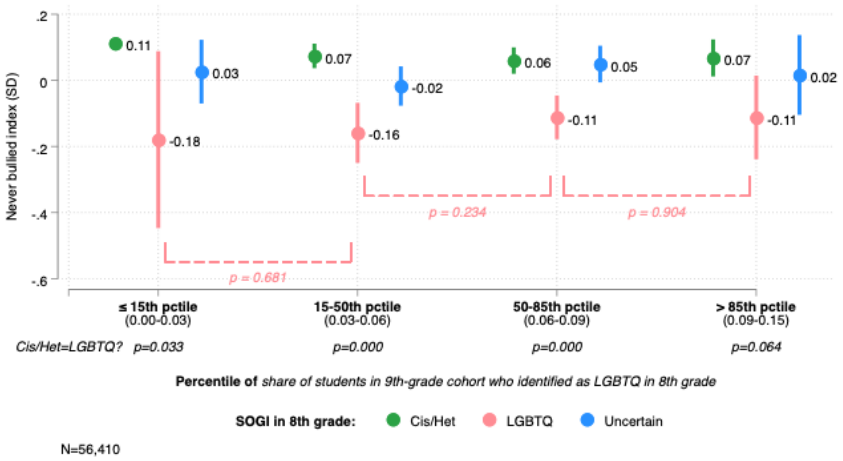


Panel B: Comparing true cross-school distribution of within-school variation to 50 simulated distributions



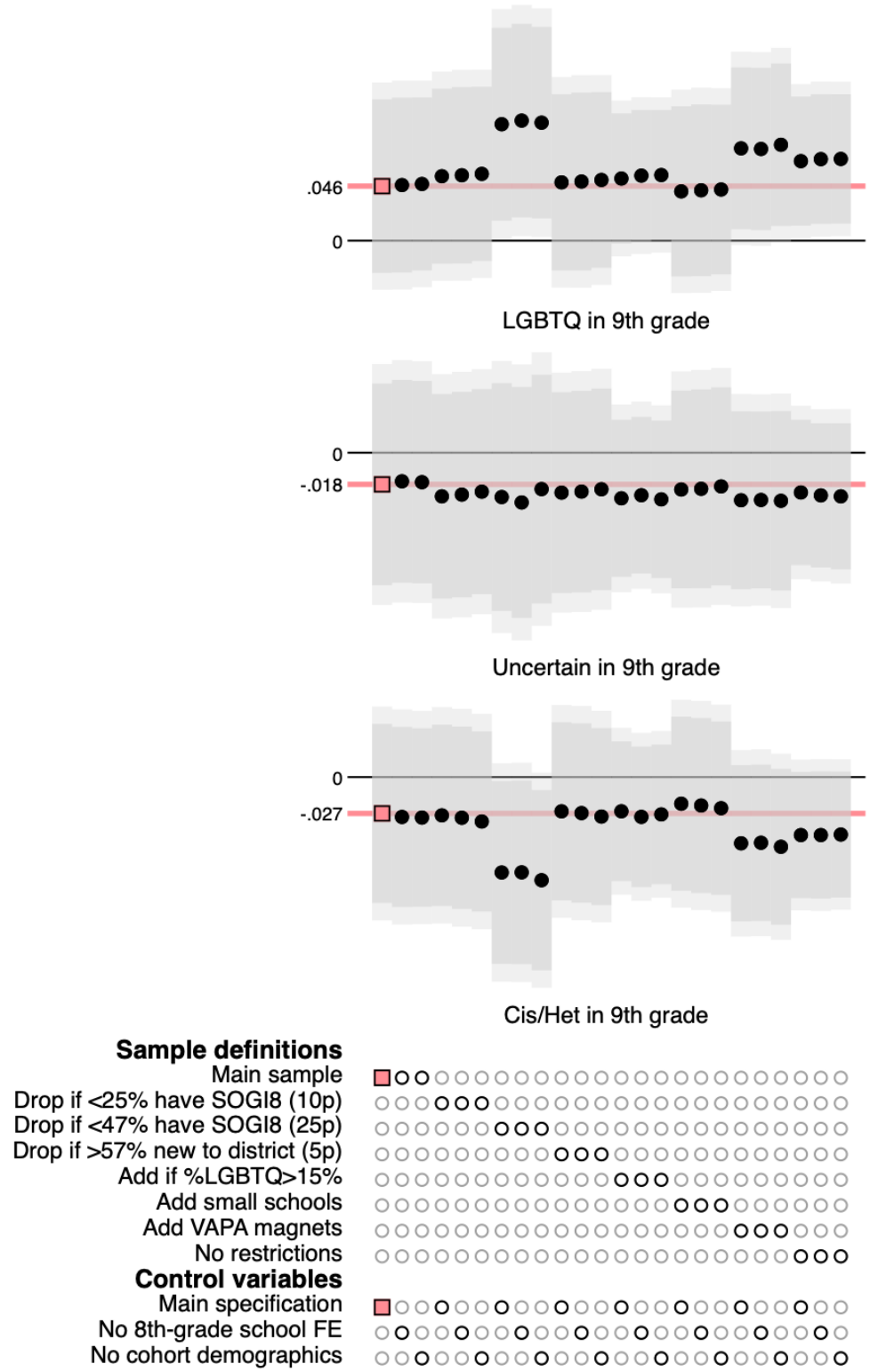
Note: This figure compares the observed within-school, cross-cohort standard deviations in the share LGBTQ to simulated distributions of the same statistic when students are randomly assigned to be LGBTQ or not when being LGBTQ is assumed to be binomially distributed with a mean equal to the observed school average share LGBTQ. Panel A compares the true cross-cohort standard deviation in the share LGBTQ observed in each school (ranked across the x-axis by the size of the observed standard deviation) to the empirical distribution of within-school cross-cohort variation from 1,000 iterations of the Monte Carlo procedure just described. Panel B compares the observed cross-school distribution of within-school, cross-cohort standard deviations to the same distribution using the first 50 of the random simulations.

Figure A9: How having LGBTQ peers affects bullying (index)



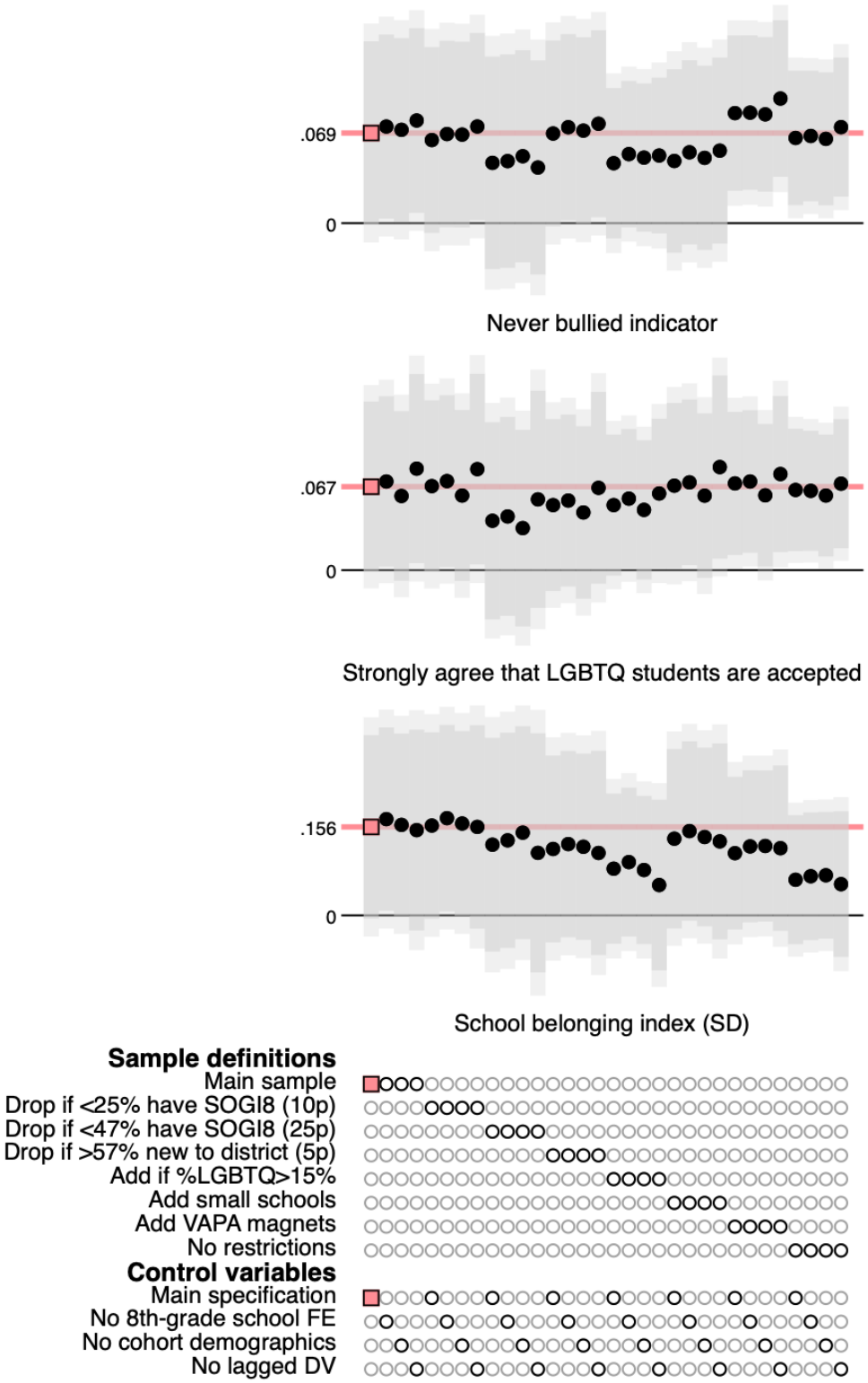
Note: This figure plots the results from the non-parametric specification when the outcome is the index of the types of bullying experienced. The sample, specification, and plotted fitted values are otherwise equivalent to Figure 5. The figure includes 95-percent confidence intervals, which are calculated from standard errors that are clustered by cohort. *p*-values testing whether there is an effect of increasing the share LGBTQ from 0-3 to 3-6, 3-6 to 6-9, or 6-9 to 9-15 are calculated using the estimates from the same regression. *p*-values testing whether there is a Cis/Het-LGBTQ gap in each percentile bin are calculated using the estimates from the same regression and are provided below the horizontal axis.

Figure A10: Specification chart: 9th-grade SOGI



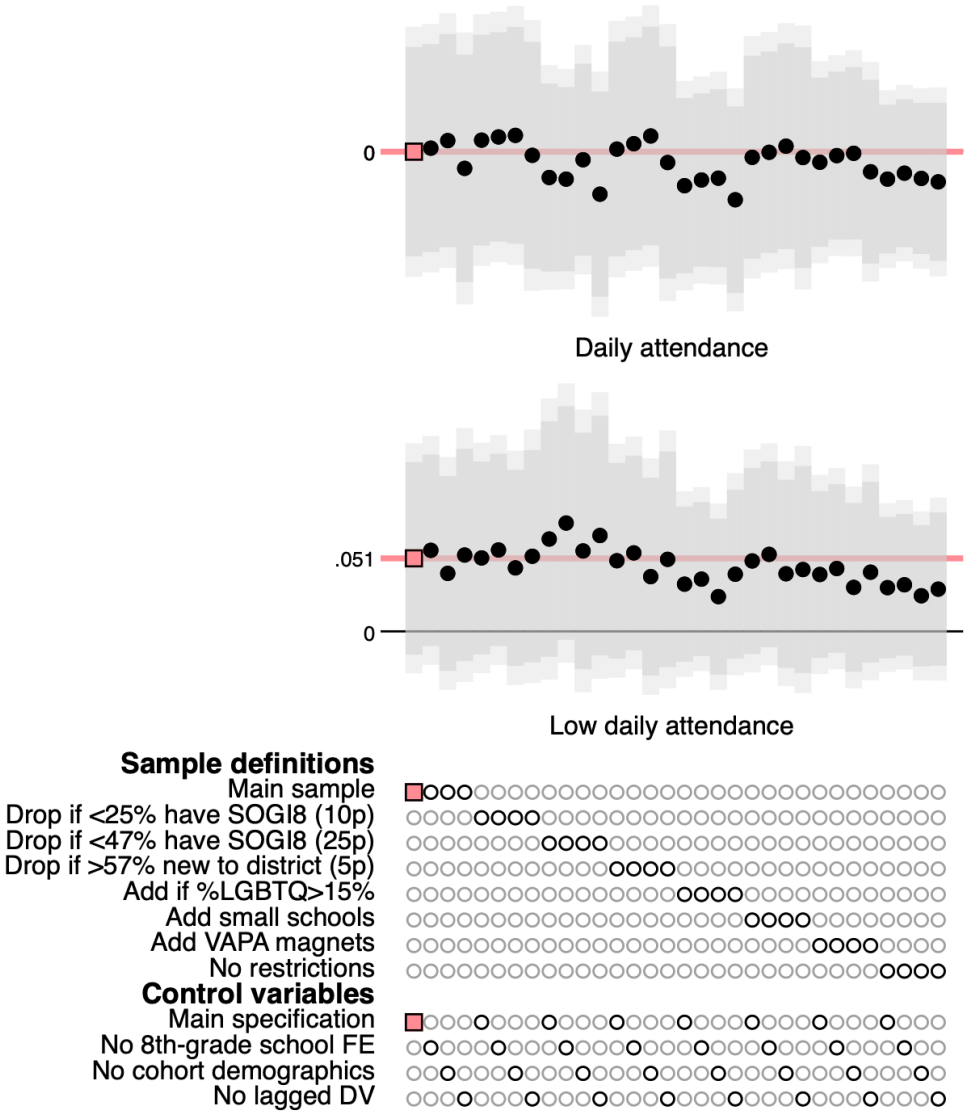
Note: This figure plots the estimated effect of having 10pp more LGBTQ students *for LGBTQ students* estimated in the linear specification when iterating over different choices of sample definitions and control variables for the 9th-grade SOGI outcomes. The main estimates are those in columns 1-3 of Table 5.

