

Addiction Runs: Rank Competition and Strategic Complementarity in Prescription Stimulant Usage ^{*}

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Abstract

We study the rise of prescription stimulant use for academic performance using a model with relative-performance externalities. Students compete for rank, where taking a stimulant improves effective performance but entails costs. Because pay-offs from academic competition depend on others' performance, students' stimulant use exhibits strategic complementarities: as more individuals use stimulants, others face stronger incentives to follow suit to avoid falling behind. We identify the model using prescription trends in the U.S. and our own survey evidence on students' incentives, beliefs, and perceived costs. The estimated strategic complementarities are large enough to generate multiple equilibria, including one with low use and another with very high use, in which around 90 percent of students take stimulants. We use the estimated model to evaluate policies that (i) reduce the salience of relative evaluation, (ii) limit the competitive advantage conferred by stimulants, particularly through academic accommodations, (iii) separate academic competition between stimulant users and non-users (i.e., separate curves), and (iv) tighten prescribing standards to reduce non-medical use. Our estimates show that separate curves yield rankings that most closely reflect underlying ability and are the policy that least discourages true ADHD patients from taking prescribed stimulants.

JEL Codes: D62, D91, I12, I18, I23

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1 Introduction

Diagnoses of attention-deficit/hyperactivity disorder (ADHD) and dispensing of prescription stimulants¹ have climbed sharply over the past two decades (Danielson et al., 2023; IQVIA Government Solutions, 2023), which have become the focus of growing public concern. Disability accommodations in higher education—most visibly extra time on examinations—have surged alongside them. *Forbes* reports that the share of students qualifying for accommodations now stands near 20% at Harvard and Brown, around 34% at Amherst, and close to 40% at Stanford, and has more than tripled at the University of Chicago in eight years to become around 20% now; *Fortune* and *The Harvard Crimson* document the same climb at individual campuses, with Harvard’s rate rising from roughly three percent in 2014 to about 21 percent in 2024. Much of this growth, as an article in *The Atlantic* observes, reflects diagnoses of conditions such as ADHD, anxiety, and depression rather than physical disability. Similar increases in ADHD diagnosis and accommodation use have also been documented in primary and secondary schools, on standardized examinations such as the SAT, and in professional education settings such as law schools.

There is, of course, nothing inherently problematic about these trends if they primarily reflect previously untreated students with ADHD obtaining medication and accommodations that allow them to compete on a more equal footing. Nevertheless, educators, parents, and journalists have raised concerns that such resources are increasingly being used not only to offset genuine impairments but also to obtain a competitive advantage. *The Wall Street Journal* reports that parents view accommodations as conferring an unfair edge in highly competitive admissions environments, and that clinicians face pressure from families seeking diagnoses that would qualify students for accommodations on standardized examinations. These concerns are amplified by the fact that obtaining diagnoses, prescription medications, and accommodation documentation can be costly in both time and money. To the extent that access depends on family resources, expanding accommodations may disproportionately benefit students from more advantaged backgrounds, potentially widening existing inequalities in educational achievement and opportunities. As one professor summarized the concern in *The Atlantic*, the trend risks becoming “rich kids getting extra time on tests” rather than a mechanism for leveling the playing field.

Academic environments are especially prone to such dynamics because evaluation in them is so often relative. Grades are curved, class rank is recorded, and admissions,

¹Examples include amphetamine-based medications such as Adderall and Vyvanse, and methylphenidate-based medications such as Ritalin and Concerta.

scholarships, and selective opportunities are awarded by comparison rather than against an absolute standard, so that the value of any given level of performance depends on how everyone else performs. In this setting, anything that raises one student's measured output—a stimulant that sharpens focus, or extra time that relaxes a binding constraint—mechanically raises the bar that classmates must clear. The result is a *strategic complementarity*: as more students medicate or obtain accommodations, the incentive for the rest to follow grows stronger, lest they fall behind. Carried far enough, these forces can generate rapid diffusion akin to bank runs, in which a practice that begins among a small, clinically affected minority diffuses to a large share of the student body—not because underlying need has changed, but because abstaining has become increasingly costly. The resulting negative externality generates an educational arms race in which individually rational decisions can lead to excessive aggregate use. Any health risks associated with stimulant use, including the potential for dependence or substance misuse, further amplify these social costs.

This paper studies prescription stimulant use as an equilibrium outcome of rank-based academic competition. We develop a model in which forward-looking students decide whether to take a stimulant by weighing its perceived academic benefit—which operates through their rank relative to peers—against its private costs. We calibrate the model using national and administrative data, along with two original surveys we conducted. We then use it to characterize the equilibria that competition produces and to perform counterfactuals to discuss policy implications. We find that the strategic complementarity is strong enough to sustain multiple equilibria, including a low-use equilibrium confined largely to the clinically affected and a high-use "addiction run" in which the great majority of students medicate.

Section 3 assembles the empirical evidence. We first establish the aggregate trends. ADHD diagnosis has roughly doubled over two decades—from about 6 to nearly 14 percent among U.S. children, and from about 8 percent in 2019 to more than 15 percent among college students by 2025—while disability registration in higher education has climbed in parallel, the average registered share rising from roughly 7 to 10 percent and registration concentrated at the most selective institutions. Our survey of disability-services officers at 116 institutions corroborates this: 69 percent report that the ADHD share of accommodations has risen over the past five years (only 3.5 percent report a decline), ADHD now accounts for an estimated 37 percent of all accommodation caseloads, and eligibility standards are often permissive—while 93 percent of institutions accept a formal diagnosis, 41 percent will accommodate on a physician's mere suspicion of ADHD and 22 percent on student self-report alone, with most requests decided by a single ad-

ministrator. Because these aggregate sources cannot reveal *which* students use stimulants or *why*, we also surveyed 1,000 undergraduates at U.S. research universities. The student survey delivers four findings. First, use is widespread and competition-linked: about 28 percent have ever taken a prescription stimulant and 15 percent currently do, with use roughly flat across sex, year, and institution type but markedly higher among students exposed to curve grading and those with lower academic standing. Second, it identifies two reasons a non-patient would take. Through a *performance* channel, students believe stimulants raise grades even for non-patients—only 20 percent expect no improvement—and 43 percent of current users say they would quit if the drug stopped helping academically. Through an *accommodation* channel, 54 percent believe that $1.5\times$ exam time *by itself* raises a grade by at least half a letter, and half of non-users at schools without extra time say they would seek a diagnosis if it were introduced. Third, access is easy and often informal: a majority view obtaining stimulants as easy even for non-patients, ease is flat across parental income and education, and among former users a third sourced the drug from someone else’s prescription. Fourth, the survey gives direct evidence of strategic complementarity: 36 percent of non-users would start if peer use rose by 50 percent (and 74 percent predict their peers would), a response concentrated among students who already report ADHD symptoms (46 versus 24 percent) and rising steadily with exposure to relative grading.

Section 4 develops a model that rationalizes these patterns. Overlapping generations of students differ in innate ability and in ADHD severity, the latter varying continuously so that a clinical minority—the most severely affected—takes the drug regardless of the competitive environment, placing a floor on use near clinical prevalence. Untreated, a student competes with an effective ability reduced by her symptoms; taking the drug both removes that impairment and confers a performance boost b , so the drug is advantageous rather than merely remedial. Students are graded on rank—effective ability raised to a power that indexes the intensity of competition, divided by an endogenous standard—and derive constant-relative-risk-aversion utility from their standing net of a private cost of use. The crucial social ingredient is that this cost falls as use becomes more common, $c(D) = c_0(1 - \kappa D)$, capturing normalization and the erosion of stigma. Equilibrium is a fixed point in the share of students who take. A central theoretical result is that rank competition *alone* yields a unique equilibrium: it is this normalization channel, together with the clinical floor, that makes multiple equilibria possible.

Section 5 calibrates the model to the United States. We anchor the dispersion of ability to the coefficient of variation of SAT scores, the distribution of symptom severity to population norms for adult attention symptoms, and the clinical floor to the roughly 5

percent prevalence of clinically significant adult ADHD. With risk aversion and the competition and impairment parameters set to standard values, the drug's advantage and the strength of the normalization spillover are chosen so that the model reproduces a low-use equilibrium near the 15 percent rate of current use observed in our survey.

Sections 6 and 7 characterize the resulting equilibria. The calibrated economy has *two* stable equilibria—use of about 15 percent and about 93 percent—separated by an unstable tipping point near 80 percent. At the low equilibrium, the drug is largely confined to the clinically affected; the high equilibrium is an “addiction run” in which nearly the entire student body medicates. The low equilibrium is robust to ordinary shocks. Still, the more important danger is gradual: raising the intensity of competition shifts the best-response curve up at every level. It progressively erodes the low equilibrium, so that a sustained rise in competitive pressure or in the social normalization of stimulants lowers the tipping point until the safe equilibrium vanishes. The population slides irreversibly into the run. The steep, sustained increases documented in Section 3 are consistent with an economy already drifting toward that threshold.

Finally, Section 8 uses the calibrated model to evaluate four policies: abolishing rank competition through absolute evaluation, cutting the drug's advantage by withdrawing accommodations, grading users and non-users on *separate curves*, and raising the cost of non-medical use. All four eliminate the high-use equilibrium—lowering use to roughly 5, 10, 15, and 7 percent respectively—but they diverge once judged on two further dimensions. The first is *targeting*: at the dangerous high equilibrium even the mildest students take the drug and the average user sits near the population median of severity, so the run severs the link between medication and need; the blunt policies restore that link only by also denying treatment to the moderately affected, cutting take-up among the most severe to between a quarter and two-fifths, whereas separate curving keeps it at one-half. The second is *meritocratic distortion*, measured against the ranking students would hold if graded on ability with impairment neutralized and no one doped. Here a low headline use rate can be deceptive: by pricing genuine patients out of treatment, raising costs, abolishing relative evaluation, and stripping accommodations each *raise* the ability that the most severely affected students lose to uncorrected impairment, from about 9 percent at the baseline to 14–16 percent—leaving the truly affected worse off even as average use falls. Separate curving is the only intervention that escapes this tradeoff. By neutralizing the boost's competitive value, it drives non-medical gaming to zero while leaving patient treatment untouched, and it delivers the highest meritocratic fidelity of any scenario. The policy lesson is that the right objective is not to minimize use but to realign competition—grading users and non-users separately, supplemented by a light tightening of prescribing

only where use is least related to need.

The remainder of the paper is organized as follows. Section 2 reviews the related literature on stimulant use, status competition, and disability accommodation. Section 3 presents the empirical evidence from national data and our two original surveys. Section 4 develops the model, and Section 5 calibrates it. Section 6 characterizes equilibrium and strategic complementarity, and Section 7 analyzes how competitiveness shapes the drug’s advantage. Section 8 evaluates the counterfactual policies, and Section 9 concludes.

2 Literature Review

Our research builds upon a large medical and public-health literature on prescription stimulant use among adolescents and college students. This literature documents that nonmedical use is widespread, especially in academic settings, and that it is correlated with alcohol and other drug use, risky health behaviors, and lower academic engagement (McCabe et al., 2004, 2005, 2021; Sussman et al., 2006; Rolland and Smith, 2017).² Recent work also shows that access matters: institutions with higher legitimate prescribing have higher rates of nonmedical use, consistent with diversion, social-network spillovers, or normalization (McCabe et al., 2023; Summit et al., 2025). At the aggregate level, prescription stimulant use has risen sharply in the United States, alongside changes in prescribing channels, such as the expansion of telemedicine (IQVIA Government Solutions, 2023; Danielson et al., 2023).

The evidence most closely related to our mechanism concerns academic motives and the timing of use. Students often report taking stimulants as complements to study effort, consistent with performance-enhancement motives rather than remediation of low effort alone (Holm et al., 2020; Arria et al., 2018; Garnier-Dykstra et al., 2012). At the same time, several studies find limited cognitive or academic gains from stimulant use among individuals without ADHD (Arria et al., 2017, 2008; Barringer et al., 2021; Kerr et al., 2021; Weyandt et al., 2016). Nonmedical stimulant use also exhibits pronounced seasonality: initiation and use rise during high-pressure academic periods, especially November, December, and April, and prescription dispensing is higher around exams and lower during

²Definitions vary across studies, but nonmedical use broadly includes any use of stimulants without one’s own prescription, including stimulants obtained from friends, family members, or illicit markets, as well as use beyond one’s prescribed dosage or frequency. We use the terms “prescription stimulants,” “stimulants,” and “ADHD-related medications” interchangeably. These include widely prescribed medications such as Adderall, Concerta, Ritalin, Vyvanse, and Dexedrine, but exclude stimulants outside standard ADHD-related prescribing, such as methamphetamine or cocaine.

academic breaks (Lipari, 2015; Barringer et al., 2021; Kerr et al., 2021; Schoeman and Benjamin, 2025; Cascade and Weisler, 2008). These findings suggest that stimulant demand responds to perceived academic returns even when the objective productivity effects are uncertain or modest.

The key novel ingredient in our model is a strategic externality in stimulant use. The rational-addiction framework of Becker and Murphy (1988) shows that addictive consumption can be consistent with forward-looking optimization and that dynamics can be governed by adjacent complementarity: past consumption raises the marginal utility of current consumption. This insight has shaped empirical work on cigarettes (e.g., Chaloupka and Grossman, 1991; Becker et al., 1994), alcohol (Grossman, 1998), cocaine (Grossman and Chaloupka, 1998), and caffeine (Olekalns and Bardsley, 2008), while also generating methodological debate (e.g., Gruber and Köszegi, 2001; Auld and Grootendorst, 2004). In contrast, the complementarity in our model is contemporaneous and social. A student’s stimulant use raises her effective performance; under relative evaluation, this raises the competitive benchmark faced by others and can make stimulant adoption privately more attractive.

Our mechanism is also related to models of status concerns and “keeping-up-with-the-Joneses” preferences (Corneo and Jeanne, 2001; Ljungqvist and Uhlig, 2000; Hopkins and Kornienko, 2004; Kim et al., 2024). Much of this literature studies relative consumption, wealth, or income. We apply the same logic to relative academic performance. This perspective also connects the paper to recent work on performance-enhancing technologies, especially generative AI, which can raise individual productivity while reshaping relative performance in workplaces and schools (Brynjolfsson et al., 2025; Ide and Talamas, 2025; Acemoglu and Lensman, 2024; Jones, 2024).

Finally, our analysis speaks to the need for work on disability accommodations and educational incentives. Studies of K–12 accountability systems show that high-stakes incentives can affect classification and exemption decisions, including special-education placement and reclassification around testing regimes (Figlio and Getzler, 2002; Jacob, 2005; Cullen and Reback, 2006). A parallel psychometric literature finds that common accommodations, such as extended time, can raise performance for a broad set of test takers and are not always targeted to students for whom they uniquely offset disability-related constraints (Sireci et al., 2005; Camara et al., 1998; Gernsbacher, 2020). ADHD-specific evidence similarly suggests that commonly implemented testing accommodations deliver limited incremental benefits for diagnosed students on average (Pritchard et al., 2016). We contribute to this literature by showing that accommodation policies can alter the private return to diagnosis and treatment and, in turn, interact with strategic stimulant adoption

in competitive academic environments.

