

Dataset View - UII

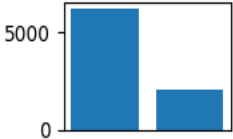
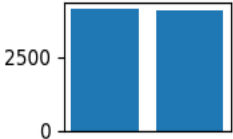
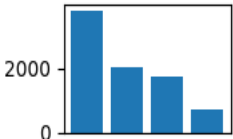
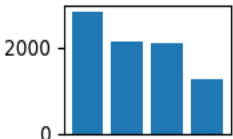
Dataset Head

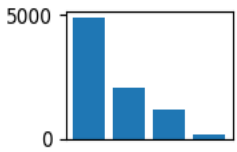
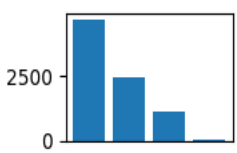
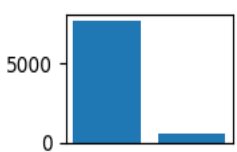
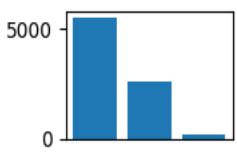
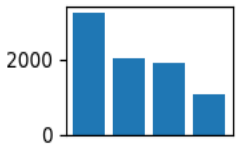
scores_M ATq_3	gender	mother_ed ucation	father_edu cation	mother_oc cupation	father_occ upation	immigrant _status	age_at_en rollment	books_in_ home	adults_rea ding_book s	school_ow nership	teacher_tr ansfer_rat e	capital_isl and	socioecon omic_stat us	decision
Middle Range	Male	Secondary	No Ed.	Unemploye d Not Looking	Unemploye d Looking	Spain	< 3	< 11	< 11	Public	High	No	High	Pass
Middle Range	Male	Tertiary	Tertiary	Unemploye d Not Looking	Retired	Spain	< 3	> 100	> 200	Public	Low	Yes	Low	Pass
Middle Range	Male	Primary	Primary	Retired	Unemploye d Looking	Spain	3 - 4	11 - 50	11 - 50	Public	Low	Yes	High	Pass
Middle Range	Female	Tertiary	Tertiary	Unemploye d Not Looking	Unemploye d Not Looking	Spain	< 3	51 - 100	101 - 200	Private	Low	Yes	Low	Pass
Middle Range	Female	Tertiary	Tertiary	Retired	Retired	Spain	< 3	11 - 50	> 200	Public	Low	Yes	High	Pass
Lower Tail	Female	Secondary	Secondary	Unemploye d Looking	Retired	Another Country	3 - 4	51 - 100	> 200	Public	High	Yes	High	Not Pass
Middle Range	Male	Primary	Primary	Retired	Unemploye d Not Looking	Spain	< 3	51 - 100	11 - 50	Private	Low	Yes	Low	Pass
Lower Tail	Female	No Ed.	No Ed.	Retired	Unemploye d Looking	Spain	< 3	11 - 50	> 200	Public	High	Yes	High	Not Pass
Middle Range	Male	Tertiary	Secondary	Unemploye d Not Looking	Unemploye d Not Looking	Spain	< 3	> 100	< 11	Private	Low	Yes	Low	Pass
Lower Tail	Female	Secondary	No Ed.	Retired	Unemploye d Looking	Spain	< 3	11 - 50	> 200	Public	High	No	Low	Not Pass
Lower Tail	Male	Secondary	Primary	Retired	Unemploye d Looking	Spain	< 3	51 - 100	11 - 50	Public	High	Yes	Low	Not Pass
Lower Tail	Male	Primary	Primary	Retired	Retired	Spain	3 - 4	< 11	11 - 50	Public	High	Yes	High	Not Pass
Middle Range	Female	Primary	Primary	Unemploye d Looking	Unemploye d Looking	Spain	< 3	< 11	> 200	Public	High	Yes	High	Pass
Middle Range	Male	Tertiary	Tertiary	Retired	Retired	Spain	< 3	< 11	11 - 50	Private	Low	Yes	High	Pass
Lower Tail	Female	Tertiary	Secondary	Unemploye d Not Looking	Retired	Spain	< 3	11 - 50	101 - 200	Public	Low	Yes	Low	Not Pass