Figure A11: Specification chart: Bullying, belonging, and perceived acceptance



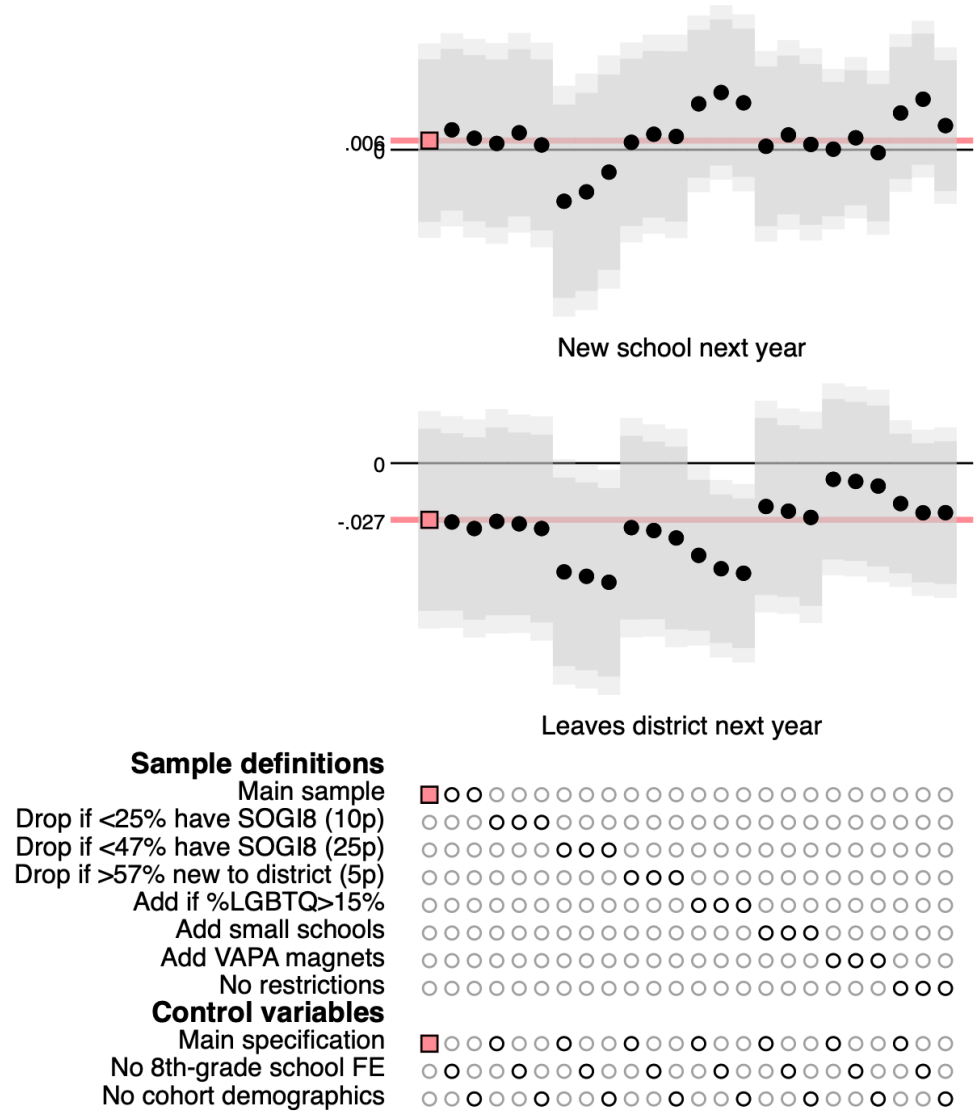
Note: This figure plots the estimated effect of having 10pp more LGBTQ students *for LGBTQ students* estimated in the linear specification when iterating over different choices of sample definitions and control variables for the school experience outcomes. The main estimates are those in columns 1, 3, and 4 of Table 6.

Figure A12: Specification chart: Attendance



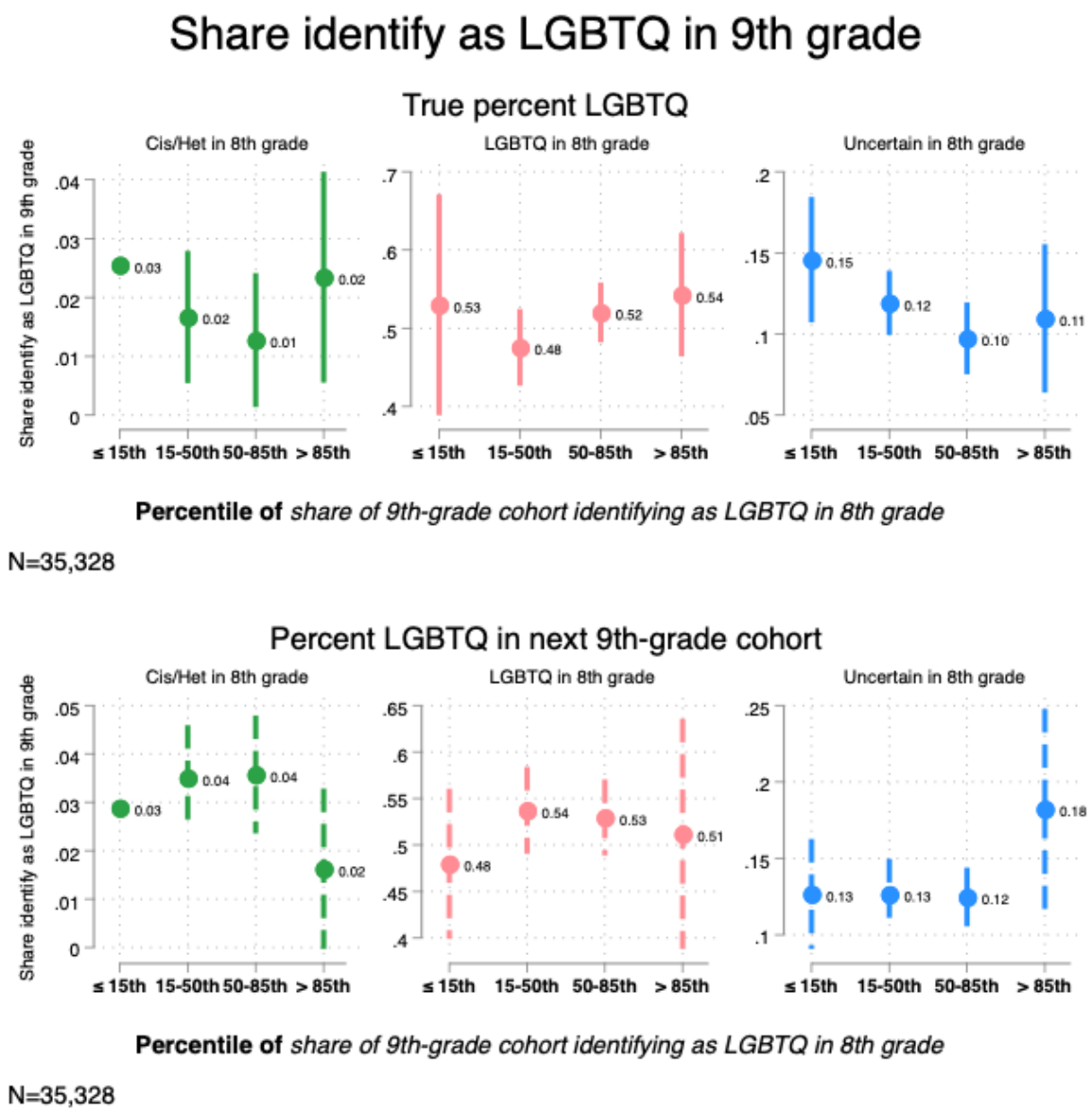
Note: This figure plots the estimated effect of having 10pp more LGBTQ students *for LGBTQ students* estimated in the linear specification when iterating over different choices of sample definitions and control variables for the daily attendance outcomes. The main estimates are those in columns 1 and 2 of Table 7.

Figure A13: Specification chart: District and school retention



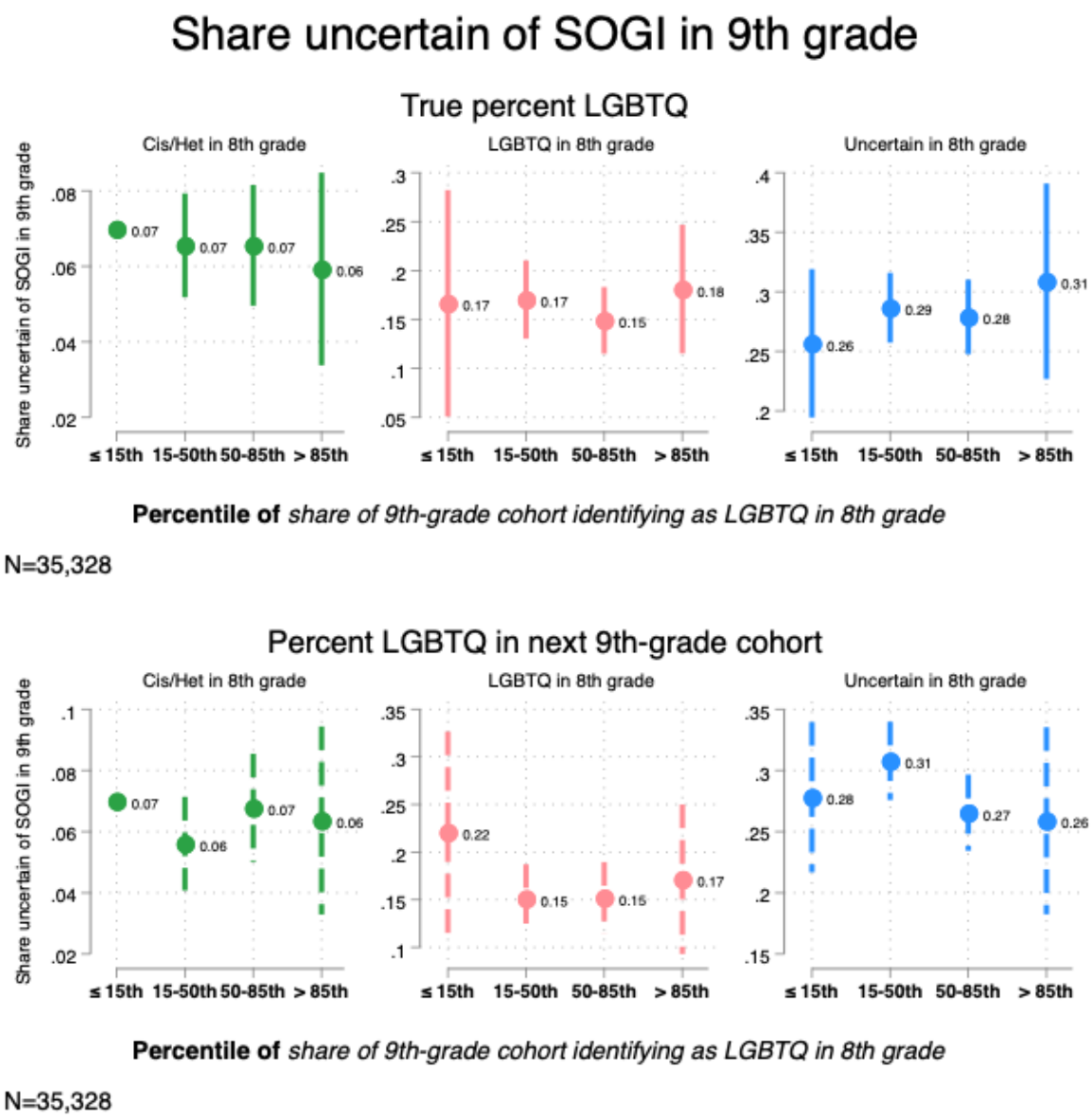
Note: This figure plots the estimated effect of having 10pp more LGBTQ students *for LGBTQ students* estimated in the linear specification when iterating over different choices of sample definitions and control variables for the school and district retention outcomes. The main estimates are those in columns 3 and 4 of Table 7.