3 Empirical Evidence

3.1 Data

We combine existing national and administrative data with two original surveys that we designed for this project. The existing sources establish the broad scale and trajectory of ADHD diagnosis, stimulant use, and accommodations: the National Health Interview Survey (NHIS) and the American College Health Association–National College Health Assessment (ACHA–NCHA) measure diagnosis among children and college students, and the Integrated Postsecondary Education Data System (IPEDS) reports the share of undergraduates formally registered with campus disability offices. These sources are large and nationally representative, but they are aggregate: they reveal how many students are diagnosed or accommodated, but not *which* students, *why* they take stimulants or seek accommodations, or how those choices relate to peers, beliefs, and their perceived levels of academic competitiveness.

We conducted a student survey to fill this gap. The survey provides student-level data on exactly who takes ADHD stimulants and who receives accommodations, together with each respondent’s motivations, beliefs about academic returns and access, exposure to relative-performance grading, demographics, and stated responses to counterfactual changes in peer behavior and accommodation policy. This lets us connect stimulant use and accommodation decisions to the individual incentives at the center of our model—information that no existing dataset provides. The survey was administered through Prolific and covers 1,000 undergraduates at U.S. four-year institutions classified as R1, R2, or Other Research under the Carnegie Classification, drawn from 336 institutions (160 of them R1). Table 1 reports its sample characteristics; the sample is balanced across gender, college year, race, and parental background.

We also surveyed accommodation officers to collect standardized data on how academic accommodations are administered in practice. By surveying disability-services staff directly, we obtain a comparable, cross-institution measure of the accommodation environment—how strict eligibility standards are, which accommodations are offered, how requests are decided, and how the ADHD share of accommodations has evolved—which we can then relate to student outcomes and institutional characteristics. The survey covers 121 administrators at 116 institutions, applying the same institutional filter as the student survey; respondents are predominantly senior administrators, with 71.9%

Table 1: **Student Survey Sample Characteristics** ($N = 1,000$)

<i>Carnegie Research Designation</i>		<i>Race / Ethnicity</i>	
R1: Very high research & doctorate	625	White	526
R2: High research & doctorate	225	Black / African American	175
Other Research	150	Asian	162
		Hispanic / Latino	100
		Other	37
<i>Gender</i>		<i>Parent Highest Education</i>	
Female	562	HS or less	258
Male	438	Some college / Associate's	226
		Bachelor's	241
		Master's or above	275
<i>College Year</i>		<i>Parental Household Income</i>	
Freshman	259	Mean	\$131,500
Sophomore	253	Median	\$112,500
Junior	232	IQR	\$55,000 – \$175,000
Senior	240		

Notes: Sample characteristics of the student survey ($N = 1,000$), administered through Prolific to undergraduates at U.S. R1, R2, and Other Research universities (336 institutions). Cells report respondent counts; parental household income is computed from bracket midpoints.

holding the title of director or assistant director. Table 2 reports its composition.

Table 2: **Staff Survey Sample Characteristics**

Institution Related		Respondent	
<i>Carnegie Research Designation</i>		<i>Position</i>	
R1: Very high research & doctorate	59	Director	60
R2: High research & doctorate	26	Assistant Director	27
Other Research	36	Staff	29
		Not specified	5

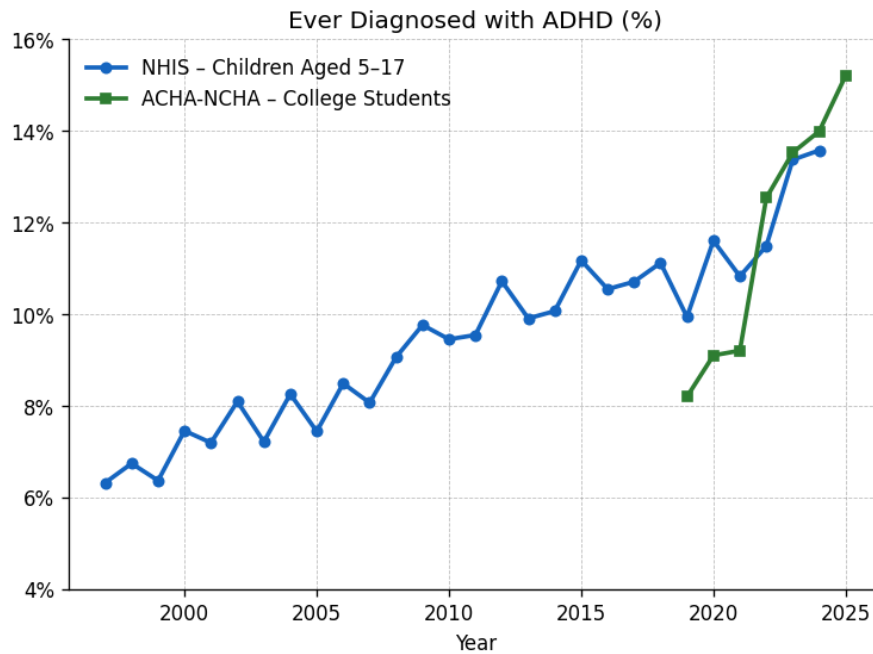
Notes: Composition of the accommodation-officer (staff) survey: 121 respondents at 116 institutions. Carnegie research tier and respondent title are as reported.

3.2 Overall Patterns in ADHD Diagnosis and Accommodations

Over the past two decades, ADHD diagnosis has risen markedly in the United States. Figure 1 shows that diagnoses have increased among both children (NHIS) and college students (ACHA–NCHA). In the NHIS, the share of children aged 5–17 ever diagnosed with ADHD rises from about 6 percent in the late 1990s to nearly 14 percent by 2024. In the ACHA–NCHA, the corresponding share among college students rises from about 8 percent in 2019 to more than 15 percent in 2025. The increase is broad-based and shows

no sign of leveling off.

Figure 1: ADHD Diagnosis Trends



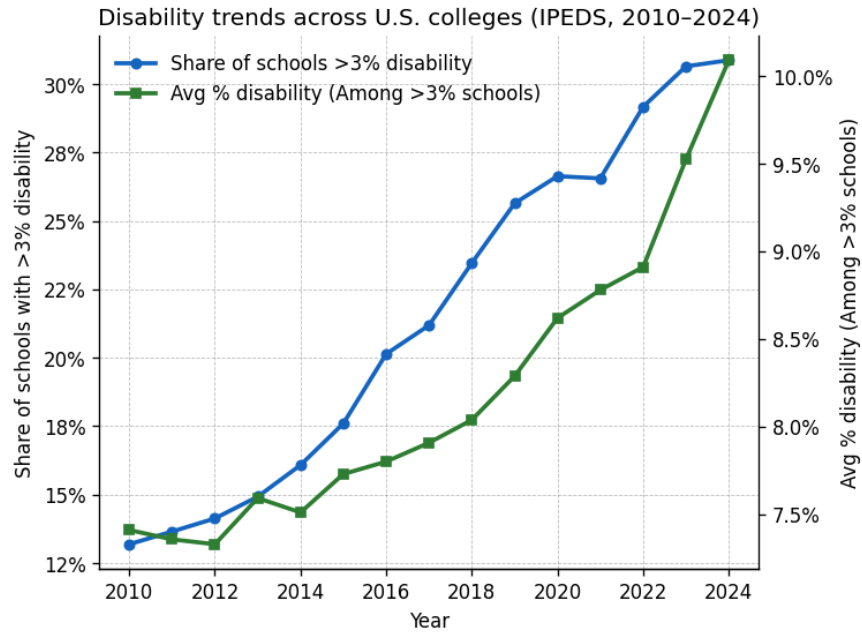
Notes: Share of individuals ever diagnosed with ADHD, by survey year. Children aged 5–17 are from the National Health Interview Survey (NHIS), weighted; college students are from the American College Health Association–National College Health Assessment (ACHA–NCHA), unweighted.

A parallel expansion of academic accommodations in higher education has accompanied this rise in diagnosis. We measure the accommodation environment using the Integrated Postsecondary Education Data System (IPEDS), which reports the share of undergraduates formally registered with campus disability offices.³ Figure 2 shows that, as overall diagnosis has increased, disability registration at U.S. colleges and universities has risen steadily from 2010 to 2024. The share of institutions reporting registration above the IPEDS disclosure threshold rises from about 13 percent to more than 30 percent. Among institutions above the threshold, the average registered share also increases from roughly 7.4 percent to about 10 percent.

Our accommodation-officer survey corroborates this upward trend at the institutional level. Among the 114 administrators who report how the ADHD share of accommodations at their institution has changed over the past five years, 69.3 percent say it has increased, and only 3.5 percent say it has decreased (Figure 3). The staff who adminis-

³This measure is not ADHD-specific and does not identify the exact accommodations received. It is nevertheless informative because disability registration is typically the first step students take to request accommodations, such as extended exam time.

Figure 2: Disability Registration at Colleges and Universities



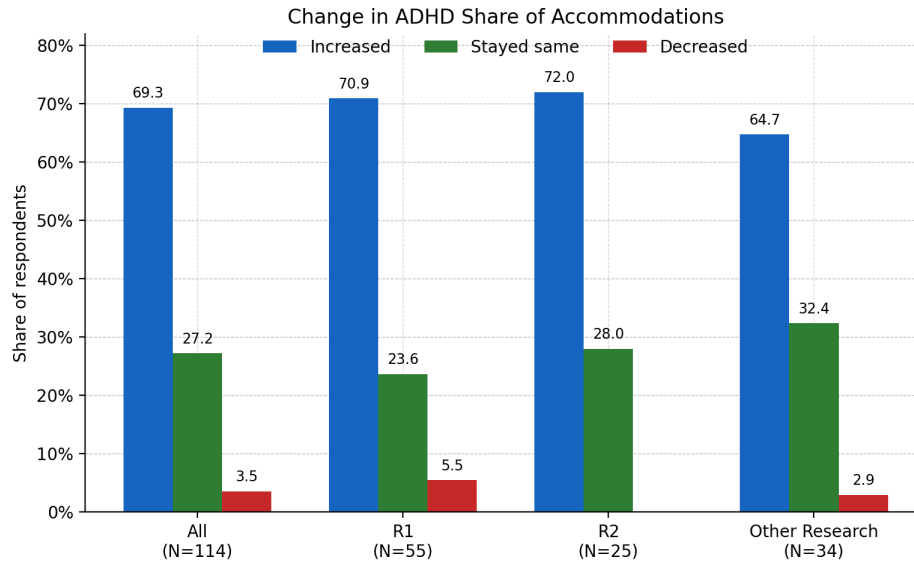
Notes: IPEDS, 2010–2024. One series (left axis) is the share of institutions reporting disability registration above the 3% IPEDS disclosure threshold; the other (right axis) is the mean registered share of undergraduates among institutions above the threshold.

ter accommodations thus widely perceive ADHD-related demand to be rising, consistent with the aggregate diagnosis and registration trends.

Disability registration also varies systematically across institutions. Figure 4 plots disability registration against admit rates among R1 universities and shows that registration is higher at more selective institutions. This pattern suggests that disability registration is not evenly distributed across higher education, but is concentrated at the most competitive institutions.

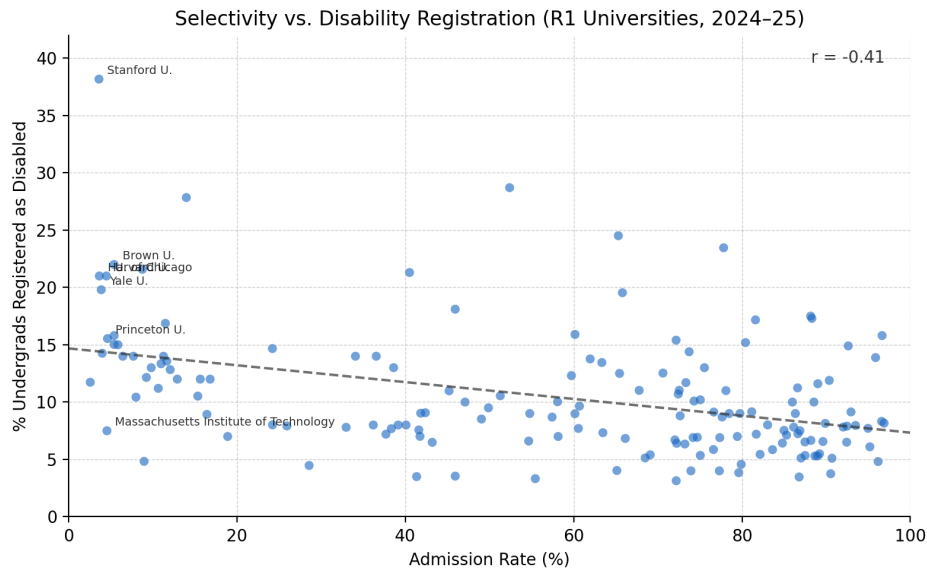
These patterns are not unique to the United States. Similar increases in ADHD diagnosis and stimulant use have emerged in other countries with intense academic competition. South Korea is a telling example: it combines exceptionally competitive, rank-based academic environments with a dense private tutoring (*hakwon*) industry. It has experienced an even steeper recent rise in ADHD diagnoses among the young, concentrated in its most competitive districts. We present this evidence in Appendix A.

Figure 3: Change in ADHD Share of Accommodations over the Past Five Years



Notes: Accommodation-officer survey. Distribution of responses to how the ADHD share of academic accommodations at the respondent's institution has changed over the past five years, among the 114 institutions reporting a direction.

Figure 4: Selectivity and Disability Registration Among R1 Universities



Notes: IPEDS, 2024–25. Each point represents an R1 university; the horizontal axis is the admission rate (admits/applicants) and the vertical axis is the share of undergraduates registered as having a disability. The dashed line is the OLS fit ($r = -0.41$); selected institutions are labeled.

3.3 Who Takes ADHD Drugs?

We begin by documenting who takes ADHD stimulants and how use varies across the student body.

Table 3: Stimulant Use, by Sex, College Year, and Research Designation

	Ever taken	Currently taking	N
<i>Sex</i>			
Female	150 (26.7%)	86 (15.3%)	562
Male	127 (29.0%)	68 (15.5%)	438
<i>College year</i>			
Freshman	69 (26.6%)	36 (13.9%)	259
Sophomore	69 (27.3%)	39 (15.4%)	253
Junior	59 (25.4%)	38 (16.4%)	232
Senior	75 (31.2%)	39 (16.2%)	240
<i>Carnegie research designation</i>			
R1: Very high research	175 (28.0%)	91 (14.6%)	625
R2: High research	56 (24.9%)	34 (15.1%)	225
Other Research	46 (30.7%)	29 (19.3%)	150

Notes: Student survey ($N = 1,000$). Cells report counts with within-group shares in parentheses. “Ever taken” is any lifetime stimulant use; “currently taking” is current use.

