The Global Gender Gap in STEM Applications: Pipeline vs. Choice*

Isaac Ahimbisibwe[1], Adam Altjmed[2], Georgy Artemov[3], Andrés Barrios-Fernández[4], Aspasia Bizopoulou[5], Martti Kaila[6], Jin-Tan Liu[7], Rigissa Megalokonomou[8], José Montalbán[9], Christopher Neilson[10], Jintao Sun[11], Sebastián Otero[12], and Xiaoyang Ye[13]

Abstract:

Women make up only 35% of global STEM graduates, a share unchanged for a decade. Using administrative data from ten centralized university admissions systems, we provide the first cross-national decomposition of the STEM gender gap into a pipeline gap (access and preparedness) and a choice gap (application decisions). The pipeline gap varies widely—from female disadvantage in Uganda to advantage in Sweden—yet the choice gap is strikingly consistent: even among top scorers, women are 25 percentage points less likely than men to apply to STEM. This stability across diverse contexts points to structural forces beyond local conditions.

Keywords: gender inequality, STEM gender gap, centralized application platforms

Classification: I23, I24, J24

*Corresponding author: Christopher Neilson, Department of Economics, Yale University. Email: christopher.neilson@yale.edu. We thank the agencies in charge of university admissions in each country for granting us access to the administrative data we use in this project. Josefina Muñoz-Ávila provided excellent research assistance.

1 Introduction

Despite decades of progress in educational attainment, women remain substantially underrepresented in science, technology, engineering, and mathematics (STEM). In 2024, they accounted for only 35% of STEM graduates worldwide—a share that has barely moved in a decade (UNESCO, 2024). Explanations for this persistence are typically grouped into two channels: a *pipeline* channel—gender differences in academic preparation and access to selective STEM programs (Card and Payne, 2021; Aucejo and James, 2021; Humphries et al., 2023)—and a *choice* channel—gender differences in preferences for program characteristics and the labor-market trajectories they imply (Zafar, 2013).

The choice channel encompasses multiple potential mechanisms. Women may have different access to information about STEM careers, salaries, and job characteristics (Ahn et al., 2019; Exley et al., 2024; Hastings et al., 2016). Gender stereotypes and lack of role models in STEM fields may influence women's self-efficacy and sense of belonging (Carlana, 2019; Reuben et al., 2014). Women may also anticipate discrimination in STEM workplaces (Lepage et al., 2024; Lavy and Megalokonomou, 2024) or have different preferences for job attributes such as flexibility, stability, and work-life balance (Zafar, 2013; Wiswall and Zafar, 2018). Understanding which of these mechanisms drive the choice gap is crucial for designing effective interventions.

Distinguishing pipeline from choice is empirically difficult, since it requires observing both program-specific eligibility and students' ranked application decisions.

This paper meets that challenge by leveraging administrative microdata from centralized admissions systems in ten settings across five continents—Australia, Brazil, Chile, China, Finland, Greece, Spain, Sweden, Taiwan, and Uganda. Despite vast differences in population size, economic development, and gender norms, these systems share a critical institutional feature: universities allocate seats through coordinated platforms (Neilson, 2024), in which students submit ranked preferences over college–major combinations and are assigned to the highest-ranked option for which they are eligible. Eligibility is determined almost exclusively by standardized exams and high school grades, while the deferred-acceptance-style assignment mechanisms ensure that preferences are reported truthfully. This institutional design provides two key advantages: (i) we directly observe students' ordered lists of applications, revealing their field preferences; and (ii) because eligibility is score-based, students with identical academic performance face equal admission probabilities, allowing us to isolate choice behavior holding access constant.

We first document a STEM gender gap across all settings. Among students in the top 10% of the admission exam distribution, women account for an average of only 34% of STEM applicants, mirroring global statistics (UNESCO, 2024). The gap ranges from 19% in Taiwan to 47% in Sweden.

We then ask whether these disparities reflect differences in the pipeline or in choices. We define the *pipeline gap* as the difference in female vs. male representation among top-decile students, and the *choice gap* as the difference in the share of high-achieving women and men who rank a STEM program first. The pipeline gap varies widely: in Uganda, women make up only 40% of top scorers (−20 percentage points gap), while in Sweden they account for 65% (30 percentage points gap).

By contrast, the choice gap is large and negative in every context: high-scoring women are systematically about 25 percentage points less likely than men to apply to STEM. Remarkably, this consistency holds despite large differences in population size, economic development, and gender norms. This stability across contexts is our central empirical finding.