Figure A14: Placebo test: Identifying as LGBTQ in 9th grade



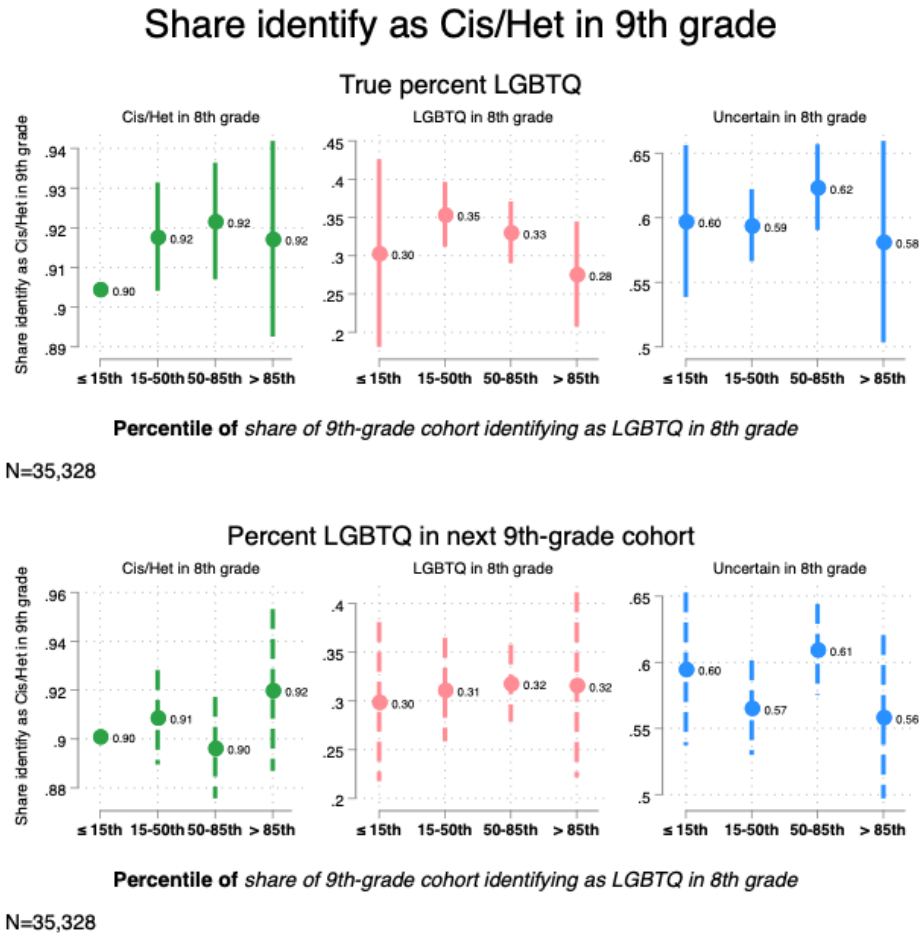
Note: This figure provides a placebo test for the effects of having more 9th-grade peers who identified as LGBTQ in 8th grade on an indicator for identifying as LGBTQ in 9th grade, separately by students' 8th-grade SOGI. The first panel replicates the main results using the non-parametric specification for the two older cohorts (in 9th grade in 2018 and 2019) as these are the cohorts that can be included in the placebo test. In the second panel, the share LGBTQ in a student's own cohort (school x 9th-grade year) is replaced by the share LGBTQ in the *next* 9th grade class at the same school one year later. The specification and sample is otherwise the same as in the first panel in Figure 4. 95 percent confidence intervals are calculated using standard errors that are clustered by cohort.

Figure A15: Placebo test: Uncertain of SOGI in 9th grade



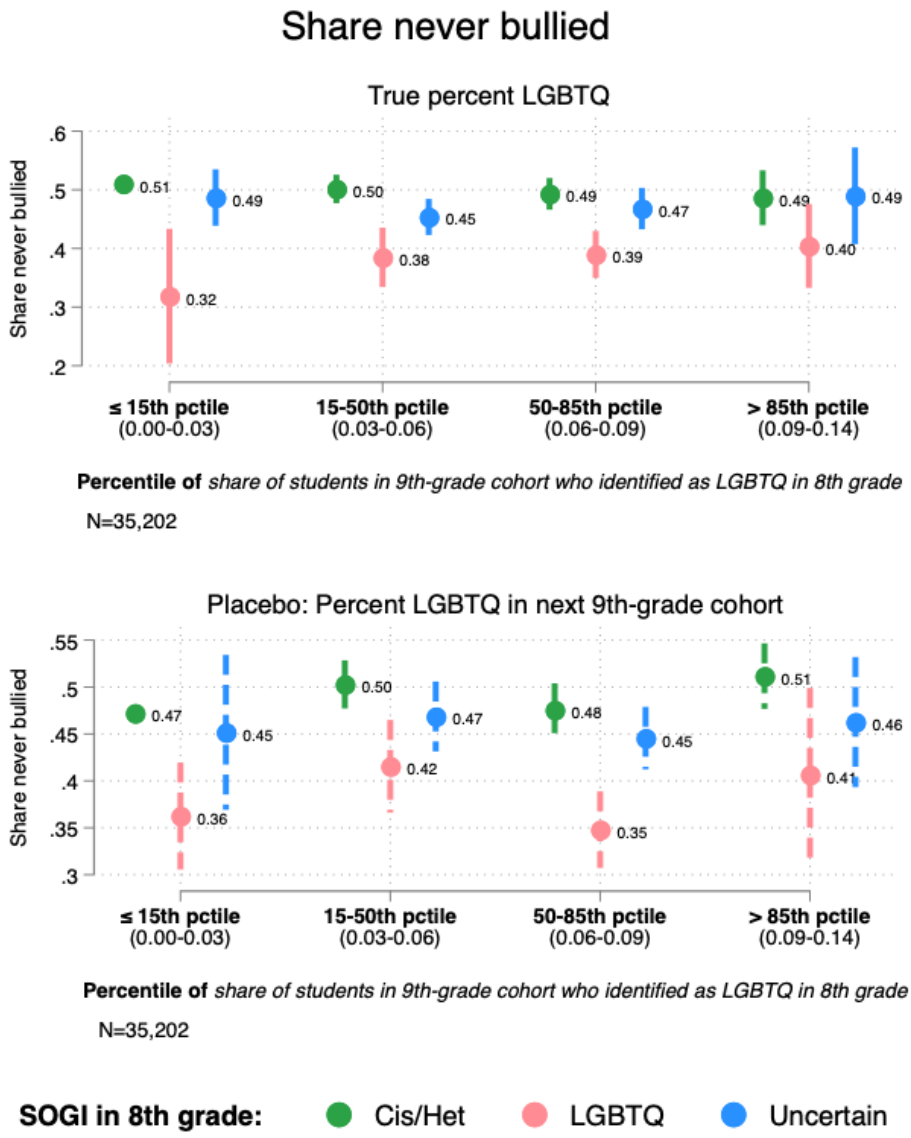
Note: This figure provides a placebo test for the effects of having more 9th-grade peers who identified as LGBTQ in 8th grade on an indicator for being uncertain of one's SOGI in 9th grade, separately by students' 8th-grade SOGI. The first panel replicates the main results using the non-parametric specification for the two older cohorts (in 9th grade in 2018 and 2019) as these are the cohorts that can be included in the placebo test. In the second panel, the share LGBTQ in a student's own cohort (school x 9th-grade year) is replaced by the share LGBTQ in the *next* 9th grade class at the same school one year later. The specification and sample is otherwise the same as in the second panel in Figure 4. 95 percent confidence intervals are calculated using standard errors that are clustered by cohort.

Figure A16: Placebo test: Identify as Cis/Het in 9th grade



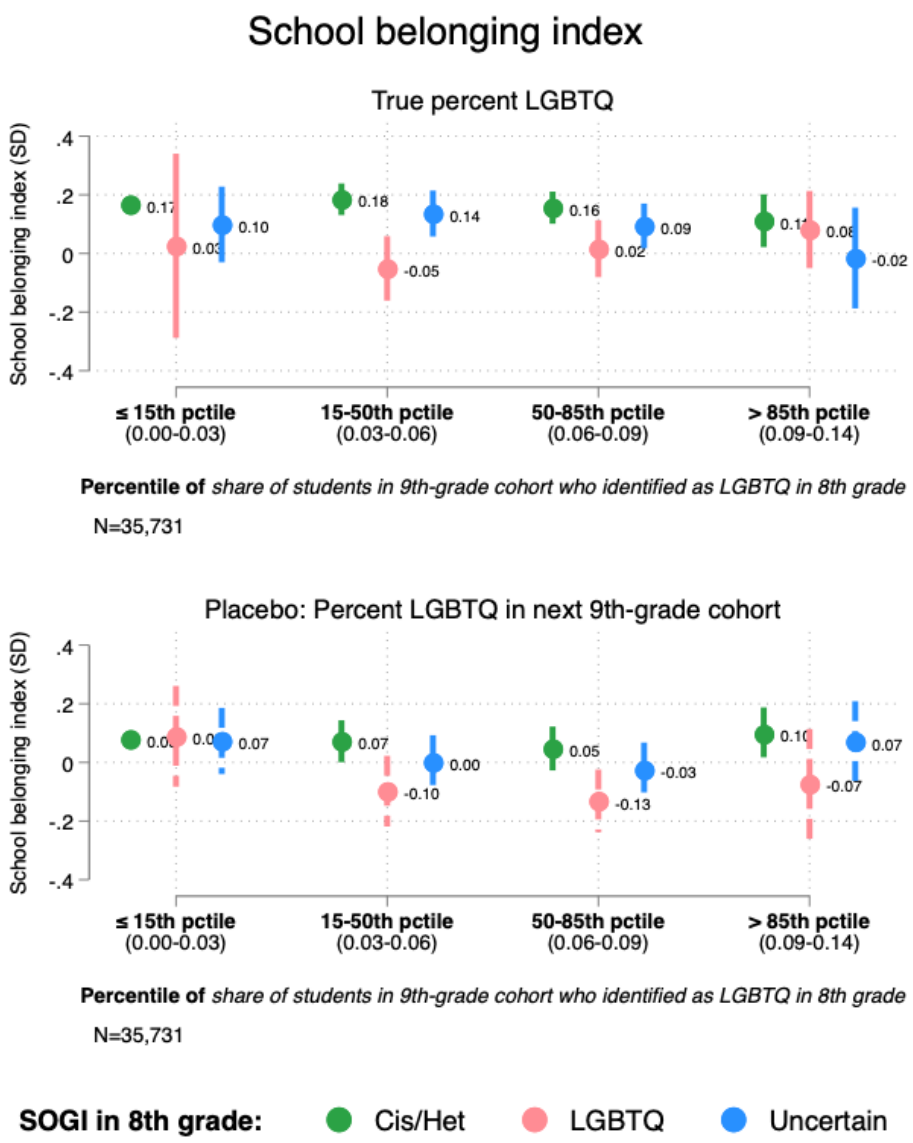
Note: This figure provides a placebo test for the effects of having more 9th-grade peers who identified as LGBTQ in 8th grade on an indicator for identifying as Cis/Het in 9th grade, separately by students' 8th-grade SOGI. The first panel replicates the main results using the non-parametric specification for the two older cohorts (in 9th grade in 2018 and 2019) as these are the cohorts that can be included in the placebo test. In the second panel, the share LGBTQ in a student's own cohort (school x 9th-grade year) is replaced by the share LGBTQ in the *next* 9th grade class at the same school one year later. The specification and sample is otherwise the same as in the third panel in Figure 4. 95 percent confidence intervals are calculated using standard errors that are clustered by cohort.