27.7% of all students (1,000 in total) report that they have taken any prescription stimulant at least once in their lifetime (henceforth we call them *ever-takers*). 15.4% of respondents report currently taking them, corresponding to 55.6% of ever-takers. Stimulant use is balanced across basic demographic characteristics. Table 3 shows that men and women report similar ever-taking rates and current-use rates, and the rates are similarly flat across college years and across institutional research tier (R1, R2, and Other Research).

Table 4 shows that students exposed to relative-performance grading are more likely to have experienced stimulant use than students at institutions where relative-performance grading is less common. The table also shows that students with lower academic standing are more likely to have used stimulants. However, stimulant use is not confined to lower-performing students: more than 10% of high-achieving students in the A- to A range also report stimulant use.

Table 4: **Stimulant Use, by Relative-Grading Exposure and Academic Standing**

	Ever taken	Currently taking	N
<i>Relative-performance grading</i>			
Never / Rarely / Sometimes	222 (26.6%)	121 (14.5%)	834
Often / Almost always	55 (33.1%)	33 (19.9%)	166
<i>Academic standing</i>			
A– to A or above	98 (22.3%)	58 (13.2%)	439
B to A–	144 (30.7%)	78 (16.6%)	469
B– and below	35 (38.0%)	18 (19.6%)	92

Notes: Student survey ($N = 1,000$). Relative-performance-grading exposure is the self-reported frequency of curve grading; academic standing is also self-reported. Counts with within-group shares in parentheses.

3.4 Why Would Non-Patients Take ADHD Drugs?

Students with genuine ADHD have a clear clinical reason to take stimulants. Less obvious is why a student *without* ADHD would seek them out. We document two reasons: the drug itself is believed to boost academic performance, and a formal diagnosis unlocks valuable accommodations such as extra exam time. We take each in turn.

Table 5: **Expected Grade Improvement from Stimulants**

	Non-patients	ADHD patients
No noticeable improvement	200 (20.0%)	73 (7.3%)
Less than half letter grade	399 (39.9%)	157 (15.7%)
Half to one letter grade	324 (32.4%)	425 (42.5%)
More than one letter grade	77 (7.7%)	345 (34.5%)

Notes: Student survey ($N = 1,000$). Perceived improvement in grades from a non-user starting stimulants, reported separately for non-patients and ADHD patients.

Students expect sizable academic returns from stimulant use. Specifically, we asked students how much grades would improve if a non-user started taking stimulants, considering the case of an ADHD patient and the case of a non-patient separately. Table 5 shows that nearly 80% of students believe that starting stimulants would improve grades by at least half a letter grade, such as from B+ to A–, for ADHD patients. Respondents also believe that non-patients can benefit from stimulant use: only 20% report that there would be no noticeable improvement. In contrast, nearly 40% believe that grades would improve by at least half a letter grade. These results suggest that students do not view the benefits of stimulants as only leveling the playing field by reducing ADHD-related

symptoms. Instead, many believe that the benefits of stimulants do not depend sharply on patients' baseline status.

Table 6: Cessation under No Academic Benefit

	Yes	No	Sample
Would you stop taking?	66 (42.9%)	88 (57.1%)	Current users ($N = 154$)
Would peers stop taking?	100 (64.9%)	54 (35.1%)	Current users ($N = 154$)
Would peers stop taking?	616 (61.6%)	384 (38.4%)	All ($N = 1,000$)

Notes: Student survey. Responses to a hypothetical in which stimulants provide no academic benefit. Own behavior is asked of current users; peer predictions are reported for the indicated sample.

Table 6 further shows that perceived academic returns are central to students' own stimulant-use decisions. When current users are asked whether they would stop taking stimulants if stimulants had no academic benefit, 42.9% said yes. Students also believe that their peers would respond similarly: among current users, 64.9% believe peers would stop taking stimulants under the same scenario, and in the full sample, 61.6% believe peers would stop.

The second motive is accommodation. Extra exam time, the most common ADHD-related accommodation, is itself widely seen as performance-enhancing: Table 7 shows that 54% of students expect 1.5 $\times$ exam time to raise a student's grade by at least half a letter grade, and only 4% expect no improvement at all. Because a formal diagnosis is the gateway to such accommodations, students have an incentive to seek a diagnosis and treatment even apart from the medication's direct pharmacological effect.

Table 7: Perceived Effect of Extra Exam Time

$N = 1,000$	N	%
No noticeable improvement	44	4.4
Slight (< half letter grade)	416	41.6
Moderate (half to one letter grade)	437	43.7
Large (> one letter grade)	103	10.3

Notes: Student survey ($N = 1,000$). Perceived improvement in a student's grade from receiving 1.5 $\times$ the regular exam time, all else equal.

Beyond this perceived benefit, students say that accommodation policy itself shifts their treatment decisions.

We also ask how students would respond to changes in the academic environment around them. Of the 1,000 students in our sample, 699 attend schools that provide ex-

Table 8: Responses to Counterfactual Accommodation Policy

	Yes	No	Sample
<i>Schools without extra time, introduce extra time:</i>			
Would you seek treatment?	129 (49.6%)	131 (50.4%)	Non-users ($N = 260$)
Would peers seek treatment?	221 (73.4%)	80 (26.6%)	All ($N = 301$)
<i>Schools with extra time, remove extra time:</i>			
Would you stop taking?	23 (20.4%)	90 (79.6%)	Users ($N = 113$)
Would peers stop?	178 (25.5%)	521 (74.5%)	All ($N = 699$)

Notes: Student survey. The introduction rows are restricted to students at schools without extra exam time; the removal rows are restricted to students at schools with extra exam time. Cells report “Yes” counts with shares in parentheses.

tra exam time as an accommodation. Table 8 shows that introducing extra exam time would elicit a substantial response in students’ treatment decisions. Among non-users at schools that do not currently provide extra time, 49.6% say they would consider seeking diagnosis and treatment if their school adopted a $1.5\times$ exam-time policy. Students also expect similar responses among their peers: among students at schools without extra-time accommodations, 73.4% predict that peers would seek treatment if extra time were introduced.

Removing extra time at schools that currently provide it generates a response in the opposite direction. Among current users at schools with extra time, 20.4% say they would stop taking stimulants if extra time were removed, and 25.5% of students at those schools predict that peers would stop. Taken together, these responses suggest that accommodation policy changes the incentives surrounding stimulant use. Students appear to perceive extra exam time (i) as increasing the value of obtaining a diagnosis and, in turn, (ii) as moving some students across the margin of seeking treatment.

3.5 Access to Stimulants

How easily can students obtain stimulants, and through which channels? We find that access is widely perceived as easy and that informal, non-prescription channels are common.

Table 9 shows that students perceive stimulants as easily accessible for ADHD patients. More than 80% believe that receiving a stimulant prescription or obtaining and taking stimulants is easy for ADHD patients, and 35% believe that it is *very* easy. As expected, students think that receiving a formal prescription would be harder for non-

Table 9: **Ease of Access to Stimulants**

	Non-patients	ADHD patients
<i>Panel A: Ease of obtaining and taking stimulants</i>		
Very easy	129 (12.9%)	350 (35.0%)
Easy	465 (46.5%)	480 (48.0%)
Difficult	356 (35.6%)	159 (15.9%)
Very difficult	50 (5.0%)	11 (1.1%)
<i>Panel B: Ease of receiving a prescription for ADHD drugs</i>		
Very easy	66 (6.6%)	354 (35.4%)
Easy	272 (27.2%)	488 (48.8%)
Difficult	487 (48.7%)	140 (14.0%)
Very difficult	175 (17.5%)	18 (1.8%)

Notes: Student survey ($N = 1,000$). Perceived ease of access to stimulants, reported separately for peers who are not ADHD patients and peers who are ADHD patients.

patients. The share who view prescription access as easy falls to 33%, well below the corresponding share for ADHD patients. But we view this as still sizable, especially given that only 17.5% say it would be very difficult for non-patients to obtain a prescription. Students also view broader access as fairly easy: 59% believe that obtaining and taking stimulants would be easy even for non-patients, while only 5% say that it would be very difficult.

Table 10: **Prescription Source Among Ever-Takers**

	Current users ($N = 154$)	Former users ($N = 123$)	All ever-takers ($N = 277$)
Prescribed to respondent	136 (88.3%)	69 (56.1%)	205 (74.0%)
Prescribed to someone else	12 (7.8%)	40 (32.5%)	52 (18.8%)
Without any prescription	6 (3.9%)	14 (11.4%)	20 (7.2%)

Notes: Student survey, among the 277 ever-takers (154 current, 123 former users). “Prescribed to someone else” and “without any prescription” denote nonmedical sources.

Access is not confined to formal prescriptions. Table 10 reports how ever-takers obtained stimulants. While 88% of current users took medication prescribed to them, this falls to 56% among former users: 33% of former users obtained stimulants through someone else’s prescription and 11% without any prescription. Informal diversion channels are thus a meaningful source of access, especially for non-current and likely nonmedical users.

Table 11: **Perceived Ease of Access for Non-Patients, by Parental Income and Education**

	Easy to get diagnosed (receive a prescription)	Easy to obtain and take (stimulants)
<i>Parental household income</i>		
Low	39.3%	58.9%
Middle	25.2%	57.7%
High	36.8%	61.7%
<i>Parental education</i>		
High school or less	35.7%	62.0%
Some college	35.0%	54.9%
Bachelor's	29.0%	59.3%
Graduate	35.3%	60.7%

Notes: Student survey ($N = 1,000$). Each cell is the share of respondents who say it is easy or very easy for a *non-patient* to (i) receive an ADHD prescription and (ii) obtain and take stimulants. Income terciles use parental household income; groups range from 226 to 334 respondents.

Access for non-patients varies little across socioeconomic background, but it differs sharply by channel. Table 11 reports, for each income and education group, the share who think it is easy for a non-patient to receive a formal prescription and the share who think it is easy to obtain and take stimulants. Two patterns stand out. First, obtaining and taking stimulants is consistently viewed as easier (55–62%) than securing a formal diagnosis and prescription (25–39%), pointing to informal, non-prescription channels as the main route of access for non-patients. Second, both measures are broadly flat with respect to parental income and education: easy access is not a privilege of higher-SES students but is available across the student body.

3.6 Strategic Complementarity

The model's central prediction is that stimulant use is a strategic complement: a student's incentive to take rises with peer use. The survey provides direct evidence of this response.

We next ask whether students' stated behavior responds to peer stimulant use. Each respondent first reported their belief about the current share of students at their institution who take stimulants. We then constructed respondent-specific counterfactuals in which peer stimulant use rose or fell by 50% relative to that belief; for example, a respondent who believed that 20% of students currently take stimulants was asked about scenarios in which peer use increased to 30% or fell to 10%. Table 12 shows that 36.4% of

Table 12: Responses to Hypothetical Changes in Peer Stimulant Usage

	Yes	No	Sample
<i>If peer usage increases by 50%:</i>			
Would you start taking?	308 (36.4%)	538 (63.6%)	Non-users (N = 846)
Would non-users start?	622 (73.5%)	224 (26.5%)	Non-users (N = 846)
Would non-users start?	741 (74.1%)	259 (25.9%)	All (N = 1,000)
<i>If peer usage decreases by 50%:</i>			
Would you stop taking?	37 (24.0%)	117 (76.0%)	Current users (N = 154)
Would users stop?	72 (46.8%)	82 (53.2%)	Current users (N = 154)
Would users stop?	454 (45.4%)	546 (54.6%)	All (N = 1,000)

Notes: Student survey. Each respondent evaluated counterfactuals in which peer stimulant use rose or fell by 50% relative to their own stated belief about the current institutional rate.

non-users would consider starting stimulants if peer use rose by 50%. Conversely, 24% of current users say they would consider stopping if peer use fell by 50%. Students also predict even larger responses among their peers than they report for themselves: 74.1% of all respondents predict that non-users would start after an increase in peer use, and 45.4% predict that users would stop after a decrease in peer use.

Table 13: Response to a 50% Rise in Peer Use, by ADHD Symptom Status

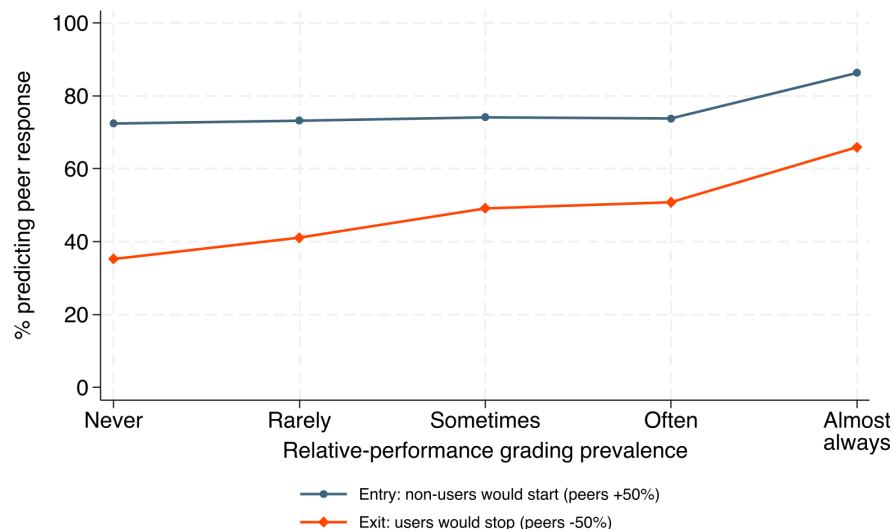
<i>N</i> = 846 (not currently taking)	Would consider starting	Would not
Reports ADHD symptoms (<i>N</i> = 471)	217 (46.1%)	254 (53.9%)
Does not report ADHD symptoms (<i>N</i> = 375)	91 (24.3%)	284 (75.7%)

Notes: Student survey. Among non-current-users, the share who would consider starting stimulants if peer use at their institution rose by 50%, split by self-reported ADHD symptoms.

The peer response is concentrated among students who already see themselves as candidates for treatment. Table 13 splits non-users by self-reported ADHD symptoms: 46.1% of symptomatic non-users would consider starting if peer use rose by 50%, nearly double the 24.3% among asymptomatic non-users. As growing awareness of ADHD lowers the threshold for self-identification, this margin can itself amplify the complementarity over time.

Strategic complementarity is also stronger where evaluation is more explicitly relative. Figure 5 traces predicted peer responses across levels of relative-grading exposure. The exit margin—the share predicting that users would stop if peer use fell—rises steadily from about 35% among students who never face curve grading to 66% among those who

Figure 5: Predicted Peer Response to Changes in Peer Use, by Relative-Grading Prevalence



Notes: Student survey. Third-person predictions that non-users would start (after a 50% rise in peer use) and that users would stop (after a 50% fall), by the self-reported prevalence of relative-performance grading.

almost always do. The entry margin jumps to 86% at the highest exposure. Where falling behind a peer is costlier, peer use is a stronger driver of adoption.