The stability of the choice gap across diverse institutional and cultural settings points to deeper structural forces rather than local conditions. This pattern is consistent with a growing body of research showing that preferences play a central role in major choice: students—and especially women—systematically weigh pecuniary and non-pecuniary attributes differently (Zafar, 2013; Wiswall and Zafar, 2018; Patnaik et al., 2021). Yet the fact that high-achieving women are equally less likely to apply to STEM in Sweden and Spain as in Uganda presents a puzzle: if the choice gap were primarily driven by mechanisms we expect to vary sharply across contexts (such as anticipated discrimination, family formation penalties, or gender norms), then the gap should be wider in Uganda than in Sweden. Its stability therefore highlights the need to identify persistent, globally operating mechanisms shaping women's educational choices.

Our contribution is to bridge two strands of research. A first strand disentangles pipeline and choice within single settings (e.g., Ontario; Card and Payne 2021), but their narrow scope limits external validity. A second strand, typically in the form of international reports (OECD, 2017; Encinas-Martín and Cherian, 2023; UNESCO, 2024), documents STEM gender gaps across education systems but cannot separate pipeline from choice due to data limitations. By harmonizing centralized admissions data from ten contexts, we provide the first systematic cross-national decomposition of the STEM gender gap into pipeline and choice components. We show that while pipeline gaps vary considerably, the choice gap is strikingly stable, pointing to structural drivers that transcend local institutions and norms.

These findings suggest that closing academic performance gaps, though important, will not by itself eliminate gender disparities in STEM.

2 Data

This section outlines the institutional context and data for the ten settings we study: Australia, Brazil, Chile, China, Finland, Greece, Spain, Sweden, Taiwan, and Uganda. In the Online Appendix we provide details on each admission system and dataset.

Panel A of Table 1 shows sharp contrasts across these countries in size, income, human development, inequality, and gender norms. China is by far the largest country in our sample (1.4 billion people), followed by Brazil (209 million), Spain (47 million), and Uganda (40 million). Sweden (10 million) and Finland (5.5 million) are the smallest.

Australia, Taiwan, Finland, and Sweden are among the wealthiest countries, with GDP per capita between USD 55,000 and 65,000. They also score very high on the United Nations Human Development Index (HDI), which ranges from 0 to 1, with values of 0.8 or above classified as "very high"; all four exceed 0.92. Uganda, by contrast, has a GDP per capita of USD 3,500 and an HDI of 0.53, placing it in the "low development" category. Brazil, Chile, China, and Greece fall in between, with GDP per capita between USD 20,000 and 41,000 and HDI values between 0.75 and 0.88. Inequality also varies widely across the sample: Brazil, Chile, and Uganda have Gini indexes above 0.42, while Australia, Greece, Finland, Spain, and Sweden are below 0.35.

Finally, we characterize gender norms using the World Economic Forum's Gender Parity Index, which covers educational attainment, economic participation, political empowerment, and health. The index ranges from 0 (complete inequality) to 1 (full parity). Finland (0.86) and Sweden (0.82) rank among the five most gender-equal countries worldwide, while China and Greece, both below 0.7, fall in the bottom third.

Despite cross-country differences, the admission systems we study share two features. First, they allocate most university seats through centralized platforms using variants of the deferred acceptance algorithm: students submit ranked lists of preferred programs and are placed in the highest option for which they qualify. Second, eligibility is based on academic performance, typically high school grades and admission exam scores. Our data, drawn from the admissions agencies, include both students' ranked applications and their performance records.

Panel B of Table 1 summarizes the admissions systems. All universities in Australia, Finland, Greece, Sweden, Taiwan, and Uganda use centralized admissions. In Chile, China, and Spain, at least half of universities—including all public institutions—do so. In Brazil, most public universities participate.[1] Financial barriers are relatively low in most settings. Public universities in China, Greece, Finland, Sweden, and Brazil charge no tuition. In Spain, as in France, Italy, and Belgium, fees are modest and supported by generous public funding. Australia and Chile charge high tuition, but both offer income-contingent loans and scholarships that ease access.

Finally, Panel C of Table 1 describes the centralized application systems. In all settings, students apply to specific college–major combinations, typically from hundreds of options—ranging from 609 in Greece to more than 18,000 in China. The number of programs students may rank also varies: in Brazil they can list only two, while in Greece there

[1] None of Brazil's 2,152 private higher education institutions use centralized admissions.

is no limit. All of these systems are based on deferred acceptance (DA) mechanisms, which provide students with incentives to report their preferences truthfully, allowing us to recover their underlying rankings of programs.[2]

Applicant numbers scale with population. In China, over 10 million students apply annually through the centralized system, though our data cover only Ningxia Province, where about 60,000 apply each year. Brazil records the largest sample in our data, with 2.7 million applicants annually. At the other extreme, Australia and Uganda each have about 40,000. In every setting, far fewer students are admitted than apply.