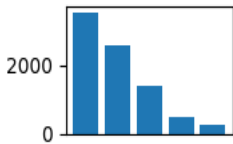
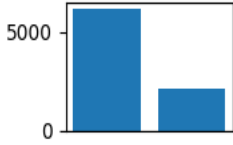
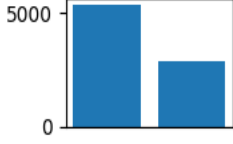
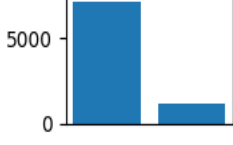
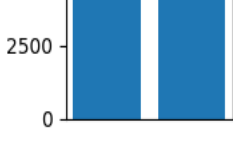
Middle Range	Male	Tertiary	Tertiary	Unemployed Not Looking	Retired	Spain	< 3	> 100	> 200	Private	Low	Yes	Low	Pass
Middle Range	Male	Tertiary	Secondary	Retired	Retired	Spain	< 3	> 100	101 - 200	Public	High	Yes	Low	Pass
Lower Tail	Female	Tertiary	No Ed.	Retired	Retired	Spain	3 - 4	51 - 100	> 200	Public	High	Yes	High	Not Pass
Middle Range	Female	Tertiary	Primary	Wage Employment	Retired	Spain	< 3	11 - 50	> 200	Public	High	Yes	High	Pass
Middle Range	Female	Tertiary	Tertiary	Unemployed Not Looking	Unemployed Not Looking	Spain	< 3	> 100	> 200	Private	Low	Yes	Low	Pass
Middle Range	Male	Tertiary	Tertiary	Retired	Retired	Another Country	< 3	51 - 100	101 - 200	Public	Low	No	High	Pass
Middle Range	Female	Primary	Secondary	Unemployed Not Looking	Retired	Spain	< 3	11 - 50	11 - 50	Public	High	Yes	Low	Pass
Middle Range	Male	No Ed.	No Ed.	Unemployed Looking	Retired	Spain	3 - 4	11 - 50	> 200	Public	High	Yes	High	Pass
Lower Tail	Female	Secondary	Secondary	Retired	Retired	Spain	< 3	11 - 50	11 - 50	Public	Low	Yes	High	Not Pass
Lower Tail	Male	Primary	No Ed.	Unemployed Looking	Retired	Spain	< 3	< 11	11 - 50	Public	High	Yes	High	Not Pass
Middle Range	Male	Tertiary	Tertiary	Unemployed Not Looking	Unemployed Not Looking	Spain	< 3	51 - 100	> 200	Public	High	Yes	Low	Pass
Middle Range	Female	No Ed.	Primary	Unemployed Looking	Retired	Spain	3 - 4	< 11	11 - 50	Public	High	Yes	High	Pass
Middle Range	Male	Tertiary	Tertiary	Unemployed Not Looking	Unemployed Not Looking	Spain	< 3	> 100	> 200	Public	High	Yes	Low	Pass
Middle Range	Female	Tertiary	Tertiary	Unemployed Not Looking	Unemployed Not Looking	Another Country	< 3	> 100	> 200	Public	High	Yes	Low	Pass
Middle Range	Female	Primary	Primary	Unemployed Looking	Retired	Spain	3 - 4	> 100	> 200	Public	High	Yes	Low	Pass

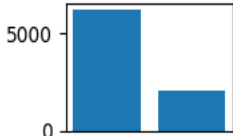
Features View

Stats

feature	missing_values	unique	top	freq	values	distribution	sensitive	target
scores_MATq_3	0	2	Middle Range	6217	Lower Tail, Middle Range		False	False
gender	0	2	Male	4172	Female, Male		True	False
mother_education	0	4	Tertiary	3796	No Ed., Primary, Secondary, Tertiary		False	False
father_education	0	4	Tertiary	2825	No Ed., Primary, Secondary, Tertiary		False	False

feature	missing_values	unique	top	freq	values	distribution	sensitive	target
mother_occupation	0	4	Retired	4898	Retired, Unemployed Looking, Unemployed Not Looking, Wage Employment		False	False
father_occupation	0	4	Retired	4725	Retired, Unemployed Looking, Unemployed Not Looking, Wage Employment		False	False
immigrant_status	0	2	Spain	7723	Another Country, Spain		False	False
age_at_enrollment	0	3	< 3	5521	3 - 4, < 3, > 4		False	False
books_in_home	0	4	11 - 50	3261	11 - 50, 51 - 100, < 11, > 100		False	False

feature	missing_values	unique	top	freq	values	distribution	sensitive	target
adults_reading_books	0	5	> 200	3552	101 - 200, 11 - 50, 51 - 100, < 11, > 200		False	False
school_ownership	0	2	Public	6187	Private, Public		False	False
teacher_transfer_rate	0	2	High	5382	High, Low		False	False
capital_island	0	2	Yes	7154	No, Yes		False	False
socioeconomic_status	0	2	Low	4149	High, Low		True	False