Figure A17: Placebo test: Bullying



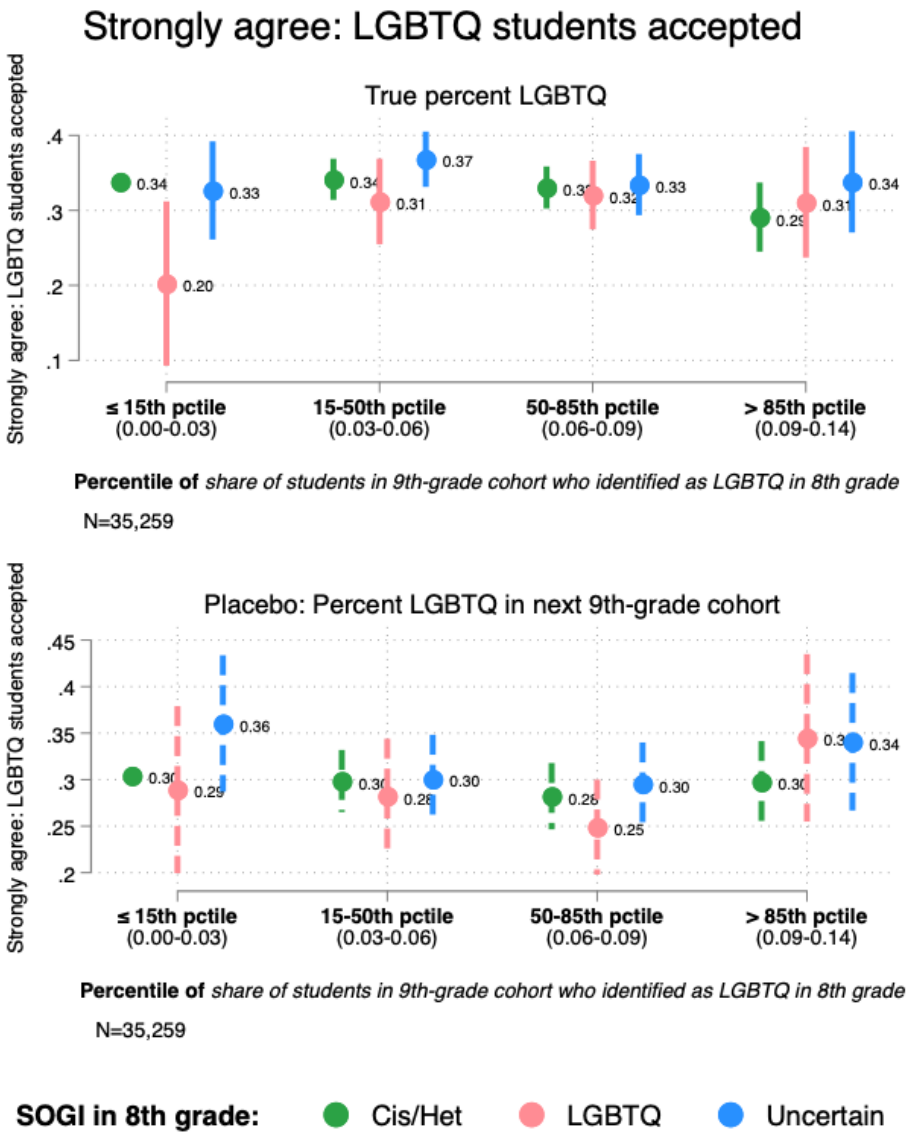
Note: This figure provides a placebo test for the effects of having more 9th-grade peers who identified as LGBTQ in 8th grade on an indicator for never being bullied in 9th grade, separately by students' 8th-grade SOGI. The first panel replicates the main results using the non-parametric specification for the two older cohorts (in 9th grade in 2018 and 2019) as these are the cohorts that can be included in the placebo test. In the second panel, the share LGBTQ in a student's own cohort (school x 9th-grade year) is replaced by the share LGBTQ in the *next* 9th grade class at the same school one year later. The specification and sample is otherwise the same as in Panel A of Figure 5. 95 percent confidence intervals are calculated using standard errors that are clustered by cohort.

Figure A18: Placebo test: Belonging



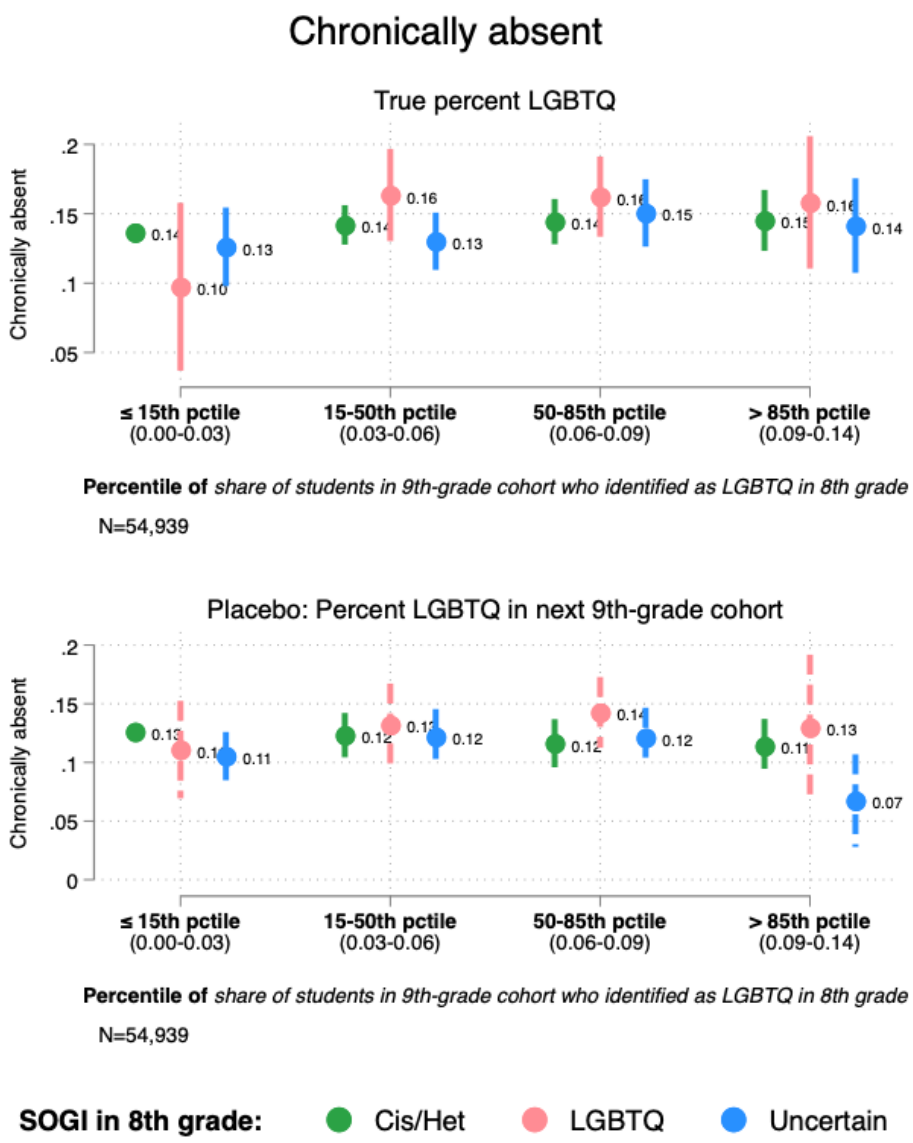
Note: This figure provides a placebo test for the effects of having more 9th-grade peers who identified as LGBTQ in 8th grade on the index of school belonging in 9th grade, separately by students' 8th-grade SOGI. The first panel replicates the main results using the non-parametric specification for the two older cohorts (in 9th grade in 2018 and 2019) as these are the cohorts that can be included in the placebo test. In the second panel, the share LGBTQ in a student's own cohort (school x 9th-grade year) is replaced by the share LGBTQ in the *next* 9th grade class at the same school one year later. The specification and sample is otherwise the same as in Figure 6. 95 percent confidence intervals are calculated using standard errors that are clustered by cohort.

Figure A19: Placebo test: Perceived LGBTQ acceptance



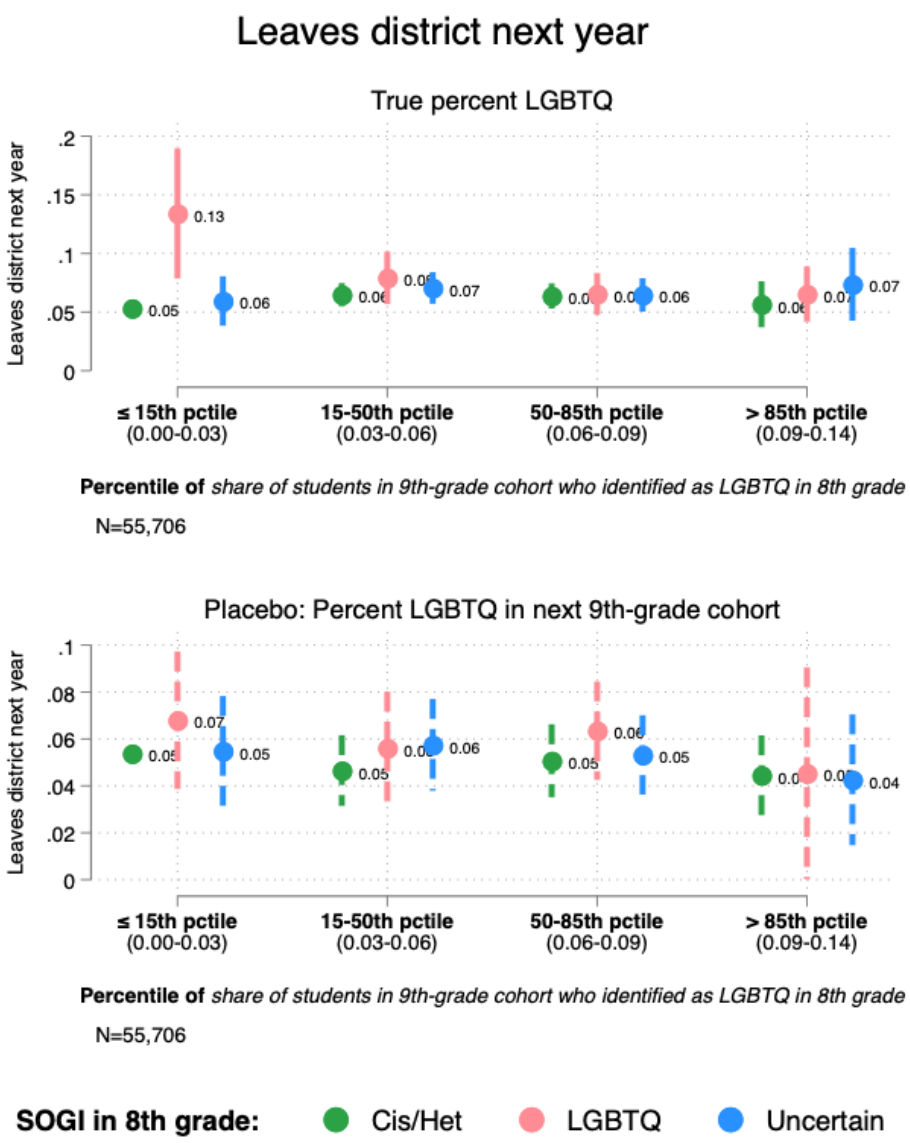
Note: This figure provides a placebo test for the effects of having more 9th-grade peers who identified as LGBTQ in 8th grade on an indicator for strongly agreeing that LGBTQ students are accepted, separately by students' 8th-grade SOGI. The first panel replicates the main results using the non-parametric specification for the two older cohorts (in 9th grade in 2018 and 2019) as these are the cohorts that can be included in the placebo test. In the second panel, the share LGBTQ in a student's own cohort (school x 9th-grade year) is replaced by the share LGBTQ in the *next* 9th grade class at the same school one year later. The specification and sample is otherwise the same as in Panel B of Figure 5. 95 percent confidence intervals are calculated using standard errors that are clustered by cohort.

Figure A20: Placebo test: Chronic absenteeism



Note: This figure provides a placebo test for the effects of having more 9th-grade peers who identified as LGBTQ in 8th grade on chronic absenteeism in 9th grade, separately by students' 8th-grade SOGI. The first panel replicates the main results. In the second panel, the share LGBTQ in a student's own cohort (school x 9th-grade year) is replaced by the share LGBTQ in the *next* 9th grade class at the same school one year later. The specification and sample is otherwise the same as in Figure 7. 95 percent confidence intervals are calculated using standard errors that are clustered by cohort.

Figure A21: Placebo test: Leave district next year



Note: This figure provides a placebo test for the effects of having more 9th-grade peers who identified as LGBTQ in 8th grade on chronic absenteeism in 9th grade, separately by students' 8th-grade SOGI. The first panel replicates the main results. In the second panel, the share LGBTQ in a student's own cohort (school x 9th-grade year) is replaced by the share LGBTQ in the *next* 9th grade class at the same school one year later. The specification and sample is otherwise the same as in Figure 8. 95 percent confidence intervals are calculated using standard errors that are clustered by cohort.