Women are generally more likely than men to apply. Except for Taiwan (48%) and Uganda (43%), female applicants outnumber males, reaching roughly 60% in Finland and Sweden. These patterns mirror findings for the United States (Goldin and Katz, 2008).

3 Empirical strategy

This paper examines gender differences in representation among STEM applicants across ten settings that considerably differ in population size, economic development, inequality, and gender norms. A key feature that all these settings share is the use of centralized university admission systems, where admissions depend on the ranked list of preferences that students submit and on their academic performance. This institutional structure means that students with similar scores in admission exams face similar admission probabilities.

[2] While DA is strategy-proof when students can rank all programs, this property breaks down if the preference list is restricted (Fack et al., 2019). In practice, these constraints are rarely binding: in all systems except Brazil, fewer than 5% of students exhaust their lists. Brazil is the main exception, as the SISU system allows only two programs per round. However, SISU operates through an iterative version of DA, in which applicants may resubmit choices over multiple rounds. Both theoretical and experimental evidence show that this iterative structure sustains truthful reporting among feasible options and delivers stable outcomes (Bó and Hakimov, 2019, 2022). Thus, reported choices can be interpreted as students' preferred options among the set of programs they could plausibly attend. For further discussion, see Barahona et al. (2023).

Leveraging these features, we focus on high-achieving students, defined as those scoring in the top 10% of their cohort on the mandatory sections of college admission exams. These students are most likely to gain admission to and succeed in selective STEM programs, which are associated with large economic and social returns.

We define programs as STEM based on the 2013 two-digit ISCED code, grouping programs in Engineering and Manufacturing, Information and Communication Technologies, and Natural Sciences and Mathematics under this category. Since the maximum number of programs that applicants can include in their preference lists varies across settings, we concentrate on each student's top-ranked choice.

Our analysis begins by characterizing the gender composition of high-achieving STEM applicants. We then decompose these gender differences by examining two gaps:

1. The pipeline gap: difference between women's and men's representation among students scoring in the top 10% of the admission exam distribution.

2. The choice gap: difference in the share of high-achieving women and men who rank a STEM program as their top choice.

We conclude by examining whether these gaps correlate with gender norms as measured by the World Economic Forum Gender Parity Index (GPI).

4 Results

4.1 Female representation in top STEM applicants

Figure 1 illustrates the share of female and male students among high-achieving STEM applicants. In all settings, the female share is lower than the male share. However, there are large differences across the educational systems we study. In six out of the ten settings in our sample, female students represent 35% or less of high-achieving STEM applicants. Taiwan, with a female share of 18.7%, has the lowest female representation among high-achieving STEM applicants. In contrast, Spain, Australia, Greece, and Sweden—with STEM female shares ranging between 42.6% and 46.4%—are the settings with the highest female representation among high-achieving STEM applicants.

What drives these gender disparities and their variation across settings? Female under-representation among high-achieving STEM applicants could stem from two distinct sources: the *pipeline gap*—women being underrepresented among the high-scoring students who qualify for selective programs—or the *choice gap*—high-achieving women being less likely than their male counterparts to select STEM fields when applying to university. To disentangle these mechanisms, we next analyze each gap separately across our diverse settings.

4.2 The pipeline gap

Figure 2 illustrates the *pipeline gap*. The bars in the top panel represent the share of female students in the top 10% of the academic performance distribution. As women represent roughly 50% of the population, bars under 50% indicate that women are under-represented among high-achieving students. The bars in the bottom panel represent the pipeline gap—i.e., the difference between female and male shares in the top 10%.

In four out of the ten settings we study—Brazil, Chile, Taiwan, and Uganda—female students are under-represented in the top 10% of the academic performance distribution. Uganda—with a female share of 40.4%—has the largest negative pipeline gap (19 percentage points). In the other six settings—Australia, China, Finland, Greece, Spain, and Sweden—the pipeline gap is positive. This means that there are more female than male students in the top 10% of the academic performance distribution. Sweden—with a female share of almost 66%—is the setting with the highest proportion of women among high-achieving students and the largest positive pipeline gap (31 percentage points).

When comparing Figures 1 and 2, it becomes clear that the *pipeline gap* cannot fully explain differences in gender representation among STEM applicants. Even in settings where women outnumber men among high-achieving students, female representation among STEM applicants remains lower than male representation. This indicates that factors beyond academic performance are influencing gender disparities in STEM applications.