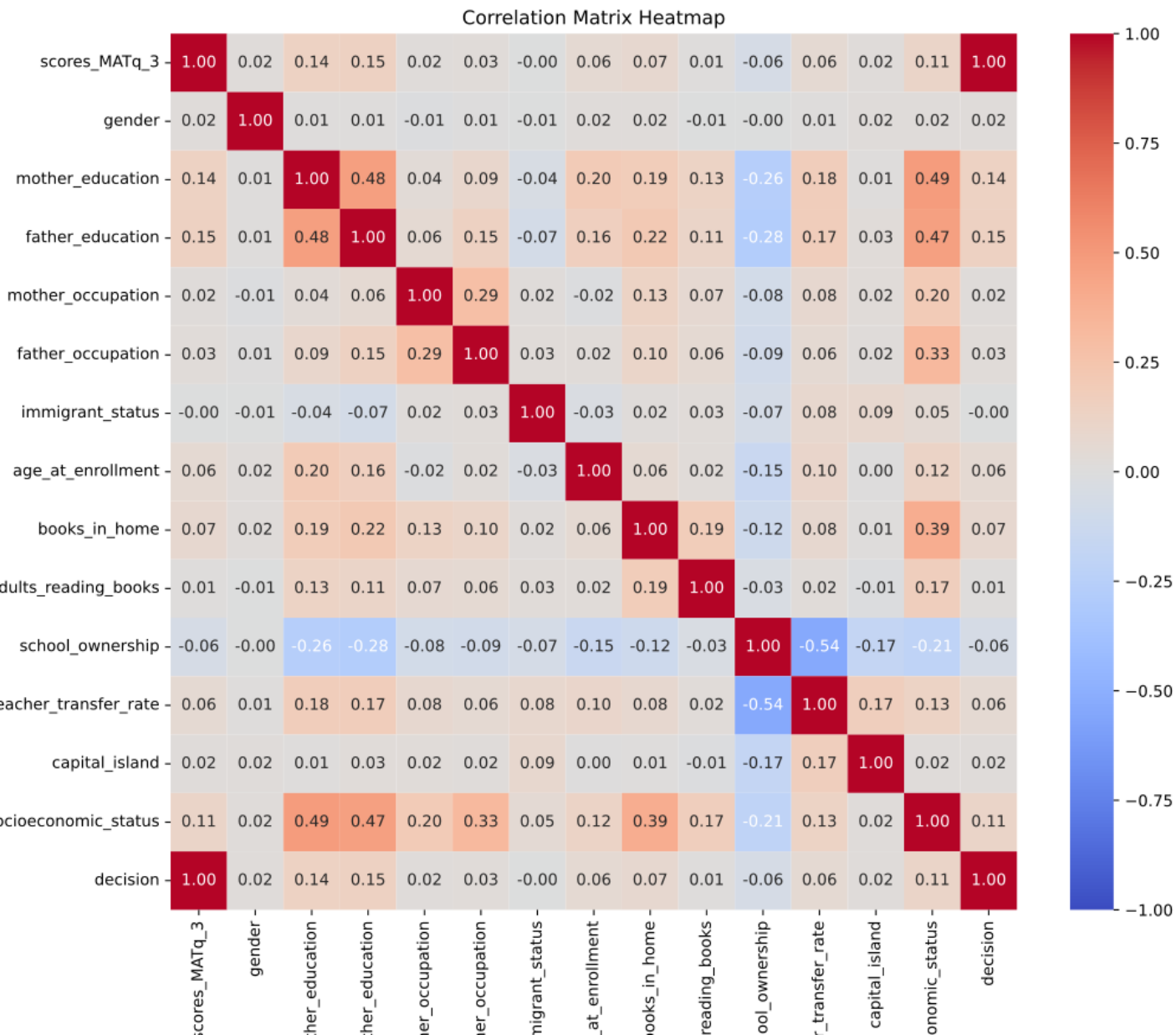
feature	missing_values	unique	top	freq	values	distribution	sensitive	target
decision	0	2	Pass	6217	Not Pass, Pass		False	True

Features

Field Name	drop	sensitive	target
scores_MATq_3	✗	✗	✗
gender	✗	✓	✗
mother_education	✗	✗	✗
father_education	✗	✗	✗
mother_occupation	✗	✗	✗
father_occupation	✗	✗	✗
immigrant_status	✗	✗	✗
age_at_enrollment	✗	✗	✗
books_in_home	✗	✗	✗
adults_reading_books	✗	✗	✗
school_ownership	✗	✗	✗
teacher_transfer_rate	✗	✗	✗
capital_island	✗	✗	✗
socioeconomic_status	✗	✓	✗
decision	✗	✗	✓

Proxies

Correlation Matrix



Suggested Proxies

Gender

	scores_MATq_3	mother_education	father_education	mother_occupation	father_occupation	immigrant_status
correlation	1.85%	1.39%	1.21%	-1.40%	0.61%	-0.54%
suggested_proxy	✗	✗	✗	✗	✗	✗

Gender

	age_at_enrollment	books_in_home	adults_reading_books	school_ownership	teacher_transfer_rate	capital_island
correlation	1.67%	1.69%	-0.75%	-0.04%	0.79%	1.59%
suggested_proxy	✗	✗	✗	✗	✗	✗

Gender

	socioeconomic_status
correlation	1.78%
suggested_proxy	✗

Socioeconomic_status

	scores_MATq_3	gender	mother_education	father_education	mother_occupation	father_occupation
correlation	11.11%	1.78%	48.69%	46.50%	19.95%	32.76%
suggested_proxy	✗	✗	✗	✗	✗	✗

Socioeconomic_status

	immigrant_status	age_at_enrollment	books_in_home	adults_reading_books	school_ownership	teacher_transfer_rate
correlation	5.24%	12.11%	39.31%	16.93%	-20.82%	13.02%
suggested_proxy	✗	✗	✗	✗	✗	✗