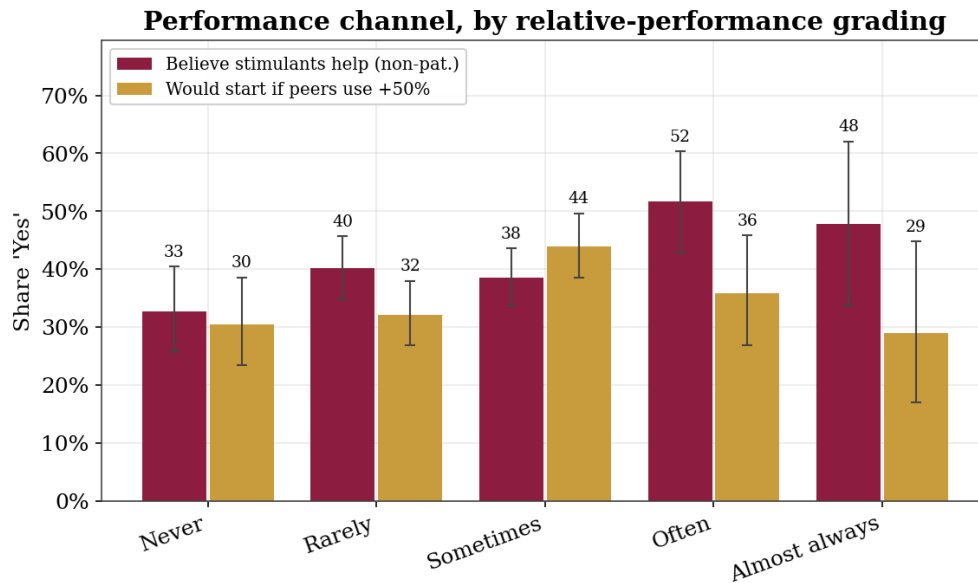
The incentive for a non-patient to take should likewise be strongest where evaluation is most explicitly relative. We test this directly with the survey's measure of how often grading is set on a curve, examining the two channels of Section 3.4 in turn.

The performance channel strengthens with relative grading. Figure 6 shows that the share who believe stimulants help non-patients rises from 33% among students who never face curve grading to about 50% among those who often do.

The accommodation channel shows the same pattern. Figure 7 shows that the share who would seek treatment if extra time were introduced rises from 31% to 55% across the same range, even though the belief that extra time helps is high and roughly flat throughout.

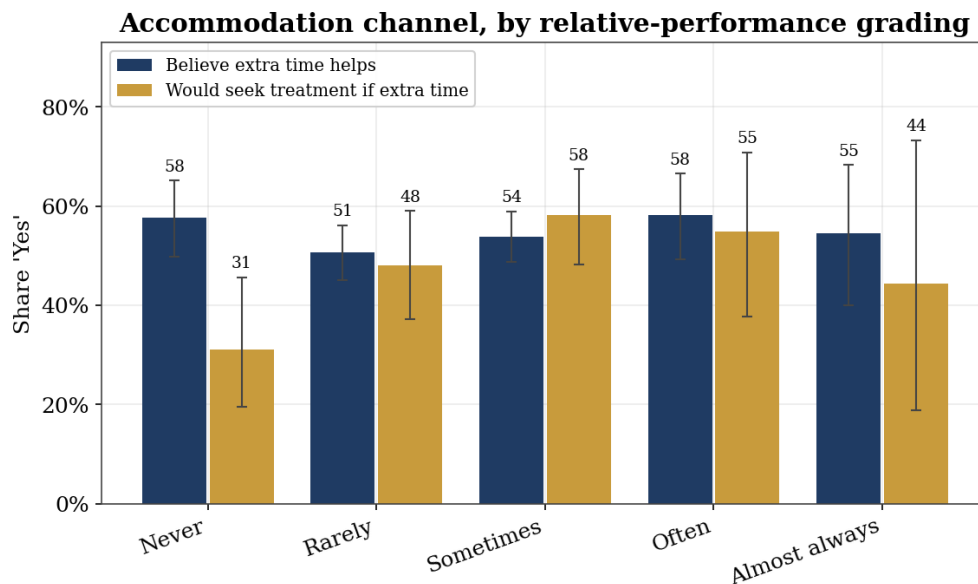
In both channels, the perception that performance is judged relatively—rather than on an absolute scale—is associated with a stronger incentive for non-patients to take, consistent with the model's emphasis on the strength of relative-performance competition.

Figure 6: Performance Channel, by Relative-Performance Grading



Notes: Student survey, by the self-reported frequency of relative-performance (curve) grading. Bars show the share believing stimulants help non-patients (moderate improvement or more) and the share of non-users who would start if peer use rose by 50%. Whiskers are 95% Wilson intervals.

Figure 7: Accommodation Channel, by Relative-Performance Grading



Notes: Student survey, by the self-reported frequency of relative-performance (curve) grading. Bars show the share who believe that 1.5 times the extra exam time helps (a moderate improvement or more) and the share of non-users at schools without extra time who would seek treatment if it were introduced. Whiskers are 95% Wilson intervals.

3.7 Staff Survey Results

Using the staff survey, we document how ADHD-related academic accommodation decisions are currently administered at U.S. colleges.⁴ We collected staff contacts manually from institutional disability-services and accommodations-office directories, contacted approximately 2,500 staff members with periodic follow-ups, and obtained 121 responses from 116 institutions (sample characteristics in Table 2).

Table 14: **ADHD-Related Accommodations Offered**

<i>N</i> = 121	Share offering
Additional time for exams	117 (96.7%)
Alternative testing location	111 (91.7%)
Preferred seating	77 (63.6%)
Assistive technology	60 (49.6%)
Additional time for assignments	48 (39.7%)
Scheduled meetings with counselors	46 (38.0%)
Alternative exam format	32 (26.4%)

Notes: Accommodation-officer survey (*N* = 121). Share of institutions offering each ADHD-related accommodation; categories are not mutually exclusive.

Staff were asked which ADHD-related accommodations their institutions typically provide. Additional exam time and alternative testing locations are the most common accommodations: 96.7% of institutions offer additional exam time, and 91.7% provide alternative testing locations. Preferred seating and assistive technology were also commonly provided. By contrast, additional time for assignments, scheduled meetings with specialized counselors, and alternative exam formats were offered by only a smaller share of institutions (Table 14). Among the 117 institutions that provide additional exam time, the typical policy is to allow students 1.5× to 2× the standard amount of exam time.

Staff respondents were also asked which categories of students would, in practice, be able to receive ADHD-related academic accommodations. Most institutions require formal documentation: 93.4% accept a DSM-5 evaluation indicating ADHD, and 92.6% accept a formal diagnosis from a licensed provider who is currently treating the student. But many institutions also consider cases with weaker documentation. About half of institutions (51.2%) report that they would accommodate a student with a prior diagnosis but no current documentation, 41.3% would do so based on a physician’s note stating that ADHD is suspected, and 22.3% report that a student who self-reports ADHD with-

⁴To our knowledge, this is the first dataset that directly surveys disability-services staff about ADHD-related accommodation practices across U.S. colleges.

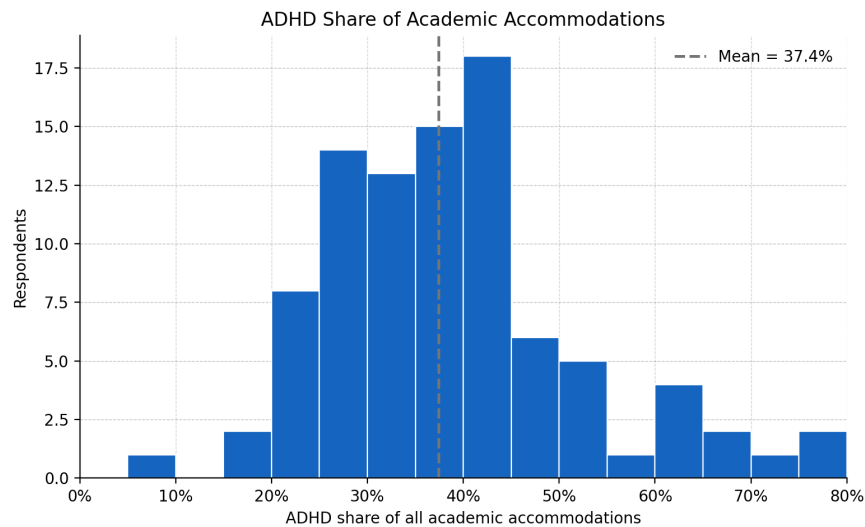
Table 15: **Eligibility Standards: Evidence Accepted for ADHD Accommodations**

<i>N</i> = 121	Share accepting
Formal DSM-5 evaluation indicating ADHD	113 (93.4%)
Formal diagnosis + current treatment	112 (92.6%)
Prior diagnosis, no current documentation	62 (51.2%)
Physician's note, ADHD suspected	50 (41.3%)
Self-report only, no documentation	27 (22.3%)

Notes: Accommodation-officer survey (*N* = 121). Share of institutions that would, in practice, accept each form of evidence for ADHD accommodations; categories are not mutually exclusive.

out documentation could receive accommodations (Table 15). These responses suggest that accommodation decisions are heterogeneous in practice, with institutions differing in how strictly they apply documentation requirements.

Figure 8: ADHD Share of All Academic Accommodations



Notes: Accommodation-officer survey. Distribution across institutions of the estimated ADHD share of all academic accommodations, among the 92 respondents reporting a numeric estimate (mean 37.4%).

ADHD-related requests also represent a large share of accommodation caseloads. Among the 92 respondents who provide a numeric estimate, the mean ADHD share of all academic accommodations is 37.4% (Figure 8); as shown in Section 3.2, most administrators also report that this share has risen over the past five years.

Finally, staff respondents were asked how ADHD accommodation requests are typically resolved at their institution. The most common arrangement is decision-making by a *single* staff member: 93 of 119 reporting institutions rely on one administrator to ad-

Table 16: **Decision-Making Structure for ADHD Accommodation Requests**

$N = 119$ (reported)	Count
Individual staff	93 (78.2%)
Small committee (2–5 reviewers)	23 (19.3%)
Large committee (6+ reviewers or formal board)	3 (2.5%)

Notes: Accommodation-officer survey ($N = 119$ reporting). Modal arrangement for adjudicating ADHD accommodation requests at the respondent’s institution.

judicate requests. Small committees of two to five reviewers make these decisions at 23 institutions, while formal boards or larger committees appear at only 3 institutions (Table 16).

4 Model

Time is discrete, $t = 0, 1, 2, \dots$, and in each period a unit continuum of agents is born and competes for one period. Agent i is born with two characteristics: an innate ability a_i , drawn from a distribution F , and an ADHD-symptom severity θ_i , drawn from a distribution G . Medical evidence treats ADHD symptoms as lying on a continuum rather than being strictly binary, so we let θ_i vary smoothly across the population; agents above a diagnostic threshold are the clinically affected, but symptoms affect functioning throughout the distribution. The most severely affected—a clinical minority—take the drug regardless of the competitive environment, placing a floor on use roughly equal to the clinical prevalence.

Effective ability and the drug. ADHD symptoms impair an agent in two ways. They lower the ability an agent can actually bring to bear in competition, so that without treatment agent i competes with *effective ability*

$$a_i^e = a_i - \chi \theta_i, \quad \chi > 0,$$

where χ scales how strongly symptoms erode realized performance; and they impose an everyday disutility $\phi\theta_i$ outside the competitive arena. A prescription stimulant is available. Taking it (decision $d_i = 1$) removes the symptom penalty and, consistent with the survey evidence that students expect a performance gain even for non-patients (Sec-

tion 3.4), confers a proportional advantage $b \geq 0$, so that a user competes with

$$a_i^e = a_i (1 + b),$$

and bears negligible residual symptom disutility. The two channels—removing the penalty $\chi\theta_i$ and adding the boost b —mean that both symptomatic and asymptomatic students can gain from the drug, the latter purely through the competitive advantage.

Rank-based reward. Agents are rewarded on *relative* performance. Agent i obtains the societal rank

$$r_i = \frac{(a_i^e)^\varphi}{\mathbb{E}[(a_k^e)^\varphi]}, \quad \varphi \geq 0,$$

which integrates to one across the population. The parameter φ governs competitiveness: at $\varphi = 0$, all agents receive equal rewards regardless of performance, whereas as φ grows, the environment becomes “winner-take-all,” concentrating rewards on the highest performers. We write $S \equiv \mathbb{E}[(a_k^e)^\varphi]$ for the *competitive standard*—the population benchmark against which each agent is judged.

The cost of taking, and the social spillover. Taking the drug carries a cost—monetary outlays, side effects, and especially stigma. Crucially, this cost *falls as stimulant use becomes more common*: as more peers take the drug, diversion becomes easier, information spreads, and the stigma of use erodes. This “normalization” channel is documented in the public health literature and is reflected directly in our survey, where students say their own use would respond to peers’ use (Section 3.6). We capture it with

$$c(D) = c_0 (1 - \kappa D), \quad \kappa \in [0, 1),$$

where D is the share of peers taking the drug and κ governs the strength of normalization.

Preferences and choice. Agent i has constant-relative-risk-aversion preferences over rank with coefficient γ and solves

$$\max_{d_i \in \{0,1\}} \frac{r_i^{1-\gamma}}{1-\gamma} - \phi \theta_i^e - c(D) d_i,$$

where $(a_i^e, \theta_i^e) = (a_i - \chi\theta_i, \theta_i)$ if $d_i = 0$ and $(a_i(1+b), \underline{\theta})$ with $\underline{\theta} \approx 0$ if $d_i = 1$. Substituting the rank, agent i takes the drug if and only if

$$\underbrace{\frac{(a_i(1+b))^{\varphi(1-\gamma)} - (a_i - \chi\theta_i)^{\varphi(1-\gamma)}}{1-\gamma}}_{\text{competitive gain (increasing in the standard } S)} S^{\gamma-1} + \underbrace{\phi \theta_i}_{\text{symptom relief}} > \underbrace{c_0(1-\kappa D)}_{\text{cost (decreasing in peer use } D)}.$$

Two features drive the analysis. First, for $\gamma > 1$ the competitive gain increases in the standard S : when others perform better, falling behind is costlier, so the drug becomes more valuable.⁵ Second, the cost decreases in peer use D . Both forces make stimulant use a *strategic complement*: an individual’s incentive to take rises as more others take.

Equilibrium and expectations. A higher peer share D raises use both directly, by lowering the cost, and indirectly, because more users raise the standard S . Aggregating individual choices defines a best-response map: given an anticipated peer share D^e and the standard it induces, the realized share is $BR(D^e)$. A rational-expectations equilibrium is a fixed point $D^* = BR(D^*)$. Because of the complementarity, BR can cross the 45° line more than once, generating *multiple equilibria*.

To trace how use evolves, we follow the literature (e.g., [Kim et al., 2024](#)) and assume *adaptive expectations*: agents do not observe others’ types or drug choices, but only the previous generation’s realized standard and use shares. They best-respond as if these will persist. The economy then follows $D_t = BR(D_{t-1})$, converging to whichever stable equilibrium lies in the basin of its initial condition. A small shock near an unstable fixed point can tip the economy from low to near-universal use—an “addiction run.”