Table A1: Male-Female and LGBTQ-Cis/Het gaps in 9th grade outcomes

	Female students			Male students			LGBTQ
	Cis/Het	LGBTQ	SOGI Gap	Cis/Het	LGBTQ	SOGI Gap	M-F gap
	(1)	(2)	(1)-(2)	(3)	(4)	(3)-(4)	(2)-(4)
LGBTQ in 9th grade	0.033	0.630	-0.597***	0.019	0.330	-0.311***	0.300***
Uncertain in 9th grade	0.081	0.184	-0.103***	0.061	0.196	-0.135***	-0.012
Cis/Het in 9th grade	0.886	0.186	0.700***	0.920	0.474	0.446***	-0.288***
Never bullied	0.470	0.290	0.180***	0.526	0.366	0.160***	-0.076***
Never hit/pushed	0.878	0.790	0.088***	0.832	0.710	0.122***	0.080***
Never rumors spread	0.680	0.587	0.093***	0.749	0.605	0.144***	-0.018
Never teased about the way you talk	0.722	0.539	0.183***	0.752	0.616	0.136***	-0.077***
Never made fun of your body	0.732	0.590	0.142***	0.766	0.667	0.099***	-0.076***
Never bullied online	0.924	0.840	0.084***	0.945	0.871	0.074***	-0.030*
Never sexual jokes/gestures	0.747	0.584	0.163***	0.794	0.663	0.132***	-0.079***
School belonging index	0.044	-0.298	0.342***	0.081	-0.131	0.212***	-0.167***
Adults respect/help index	0.016	-0.159	0.175***	0.075	-0.071	0.146***	-0.088**
LGBTQ accepted (strong agree)	0.363	0.364	-0.001	0.287	0.305	-0.018	0.060***
Daily attendance rate	0.947	0.938	0.010***	0.945	0.939	0.006**	-0.001
Chronically absent	0.143	0.194	-0.050***	0.151	0.194	-0.043***	-0.000
New school next year	0.089	0.110	-0.021**	0.088	0.099	-0.011	0.011
Leave district next year	0.062	0.087	-0.024***	0.063	0.067	-0.004	0.020
N	19645	2039		22857	961		

Note: This table shows the average of each outcome variable separately by whether students identified as LGBTQ or Cis/Het in 8th grade and by sex for the main peer effects sample. The outcomes are the same as in Table 2, adding indicators for never experiencing each type of bullying as these may differ substantially by sex. Gaps in outcomes between Cis/Het and LGBTQ students conditional on sex and between male and female LGBTQ students are also shown. ***, **, and * indicate statistically significant differences in outcomes at the 1, 5, and 10 percent confidence levels, respectively.

Table A2: Correlation between attendance and retention outcomes and survey measures of school experiences

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Attendance rate (mean: 93.6 percent)								
Never bullied (0/1)	0.13**	0.05	0.08*	–	–	–	–	–	–
	(0.06)	(0.06)	(0.05)						
Never bullied (Z)	–	–	–	0.16***	0.08**	0.07**	–	–	–
				(0.03)	(0.03)	(0.03)			
School belonging (Z)	–	–	–	–	–	–	0.47***	0.36***	0.31***
							(0.04)	(0.04)	(0.03)
N	35992	35992	35992	36301	36301	36301	36534	36534	36534
	Chronically absent (mean: 19.1 percent)								
Never bullied (0/1)	-0.67*	-0.20	-0.32	–	–	–	–	–	–
	(0.37)	(0.35)	(0.33)						
Never bullied (Z)	–	–	–	-0.69***	-0.27	-0.20	–	–	–
				(0.21)	(0.21)	(0.21)			
School belonging (Z)	–	–	–	–	–	–	-2.63***	-2.03***	-1.76***
							(0.23)	(0.22)	(0.20)
N	35992	35992	35992	36301	36301	36301	36534	36534	36534
	Leaves school next year (mean: 10.0 percent)								
Never bullied (0/1)	-1.91***	-1.80***	-1.75***	–	–	–	–	–	–
	(0.33)	(0.32)	(0.30)						
Never bullied (Z)	–	–	–	-1.10***	-1.03***	-0.95***	–	–	–
				(0.17)	(0.16)	(0.15)			
School belonging (Z)	–	–	–	–	–	–	-1.63***	-1.50***	-1.35***
							(0.18)	(0.18)	(0.14)
N	34249	34249	34249	34540	34540	34540	34755	34755	34755
	Leaves district next year (mean: 10.0 percent)								
Never bullied (0/1)	-0.76***	-0.67***	-0.58***	–	–	–	–	–	–
	(0.21)	(0.20)	(0.21)						
Never bullied (Z)	–	–	–	-0.50***	-0.47***	-0.42***	–	–	–
				(0.12)	(0.11)	(0.11)			
School belonging (Z)	–	–	–	–	–	–	-0.82***	-0.71***	-0.68***
							(0.14)	(0.12)	(0.13)
N	35992	35992	35992	36301	36301	36301	36534	36534	36534
Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
School FE	No	No	Yes	No	No	Yes	No	No	Yes

Note: This table shows the relationships between the key survey measures of school belonging and bullying and the administrative outcomes of daily attendance, chronic absenteeism, and school and district retention. Each panel regresses a different administrative outcome on the never bullied indicator in columns 1-3, the never-bullied index (standardized counts of types of bullying experienced in columns 4-6, and the school belonging index in columns 7-9. The first specification includes no other controls, the second adds the individual-level demographic controls used in the main analysis, and the third column adds the year, 9th-grade school, and 8th-grade school fixed effects used in the main analysis. The sample is students in the peer effects sample who were in 9th grade in 2018 or 2019 (when the administrative outcomes can be measured) and who answered the SES (where the bullying and belonging outcomes can be measured). ***, **, and * indicate statistically significant correlations at the 1, 5, and 10 percent confidence levels, respectively.

Table A3: Comparing SOGI with and without fluidity (full sample)

	Fraction in the given year:				Ever	Always
	2017	2018	2019	2020	in Any Wave	in All Waves
Panel A: Full sample if ever in cohorts 6th-9th grade in 2017 (N=193,774)						
Cis/Het	0.459	0.404	0.423	0.422	0.747	0.129
LGBTQ	0.028	0.030	0.039	0.045	0.095	0.003
Uncertain	0.057	0.054	0.058	0.051	0.169	0.001
Q Non-Response	0.058	0.007	0.005	0.008	0.076	0.000
No Survey	0.215	0.287	0.227	0.183	0.608	0.014
Not in District	0.184	0.217	0.248	0.292	0.447	0.000
Panel B: If in-district all four years (N=107,140)						
Cis/Het	0.609	0.560	0.612	0.624	0.898	0.233
LGBTQ	0.036	0.040	0.056	0.065	0.125	0.005
Uncertain	0.076	0.076	0.082	0.073	0.227	0.002
Q Non-Response	0.073	0.009	0.007	0.012	0.098	0.000
No Survey	0.205	0.315	0.242	0.226	0.599	0.025
Panel C: If took SES all four years (N=42,922)						
Cis/Het	0.777	0.823	0.819	0.817	0.952	0.581
LGBTQ	0.042	0.056	0.071	0.081	0.140	0.014
Uncertain	0.095	0.109	0.103	0.089	0.270	0.005
Q Non-Response	0.086	0.012	0.007	0.013	0.115	0.000
Panel D: If took survey in a given year						
Cis/Het	0.764	0.817	0.806	0.803		
LGBTQ	0.046	0.060	0.075	0.085		
Uncertain	0.094	0.109	0.110	0.096		
Q Non-Response	0.096	0.014	0.010	0.016		
N	116,492	95,961	101,778	101,790		

Note: This table repeats the SOGI fluidity analysis comparing cross-sectional statistics (the share of students identifying as LGBTQ in a given year) to statistics that take fluidity into account (ever or always identifying as LGBTQ) in less-restricted samples, accounting for students moving in and out of the district. Panels C and D replicate the results in Table 3. Panel A includes the full sample of students ever in any of the four cohorts included in the analysis, and adds indicators for not taking the survey or not being in the district as alternative "SOGI" variables. Panel B restricts to students in the district all four years but who did not necessarily take the survey all four years, and adds not taking the survey as an alternative "SOGI."

Table A4: Comparing SOGI with and without fluidity (robustness)

	Fraction in the given year: 2017	2018	2019	2020	Ever in Any Wave	Always in All Waves
Panel A: Took survey in all four years, full sample (N=42,922)						
Cis/Het	0.777	0.823	0.819	0.817	0.952	0.581
LGBTQ	0.042	0.056	0.071	0.081	0.140	0.014
Uncertain	0.095	0.109	0.103	0.089	0.270	0.005
Q Non-Response	0.086	0.012	0.007	0.013	0.115	0.000
Panel B: Drop students cis/het in 3 of 4 years but not in 2018 or 2019 (N=39,572)						
Cis/Het	0.758	0.854	0.842	0.801	0.948	0.630
LGBTQ	0.046	0.054	0.069	0.088	0.138	0.015
Uncertain	0.103	0.086	0.085	0.097	0.234	0.006
Q Non-Response	0.094	0.006	0.003	0.015	0.113	0.000
Panel C: Drop students cis/het in 3 of 4 years (N=37,949)						
Cis/Het	0.790	0.848	0.835	0.793	0.946	0.657
LGBTQ	0.048	0.056	0.072	0.092	0.144	0.015
Uncertain	0.065	0.089	0.089	0.101	0.201	0.006
Q Non-Response	0.098	0.007	0.004	0.015	0.118	0.000

Note: This table repeats the SOGI fluidity analysis comparing cross-sectional statistics (the share of students identifying as LGBTQ in a given year) to statistics that take fluidity into account (ever or always identifying as LGBTQ) in increasingly-restricted samples to account for potential measurement error and provide lower bounds on the fluidity estimates. Panel A replicates the results in Table 3. Panel B drops any students who identified as Cis/Het in three out of the four years, including both 2017 and 2020. This means they switched away from identifying as Cis/Het in only one of the two middle years and then again identified as Cis/Het. Panel C drops the students who identified as Cis/Het in 3 out of 4 years but without the timing restriction.

Table A5: Demographic correlates of SOGI and SOGI fluidity

	Ever LGBTQ			Ever Uncertain			Ever Change SOGI		
	Linear probability		Odds	Linear probability		Odds	Linear probability		Odds
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Female	0.09***	0.09***	2.19***	0.09***	0.09***	1.59***	0.07***	0.07***	1.54***
	(0.00)	(0.00)	(0.07)	(0.00)	(0.00)	(0.04)	(0.00)	(0.00)	(0.04)
Race/ethnicity:									
Asian	-0.02	-0.02*	0.88	0.03**	0.02	1.18**	0.01	0.00	1.08
	(0.01)	(0.01)	(0.08)	(0.01)	(0.01)	(0.08)	(0.01)	(0.01)	(0.09)
Black	-0.03***	-0.04***	0.78***	-0.02	-0.03**	0.90	-0.00	-0.01	1.00
	(0.01)	(0.01)	(0.07)	(0.01)	(0.02)	(0.07)	(0.01)	(0.01)	(0.08)
Hispanic	-0.02**	-0.03**	0.84**	-0.02	-0.03**	0.91	-0.01	-0.02**	0.96
	(0.01)	(0.01)	(0.06)	(0.01)	(0.01)	(0.06)	(0.01)	(0.01)	(0.06)
Native American	-0.01	-0.02	0.91	0.03	0.03	1.16	0.05	0.04	1.26
	(0.03)	(0.03)	(0.24)	(0.05)	(0.05)	(0.26)	(0.04)	(0.04)	(0.27)
Home language:									
Spanish	-0.03***	-0.03***	0.79***	0.01**	0.01	1.06*	0.01	0.00	1.04
	(0.01)	(0.01)	(0.03)	(0.01)	(0.01)	(0.03)	(0.01)	(0.01)	(0.04)
Other non-Eng	-0.05***	-0.04***	0.64***	-0.01	-0.01	0.93	-0.01	-0.01	0.92
	(0.01)	(0.01)	(0.06)	(0.02)	(0.02)	(0.08)	(0.01)	(0.01)	(0.08)
Grade in 2017:									
6th grade	0.01	0.04	1.09	0.09	0.10	1.52	0.09	0.09	1.66
	(0.07)	(0.08)	(0.53)	(0.11)	(0.11)	(0.76)	(0.10)	(0.10)	(0.94)
7th grade	0.03	0.05	1.24	0.07	0.08	1.43	0.07	0.07	1.50
	(0.07)	(0.08)	(0.60)	(0.11)	(0.11)	(0.71)	(0.10)	(0.10)	(0.85)
8th grade	0.03	0.05	1.23	0.05	0.06	1.26	0.03	0.04	1.20
	(0.07)	(0.08)	(0.59)	(0.11)	(0.11)	(0.62)	(0.10)	(0.10)	(0.67)
Special education	0.04***	0.05***	1.44***	0.15***	0.15***	1.99***	0.11***	0.11***	1.79***
	(0.01)	(0.01)	(0.07)	(0.01)	(0.01)	(0.08)	(0.01)	(0.01)	(0.07)
Gifted	0.02***	0.02***	1.21***	-0.00	-0.00	0.98	-0.00	0.00	0.99
	(0.01)	(0.01)	(0.05)	(0.01)	(0.01)	(0.03)	(0.01)	(0.01)	(0.04)
Poverty	0.01	0.00	1.05	0.00	-0.01	1.02	0.00	-0.01	1.02
	(0.01)	(0.01)	(0.06)	(0.01)	(0.01)	(0.04)	(0.01)	(0.01)	(0.05)
Parent coll. degree	-0.00	-0.00	0.98	-0.00	-0.00	0.99	-0.00	-0.00	0.97
	(0.01)	(0.01)	(0.05)	(0.01)	(0.01)	(0.04)	(0.01)	(0.01)	(0.04)
Missing parent coll.	0.00	0.00	1.04	0.01	0.00	1.04	0.00	0.00	1.02
	(0.00)	(0.00)	(0.04)	(0.01)	(0.01)	(0.03)	(0.00)	(0.00)	(0.03)
Gr-8 math (SD)	-0.02***	-0.01***	0.87***	0.01*	0.01	1.05*	0.01**	0.01*	1.08**
	(0.01)	(0.01)	(0.04)	(0.01)	(0.01)	(0.03)	(0.01)	(0.01)	(0.03)
Gr6-8 reading (SD)	0.00	0.00	1.02	-0.05***	-0.05***	0.76***	-0.05***	-0.05***	0.74***
	(0.01)	(0.01)	(0.04)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)
SOGI in 2017:									
LGBTQ							0.43***	0.43***	6.86***
							(0.01)	(0.01)	(0.40)
Uncertain							0.69***	0.69***	50.60***
							(0.01)	(0.01)	(3.43)
No answer							0.04***	0.04***	1.22***
							(0.01)	(0.01)	(0.05)
N	42,922	42,922	42,922	42,922	42,922	42,922	42,919	42,919	42,919
Sample mean	0.140			0.270			0.321		
School in 2017 FE		×			×			×	