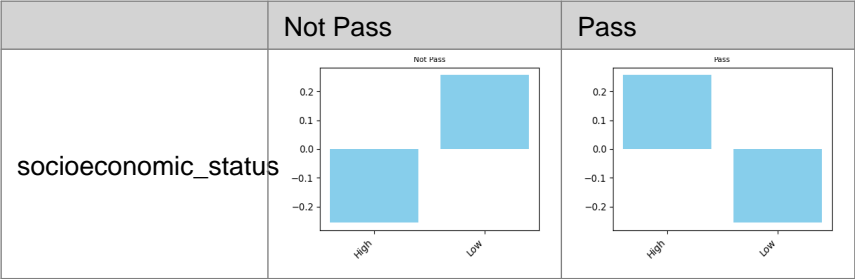
Socioeconomic_status

	capital_island
correlation	2.21%
suggested_proxy	✗

Detection

Selected Metrics

ConditionedDemographicDisparity



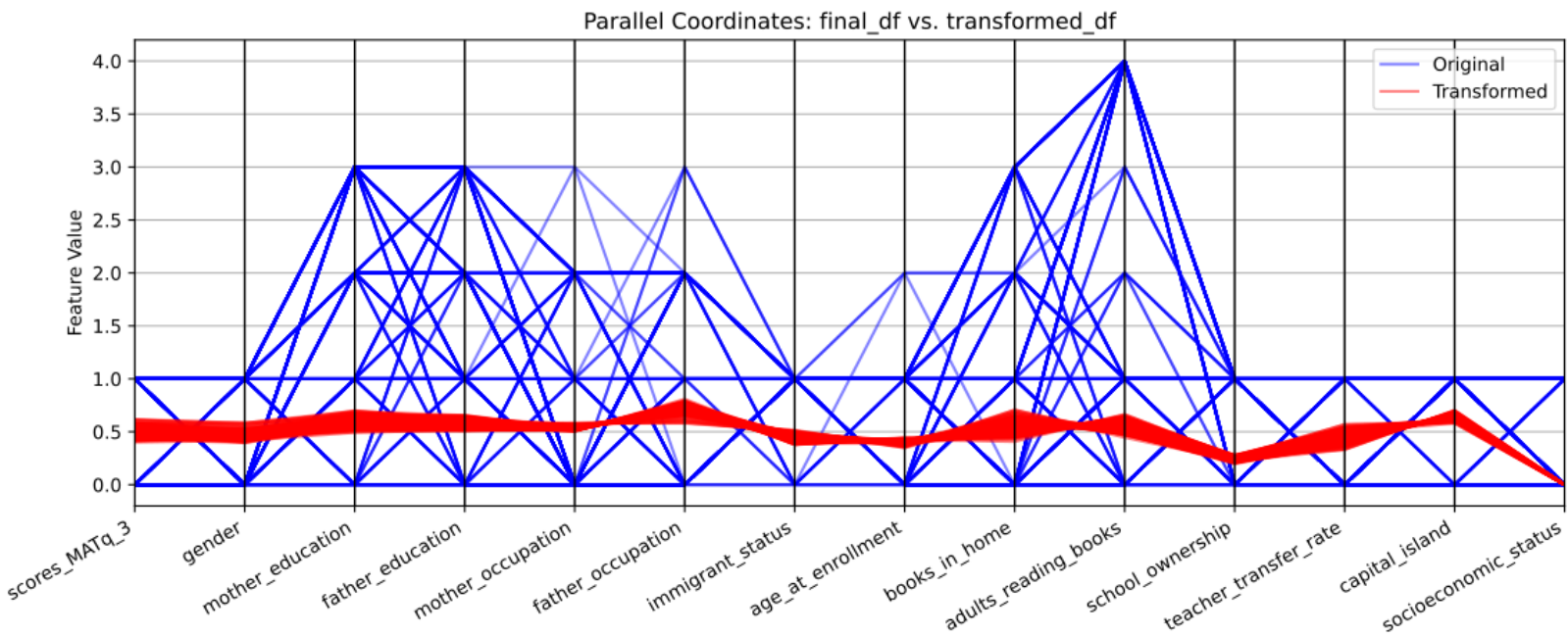
Data Mitigation

Preprocessing

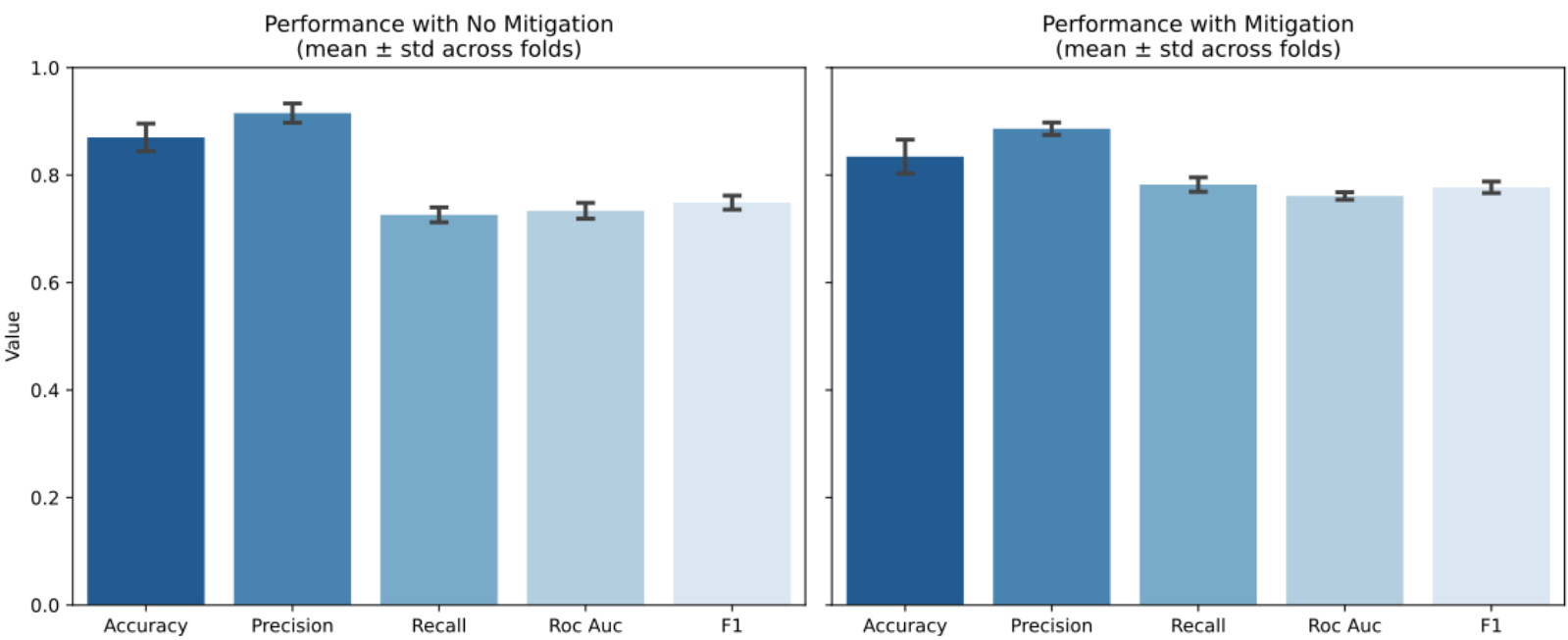
\$algorithm	k	Ax	Ay	Az	random_state
LearnedFairRepresentations	5	1.00%	1	50	42