5 Calibration

We calibrate the model to the United States by combining our survey, public national statistics, and standard parameter values; Table [17](#) presents the results. Severities are expressed on the ASRS 0–72 symptom scale, normalized to $[0, 1]$.

Distributions. We take ability a_i to be lognormal and set its dispersion from the SAT score distribution, whose coefficient of variation (mean ≈ 1050 , standard deviation ≈ 200) implies a log standard deviation $\sigma_a \approx 0.19$.⁶ ADHD severity θ_i follows a Beta distri-

⁵At $\gamma = 1$ (log utility) the standard cancels and the competitive channel shuts down; we therefore use $\gamma > 1$, with $\gamma = 2$ in the calibration.

⁶College Board and NCES SAT statistics for recent cohorts.

bution calibrated to the national adult ASRS symptom distribution—mean ≈ 17 and standard deviation ≈ 10 on the 0–72 scale⁷—which, after normalization to $[0, 1]$, gives $\theta_i \sim \text{Beta}(1.97, 6.38)$. We identify the clinical threshold with the top 5% of the severity distribution, consistent with an adult ADHD prevalence of roughly 5% in the United States.⁸

Parameters. We fix the curvature of rank utility at the standard value $\gamma = 2$ and normalize the everyday-disutility weight to $\phi = 3$. The drug advantage $b = 0.30$ is set to the “moderate” grade improvement that non-patients expect from stimulants in our survey. The remaining structural parameters are chosen to match three targets: (i) a no-competition, purely clinical take-up of about 5%, which pins the base cost c_0 ; (ii) the 15% current-use share observed in the survey, which the model reproduces at its *low* equilibrium; and (iii) the existence of a high-use equilibrium, governed by the strength of normalization κ . This yields competitiveness $\varphi = 3$, symptom penalty $\chi = 0.5$, base cost $c_0 = 3.9$, and normalization $\kappa = 0.74$.

Table 17: **Calibrated Parameters**

	Interpretation	Value
$a_i \sim \text{Lognormal}(0, \sigma_a)$	ability; dispersion from SAT scores	$\sigma_a = 0.19$
$\theta_i \sim \text{Beta}(\alpha, \beta)$	ADHD severity, ASRS/72	$(\alpha, \beta) = (1.97, 6.38)$
γ	curvature of rank utility (CRRA)	2.0
φ	competitiveness of evaluation	3.0
χ	symptom penalty on performance	0.5
b	drug performance advantage	0.30
ϕ	everyday symptom disutility	3.0
c_0	base cost of taking	3.9
κ	strength of normalization	0.74

Notes: The ability and severity distributions are grounded in public SAT and ASRS statistics, and the clinical threshold matches the $\sim 5\%$ adult ADHD prevalence. γ and ϕ are fixed at standard/normalized values; $\varphi, \chi, b, c_0, \kappa$ are set to match a $\sim 5\%$ clinical baseline, the 15% observed current-use share (reproduced at the low equilibrium), and the existence of a high-use equilibrium.

Fit. At these values, the model has two stable equilibria, analyzed in Section 6: a low-use equilibrium with 15% of students taking the drug—matching the current-use rate measured in the survey—and a high-use equilibrium with 93% taking it, separated by an

⁷Adult ADHD Self-Report Scale (ASRS) population norms.

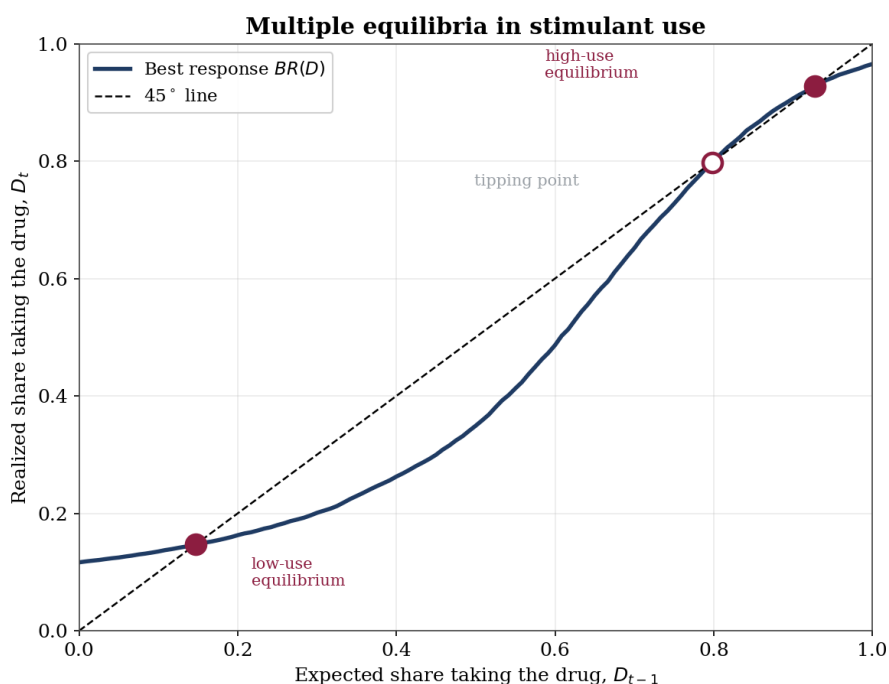
⁸NIMH and the National Comorbidity Survey Replication.

unstable tipping point at 80%. The low equilibrium thus describes the present-day United States, while the high equilibrium describes the “explosion” the model warns against.

6 Equilibrium and Strategic Complementarity

Figure 9 plots the calibrated best-response map $BR(D)$ against the 45° line. It crosses three times. The two outer crossings are stable equilibria—a low-use equilibrium at $D = 15\%$ and a high-use equilibrium at $D = 93\%$ —separated by an unstable tipping point at $D = 80\%$. The low equilibrium matches the 15% current-use rate measured in our survey; the high equilibrium is the near-universal use the model warns can emerge.

Figure 9: Multiple Equilibria in Stimulant Use

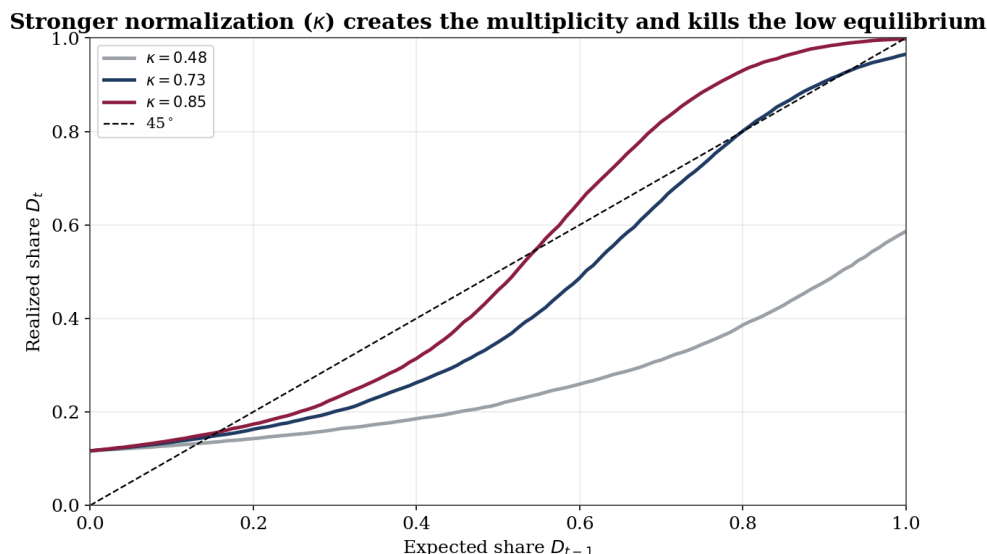


Notes: Calibrated best-response map: the realized share taking the drug as a function of the anticipated peer share, against the 45° line. Filled circles mark the two stable equilibria (15% and 93%); the open circle marks the unstable tipping point (80%).

The multiplicity is a direct consequence of the two complementarities in Section 4. Where few take the drug, the competitive standard is low, and stigma is high, so only the clinically affected use it; where many take it, the standard is high, and stigma has eroded, so almost everyone does. Figure 10 isolates the role of normalization. When the cost is insensitive to peer use (κ small), the best-response map crosses the diagonal once, and the low-use equilibrium is the only outcome. As κ rises, the map steepens; at

intermediate values it crosses three times, producing multiplicity; and at high values the low equilibrium disappears entirely, leaving widespread use as the unique outcome.

Figure 10: Normalization Creates the Multiplicity



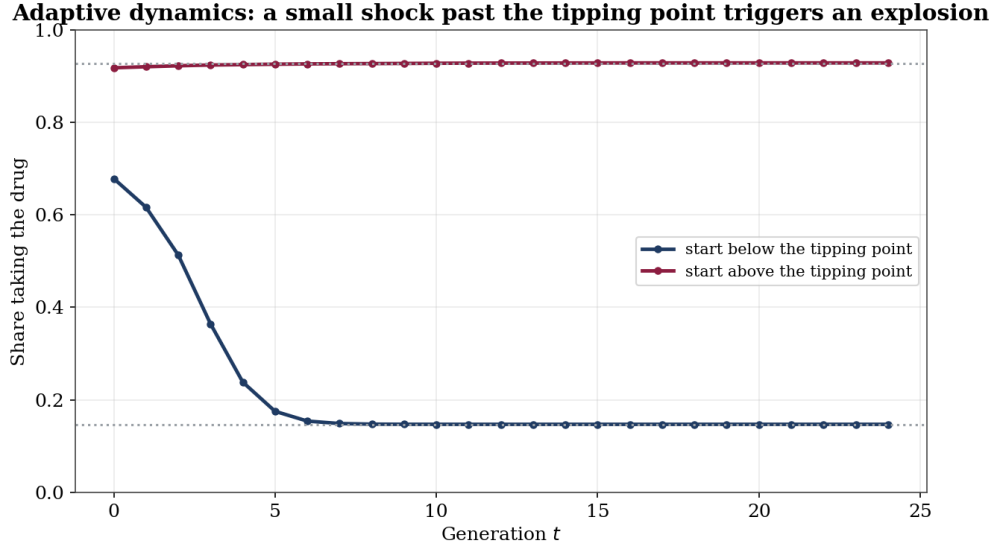
Notes: The best-response map at three values of the normalization strength κ , holding all other calibrated parameters fixed. At low κ only the low-use equilibrium exists; at the calibrated $\kappa = 0.74$ there are three equilibria; at high κ only the high-use equilibrium survives.

Because expectations are adaptive, the economy converges to whichever equilibrium contains its starting point. Figure 11 simulates the use share forward from two nearby initial conditions on either side of the tipping point. The economy starting just below it recedes within a few generations to the 15% low-use equilibrium; the one starting just above it “explodes” to 93%. A modest shock—a rise in competition, a fall in stigma, or an expansion of access—that pushes use past the tipping point can therefore trigger a self-reinforcing run to near-universal use that is difficult to reverse.

7 Competitiveness and the Drug Advantage

Which equilibria exist depends on how competitive the environment is. Figure 12 varies the competitiveness parameter φ . Raising φ makes rewards more winner-take-all, so the competitive gain from the drug is larger at every level of peer use, and the best-response map shifts up. At low competitiveness ($\varphi = 2$) only the low-use equilibrium survives; at the calibrated value ($\varphi = 3$) the economy is in the multiple-equilibria region; and at high competitiveness ($\varphi = 4.5$) the low equilibrium vanishes, and near-universal

Figure 11: Adaptive Dynamics and Tipping



Notes: Forward simulation of the use share $D_t = BR(D_{t-1})$ from two initial conditions just below and just above the unstable tipping point. Dotted lines mark the two stable equilibria.

use becomes the unique outcome. The drug advantage b and the symptom penalty χ act in the same direction: anything that raises the competitive return to the drug pushes the economy toward the high-use trap.

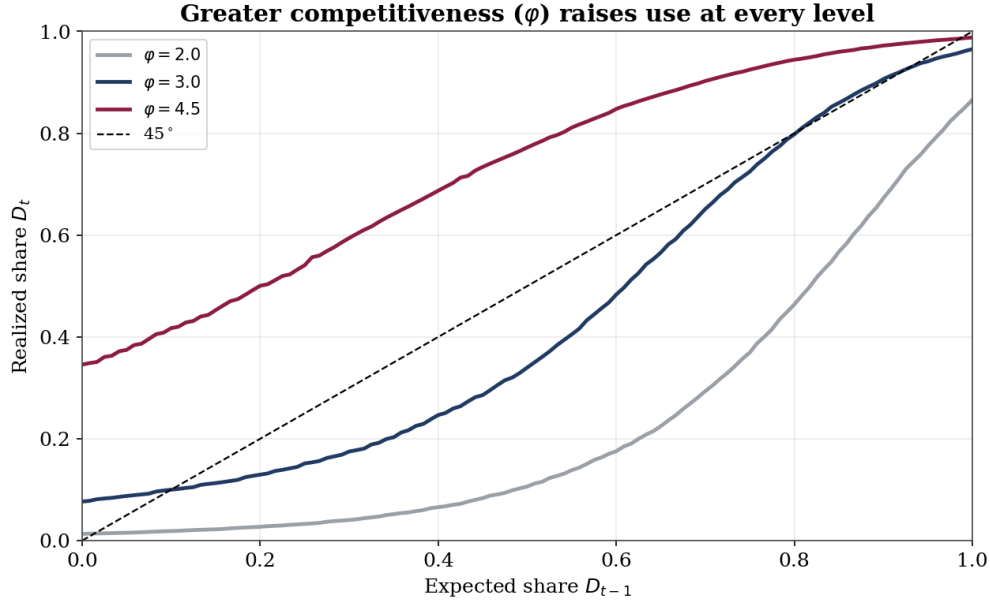
These comparative statics deliver the paper’s central message. An economy can sit safely at low use, with the drug confined to the clinically affected. Yet, a gradual intensification of academic competition, a normalization of stimulant use, or an easing of access can erase the low equilibrium and tip the population into an “addiction run”—a transition that the sharp, sustained rise in ADHD diagnosis and stimulant use documented in Section 3 suggests may already be underway.

8 Counterfactuals

The calibrated economy sits at the low-use equilibrium, but the high-use equilibrium is only a large enough shock away. We use the model to ask which policies eliminate that dangerous high equilibrium, and at what cost. We consider four interventions, each motivated by the empirical setting, and report the resulting stable equilibria in Figure 13. The striking finding is that *all four* remove the high-use equilibrium—but they differ sharply in how far they push use down and in their collateral damage.