4.3 The choice gap

Figure 3 illustrates the *choice gap*. The bars in the top panel illustrate the share of high-achieving female and male students who rank a STEM program at the top of their application list. The bars in the bottom panel illustrate the *choice gap*—i.e., the difference between female and male shares.

In contrast to the significant cross-setting differences observed when studying the *pipeline gap*, the *choice gap* is remarkably similar across the settings in our sample. In all of them, high-achieving female students are considerably less likely to rank a STEM program at the top of their list than high-achieving male students. In eight of the ten educational systems that we study, female students in the top 10% of the academic performance distribution are between 22 and 28 percentage points less likely than their male counterparts to rank a STEM degree at the top of their list. On the extremes, we find that Australia has the smallest (16 percentage points) and China has the largest (36.7 percentage points) *choice gap*.

The striking consistency of the *choice gap* across settings that differ substantially in size, economic development, and cultural context raises an important question: to what extent do broader societal factors, such as gender norms, explain the variations we observe in both the pipeline and choice gaps? We explore this question next by examining the relationship between these gaps and a standardized measure of gender parity.

4.4 The pipeline gap, the choice gap, and gender norms

Gender norms are often cited as a potential driver of differences in educational outcomes of female and male students (Akerlof and Kranton, 2000; Guiso et al., 2008; Bertrand, 2020). To explore whether this hypothesis has some support in our data, we study correlations between the *pipeline* and *choice gaps* and gender norms measured by the Gender Parity Index (GPI) computed by the World Economic Forum. Figure 4 plots these relationships.

Consistent with Guiso et al. (2008) and Fryer Jr and Levitt (2010), we find that in contexts with more gender parity, female representation among high-achieving students is higher. In fact, an increase of one standard deviation in the GPI distribution (0.062) increases the *pipeline gap*—female minus male shares in the top 10%—by 3.9 percentage points. In settings with higher gender parity such as Sweden, Finland, Spain, and Australia, women significantly outnumber men among top-performing students. This positive association between the pipeline gap and gender parity suggests that more equitable gender norms may help narrow academic performance differences. However, substantial unexplained variation indicates that other factors are also at play.

The correlation between the *choice gap* and gender parity is much weaker. An increase of one standard deviation in the GPI distribution (0.062) reduces the difference between the share of female and male students ranking a STEM degree at the top of their list by only 1.8 percentage points. Moreover, this modest association is strongly driven by one data point—China. Indeed, if we remove China from the analysis, the association becomes much weaker—less than a third of the original size.

This weak relationship is unsurprising, given that the gender choice gap remains remarkably consistent at approximately 25 percentage points across most settings, regardless of their gender parity levels. Our findings thus suggest the existence of persistent factors beyond gender norms—as captured by the GPI—that influence female underrepresentation in STEM fields, highlighting the need to identify these underlying mechanisms to effectively address gender imbalances in educational trajectories.

4.5 Potential mechanisms behind the choice gap

The remarkable stability of the choice gap across diverse contexts suggests that the underlying mechanisms are not context-specific. Several factors could contribute to this persistent pattern. First, information asymmetries may play a role: women may have less access to information about STEM careers, salaries, and job characteristics, or may receive different career guidance (Ahn et al., 2019; Exley et al., 2024; Hastings et al., 2016). Second, gender stereotypes and lack of female role models in STEM fields may affect women's self-efficacy and sense of belonging, even among high-achieving students (Carlana, 2019; Reuben et al., 2014). Third, women may anticipate discrimination in STEM workplaces or expect different treatment than men (Lepage et al., 2024; Lavy and Megalokonomou, 2024). Finally, women may systematically value different job attributes—such as flexibility, stability, and work-life balance—than men (Zafar, 2013; Wiswall and Zafar, 2018). Understanding which of these mechanisms drive the choice gap is crucial for designing effective interventions.

5 Discussion and conclusion

The gender disparities we document in university applications matter for both equity and efficiency. Because returns to higher education vary by field, women's underrepresentation in STEM—where returns are especially high—likely sustains labor market gaps. From an efficiency perspective, improving the gender balance in applications across fields could lead to a better allocation of talent and ultimately boost economic growth. Attracting more women into high-skill fields where they have been historically underrepresented could therefore yield substantial gains in productivity and aggregate output (Hsieh et al., 2019; National Science Foundation, 2017; Weinberger, 1999; Hoogendoorn et al., 2013).

Our main contribution is to decompose women's underrepresentation into a pipeline gap and a choice gap. The pipeline gap varies across settings—from a 20-point deficit in Uganda to a 30-point advantage in Sweden. The choice gap, however, is strikingly consistent: in every country, high-achieving women are about 25 percentage points less likely than men to rank a STEM program first. Closing performance gaps is therefore insufficient without addressing systematic differences in choice.