Data Mitigation Results

Preprocessing Plot

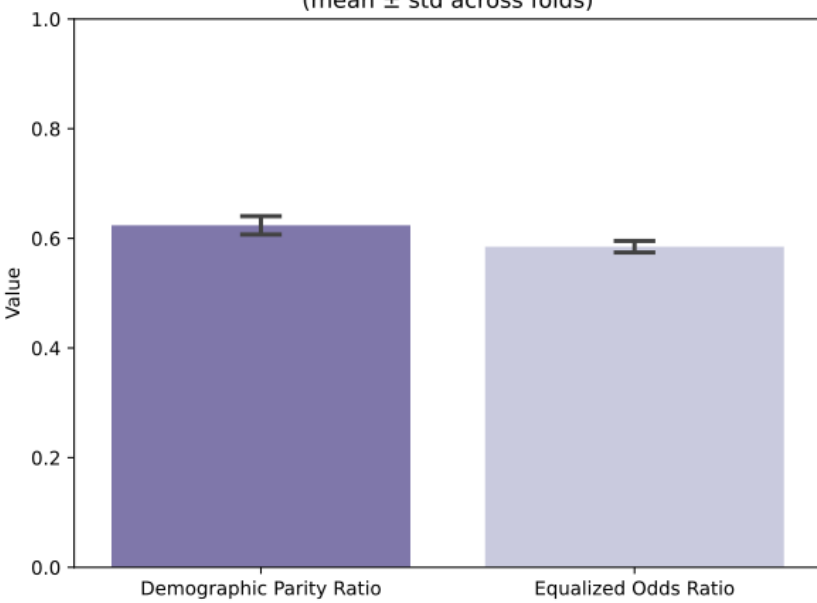


Performance Plot

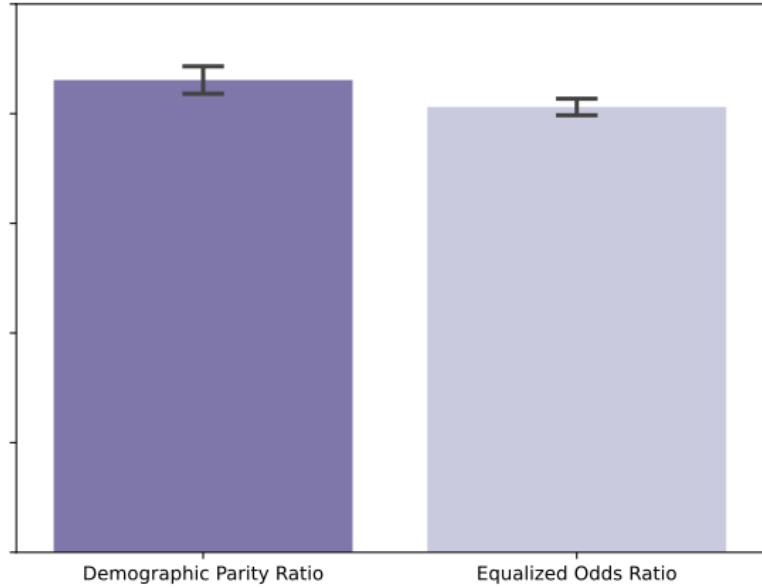


Fairness Plot

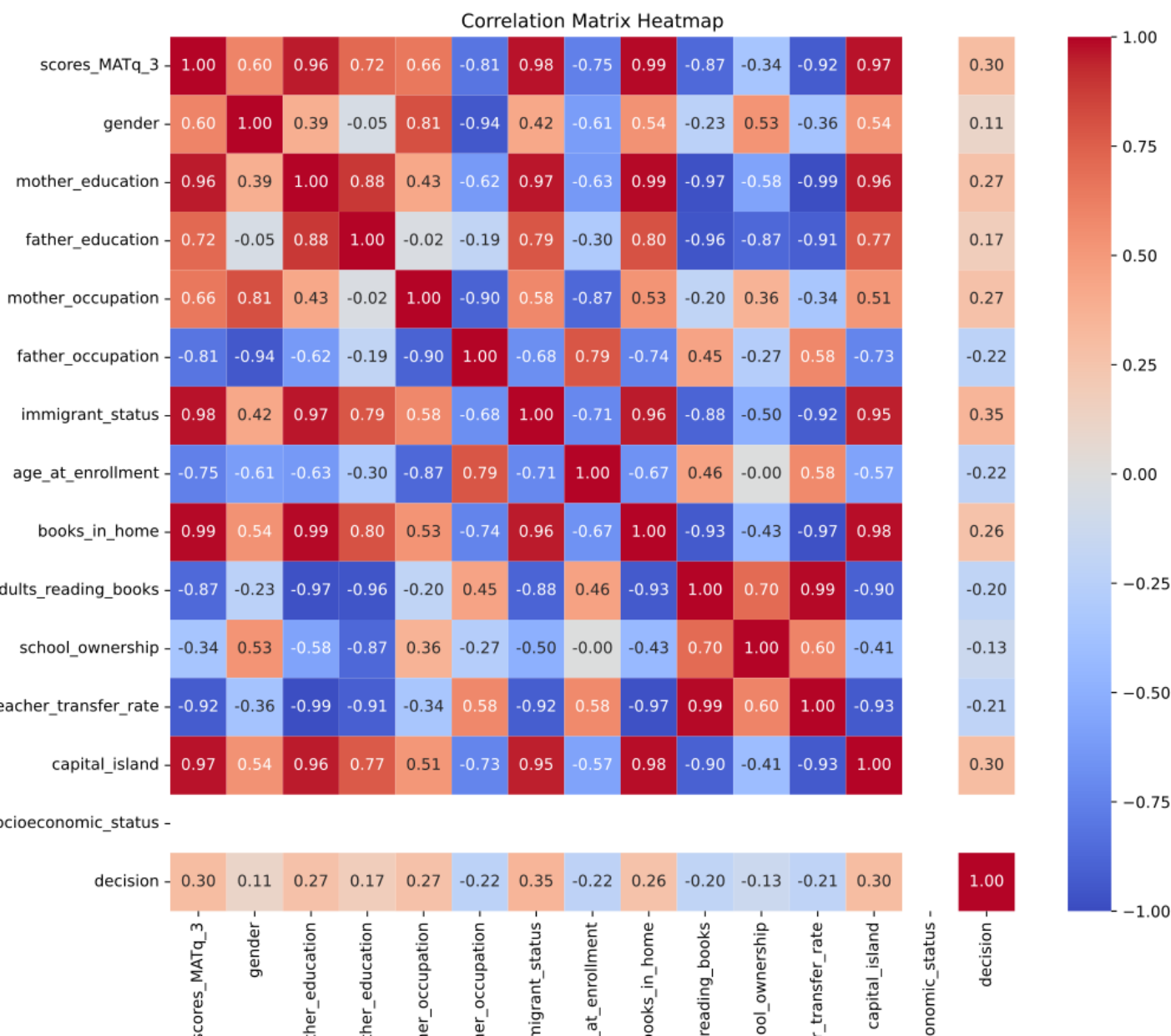
Fairness with No Mitigation
(mean \pm std across folds)



Fairness with Mitigation
(mean \pm std across folds)