However, a lower headline use rate is not a sufficient criterion. What ultimately mat-

Figure 12: Competitiveness Shifts the Equilibrium



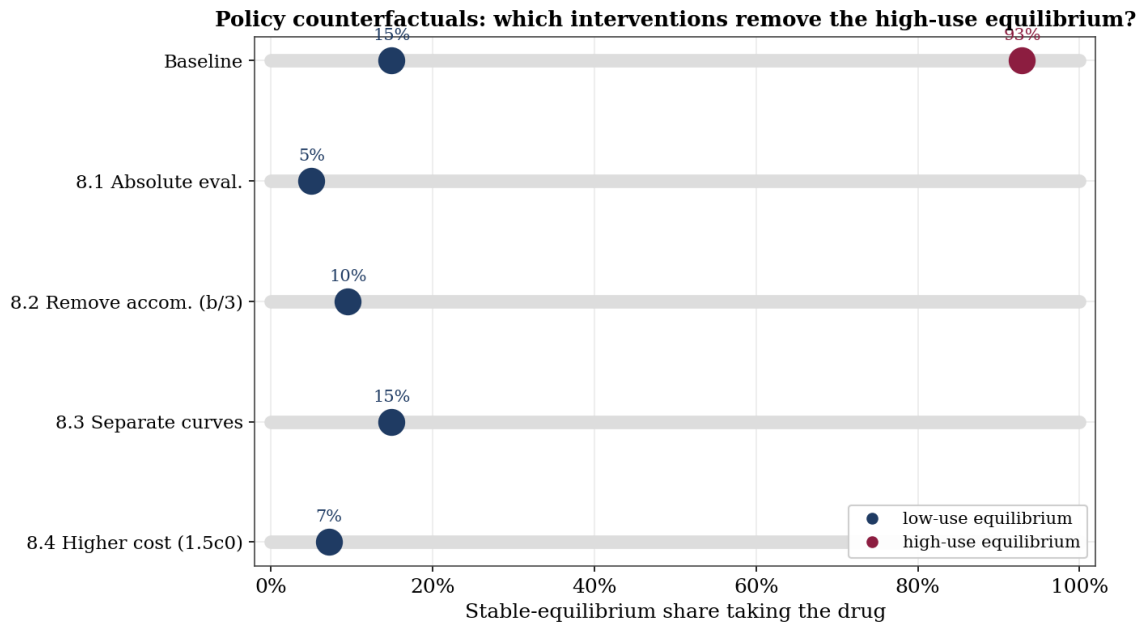
Notes: The best-response map at three values of the competitiveness parameter φ , holding all other calibrated parameters fixed. Higher φ raises use at every level of peer use and erodes the low equilibrium.

ters for welfare is *who* takes the drug: a policy that holds use at 7% by denying moderately symptomatic students who would genuinely benefit is not obviously better than one that holds it at 15% while concentrating use among the most affected. We therefore evaluate each policy on a second dimension—how well stimulant use is *targeted* on symptom severity θ . Figure 14 reports, under each policy’s stable equilibrium, the share of each severity quintile that takes the drug, from the mildest fifth (Q1) to the most severe (Q5). The contrast between the two baseline equilibria already makes the point. At the low equilibrium, use is sharply sorted on need: only 1% of the mildest quintile take the drug against 50% of the most severe, and the average taker sits at the 82nd severity percentile. The addiction run destroys this sorting. At the high equilibrium, even three-quarters of the *mildest* students take the drug, the average taker falls to the 53rd percentile—barely above the population median—and the link between medication and symptoms all but disappears. The danger of the run is thus not only that more students take the drug, but that the drug stops going to the people who need it.

8.1 Absolute Evaluation

The first policy abolishes rank competition: students are rewarded on absolute rather than relative performance ($\varphi \rightarrow 0$). The drug then confers no competitive advantage, and

Figure 13: Policy Counterfactuals: Stable Equilibria Under Each Intervention



Notes: Stable-equilibrium use shares under the baseline calibration and the four counterfactual policies. The baseline has two stable equilibria (15% and 93%); each policy leaves a single low-use equilibrium, eliminating the high-use equilibrium. Computed from the calibrated model.

the entire strategic complementarity through competition disappears. Use collapses to the clinical floor of 5%—only genuine patients take the drug. This is the most effective intervention for reducing use, but also the bluntest: it entirely discards the informational and motivational benefits of relative evaluation, which is neither realistic nor desirable in most academic settings.

8.2 Reducing the Drug Advantage by Removing Accommodations

The second policy lowers the drug's competitive advantage b —most concretely, by no longer pairing a diagnosis with valuable accommodations such as extra exam time, which our survey shows students view as performance-enhancing in their own right. Cutting b to a third of its baseline value eliminates the high equilibrium and lowers use to about 10%. The drawback is that accommodations also serve genuinely disabled students; a blanket removal trades off the externality against the support these students need.

8.3 Separate Curves for Users and Non-Users

The third policy is the most surgical. Rather than weakening competition or accommodations, the institution grades drug users and non-users on *separate curves*, so that a non-user is never ranked against a boosted user. This internalizes the externality at its source: taking the drug no longer raises the bar faced by those who abstain, and the strategic complementarity through competition is switched off. The high equilibrium vanishes, yet—because competition itself is preserved—use stays at its current 15% rather than falling further. The policy removes the *risk of an explosion* without penalizing either patients or competition.

8.4 Raising the Cost of Use

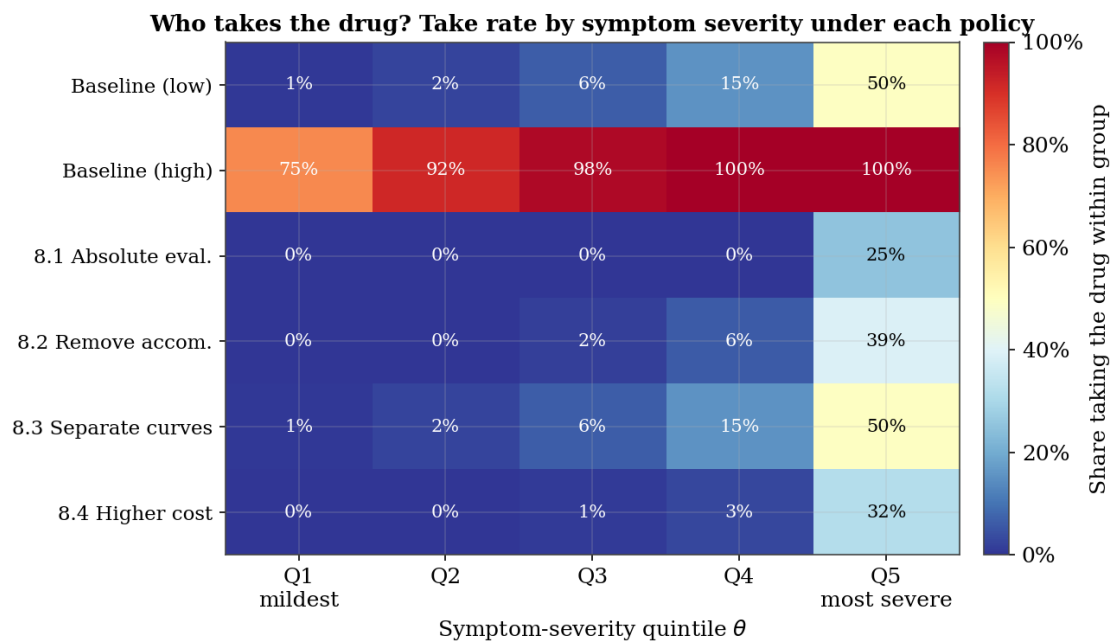
The fourth policy raises the cost of taking the drug for non-patients—through stricter prescribing rules, monitoring, or explicit penalties, much as anti-doping regimes treat performance enhancement in sport. A 50% increase in the base cost eliminates the high equilibrium and lowers use to about 7%. The intervention is effective but enforcement-intensive, and must be targeted so as not to deter genuine patients from necessary treatment.

8.5 Targeting: Does the Drug Reach the Students Who Need It?

Read through this lens, the four policies separate into two groups, and the ranking shifts in an instructive way. The blunt interventions buy low *average* use partly by under-treating moderately symptomatic students. Abolishing relative evaluation drives use to the clinical floor: only the top severity quintile takes the drug, and even there the rate falls to 25%, so that genuinely—if not extremely—affected students in Q4 now go untreated. Removing accommodations and raising costs are milder versions of the same pattern, holding take-up among the most severe to only 39% and 32% respectively. These policies score well on the crude metric—nearly all of their (few) takers are clinically severe—but do so by shrinking access for the moderately affected, not only by deterring the mildly affected.

Separate curving behaves differently. Because it switches off the externality without touching the private return to treatment, it reproduces almost exactly the well-sorted low-equilibrium profile: the mildest quintile stays at 1%. In contrast, the most severe quintile remains at 50%—the highest coverage of genuine need among all the run-free policies. In other words, it is the only intervention that defuses the explosion while *preserving*,

Figure 14: Targeting of Stimulant Use on Symptom Severity Under Each Policy



Notes: Each cell reports the share of a symptom-severity quintile that takes the drug at the policy's stable equilibrium, from the mildest fifth (Q1) to the most severe (Q5). Well-targeted use is concentrated in the right-hand columns; the baseline high equilibrium (second row) shows the breakdown of targeting under an addiction run, with even the mildest students taking the drug. Computed from the calibrated model.

rather than compressing, treatment of the students who benefit most. The contrast with the baseline high equilibrium, where the severity gradient is nearly flat, shows what is at stake: separate curving locks in good targeting permanently, whereas the other levers improve targeting only by rationing the drug away from part of the population that should have it.

8.6 Meritocratic Distortion: How Far Is the Rank from Merit?

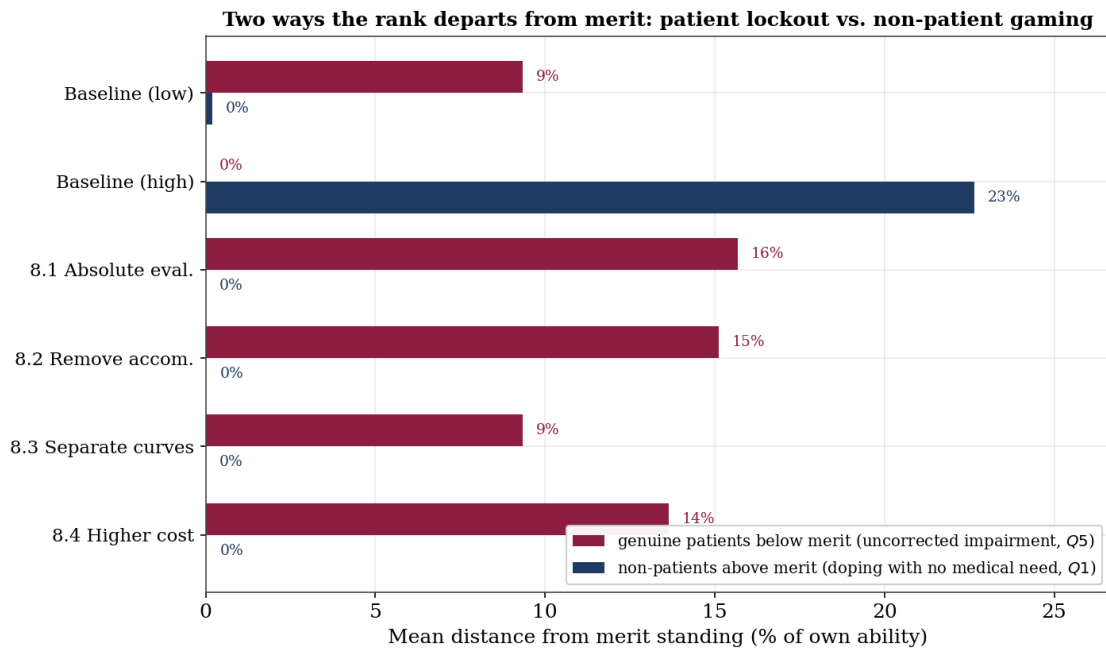
Targeting asks who takes the drug; the deeper welfare question is whether the resulting *ranking* of students tracks their true ability. We take the meritocratic rank as the ideal benchmark—the order students would occupy if graded on their underlying ability (intrinsic talent and effort), with ADHD impairment fully neutralized for everyone and no one chemically enhanced. Two forces push the realized rank away from this benchmark, pulling in opposite directions. Non-patients who take the drug are lifted *above* their merit (a performance boost with no medical justification); genuine patients who cannot fully correct their impairment are pushed *below* it. Crucially, a policy can reduce the first distortion while worsening the second. To make this concrete, we let the drug remove only a fraction of ADHD impairment (here 70%), with formal accommodations such as extra time closing the remaining gap, and we treat the drug’s pharmacological boost as a true performance gain. A patient who takes the drug *and* receives accommodations is restored exactly to merit; a patient who is priced out, or who takes the drug but is denied accommodations, remains below it. Figure 15 reports the two distortions for the most severe (Q5) and mildest (Q1) quintiles under each policy, and Table 18 adds the overall rank fidelity.

Table 18: Meritocratic Fidelity and Its Two Failures Under Each Policy

Policy	Rank fidelity (Spearman ρ)	Patient ability lost to impairment (Q5)	Non-patient ability gained by doping (Q1)
Baseline (low equilibrium)	0.72	9.3%	0.2%
Baseline (high equilibrium)	0.91	0.0%	22.6%
8.1 Absolute evaluation	0.89	15.7%	0.0%
8.2 Remove accommodations	0.86	15.1%	0.0%
8.3 Separate curves	0.93	9.3%	0.0%
8.4 Higher cost	0.86	13.6%	0.0%

Notes: Rank fidelity is the Spearman correlation between the realized competitive standing and the meritocratic benchmark (higher is better; 1 is a perfect meritocracy). The last two columns decompose the departures from merit as in Figure 15. Computed from the calibrated model under the same illustrative parameters.

Figure 15: Departure from the Meritocratic Benchmark Under Each Policy



Notes: For each policy, the red bar is the average ability that genuinely affected students (Q5) lose to *uncorrected* ADHD impairment—the extent to which they are ranked below merit because they are priced out of treatment or denied accommodations; the navy bar is the average ability that the mildest students (Q1) gain from taking the drug with no medical need—the extent to which they are ranked above merit. Both are expressed as a percent of own ability. The drug is assumed to remove 70% of the impairment, with accommodations closing the remainder; magnitudes are illustrative, but the trade-off is robust. Computed from the calibrated model.

The picture overturns the naive “less use is better” ranking. The addiction run does its damage almost entirely through the second channel: at the high equilibrium, every genuine patient is medicated, so patient distortion is zero, but the mildest students inflate their standing by nearly 23% of their own ability through purely competitive doping. That is the externality at full force—a wholesale decoupling of rank from merit, even though, because the doping is near-universal, the *ordinal* rank correlation stays deceptively high. The blunt remedies cure this disease with a harmful side effect. Raising costs and abolishing relative evaluation drive non-patient gaming to zero, but they do so partly by pricing genuine patients out of treatment: the ability that the most severe students lose to uncorrected impairment *rises* from 9% at the baseline to 14–16%. A policy can thus lower headline use, eliminate gaming, and still leave the truly affected *worse off* than before—exactly the perverse outcome that a use-minimizing planner would miss. Removing accommodations is the clearest illustration: because the drug alone repairs only part of the impairment, stripping accommodations leaves even patients who do medicate stranded below merit, so this policy produces the largest patient distortion of all despite cutting use only modestly.