The stability of the choice gap across contexts as different as Sweden and Uganda points to deeper structural forces. Prior research highlights gendered preferences: women place greater weight on non-pecuniary attributes such as stability and flexibility (Wiswall and

Zafar, 2018), and differences in program tastes explain much of the field gap (Zafar, 2013). Pipeline factors alone cannot account for persistent underrepresentation (Patnaik et al., 2021). Our findings extend this literature by showing that these preference gaps are not context-specific but persist across societies with widely varying levels of development and cultural norms.

Understanding the mechanisms behind the stable choice gap remains a key challenge. It may reflect differences in how men and women value job attributes, expectations of discrimination, family considerations, identity and belonging, or self-efficacy. Our results suggest that these forces operate globally rather than being tied to specific contexts. Policies that address them directly could play an important role in advancing gender parity in STEM—an objective with implications not only for equity but also for realizing the efficiency gains from a more inclusive allocation of talent.

Finally, a further contribution of this paper is to adopt a *market design perspective*, using administrative microdata from centralized admissions systems based on deferred acceptance (DA). These systems collect applicants' full rank-ordered lists, and since truthful reporting is a dominant strategy under DA, they provide a credible measure of genuine preferences. Restricting attention to the top 10% of exam scorers proxies access to competitive STEM programs and isolates choice differences conditional on eligibility. This design cleanly separates pipeline and choice effects, unlike settings where only final enrollments are observed. As digital application platforms expand, the same approach can be used not only to study gender disparities, but also racial, socioeconomic, and other inequalities in higher education at scale.

6 Figures and tables

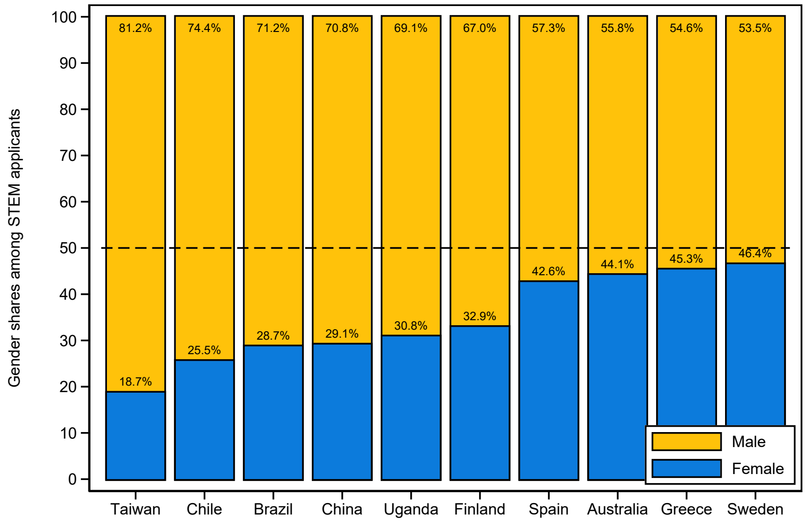

Figure 1: Gender Shares among STEM applicants (top 10% students)