Correlation Matrix



Dataset Head

scores_M ATq_3	gender	mother_ed ucation	father_edu cation	mother_oc cupation	father_occ upation	immigrant _status	age_at_en rollment	books_in_ home	adults_rea ding_book s	school_ow nership	teacher_tr ansfer_rat e	capital_isl and	socioecon omic_stat us	decision
0.5231800 017031052	0.5187478 119147844	0.5972676 972734161	0.5533042 693193297	0.5558238 0760911	0.6664616 721202459	0.4550829 763604859	0.3853578 850805048	0.5661249 374831658	0.5794648 998277377	0.2649991 275914614	0.4595066 673367645	0.6481760 257842265	Female	Pass
0.5451792 215967362	0.5172376 280150718	0.6241559 401153662	0.5776227 213944607	0.5550419 662636249	0.6613592 878551916	0.4727721 660304476	0.3867254 081298973	0.5996352 821213762	0.5481188 54124264	0.2537356 785738164	0.4296476 446866085	0.6649363 280187253	Female	Pass
0.4778250 83161752	0.4613378 080434996	0.5663454 341137016	0.5558698 64409422	0.5351242 060038777	0.7307934 055054606	0.4308271 62263801	0.4012454 734719516	0.5098131 045670334	0.5987915 698878029	0.2498195 182793088	0.4910720 891572689	0.6229373 13265216	Female	Pass
0.5320035 315653494	0.4274634 500779629	0.6461821 90385681	0.6440656 06690847	0.5227096 158641621	0.7445849 928401829	0.4795155 349123244	0.4087920 331083833	0.5995684 702615215	0.4966026 768461185	0.2025217 66892117	0.3981460 888213367	0.6658047 145961455	Female	Pass
0.4809471 998392959	0.4585530 645903738	0.5721563 798394476	0.5640672 953719333	0.5295652 375273688	0.7352755 021613729	0.4342051 992860922	0.4134175 84171987	0.5179107 279706219	0.5887084 236531848	0.2454308 781888793	0.4858025 913942644	0.6320707 107761854	Female	Pass
0.4770089 766592516	0.4749941 622862781	0.5665066 104625416	0.5548815 438168675	0.5341472 06471631	0.7226331 655367936	0.4246961 653713088	0.3993910 933847269	0.5138358 989617473	0.5948665 29820493	0.2552567 315288213	0.4837745 327810659	0.6211437 180013697	Female	Not Pass
0.4827550 758587814	0.4254448 071807632	0.5855150 985726695	0.5910888 62044795	0.5184640 085780233	0.7635144 869127384	0.4433971 713618099	0.4255291 839598947	0.5253221 492011964	0.5661396 860619549	0.2246196 878448093	0.4726001 201650608	0.6397128 098647865	Female	Pass
0.3853699 951230168	0.4562424 263412466	0.4740015 489166874	0.4961907 167144114	0.5007628 910319779	0.7838340 597807897	0.3560855 893016613	0.4612831 979418029	0.3994715 735593117	0.6773178 906712236	0.2778710 0471709	0.5870383 837542797	0.5889212 34931174	Female	Not Pass
0.5333514 082008314	0.4782523 126144117	0.6235104 019229308	0.5951133 027686096	0.5429643 85970775	0.6981328 18643655	0.4722190 897528775	0.3971928 246763689	0.5871626 802110183	0.5405070 760641294	0.2358059 023376285	0.4311605 916277356	0.6615779 372417262	Female	Pass
0.4150007 999259772	0.4497180 509828215	0.5073689 561639019	0.5224545 745329352	0.5118356 648381702	0.7720630 985606135	0.3807842 78685603	0.4343342 05662898	0.4355601 099815773	0.6464368 387912686	0.2640679 434508617	0.5488647 690316202	0.5951701 987658462	Female	Not Pass
0.5183446 994710756	0.4849187 660688831	0.6202914 44115283	0.6049529 612585545	0.5270270 012788463	0.7082301 368659423	0.4524625 564385303	0.4092214 688269888	0.5856295 327484505	0.5250618 294506398	0.2371407 735708055	0.4166566 575922765	0.6565302 71426504	Female	Not Pass
0.5733515 556595216	0.5578241 886827544	0.6516214 870418838	0.5888709 438802476	0.5646427 743285319	0.6200324 764010787	0.4817950 334418414	0.3665586 837303285	0.6442071 142329492	0.5180764 46376417	0.2614776 176274505	0.3864190 070606223	0.6741106 584696643	Female	Not Pass
0.4899879 205433193	0.4730098 04595459	0.5736715 372618995	0.5548991 960711483	0.5378415 863619226	0.7178852 053349547	0.4398476 039040982	0.4082521 91218963	0.5243405 043743962	0.5949384 820979327	0.2522147 987095201	0.4888291 835301335	0.6362599 703374593	Female	Pass
0.5672759 54770247	0.5003239 952988129	0.6671930 185357265	0.6328052 815125415	0.5393927 323554728	0.6756480 845140285	0.4897058 381145669	0.3974108 543462384	0.6486521 822195873	0.4825377 297716857	0.2272894 783706036	0.3700052 27104299	0.6860843 875757204	Female	Pass
0.5224887 543259294	0.4655265 694635743	0.6203709 434343905	0.6027257 05639786	0.5357683 348861213	0.7142020 888526822	0.4639585 141170387	0.3975680 672382894	0.5784492 529721652	0.5358578 507707783	0.2305699 355076092	0.4275271 055802275	0.6532659 227324541	Female	Not Pass
0.5458657 624437182	0.5089255 690188927	0.6269782 460215272	0.5830510 984484223	0.5537394 055488384	0.6674307 759353209	0.4754415 549631577	0.3872321 696293963	0.6005194 791666865	0.5443038 24880358	0.2489736 765273748	0.4273634 302250967	0.6656241 052090365	Female	Pass
0.6018432 117827252	0.5396963 009743232	0.7009613 17681885	0.6494888 400191636	0.5461039 520992693	0.6351406 926739884	0.5055938 695568839	0.3892175 118582711	0.7027075 950494671	0.4452990 786723111	0.2315436 423262501	0.3245293 937165656	0.7068877 292320893	Female	Pass