Separate curving is the only intervention that escapes the tradeoff. By neutralizing the cross-group value of the boost, it drives non-patient gaming to zero, yet because it never touches the private return to treatment, it leaves patient distortion exactly at its low baseline level of 9%—it adds no new harm to the people it is meant to protect. It accordingly delivers the highest meritocratic fidelity of any scenario ($\rho = 0.93$, against 0.72 at the baseline low equilibrium, where a thin slice of boosted users already scrambles the order). Defusing the externality and protecting genuine patients, who are normally in tension, are reconciled by aligning the grading curve with the externality rather than by rationing the drug.

8.7 Toward an Optimal Policy

Four lessons emerge. First, the high-use equilibrium is *fragile to policy*: each of the four levers, applied with enough force, removes it. The policy problem is therefore not whether the explosion can be prevented, but how to prevent it at least cost. Second, the levers differ markedly in their collateral damage. Abolishing relative evaluation and removing accommodations are effective but blunt—they sacrifice beneficial competition or harm disabled students. Raising costs works but is enforcement-heavy and risks deterring patients. Third, a low headline use rate can mask poor targeting: the cost-based and evaluation-based levers lower use in part by denying moderately symptomatic students

who would genuinely benefit, whereas separate curving holds use at 15% precisely because it keeps the drug flowing to the most affected. Fourth, and most decisively, the same blunt levers that suppress non-patient gaming also push genuine patients *further* below their merit—so a planner who minimizes use alone can make the meritocracy less fair, not more. *Separate curving* is the unique intervention that scores well on every dimension at once: it removes the explosion risk, preserves competition, sustains treatment of the severe, drives non-medical gaming to zero, and—alone among the policies—inflicts no additional harm on genuine patients, yielding the highest meritocratic fidelity of all. A natural package combines this surgical instrument with a mild dose of the others: curve users and non-users separately to defuse the complementarity, and tighten prescribing only at the margin where use is least related to need—together removing the high equilibrium and steering the economy toward an allocation in which stimulant use, and the ranking it produces, track genuine clinical need rather than the intensity of competition.

9 Conclusion

This paper has argued that the rapid rise in prescription stimulant use among students is, in large part, a rational response to rank-based academic competition rather than a purely medical phenomenon. When students are evaluated relative to one another, a drug that raises effective performance confers a competitive advantage, and one student's use raises the benchmark that everyone else must meet. Stimulant use is therefore a strategic complement: the more peers who take it, the stronger the incentive for the rest to follow. Our survey evidence makes this mechanism tangible. Non-patients report taking stimulants to keep pace with medicated competitors; they regard a diagnosis and its attendant accommodations as performance-enhancing in their own right; and both the belief that the drug helps and the willingness to start using it rise sharply with exposure to relative grading.

Embedding this mechanism in a calibrated overlapping-generations model, we find that the estimated complementarity is strong enough to generate multiple equilibria. A low-use equilibrium, in which the drug is largely confined to the clinically affected, coexists with a high-use “addiction run” in which nearly all students medicate, separated by a tipping point. The two stable outcomes are not symmetric. The danger is less a sudden stampede than a slow erosion. As academic competition intensifies and stimulant use becomes normalized, the tipping point falls, and the safe low-use equilibrium can disappear altogether, leaving the run as the only resting point. The steep, sustained increase in diagnosis and accommodation documented in our empirical evidence is consistent with

an economy already drifting in that direction.

Using the calibrated model to evaluate policy, we reach three conclusions that a naive focus on the level of use would miss. First, the high-use equilibrium is fragile: reducing the salience of relative evaluation, limiting the competitive advantage of the drug by curtailing accommodations, separating the grading curves of users and non-users, and tightening prescribing each suffice to eliminate it. The policy question is therefore not whether the explosion can be prevented but how to prevent it at least cost. Second, a lower headline use rate is not the right objective. The blunt levers achieve low use partly by under-treating moderately symptomatic students and pricing genuine patients out of care, so that the most affected students end up further below the rank their underlying ability would earn—the meritocracy becomes less fair, not more, even as average use falls. Third, the addiction run itself does its damage not by deranging the ordinal ranking, which near-universal use mechanically preserves, but by decoupling rank from merit: mildly affected students inflate their standing through purely competitive doping while the link between medication and need dissolves.

These findings point to a clear policy lesson. Among the interventions we consider, grading users and non-users on separate curves is uniquely attractive: it internalizes the externality at its source, removing the risk of an explosion while leaving beneficial competition intact, sustaining treatment of the genuinely affected, and—alone among the policies—adding no new disadvantage to the patients it is meant to protect. A practical package pairs this instrument with a light tightening of prescribing at the margin where use is least related to need. More broadly, our results caution that accommodation and evaluation policies in higher education cannot be designed student-by-student; because the payoff to one student’s accommodation depends on how many others hold it, equilibrium spillovers are first-order, and a policy that looks benign in partial equilibrium can tip a population into a far worse aggregate state.

Finally, the logic here is not specific to stimulants. Any technology that confers a private edge in a relative contest—and whose cost or stigma falls as adoption spreads—can exhibit the same strategic complementarity, the same multiplicity, and the same risk of a tip into near-universal use. The rapid diffusion of generative artificial intelligence in educational settings is a natural and pressing example. The framework we develop and the distinction it draws between curbing aggregate use and aligning use with genuine need should help with thinking about that broader class of competitive-adoption externalities. We close by underscoring that our calibration is preliminary, and that several magnitudes are illustrative; sharpening the estimates with richer individual-level and administrative data and formally characterizing the optimal policy mix are natural next steps.

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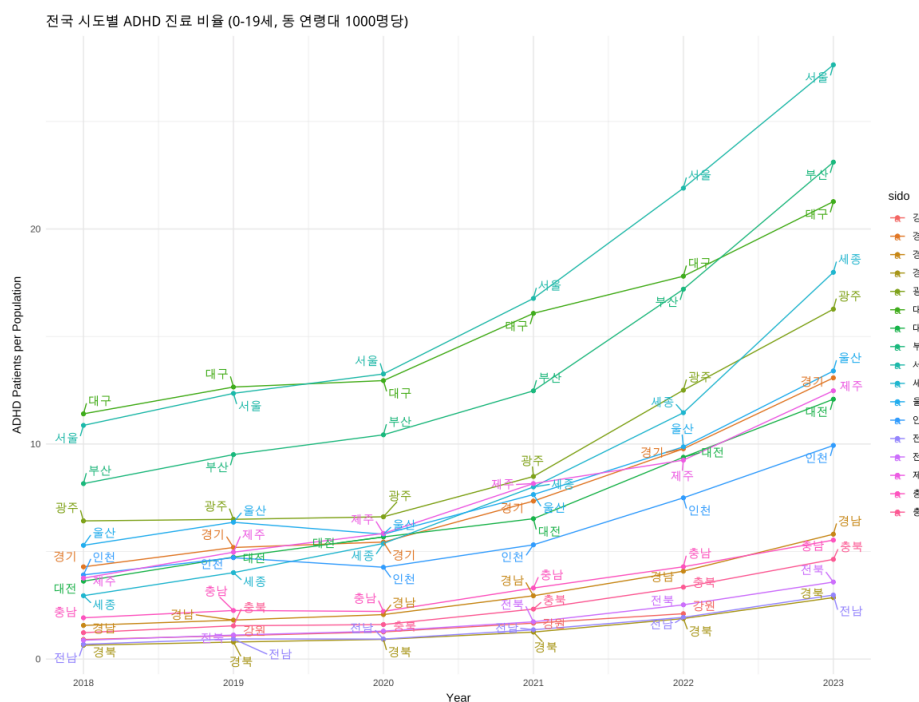
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A International Evidence: South Korea

South Korea provides an informative case for comparison. Academic competition is exceptionally intense, university admission turns heavily on a single national examination, and households spend heavily on private tutoring academies (*hakwon*). Using administrative data from the Korean Health Insurance Review and Assessment Service (HIRA) together with regional data on private-education intensity and income, we document patterns consistent with the U.S. evidence in Section 3.2: a steep rise in ADHD diagnosis concentrated among the young, an academic-calendar seasonality in stimulant use, and a strong link between the intensity of academic competition and diagnosis rates.

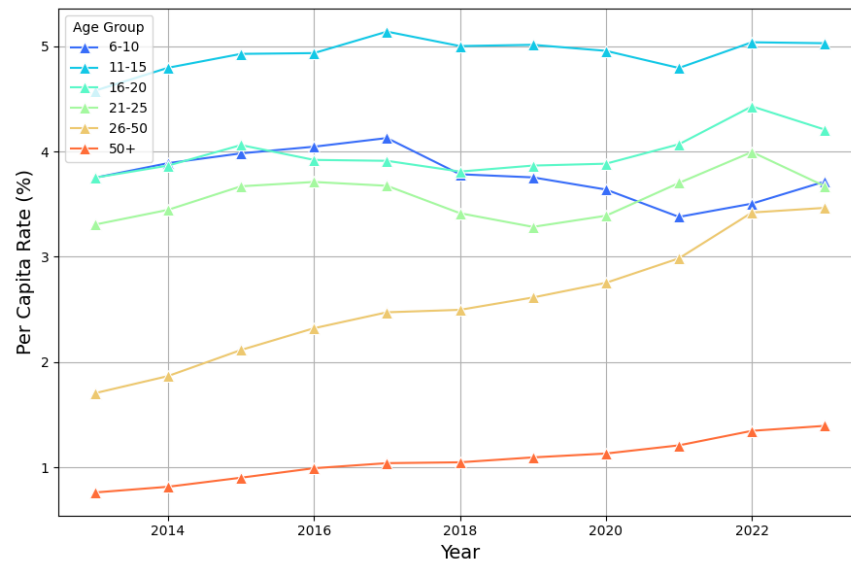
Figure 16 plots the ADHD treatment rate per 1,000 population aged 0–19 across Korean provinces and metropolitan cities from 2018 to 2023. Diagnosis has risen steeply nationwide, with Seoul and several metropolitan areas leading. Figure 17 shows that, as in the United States, school-age groups (11–15 and 16–20) have the highest per-capita rates, while the 26–50 group has risen most steeply in recent years.

Figure 16: ADHD Treatment Rate by Region, Ages 0–19 (Korea, HIRA)



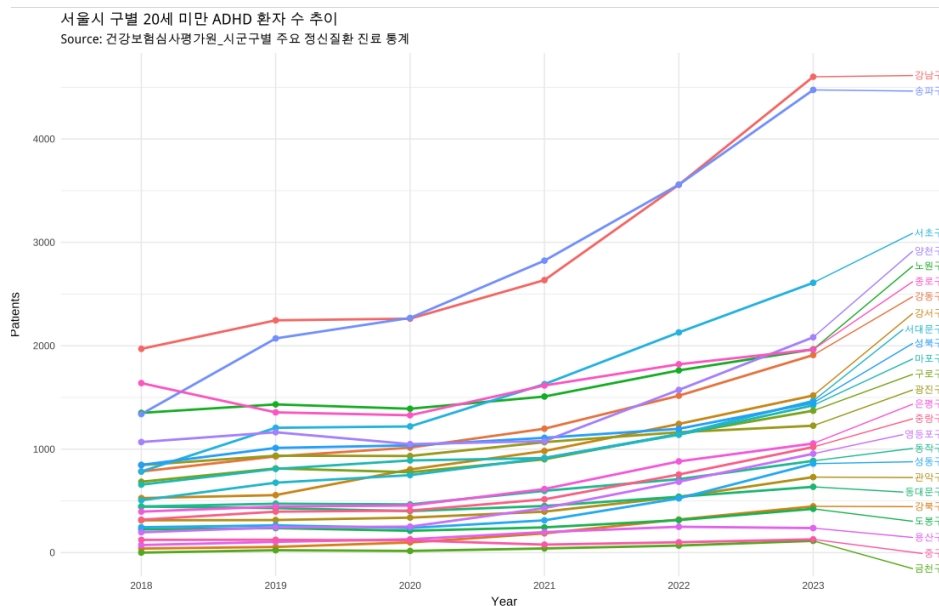
The within-Seoul pattern is especially telling. Figure 18 disaggregates ADHD patient counts (under age 20) across Seoul’s districts; the most affluent and competitive districts—Gangnam and Songpa—report the highest counts and the steepest increases. Figure 19 shows that monthly stimulant claim volume in Korea tracks the academic calen-

Figure 17: ADHD Per-Capita Rate by Age Group (Korea)



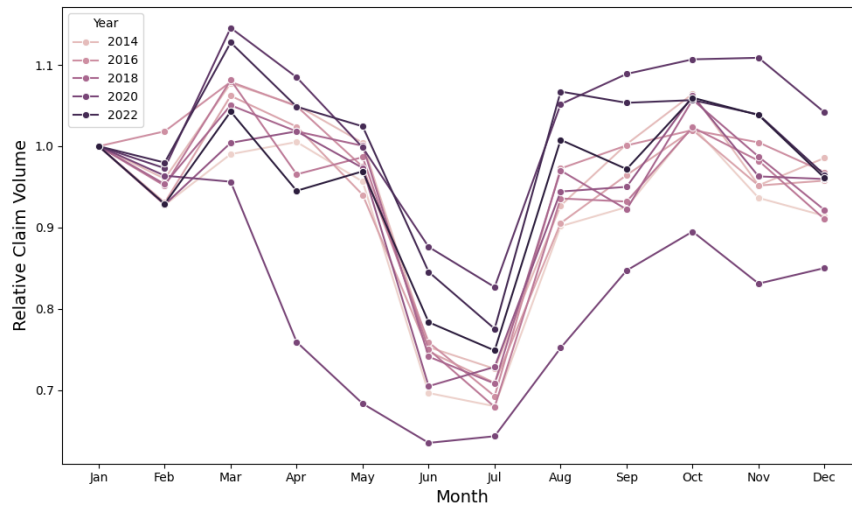
dar, peaking around the spring and fall terms and falling during the summer (June–July), consistent with use driven by the academic calendar.

Figure 18: ADHD Patients Under Age 20, by Seoul District (HIRA)



Finally, ADHD prevalence is strongly related to the intensity of private education. Figure 20 relates ADHD prevalence to the density of *hakwon* per capita across regions: regions with more academies per capita have higher diagnosis rates, with Seoul's Gangnam district at the extreme of both. Figure 21 stratifies the same scatter by income group,

Figure 19: Seasonality of Stimulant Claims (Korea)



showing that high-income regions cluster at higher levels of both *hakwon* density and ADHD prevalence. Table 19 confirms these relationships: *hakwon* density and income per capita are both strongly positively associated with ADHD patients per capita, and the associations survive the inclusion of region and year fixed effects.