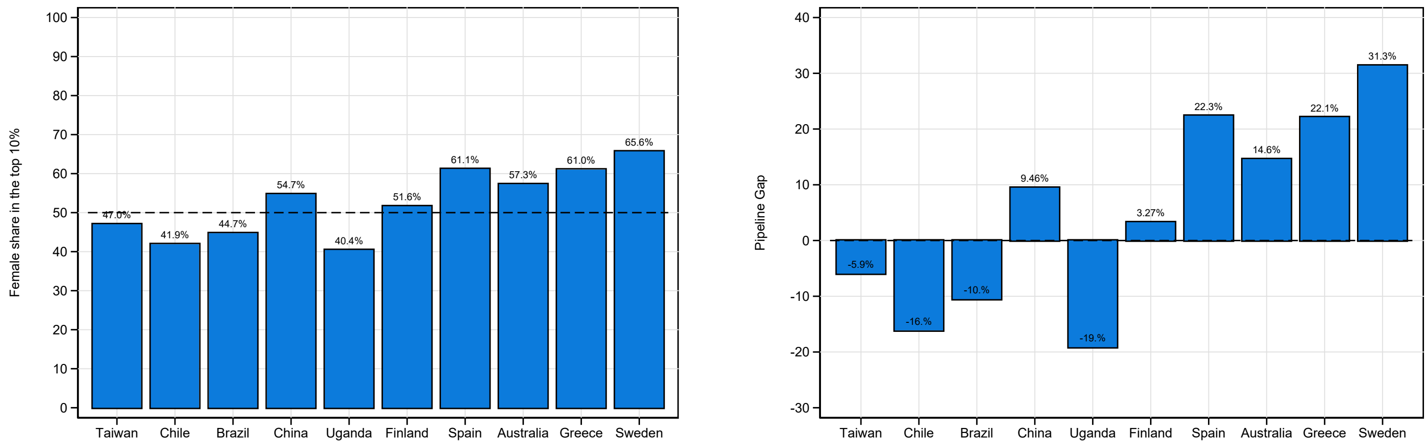

Figure 2: Share of Female Students in Top 10% and the Pipeline Gap

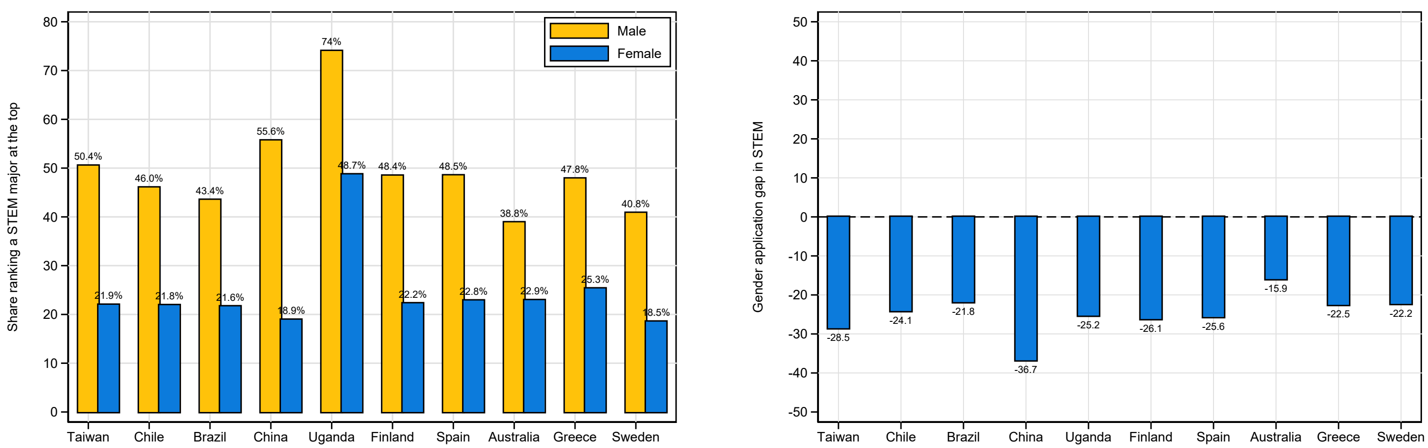

Figure 3: The Gender Choice Gap in STEM (Top 10% Students)