Note: This table shows the correlation between SOGI and SOGI fluidity in the panel sample of students in 6th-9th grade in 2017 who took the SES every year from 2017-2020. The outcomes of interest are indicators for ever identifying as LGBTQ, ever being uncertain, and ever changing SOGI. Columns 1-2, 4-5, and 7-8 use a linear probability model with an OLS regression. Columns 1, 4, and 7 regress the outcome on all reported demographic characteristics as well as indicators for missing each characteristic (the latter are not shown). Columns 7-9 add controls for students' SOGI reported in 2017, with Cis/Het as the omitted category. Columns 2, 5, and 8 add school-in-2017 fixed effects. Columns 3, 6, and 9 show odds ratios calculated from the analogous logistic regression, omitting the school fixed effects. Standard errors are clustered by school in 2017. ***, **, and * indicate statistically significant correlations at the 1, 5, and 10 percent confidence levels, respectively.

Table A6: Correlation between cohort share LGBTQ and other characteristics

	Share LGBTQ			
	(1)	(2)	(3)	(4)
Share missing survey, g8	0.18	0.36*	0.09	0.40**
	(0.14)	(0.19)	(0.14)	(0.18)
Share cohort with g8 data	-0.11	0.12	-0.21	-0.08
	(0.22)	(0.46)	(0.21)	(0.42)
Cohort size	-0.00	0.00	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Share cohort from same MS	-0.26	0.05	-0.14	0.54
	(0.44)	(1.12)	(0.43)	(1.10)
Share female	0.59***	0.41	0.44**	0.37
	(0.20)	(0.48)	(0.19)	(0.45)
Share Asian	-0.20	0.60	-0.07	1.15
	(0.25)	(1.04)	(0.25)	(1.04)
Share Black	-0.41	-0.49	-0.47	-0.07
	(0.34)	(1.05)	(0.34)	(0.98)
Share Hispanic	-0.64	0.66	-0.60	0.82
	(0.45)	(0.88)	(0.44)	(0.84)
Share Native American	-0.14	-3.15	-0.19	-2.59
	(4.46)	(4.40)	(4.23)	(4.06)
Share missing race	1.07	2.28	2.11	2.78
	(3.72)	(5.15)	(3.47)	(4.70)
Share home lang. Spanish	0.19	0.46	0.25	0.45
	(0.25)	(0.59)	(0.25)	(0.56)
Share home lang. other non-Eng.	-0.63	-0.50	-0.52	-0.19
	(0.43)	(0.98)	(0.41)	(0.94)
Share special education	0.66	-0.00	0.43	-0.15
	(0.44)	(0.73)	(0.44)	(0.69)
Share gifted	0.14	-0.08	0.28	0.01
	(0.22)	(0.49)	(0.21)	(0.49)
Share parents coll. deg.	-0.16	0.98**	-0.34	0.91*
	(0.32)	(0.50)	(0.33)	(0.50)
Share missing parents coll. deg.	-0.12	-0.26	-0.16	-0.28
	(0.23)	(0.36)	(0.24)	(0.34)
Share poverty	0.09	-0.13	-0.08	-0.36
	(0.21)	(0.46)	(0.20)	(0.39)
Mean school culture index, g8	–	–	-0.30**	-0.37**
			(0.14)	(0.16)
Mean adult respect index, g8	–	–	-0.01	0.28*
			(0.16)	(0.16)
Share never bullied, g8	–	–	-0.51*	-0.94***
			(0.29)	(0.32)
Share think LGBTQ accepted, g8	–	–	0.67**	0.66*
			(0.28)	(0.34)
Year FE	×	×	×	×
School FE		×		×
N cohorts	370	370	370	370
Average dependent variable	0.597			

Note: This table shows the correlation between the share of students who identify as LGBTQ and the share of students with other demographic characteristics across all cohorts in the main peer effects sample. Column 1 regresses the share of students in the cohort (school x 9th-grade year) who identified as LGBTQ in 8th grade on the share with each other demographic or compositional characteristic of the cohort that is included as a control variable in the main specification—though in the main specification, the demographic cohort characteristics are calculated as leave-one-out measures as individual-level demographics are also included. Columns 2 and 4 add school fixed effects. Columns 3 and 4 add controls for measures of students school experiences from 8th grade. Standard errors are robust to heteroskedasticity. ***, **, and * indicate statistically significant correlations at the 1, 5, and 10 percent confidence levels, respectively.

Table A7: Individual-level balance table, full sample

	%LGBTQ	%LGBTQ × LGBTQ	%LGBTQ × Uncertain	%LGBTQ × no SOGI	Sample size	Slope, LGBTQ	Slope, Uncertain
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
8th grade math	0.007	0.017	0.004	0.023	64,206	0.024	0.011
	(0.014)	(0.062)	(0.047)	(0.042)		(0.059)	(0.044)
8th grade reading	-0.005	0.039	0.056	0.027	63,682	0.034	0.051
	(0.015)	(0.074)	(0.052)	(0.046)		(0.070)	(0.048)
Home lang. English	0.009	0.017	-0.006	-0.029*	83,991	0.026	0.003
	(0.009)	(0.037)	(0.026)	(0.017)		(0.035)	(0.024)
Home lang. Spanish	-0.013	-0.012	0.026	0.026	83,991	-0.024	0.013
	(0.008)	(0.038)	(0.025)	(0.016)		(0.036)	(0.023)
Special ed. flag	-0.000	-0.020	0.002	-0.008	84,410	-0.020	0.002
	(0.006)	(0.027)	(0.024)	(0.013)		(0.026)	(0.023)
Gifted flag	-0.015**	-0.018	0.062***	0.029**	84,410	-0.033	0.047***
	(0.006)	(0.030)	(0.019)	(0.012)		(0.029)	(0.017)
Poverty flag	0.006	-0.031	-0.003	-0.015	84,119	-0.024	0.003
	(0.005)	(0.021)	(0.014)	(0.011)		(0.020)	(0.013)
Female	-0.024**	0.033	0.050*	0.016	83,942	0.009	0.026
	(0.010)	(0.039)	(0.030)	(0.019)		(0.036)	(0.027)
Born in USA	0.003	0.047**	0.049***	-0.016	84,385	0.050**	0.052**
	(0.013)	(0.023)	(0.018)	(0.025)		(0.024)	(0.021)
Parent college degree	0.008	-0.015	-0.010	-0.001	53,002	-0.007	-0.002
	(0.007)	(0.032)	(0.023)	(0.014)		(0.030)	(0.021)
Missing parent college	0.013	0.029	-0.007	-0.026	84,410	0.042	0.007
	(0.010)	(0.038)	(0.029)	(0.020)		(0.035)	(0.027)
Asian	0.004	0.016	-0.020*	-0.002	84,262	0.020	-0.016*
	(0.004)	(0.016)	(0.011)	(0.008)		(0.015)	(0.009)
Black	0.006	0.043**	0.003	-0.016	84,262	0.050***	0.009
	(0.005)	(0.019)	(0.014)	(0.011)		(0.019)	(0.014)
Hispanic	-0.008	-0.043	0.016	0.007	84,262	-0.051*	0.008
	(0.007)	(0.029)	(0.020)	(0.014)		(0.028)	(0.018)
Native	0.001	0.000	-0.003	-0.001	84,262	0.001	-0.002
	(0.001)	(0.005)	(0.004)	(0.002)		(0.005)	(0.003)

Note: This table shows the "effect" of having more LGBTQ students on student demographic characteristics in the full peer effects sample. The regression is the same as in the main linear specification (see Table 5), but individual-level demographic controls are excluded and the individual-level controls are iteratively used as the outcomes. Each row shows estimates from a separate regression for each individual demographic variable, with the coefficients of interest across the columns. The share LGBTQ is multiplied by 10 so that the coefficient represents the effect of increasing the share by 10pp. Standard errors are clustered by cohort. ***, **, and * indicate statistically significant correlations at the 1, 5, and 10 percent confidence levels, respectively.

Table A8: Individual-level balance table, sample with SES outcomes in 9th grade

	%LGBTQ	%LGBTQ × LGBTQ	%LGBTQ × Uncertain	%LGBTQ × no SOGI	Sample size	Slope, LGBTQ	Slope, Uncertain
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
8th grade math	-0.007	0.038	-0.011	0.031	47,590	0.031	-0.018
	(0.020)	(0.071)	(0.055)	(0.046)		(0.068)	(0.053)
8th grade reading	-0.020	0.066	0.042	0.042	47,245	0.046	0.022
	(0.021)	(0.086)	(0.060)	(0.051)		(0.082)	(0.059)
Home lang. English	0.002	0.014	-0.012	-0.035*	56,825	0.016	-0.010
	(0.011)	(0.042)	(0.029)	(0.020)		(0.040)	(0.027)
Home lang. Spanish	-0.005	-0.015	0.030	0.030	56,825	-0.020	0.025
	(0.010)	(0.042)	(0.028)	(0.019)		(0.040)	(0.026)
Special ed. flag	-0.007	-0.031	-0.018	-0.004	56,903	-0.037	-0.025
	(0.008)	(0.032)	(0.027)	(0.015)		(0.032)	(0.026)
Gifted flag	-0.015*	-0.023	0.059***	0.031**	56,903	-0.038	0.044**
	(0.009)	(0.036)	(0.022)	(0.014)		(0.036)	(0.020)
Poverty flag	0.010	-0.045*	-0.002	-0.022*	56,880	-0.036	0.008
	(0.006)	(0.024)	(0.019)	(0.013)		(0.022)	(0.017)
Female	-0.019	0.026	0.061*	0.002	56,872	0.006	0.042
	(0.013)	(0.044)	(0.036)	(0.022)		(0.042)	(0.033)
Born in USA	0.005	0.036	0.049***	-0.039	56,897	0.041*	0.054**
	(0.011)	(0.025)	(0.018)	(0.024)		(0.025)	(0.021)
Parent college degree	-0.000	-0.013	-0.027	-0.008	38,144	-0.013	-0.027
	(0.008)	(0.035)	(0.027)	(0.015)		(0.033)	(0.025)
Missing parent college	-0.001	0.026	0.012	-0.029	56,903	0.025	0.011
	(0.012)	(0.043)	(0.031)	(0.021)		(0.042)	(0.029)
Asian	0.003	0.015	-0.018	-0.003	56,835	0.018	-0.015
	(0.005)	(0.018)	(0.012)	(0.010)		(0.017)	(0.011)
Black	0.003	0.031	0.005	-0.019*	56,835	0.034	0.008
	(0.006)	(0.021)	(0.015)	(0.010)		(0.021)	(0.014)
Hispanic	0.006	-0.044	0.013	0.008	56,835	-0.038	0.020
	(0.009)	(0.032)	(0.022)	(0.016)		(0.031)	(0.020)
Native	-0.000	0.000	-0.003	-0.002	56,835	0.000	-0.004
	(0.001)	(0.004)	(0.004)	(0.002)		(0.004)	(0.004)

Note: This table is the same as Appendix Table A7 but restricts the sample to students who took the SES in 9th grade. The share LGBTQ is multiplied by 10 so that the coefficient represents the effect of increasing the share by 10pp. Standard errors are clustered by cohort. ***, **, and * indicate statistically significant correlations at the 1, 5, and 10 percent confidence levels, respectively.