Figure 20: ADHD Prevalence vs. *Hakwon* Density Across Regions (Korea)

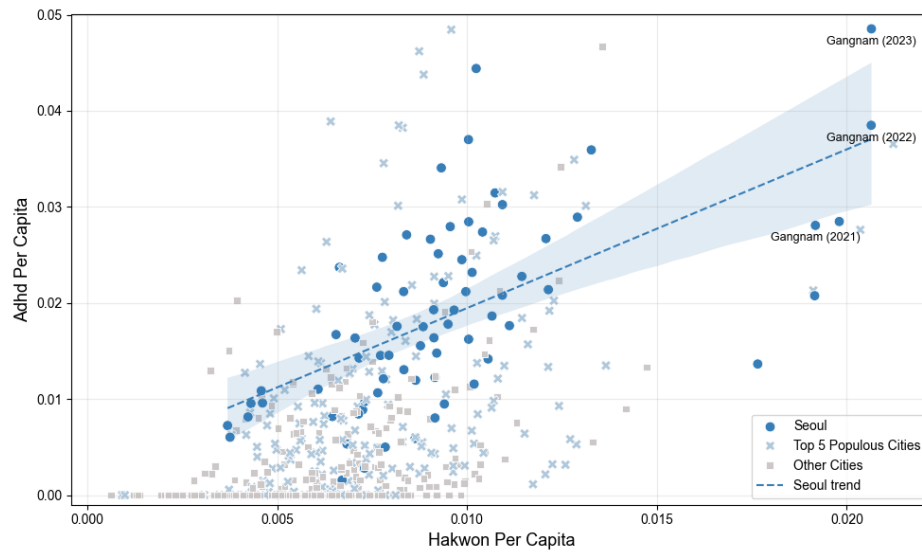


Figure 21: ADHD Prevalence vs. *Hakwon* Density, by Income Group (Korea)

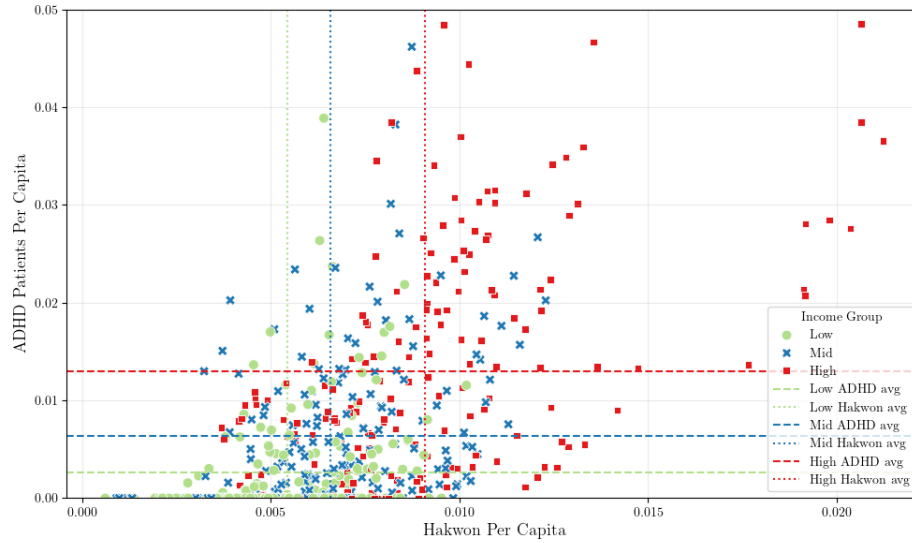


Table 19: **Hakwon Density, Income, and ADHD Prevalence (South Korea)**

	ADHD Patients per capita			
	(1)	(2)	(3)	(4)
<i>Hakwon density and income</i>				
Hakwons per capita	1.510*** (0.161)	1.465*** (0.156)	0.860*** (0.258)	0.861*** (0.249)
Income per capita	0.025*** (0.004)	0.025*** (0.004)	0.015*** (0.003)	0.016*** (0.003)
<i>Year indicators (Baseline: 2021)</i>				
2022		0.001* (0.001)		0.001* (0.001)
2023		0.003** (0.001)		0.003** (0.001)
Constant	-0.010*** (0.002)	-0.010*** (0.001)	0.006*** (0.002)	0.006*** (0.002)
Observations	597	597	597	597
R ² (Adjusted)	0.237	0.240	0.336	0.339
State FE	No	No	Yes	Yes
Year FE	No	Yes	No	Yes

Notes: Robust standard errors, clustered at the regional level, in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Regional fixed-effect coefficients omitted for readability. Income is reported in units of ten thousand won. All per-capita measures are defined relative to the population under age 20.

Table 20: Student Survey Sample, Stimulant Use, and Prescription Source

Institution and Grading Environment		Student Characteristics	
<i>Carnegie research designation</i>		<i>Gender</i>	
R1: Very high research	625	Female	562
R2: High research	225	Male	438
Other Research	150		
<i>Relative-performance grading</i>		<i>Race / ethnicity</i>	
Never	156	White	526
Rarely	314	Black / African American	175
Sometimes	364	Asian	162
Often	122	Hispanic / Latino	100
Almost always	44	Other	37
<i>BEA region</i>		<i>College year</i>	
New England	71	Freshman	259
Mid East	163	Sophomore	253
Great Lakes	155	Junior	232
Plains	52	Senior	240
Southeast	252	Other / not reported	16
Southwest	121		
Far West	146	<i>Parent highest education</i>	
Other	40	High school or less	258
		Some college / Associate's	226
		Bachelor's	241
		Master's or above	275
<i>Stimulant use by relative-grading exposure</i>			
	Ever taken	Currently taking	N
All students	277 (27.7%)	154 (15.4%)	1,000
Never / Rarely / Sometimes	222 (26.6%)	121 (14.5%)	834
Often / Almost always	55 (33.1%)	33 (19.9%)	166
<i>Prescription source among ever-takers</i>			
	Current users	Former users	All ever-takers
Prescribed to respondent	136 (88.3%)	69 (56.1%)	205 (74.0%)
Prescribed to someone else	12 (7.8%)	40 (32.5%)	52 (18.8%)
Without any prescription	6 (3.9%)	14 (11.4%)	20 (7.2%)

Notes: The student survey includes 1,000 undergraduates. Prescription-source rows are reported among ever-takers: 154 current users and 123 former users.

Table 21: Perceived Academic Benefit and Ease of Access: Full Response Distribution

<i>N</i> = 1,000	Peers without ADHD diagnosis	Peers with ADHD diagnosis
<i>Panel A. Expected grade improvement from stimulants</i>		
No noticeable improvement	200 (20.0%)	73 (7.3%)
Slight (< half letter grade)	399 (39.9%)	157 (15.7%)
Moderate (half to one letter grade)	324 (32.4%)	425 (42.5%)
Large (> one letter grade)	77 (7.7%)	345 (34.5%)
<i>Panel B. Ease of obtaining and taking stimulants</i>		
Very easy	129 (12.9%)	350 (35.0%)
Easy	465 (46.5%)	480 (48.0%)
Difficult	356 (35.6%)	159 (15.9%)
Very difficult	50 (5.0%)	11 (1.1%)
<i>Panel C. Ease of receiving an ADHD-related prescription</i>		
Very easy	66 (6.6%)	354 (35.4%)
Easy	272 (27.2%)	488 (48.8%)
Difficult	487 (48.7%)	140 (14.0%)
Very difficult	175 (17.5%)	18 (1.8%)

Notes: The survey wording asked about peers who are and are not ADHD patients; the table reports these groups as peers with and without an ADHD diagnosis.

Table 22: Staff Survey: Accommodation Details

	Number	Share / value
<i>Panel A. ADHD-related accommodations offered (N = 121)</i>		
Additional time for exams	117	96.7%
Alternative testing location	111	91.7%
Preferred seating	77	63.6%
Assistive technology	60	49.6%
Additional time for assignments	48	39.7%
<i>Panel B. Extra-time multipliers among institutions reporting a multiplier</i>		
Minimum multiplier is 1.5×	68 of 81	84.0%
Maximum multiplier is 1.5×	35 of 81	43.2%
Maximum multiplier is 2×	42 of 81	51.9%
<i>Panel C. Eligibility and caseloads</i>		
Accept formal DSM-5 evaluation	113	93.4%
Accept formal diagnosis + current treatment	112	92.6%
Accept prior diagnosis, no current documentation	62	51.2%
Accept physician's note, ADHD suspected	50	41.3%
Accept self-report only, no documentation	27	22.3%
Mean ADHD-related share of all accommodations	92 reported	37.4%
ADHD-related share increased over past five years	79 of 114	69.3%
Individual staff member decides requests	93 of 119	78.2%

Table 23: Counterfactual Survey Responses

Scenario	Question or margin	Yes	Sample
<i>Panel A. Academic-benefit counterfactual</i>			
Stimulants provide no academic benefit	Current users: would stop taking	66 (42.9%)	$N = 154$
Stimulants provide no academic benefit	Peer-users would stop	616 (61.6%)	$N = 1,000$
<i>Panel B. Accommodation-policy counterfactuals</i>			
Introduce 1.5× extra exam time	Non-users would consider diagnosis/treatment	129 (49.6%)	$N = 260$
Introduce 1.5× extra exam time	Peers would consider diagnosis/treatment	221 (73.4%)	$N = 301$
Remove extra exam time	Current users would stop taking stimulants	23 (20.4%)	$N = 113$
Remove extra exam time	Peer-users would stop taking stimulants	178 (25.5%)	$N = 699$
<i>Panel C. Peer-use counterfactuals</i>			
Peer stimulant use rises by 50%	Non-users would consider starting	308 (36.4%)	$N = 846$
Peer stimulant use rises by 50%	Non-users in general would start	741 (74.1%)	$N = 1,000$
Peer stimulant use falls by 50%	Current users would consider stopping	37 (24.0%)	$N = 154$
Peer stimulant use falls by 50%	Users in general would stop	454 (45.4%)	$N = 1,000$

Notes: Rows report the share answering yes to the stated counterfactual. In the accommodation-introduction rows, the sample is restricted to students at schools without extra exam time; in the accommodation-removal rows, the sample is restricted to students at schools with extra time.

B Additional Survey Tables

C Survey Instrument (United States)

Subjects

- Middle school, high school, and college students. For middle and high school students, we may survey their parents instead.
- Eventually, we aim to survey around 1,000 students in the U.S. and, similarly, in South Korea. But we plan to survey around 60 students first (may repeat a few more times) to test our survey questions before distributing to all students.
- Allocation of 60 students: 10 in each of 6 groups (2 stimulant-taken status (Yes/No) by 3 school types (middle, high, college)). Will eventually have a similar stratified sampling but with 1,000 samples.

Your responses are completely anonymous and will be used only for academic research. We do not collect any identifying information, and your responses will not affect you in any way.

Section A. Background Information

- i. Are you a student or a parent?
 - (a) Student
 - (b) Parent
- ii. What is your (or your child's) current school level?
 - (a) Middle school
 - (b) High school
 - (c) College / University
- iii. Have you (or your child) ever taken ADHD medication?
 - (a) Yes
 - (b) No

- iv. (If you have taken the drug) Have you taken ADHD medication in the last three months?
- (a) Yes
 - (b) No
- v. (If you have taken the drug) Did you take the ADHD medication with or without a prescription?
- I took medication prescribed to me
 - I took medication prescribed to someone else
 - I took medication without any prescription
- vi. Do you experience ADHD symptoms (e.g., inattention, hyperactivity, impulsivity) in daily life?
- Yes
 - No

Section B. Basic Demographics and Academic Standing

- i. What is your household income?
- ii. What is your (or your parent's) education level?
- iii. What is your (or your child's) gender?
- iv. What is your race?
- v. In which region do you live?
- vi. How would you describe your academic standing in your school?
- (a) Mostly A's or above
 - (b) A- to A
 - (c) Mostly A-
 - (d) B+ to A-
 - (e) Mostly B+
 - (f) B to B+

- (g) Mostly B
 - (h) B- to B
 - (i) Mostly B-
 - (j) C+ to B-
 - (k) Mostly C+ or below
- vii. How strong do you think the overall academic performance of students in your school is compared to the national performance?
- (a) Top 10%
 - (b) 10-20%
 - (c) 20-40%
 - (d) 40-60%
 - (e) 60-80%
 - (f) Bottom 20%

Section C. ADHD-Related Perceptions

- i. How much do you think ADHD medication helps in improving academic performance?
- No noticeable improvement
 - Slight improvement (e.g., grades improve by less than half a letter grade, like B $\rightarrow$ B+)
 - Moderate improvement (e.g., about half to one full letter grade, like B $\rightarrow$ A-)
 - Large improvement (e.g., more than one letter grade, like B $\rightarrow$ A or higher)
- ii. How easy do you think it is for your *peers who are not ADHD patients* to obtain and take ADHD medication if they want to?
- Very easy
 - Easy
 - Difficult
 - Very difficult

- iii. How easy do you think it is for your *peers who are ADHD patients* to obtain and take ADHD medication if they want to?
- Very easy
 - Easy
 - Difficult
 - Very difficult
- iv. Approximately what percentage of students in your school do you think are currently taking ADHD medication?
- v. Suppose it became widely known that ADHD medication provides *no improvement at all* in students' academic abilities.
- (a) Now that ADHD medications do not help improve academic ability, what percentage of your classmates do you think would take ADHD medication? (Show the current percentage of students taking the drug based on the response above to be used as a reference point)
- (b) Would you (or do you think some of the patients currently taking the medication would) consider stopping the medication?
- i. Yes
 - ii. No

Section D. Accommodation Policy

- i. What accommodations does your school provide for students who are prescribed ADHD medication?
- Extra time on exams (please specify how much: X times longer)
 - Other accommodations (please describe)
 - No accommodations
 - I don't know
- ii. How much do you think having 1.5 times the time in exams (e.g., having 1.5 hours in a one-hour exam) helps in improving academic performance?
- No noticeable improvement

- Slight improvement (e.g., grades improve by less than half a letter grade, like $B \rightarrow B+$)
 - Moderate improvement (about half to one full letter grade, like $B \rightarrow A-$)
 - Large improvement (more than one letter grade, like $B \rightarrow A$ or higher)
- iii. (If there is no accommodation, accommodations other than extra time, or don't know) Suppose that in exams, students with ADHD prescriptions are now granted 1.5 times more time as an accommodation, with no record kept and no penalty imposed in any way.
- (a) With this change in the accommodation policy, what percentage of your classmates do you think would take ADHD medication? (Show the current percentage of students taking the drug based on the response above to be used as a reference point)
- (b) Would you (or do you think some non-patients would) consider starting to take the medication?
- i. Yes
 - ii. No
- iv. (If there is extra time accommodation) Suppose that your school now decides to give no accommodation (i.e., no extra time) for students with an ADHD prescription.
- (a) With this change in the accommodation policy, what percentage of your classmates do you think would take ADHD medication? (Show the current percentage of students taking the drug based on the response above to be used as a reference point)
- (b) Would you (or do you think some of the classmates currently taking the medication would) consider stopping the medication?
- i. Yes
 - ii. No