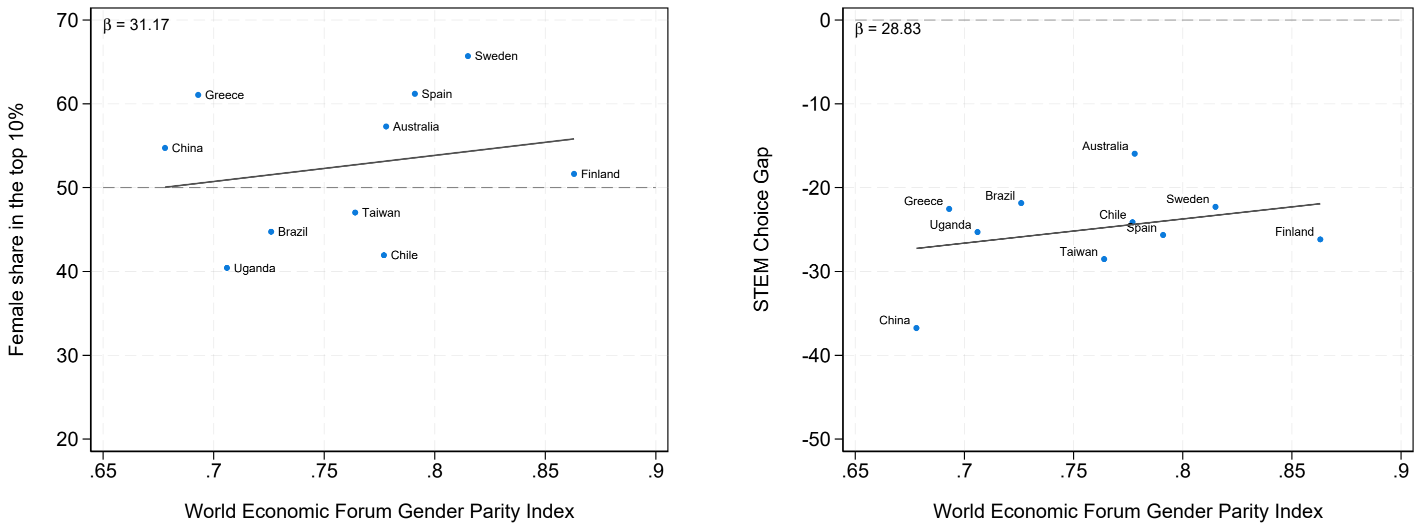

Figure 4: Pipeline/Choice Gaps vs World Economic Forum Gender Parity Index

Table 1: Institutional Characteristics

	Australia (1)	Brazil (2)	Chile (3)	China (4)	Finland (5)	Greece (6)	Spain (7)	Sweden (8)	Taiwan (9)	Uganda (10)
Panel A: Setting Characteristics										
Population	24,592,588	209,469,320	18,729,170	1,402,760,000	5,515,520	10,732,880	46,797,750	10,175,210	23,948,264	40,127,085
GDP per capita	$56,384	$20,625	$30,958	$23,643	$56,231	$41,443	$50,350	$61,977	$65,694	$3,514
Human Development Index	0.937	0.764	0.849	0.755	0.937	0.881	0.905	0.943	0.925	0.534
Gini index	33.7	53.9	44.4	38.5	27.3	32.9	34.7	30.0	34.2	42.8
Gender parity index	0.778	0.726	0.777	0.678	0.863	0.693	0.791	0.815	0.764	0.706
Panel B: University System Characteristics										
Institutions using centralized admissions	21/21	132/2448	34/60	1,252/2,663	36/38	41/41	50/86	41/41	67/67	8/8
Tuition fees	Yes	No	Yes	Yes	No	No	Yes	No	Yes	Yes
Financial aid for higher education	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel C: Admission System Characteristics										
Options available (yearly avg.)	1,078	6,310	1,423	18,671	1,458	609	2,169	15,374	1330	149
Max. number of preferences students can submit	12	2	10	90	6	No limit	12	20	100	6
N of applicants in a year (avg)	41,883	2,712,937	84,658	60,500	69,600	68,000	379,777	76,053	101,153	40,549
N of admitted students in a year (avg)		237,451	59,588	44,351	24,360	54,000	221,134	42,985		
Female share among applicants	55.6%	57.14%	56.16%	55.59%	60.0 %	55.8%	55%	59%	48.6%	43.92%
Data coverage	2009-2010	2016	2004-2018	2018	2016-2020	2003-2012	2018-2020	2008-2017	1996-2003	2011/2013-2018

Notes: The table provides summary statistics characterizing the settings in our sample and their university admission systems. Panel A provides general information on each setting, panel B characterizes their university systems, and panel C describes their university admission systems. The statistics presented in Panel A come from World Economics (`https://www.worldeconomics.com/GDP-Per-Capita`), United Nations Development Programme (`https://hdr.undp.org/data-center`), and the World Economic Forum (`https://www3.weforum.org/docs/WEF_GGGR_2023.pdf`). The Gender Parity Index of Taiwan come from Gender at a Glance in R.O.C. (Taiwan) report (`https://gec.ey.gov.tw/en/44A64D84C166AE4A`), since the World Economic Forum does not have that index for Taiwan. However, the government of Taiwan uses the same methodology to calculate the index.

Affiliations

[1]Baylor University, USA.

[2]SOFI, Stockholm University, Sweden.

[3]University of Melbourne, Australia.

[4]Universidad de los Andes, Chile.

[5]VATT Institute for Economic Research, Finland.

[6]University of Glasgow, UK.

[7]National Taiwan University, Taiwan.

[8]Monash University, Australia.

[9]Swedish Institute for Social Research, Stockholm University, Sweden.

[10]Yale University, USA.

[11]Rice University, USA.

[12]Columbia University, USA.

[13]Amazon, USA.

References

Ahn, T., P. Arcidiacono, A. Hopson, and J. R. Thomas (2019): "Equilibrium grade inflation with implications for female interest in stem majors," Tech. rep., National Bureau of Economic Research.

Akerlof, G. A. and R. E. Kranton (2000): "Economics and identity," *The Quarterly Journal of Economics*, 115, 715–753.

Aucejo, E. and J. James (2021): "The path to college education: The role of math and verbal skills," *Journal of Political Economy*, 129, 2905–2946.

Barahona, N., C. Dobbin, and S. Otero (2023): "Affirmative Action in Centralized College Admissions Systems," *Working Paper*.