0.4881139 661819594	0.4868734 666086594	0.5703515 861075712	0.5484223 354379297	0.5408146 65666113	0.7073835 70567996	0.4333191 138182485	0.3997544 400505982	0.5232494 87389644	0.5983196 079826488	0.2597763 378822328	0.4865993 955503604	0.6300313 531103116	Female	Not Pass
0.5026543 754014555	0.4857000 50104962	0.5811262 332099221	0.5518984 157689022	0.5478738 356651468	0.6993740 252059	0.4476850 716342357	0.3944191 26816238	0.5362432 822166429	0.5941839 966734762	0.2562699 09758415	0.4820009 609774121	0.6380055 751229544	Female	Pass
0.5155866 318961703	0.4520671 681188509	0.6104299 060166127	0.5949222 159393602	0.5360145 86990425	0.7250414 040536171	0.4644152 704985548	0.4027948 344202589	0.5627442 867594246	0.5510808 746491161	0.2289011 601405088	0.4471002 826452682	0.6514174 024784065	Female	Pass
0.5351182 037028926	0.4935969 60130454	0.6418959 891479796	0.6233813 785056204	0.5277559 502177936	0.6969519 529808776	0.4614181 558892604	0.4022280 244315521	0.6142804 166845043	0.4978368 221437782	0.2324414 730289366	0.3856938 649601369	0.6645764 952610519	Female	Pass
0.5247816 134857024	0.4710547 61725523	0.6151781 360489381	0.5898552 044604239	0.5447551 355423365	0.7042183 156650806	0.4666137 54107876	0.3884456 65104352	0.5729709 007348011	0.5506504 751399404	0.2364092 971538695	0.4389515 65716535	0.6502152 736491146	Female	Pass
0.4522363 258984521	0.5088206 278352573	0.5248205 333148825	0.5045595 447732215	0.5356842 874412862	0.7070985 484310215	0.3996168 50902896	0.4175087 321327649	0.4756519 394229345	0.6464534 476467195	0.2857354 061202967	0.5361239 402849723	0.6142128 447374899	Female	Pass
0.4810381 606517791	0.4433234 095452597	0.5822089 634060905	0.5838303 435890544	0.5216519 972123506	0.7501811 111599769	0.4355781 062036127	0.4161774 365764735	0.5253716 36149661	0.5690043 402941916	0.2338771 47489449	0.4688213 647733029	0.6331032 094917144	Female	Not Pass
0.5669262 496455227	0.5725478 853235759	0.6343446 174147697	0.5638501 180099333	0.5692962 727402542	0.6094851 947927161	0.4760752 875511609	0.3727248 786432944	0.6288173 193973683	0.5445245 9124047	0.2750710 984007578	0.4132163 887199497	0.6735745 908334678	Female	Not Pass
0.5011524 972392922	0.4658417 182014343	0.5947628 50585753	0.5806865 807022482	0.5337280 988494255	0.7217291 920230849	0.4475144 504121306	0.4036609 739274445	0.5472618 66782206	0.5643947 684767981	0.2403435 352316471	0.4574763 696605363	0.6412453 359731685	Female	Pass
0.5724826 283168448	0.5299334 237815246	0.6477840 218116667	0.5867110 125432993	0.5700996 723325088	0.6352039 518498765	0.4918989 571116599	0.3611254 166735096	0.6302311 48958356	0.5319328 814777936	0.2523508 324929377	0.4037801 975213811	0.6706643 650448023	Female	Pass
0.5289986 317399962	0.4852138 765704811	0.6209857 842975691	0.5942057 376488755	0.5405372 216176315	0.6963534 38226282	0.4651403 498182994	0.3970712 419159118	0.5858659 097762744	0.5390823 948681256	0.2392734 985880946	0.4279409 134209434	0.6581280 29958186	Female	Pass
0.5130991 867242988	0.4660807 016635412	0.6105425 360851087	0.5956370 753957337	0.5329798 581237368	0.7184358 341292105	0.4560989 981659554	0.4024597 687973353	0.5668662 840865272	0.5447940 984413369	0.2341589 422101243	0.4376479 349780185	0.6491451 697339272	Female	Pass
0.5326728 818613117	0.5133977 496594209	0.6074530 978358387	0.5616410 361549956	0.5584862 635602069	0.6654368 683619264	0.4646713 813162476	0.3810393 781628295	0.5767456 055553544	0.5707523 349950987	0.2592617 032889348	0.4506879 783251634	0.6527050 507802221	Female	Pass

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Field Name