Table A9: Linear peer effects specification: SOGI in 9th grade, Cis/Het heterogeneity by previously bullied

	LGBTQ	Uncertain	Cis/Het	Missing Survey	Question Non-response
	(1)	(2)	(3)	(4)	(5)
Share LGBTQx10	-0.009	-0.004	0.013	-0.063*	-0.005
	(0.008)	(0.012)	(0.013)	(0.037)	(0.005)
Share LGBTQx10 * Cis/Het prev. bullied	0.004	0.008	-0.011	0.010	0.007
	(0.008)	(0.013)	(0.016)	(0.019)	(0.005)
Share LGBTQx10 * LGBTQ	0.069	-0.014	-0.054	0.005	0.004
	(0.045)	(0.037)	(0.041)	(0.034)	(0.009)
Share LGBTQx10 * Uncertain	-0.009	0.048	-0.039	-0.007	0.015*
	(0.023)	(0.033)	(0.032)	(0.027)	(0.009)
Share LGBTQx10 * SOGI not known	0.003	0.023	-0.025	0.023	0.007
	(0.011)	(0.016)	(0.018)	(0.028)	(0.006)
Main effects:					
Cis/Het prev. bullied	0.001	0.009	-0.011	0.004	-0.004
	(0.005)	(0.008)	(0.010)	(0.012)	(0.003)
LGBTQ	0.461***	0.124***	-0.585***	0.019	-0.007
	(0.030)	(0.025)	(0.027)	(0.023)	(0.006)
Uncertain	0.112***	0.210***	-0.322***	0.011	-0.007
	(0.014)	(0.021)	(0.021)	(0.019)	(0.005)
SOGI not known	0.052***	0.034***	-0.086***	0.042**	-0.002
	(0.007)	(0.010)	(0.011)	(0.017)	(0.004)
N	55,623	55,623	55,623	83,717	56,422
Cis/het prev. not bullied mean	0.021	0.060	0.919	0.234	0.013
Slope, Cis/Het prev. bullied	-0.005	0.003	0.002	-0.053	0.002
	(0.007)	(0.009)	(0.011)	(0.035)	(0.004)
Slope, LGBTQ	0.060	-0.019	-0.041	-0.058	-0.001
	(0.044)	(0.036)	(0.042)	(0.045)	(0.009)
Slope, Uncertain	-0.017	0.043	-0.026	-0.070*	0.010
	(0.021)	(0.031)	(0.030)	(0.039)	(0.008)

Note: This table shows the results from the linear peer effects specification for 9th-grade SOGI outcomes, splitting the sample of Cis/Het students by whether they reported being bullied in 8th grade or not. The omitted 8th-grade SOGI category is now Cis/Het students who did not report being bullied in 8th grade, and Cis/Het but previously bullied is added as a separate "SOGI" measure. Otherwise, the outcomes, sample, and specification are the same as Table 5. The final three rows show the implied effect of increasing the share LGBTQ by 10pp for Cis/Het but previously bullied, LGBTQ, and uncertain students, respectively. Standard errors are clustered by cohort. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A10: Linear peer effects specification: Types of bullying

	Never teased way talk	Never teased about body	Never rumors spread about	Never bullied, online	Never hit/ pushed	Never sexual jokes
	(1)	(2)	(3)	(4)	(5)	(6)
Heterogeneous peer effects:						
Share LGBTQx10	-0.018	-0.021	0.008	0.002	-0.009	-0.011
	(0.013)	(0.016)	(0.013)	(0.006)	(0.009)	(0.012)
Share LGBTQx10 * LGBTQ	0.035	0.115**	0.079*	0.013	0.029	0.051
	(0.045)	(0.056)	(0.047)	(0.029)	(0.038)	(0.042)
Share LGBTQx10 * Uncertain	0.054	0.069*	0.023	-0.017	-0.020	0.046*
	(0.037)	(0.038)	(0.031)	(0.025)	(0.025)	(0.027)
Share LGBTQx10 * SOGI not known	-0.006	0.006	-0.010	-0.004	-0.000	-0.001
	(0.017)	(0.021)	(0.020)	(0.009)	(0.015)	(0.018)
Main effects:						
LGBTQ	-0.126***	-0.167***	-0.119***	-0.062***	-0.088***	-0.127***
	(0.029)	(0.037)	(0.030)	(0.020)	(0.025)	(0.028)
Uncertain	-0.065***	-0.081***	-0.032	-0.014	-0.010	-0.065***
	(0.023)	(0.027)	(0.020)	(0.015)	(0.016)	(0.018)
SOGI not known	0.015	-0.008	0.015	0.007	0.009	-0.009
	(0.017)	(0.015)	(0.019)	(0.009)	(0.015)	(0.017)
N	56,049	38,658	56,093	56,209	56,083	56,165
Cis/het mean	0.738	0.750	0.716	0.935	0.854	0.772
Share + Share*LGBTQ	0.017	0.094*	0.088*	0.015	0.020	0.040
	(0.044)	(0.053)	(0.046)	(0.029)	(0.037)	(0.042)
Share + Share*Uncertain	0.036	0.048	0.031	-0.015	-0.029	0.035
	(0.034)	(0.035)	(0.029)	(0.023)	(0.024)	(0.026)

Note: This table shows the results from the linear peer effects specification for the individual types of bullying outcomes. The outcomes, sample, and specification are the same as Table 6. Standard errors are clustered by cohort. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A11: Linear peer effects specification: School experiences, Cis/Het heterogeneity by previously bullied

	Never bullied indicator	Never bullied index (SD)	School belonging index (SD)	LGBTQ accepted, strong agree
	(1)	(2)	(3)	(4)
Share LGBTQx10	0.014	0.014	-0.058	-0.020
	(0.020)	(0.032)	(0.042)	(0.023)
Share LGBTQx10 * Cis/Het prev. bullied	-0.027	-0.052	-0.025	0.027
	(0.024)	(0.040)	(0.041)	(0.022)
Share LGBTQx10 * LGBTQ	0.056	0.141	0.211**	0.086*
	(0.046)	(0.112)	(0.098)	(0.045)
Share LGBTQx10 * Uncertain	0.043	0.102	-0.082	0.070*
	(0.038)	(0.080)	(0.076)	(0.037)
Share LGBTQx10 * SOGI not known	-0.014	-0.058	0.006	0.023
	(0.027)	(0.045)	(0.046)	(0.022)
Main effects:				
Cis/Het prev. bullied	-0.352***	-0.644***	-0.088***	-0.030**
	(0.015)	(0.025)	(0.025)	(0.014)
LGBTQ	-0.447***	-0.971***	-0.322***	-0.066**
	(0.030)	(0.075)	(0.064)	(0.030)
Uncertain	-0.342***	-0.691***	-0.093*	-0.035
	(0.024)	(0.050)	(0.048)	(0.024)
SOGI not known	-0.265***	-0.468***	-0.022	-0.010
	(0.017)	(0.030)	(0.041)	(0.018)
N	55,020	55,938	56,401	55,546
Cis/het prev. not bullied mean	0.747	0.513	0.268	0.339
Slope, Cis/Het prev. bullied	-0.013	-0.038	-0.084**	0.007
	(0.018)	(0.034)	(0.038)	(0.018)
Slope, LGBTQ	0.070	0.156	0.152	0.066
	(0.044)	(0.110)	(0.096)	(0.042)
Slope, Uncertain	0.057*	0.116	-0.140*	0.050
	(0.033)	(0.076)	(0.075)	(0.035)

Note: This table shows the results from the linear peer effects specification for school experience outcomes, splitting the sample of Cis/Het students by whether they reported being bullied in 8th grade or not. The omitted 8th-grade SOGI category is now Cis/Het students who did not report being bullied in 8th grade, and Cis/Het but previously bullied is added as a separate "SOGI" measure. Otherwise, the outcomes, sample, and specification are the same as Table 6. The final three rows show the implied effect of increasing the share LGBTQ by 10pp for Cis/Het but previously bullied, LGBTQ, and uncertain students, respectively. Standard errors are clustered by cohort. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A12: Linear peer effects specification: Types of bullying, Cis/Het heterogeneity by previously bullied

	Never teased way talk	Never teased about body	Never rumors spread about	Never bullied, online	Never hit/ pushed	Never sexual jokes
	(1)	(2)	(3)	(4)	(5)	(6)
Share LGBTQx10	-0.007	-0.038*	0.015	0.012*	0.011	-0.006
	(0.016)	(0.023)	(0.016)	(0.007)	(0.012)	(0.015)
Share LGBTQx10 * Cis/Het prev. bullied	-0.016	0.037	-0.010	-0.015	-0.033**	-0.005
	(0.020)	(0.026)	(0.021)	(0.009)	(0.017)	(0.018)
Share LGBTQx10 * LGBTQ	0.021	0.129**	0.072	0.003	0.014	0.042
	(0.048)	(0.060)	(0.050)	(0.030)	(0.039)	(0.045)
Share LGBTQx10 * Uncertain	0.050	0.093**	0.020	-0.022	-0.035	0.047*
	(0.038)	(0.043)	(0.033)	(0.024)	(0.025)	(0.028)
Share LGBTQx10 * SOGI not known	-0.016	0.028	-0.016	-0.014	-0.021	-0.006
	(0.021)	(0.028)	(0.021)	(0.009)	(0.017)	(0.020)
Main effects:						
Cis/Het prev. bullied	-0.112***	-0.186***	-0.070***	-0.027***	-0.043***	-0.082***
	(0.013)	(0.017)	(0.014)	(0.006)	(0.011)	(0.012)
LGBTQ	-0.210***	-0.287***	-0.171***	-0.082***	-0.125***	-0.186***
	(0.031)	(0.040)	(0.032)	(0.020)	(0.026)	(0.029)
Uncertain	-0.149***	-0.207***	-0.084***	-0.036**	-0.044***	-0.127***
	(0.024)	(0.030)	(0.022)	(0.015)	(0.016)	(0.019)
SOGI not known	-0.061***	-0.128***	-0.014	-0.012	-0.016	-0.059***
	(0.019)	(0.018)	(0.020)	(0.010)	(0.017)	(0.020)
N	55,580	38,394	55,625	55,740	55,617	55,698
Cis/het prev. not bullied mean	0.902	0.908	0.883	0.980	0.940	0.912
Slope, Cis/Het prev. bullied	-0.023	-0.002	0.005	-0.003	-0.022*	-0.011
	(0.016)	(0.017)	(0.016)	(0.008)	(0.013)	(0.015)
Slope, LGBTQ	0.014	0.090*	0.087*	0.015	0.025	0.036
	(0.045)	(0.053)	(0.049)	(0.029)	(0.037)	(0.043)
Slope, Uncertain	0.043	0.055	0.035	-0.010	-0.024	0.041
	(0.034)	(0.035)	(0.030)	(0.023)	(0.024)	(0.027)

Note: This table shows the results from the linear peer effects specification for the types of bullying outcomes, splitting the sample of Cis/Het students by whether they reported being bullied in 8th grade or not. The omitted 8th-grade SOGI category is now Cis/Het students who did not report being bullied in 8th grade, and Cis/Het but previously bullied is added as a separate "SOGI" measure. Otherwise, the outcomes, sample, and specification are the same as Appendix Table A10. The final three rows show the implied effect of increasing the share LGBTQ by 10pp for Cis/Het but previously bullied, LGBTQ, and uncertain students, respectively. Standard errors are clustered by cohort. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A13: Linear peer effects specification: Components of belonging