Bertrand, M. (2020): "Gender in the Twenty-First Century," *American Economic Review Papers and Proceedings, RICHARD T. ELY LECTURE*, 110, 1–24.

Bó, I. and R. Hakimov (2019): "Iterative Versus Standard Deferred Acceptance: Experimental Evidence," *The Economic Journal*, 130, 356–392.

——— (2022): "The iterative deferred acceptance mechanism," *Games and Economic Behavior*, 135, 411–433.

Card, D. and A. A. Payne (2021): "High school choices and the gender gap in STEM," *Economic Inquiry*, 59, 9–28.

Carlana, M. (2019): "Implicit stereotypes: Evidence from teachers' gender bias," *The Quarterly Journal of Economics*, 134, 1163–1224.

Encinas-Martín, M. and M. Cherian (2023): "Gender, Education and Skills: The persistence of gender gaps in education and skills," *OECD Skills Studies*, 1–54.

Exley, C. L., R. Fisman, J. B. Kessler, L.-P. Lepage, X. Li, C. Low, X. Shan, M. Toma, and B. Zafar (2024): "Information-Optional Policies and the Gender Concealment Gap," Tech. rep., National Bureau of Economic Research.

Fack, G., J. Grenet, and Y. He (2019): "Beyond Truth-Telling: Preference Estimation with Centralized School Choice and College Admissions," *American Economic Review*, 109, 1486–1529.

Fryer Jr, R. G. and S. D. Levitt (2010): "An empirical analysis of the gender gap in mathematics," *American Economic Journal: Applied Economics*, 2, 210–40.

Goldin, C. and L. F. Katz (2008): "Transitions: Career and family life cycles of the educational elite," *American Economic Review*, 98, 363–69.

Guiso, L., F. Monte, P. Sapienza, and L. Zingales (2008): "Culture, gender, and math," *Science*, 320, 1164–1165.

Hastings, J. S., C. A. Neilson, A. Ramirez, and S. D. Zimmerman (2016): "(Un)informed College and Major Choice: Evidence from Linked Survey and Administrative Data," *Economics of Education Review*, 51, 136–151.

Hoogendoorn, S., H. Oosterbeek, and M. Van Praag (2013): "The impact of gender diversity on the performance of business teams: Evidence from a field experiment," *Management science*, 59, 1514–1528.

Hsieh, C.-T., E. Hurst, C. I. Jones, and P. J. Klenow (2019): "The allocation of talent and us economic growth," *Econometrica*, 87, 1439–1474.

Humphries, J. E., J. S. Joensen, and G. F. Veramendi (2023): "Complementarities in high school and college investments," *Available at SSRN*.

Lavy, V. and R. Megalokonomou (2024): "The Short- and the Long-Run Impact of Gender-Biased Teachers," *American Economic Journal: Applied Economics*, 16, 176–218.

Lepage, L.-P., X. Li, and B. Zafar (2024): "Anticipated Gender Discrimination and College Major Choice," Tech. rep., National Bureau of Economic Research.

National Science Foundation (2017): "Women, Minorities, and Persons with Disabilities in Science and Engineering," *National Science Foundation and National Center for Science and Engineering Statistics*, Special Report NSF.

Neilson, C. (2024): "The Rise of Coordinated Choice and Assignment Systems in Education Markets Around the World," Tech. rep., World Bank Group, World Bank Group.

OECD (2017): *The Pursuit of Gender Equality-An Uphill Battle*, OECD publishing.

Patnaik, A., M. Wiswall, and B. Zafar (2021): "College Majors," *The Routledge handbook of the economics of education*, 415–457.

Reuben, E., P. Sapienza, and L. Zingales (2014): "How stereotypes impair women's careers in science," *Proceedings of the National Academy of Sciences*, 111, 4403–4408.

UNESCO (2024): *Global education monitoring report 2024, gender report: technology on her terms*, Global Education Monitoring Report Team.

Weinberger, C. J. (1999): "Mathematical college majors and the gender gap in wages," *Industrial Relations: A Journal of Economy and Society*, 38, 407–413.

Wiswall, M. and B. Zafar (2018): "Preference for the workplace, investment in human capital, and gender," *The Quarterly Journal of Economics*, 133, 457–507.

Zafar, B. (2013): "College major choice and the gender gap," *Journal of Human Resources*, 48, 545–595.

Funding

Andrés Barrios-Fernández acknowledges partial support from ANID through FONDECYT grant 11230169, the Spencer Foundation through grant 10039719, and the YJS Foundation. Martti Kaila acknowledges partial support from the OP Foundation through grant 20230175. Georgy Artemov acknowledges support from the Australian Research Council grant DP160101350.