	Happy at school	Part of school	Safe at school	Accepted for being myself	Kids are nice
	(1)	(2)	(3)	(4)	(5)
Share LGBTQx10	-0.026	-0.022	-0.020	-0.020	-0.012
	(0.018)	(0.020)	(0.021)	(0.017)	(0.022)
Share LGBTQx10 * Cis/Het prev. bullied	0.001	0.007	-0.020	-0.004	-0.024
	(0.020)	(0.023)	(0.021)	(0.020)	(0.024)
Share LGBTQx10 * LGBTQ	0.021	0.145***	0.064	0.084*	0.033
	(0.048)	(0.051)	(0.043)	(0.047)	(0.043)
Share LGBTQx10 * Uncertain	0.012	-0.030	-0.084**	-0.037	0.004
	(0.035)	(0.036)	(0.033)	(0.037)	(0.033)
Share LGBTQx10 * SOGI not known	0.033	0.021	-0.028	-0.005	-0.010
	(0.022)	(0.024)	(0.023)	(0.020)	(0.026)
Main effects:					
Cis/Het prev. bullied	-0.038***	-0.056***	-0.046***	-0.050***	-0.070***
	(0.012)	(0.014)	(0.013)	(0.013)	(0.014)
LGBTQ	-0.070**	-0.170***	-0.149***	-0.182***	-0.125***
	(0.030)	(0.032)	(0.028)	(0.031)	(0.028)
Uncertain	-0.066***	-0.044*	-0.022	-0.084***	-0.076***
	(0.023)	(0.023)	(0.021)	(0.023)	(0.021)
SOGI not known	-0.023	-0.055***	-0.022	-0.035**	-0.087***
	(0.019)	(0.020)	(0.016)	(0.016)	(0.022)
N	56,243	55,731	55,878	55,658	55,836
Cis/het prev. not bullied mean	0.764	0.682	0.781	0.826	0.585
Slope, Cis/Het prev. bullied	-0.026	-0.015	-0.040**	-0.025*	-0.036*
	(0.018)	(0.016)	(0.018)	(0.015)	(0.019)
Slope, LGBTQ	-0.005	0.123***	0.045	0.064	0.021
	(0.044)	(0.046)	(0.043)	(0.046)	(0.043)
Slope, Uncertain	-0.014	-0.052	-0.104***	-0.057*	-0.008
	(0.032)	(0.035)	(0.032)	(0.034)	(0.029)

Note: This table shows the results from the linear peer effects specification for the components of the school belonging index as outcomes, and splits Cis/Het students by whether they report being bullied in 8th grade or not. The sample and specification are the same as Appendix Table A9. Standard errors are clustered by cohort. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A14: Linear peer effects specification: Attendance and retention, Cis/Het heterogeneity by previously bullied

	Daily attendance	Chronically absent	New school next year	Leaves district next year
	(1)	(2)	(3)	(4)
Share LGBTQx10	0.001	0.007	-0.006	-0.005
	(0.003)	(0.014)	(0.018)	(0.012)
Share LGBTQx10 * Cis/Het prev. bullied	-0.002	0.017	0.004	-0.002
	(0.003)	(0.015)	(0.015)	(0.012)
Share LGBTQx10 * LGBTQ	-0.002	0.045	0.015	-0.020
	(0.009)	(0.042)	(0.035)	(0.027)
Share LGBTQx10 * Uncertain	-0.006	0.015	0.009	0.022
	(0.005)	(0.025)	(0.024)	(0.020)
Share LGBTQx10 * SOGI not known	-0.006*	0.016	0.006	-0.008
	(0.003)	(0.016)	(0.019)	(0.013)
Main effects:				
Cis/Het prev. bullied	0.001	-0.006	0.008	0.003
	(0.002)	(0.009)	(0.010)	(0.007)
LGBTQ	-0.000	-0.005	0.013	0.025
	(0.005)	(0.025)	(0.021)	(0.017)
Uncertain	0.002	-0.012	0.011	-0.007
	(0.003)	(0.015)	(0.015)	(0.011)
SOGI not known	0.002	0.012	0.030**	0.029***
	(0.002)	(0.011)	(0.012)	(0.009)
N	55,553	55,553	50,677	56,326
Cis/het prev. not bullied mean	0.948	0.144	0.080	0.057
Slope, Cis/Het prev. bullied	-0.001	0.025*	-0.002	-0.007
	(0.003)	(0.013)	(0.016)	(0.010)
Slope, LGBTQ	-0.001	0.052	0.008	-0.025
	(0.008)	(0.040)	(0.035)	(0.027)
Slope, Uncertain	-0.005	0.022	0.003	0.017
	(0.005)	(0.023)	(0.024)	(0.018)

Note: This table shows the results from the linear peer effects specification for attendance and retention, splitting the sample of Cis/Het students by whether they reported being bullied in 8th grade or not. The omitted 8th-grade SOGI category is now Cis/Het students who did not report being bullied in 8th grade, and Cis/Het but previously bullied is added as a separate "SOGI" measure. Otherwise, the outcomes, sample, and specification are the same as Table 7. The final three rows show the implied effect of increasing the share LGBTQ by 10pp for Cis/Het but previously bullied, LGBTQ, and uncertain students, respectively. Standard errors are clustered by cohort. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A15: SOGI in 9th grade, heterogeneity by sex

	LGBTQ	Uncertain	Cis/Het
	(1)	(2)	(3)
Heterogeneous peer effects:			
Share LGBTQx10	-0.004	0.000	0.004
	(0.008)	(0.011)	(0.012)
Share LGBTQx10 * LGBTQ	0.036	-0.014	-0.022
	(0.053)	(0.043)	(0.049)
Share LGBTQx10 * Uncertain	-0.005	0.069*	-0.064
	(0.037)	(0.042)	(0.039)
Share LGBTQx10 * SOGI unknown	0.026*	0.020	-0.046*
	(0.015)	(0.020)	(0.025)
Share LGBTQx10 * Male	-0.005	-0.002	0.007
	(0.008)	(0.013)	(0.015)
Share LGBTQx10 * LGBTQ * Male	0.020	-0.009	-0.011
	(0.103)	(0.079)	(0.101)
Share LGBTQx10 * Uncertain * Male	-0.011	-0.073	0.084
	(0.048)	(0.057)	(0.064)
Share LGBTQx10 * SOGI unk * Male	-0.049***	-0.003	0.052*
	(0.018)	(0.024)	(0.029)
Main effects:			
LGBTQ	0.571***	0.111***	-0.683***
	(0.036)	(0.029)	(0.032)
Uncertain	0.141***	0.219***	-0.360***
	(0.023)	(0.027)	(0.027)
SOGI unknown	0.069***	0.038***	-0.107***
	(0.010)	(0.013)	(0.015)
Male	-0.010**	-0.027***	0.038***
	(0.005)	(0.008)	(0.010)
LGBTQ * Male	-0.296***	0.028	0.268***
	(0.063)	(0.049)	(0.063)
Uncertain * Male	-0.065**	-0.029	0.094**
	(0.031)	(0.037)	(0.041)
SOGI unknown * Male	-0.034***	-0.020	0.054***
	(0.012)	(0.015)	(0.018)
N	56,062	56,062	56,062
Slope, LGBTQ Female	0.031	-0.014	-0.018
	(0.053)	(0.044)	(0.046)
Slope, LGBTQ Male	0.046	-0.024	-0.022
	(0.085)	(0.064)	(0.084)

Note: This table shows the results from the linear peer effects specification for 9th-grade SOGI outcomes, separately for male and female students. New variables interacting an indicator for being male with the share LGBTQ, main effects for 8th-grade-SOGI and interactions of the two are added. Otherwise, the outcomes, sample, and specification are the same as Table 5. The final three rows show the implied effect of increasing the share LGBTQ by 10pp for female and male LGBTQ students, respectively. Standard errors are clustered by cohort. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A16: Bullying, belonging, and perceived acceptance, heterogeneity by sex

	Never bullied indicator	School belonging index (SD)	LGBTQ accepted, strong agree
	(1)	(2)	(3)
Heterogeneous peer effects:			
Share LGBTQx10	-0.012	-0.131***	-0.007
	(0.020)	(0.040)	(0.021)
Share LGBTQx10 * LGBTQ	0.099**	0.352***	0.071
	(0.048)	(0.107)	(0.051)
Share LGBTQx10 * Uncertain	0.036	0.082	0.072*
	(0.043)	(0.092)	(0.042)
Share LGBTQx10 * SOGI unknown	-0.018	0.047	0.009
	(0.027)	(0.056)	(0.025)
Share LGBTQx10 * Male	0.019	0.103**	0.015
	(0.025)	(0.043)	(0.021)
Share LGBTQx10 * LGBTQ * Male	-0.080	-0.313*	-0.005
	(0.082)	(0.187)	(0.091)
Share LGBTQx10 * Uncertain * Male	-0.005	-0.320***	-0.046
	(0.062)	(0.123)	(0.062)
Share LGBTQx10 * SOGI unk * Male	0.040	-0.044	-0.014
	(0.036)	(0.077)	(0.036)
Main effects:			
LGBTQ	-0.176***	-0.359***	-0.050
	(0.032)	(0.072)	(0.034)
Uncertain	-0.057**	-0.152**	-0.033
	(0.027)	(0.060)	(0.027)
SOGI unknown	-0.028	-0.011	0.028
	(0.023)	(0.045)	(0.019)
Male	0.029*	-0.040	-0.070***
	(0.016)	(0.028)	(0.014)
LGBTQ * Male	0.055	0.254**	0.010
	(0.053)	(0.122)	(0.059)
Uncertain * Male	-0.009	0.261***	0.041
	(0.039)	(0.078)	(0.041)
SOGI unknown * Male	0.001	0.087*	-0.024
	(0.022)	(0.049)	(0.023)
N	55,453	56,850	55,981
Slope, LGBTQ Female	0.088*	0.221**	0.064
	(0.047)	(0.111)	(0.050)
Slope, LGBTQ Male	0.027	0.011	0.074
	(0.072)	(0.161)	(0.074)

Note: This table shows the results from the linear peer effects specification for school experience outcomes, separately for male and female students. New variables interacting an indicator for being male with the share LGBTQ, main effects for 8th-grade-SOGI and interactions of the two are added. Otherwise, the outcomes, sample, and specification are the same as Table 6. The final three rows show the implied effect of increasing the share LGBTQ by 10pp for female and male LGBTQ students, respectively. Standard errors are clustered by cohort. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A17: Daily attendance and school and district retention, heterogeneity by sex

	Daily attendance	Chronically absent	New school next year	Leaves district next year
	(1)	(2)	(3)	(4)
Heterogeneous peer effects:				
Share LGBTQx10	-0.001	0.011	0.001	0.001
	(0.003)	(0.015)	(0.018)	(0.011)
Share LGBTQx10 * LGBTQ	0.003	0.039	-0.008	-0.038
	(0.011)	(0.051)	(0.044)	(0.034)
Share LGBTQx10 * Uncertain	-0.009	-0.003	-0.015	0.040
	(0.009)	(0.031)	(0.031)	(0.028)
Share LGBTQx10 * SOGI unknown	-0.008*	0.029	0.019	-0.007
	(0.005)	(0.022)	(0.018)	(0.016)
Share LGBTQx10 * Male	-0.000	0.015	-0.005	-0.018
	(0.003)	(0.018)	(0.017)	(0.011)
Share LGBTQx10 * LGBTQ * Male	-0.006	-0.016	0.043	0.044
	(0.014)	(0.066)	(0.063)	(0.049)
Share LGBTQx10 * Uncertain * Male	0.010	0.028	0.045	-0.044
	(0.013)	(0.053)	(0.050)	(0.038)
Share LGBTQx10 * SOGI unk * Male	0.007	-0.045*	-0.028	0.003
	(0.006)	(0.027)	(0.026)	(0.021)
Main effects:				
LGBTQ	-0.004	0.000	0.023	0.042*
	(0.006)	(0.029)	(0.027)	(0.022)
Uncertain	0.001	-0.000	0.016	-0.015
	(0.006)	(0.019)	(0.019)	(0.016)
SOGI unknown	0.003	0.002	0.020*	0.033***
	(0.003)	(0.013)	(0.011)	(0.010)
Male	0.002	-0.021**	-0.003	0.012*
	(0.002)	(0.010)	(0.010)	(0.007)
LGBTQ * Male	0.006	-0.006	-0.036	-0.045
	(0.008)	(0.041)	(0.038)	(0.031)
Uncertain * Male	0.001	-0.022	-0.023	0.018
	(0.008)	(0.032)	(0.029)	(0.023)
SOGI unknown * Male	-0.004	0.025	0.008	-0.012
	(0.004)	(0.016)	(0.015)	(0.013)
N	55,648	55,648	51,126	56,421
Slope, LGBTQ Female	0.002	0.050	-0.007	-0.037
	(0.011)	(0.051)	(0.045)	(0.032)
Slope, LGBTQ Male	-0.004	0.050	0.030	-0.011
	(0.010)	(0.047)	(0.047)	(0.038)

Note: This table shows the results from the linear peer effects specification for attendance and retention outcomes, separately for male and female students. New variables interacting an indicator for being male with the share LGBTQ, main effects for 8th-grade-SOGI and interactions of the two are added. Otherwise, the outcomes, sample, and specification are the same as Table 7. The final three rows show the implied effect of increasing the share LGBTQ by 10pp for female and male LGBTQ students, respectively. Standard errors are clustered by cohort. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.