

Wetter, Rebecca; Finger, Claudia

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Do Experiences of Success and Failure Influence Beliefs about Inequality? Evidence from Selective University Admission

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ONLINE SUPPLEMENTARY:

Do Experiences of Success and Failure Influence Beliefs about Inequality?

Evidence from Selective University Admission

ADDITIONAL MODELS

S1) INTERACTION MODELS TESTING SIGNIFICANCE OF GROUP DIFFERENCES 2

ROBUSTNESS CHECKS AND SENSITIVITY ANALYSES

S2) MODELS TESTING ALTERNATIVE WEIGHTING STRATEGIES 4

S3) MODELS ACCOUNTING FOR ORDINAL SCALE OF DEPENDENT VARIABLES 6

S4) CORRELATIONS BETWEEN DISTINCT INEQUALITY BELIEFS 7

S5) BELIEF CHANGES AFTER GETTING ADMITTED THROUGH DIFFERENT QUOTAS 9

S6) BELIEF CHANGES ONLY FOR THOSE WHO DID NOT APPLY TO OTHER STUDY
PROGRAMS SIMULTANEOUSLY 11

S7) BELIEF CHANGES APPLYING FUZZY RDD 12

ILLUSTRATION

S8) SYSTEMATIC ILLUSTRATION OF RESULTS OF HYPOTHESES TESTING 16

REFERENCES 17

S1) INTERACTION MODELS TESTING SIGNIFICANCE OF GROUP DIFFERENCES

Table S1a. Linear Fixed-Effect Models with Interaction Terms (Belief Change*Social Origin)

	Admitted applicants (<i>N</i> = 1,764)			Rejected applicants (<i>N</i> = 2,374)		
	Belief change after admission of applicants with two col- lege parents (ref. group)	Belief change after admis- sion*no col- lege parent (ref. two col- lege parents)	Belief change after admis- sion*one col- lege parent (ref. two col- lege parents)	Belief change after rejection of applicants with two col- lege parents (ref. group)	Belief change after rejec- tion*no col- lege parent (ref. two col- lege parents)	Belief change after rejec- tion*one col- lege parent (ref. two col- lege parents)
b (SE)						
<u>Domain-specific beliefs</u>						
University admission depends on one's own						
Effort	.26** (.05)	-.04 (.08)	-.03 (.08)	-.02 (.05)	-.08 (.08)	-.09 (.08)
Talent	.08 (.04)	.05 (.08)	-.02 (.07)	.04 (.05)	.08 (.08)	.10 (.08)
Luck	-.03 (.05)	.05 (.09)	.20** (.07)	.38** (.05)	-.07 (.08)	-.07 (.07)
<u>Societal beliefs</u>						
Societal success depends on						
Effort	-.01 (.03)	.05 (.06)	.02 (.06)	-.04 (.03)	-.07 (.06)	-.10 (.06)
Talent	-.22** (.03)	.12 (.06)	.10 (.06)	-.01 (.04)	-.10 (.06)	-.08 (.06)
Family	-.08 (.04)	-.03 (.07)	-.09 (.07)	.08 (.04)	.05 (.07)	.06 (.06)
Money	-.02 (.04)	-.12 (.07)	-.10 (.07)	.11** (.04)	.02 (.06)	.05 (.06)

Note. Online panel of applicants to medical schools in Germany, 2018. Authors' calculations. Sampling weight applied.

p* < .05. *p* < .01.

Table S1b. Linear Fixed-Effect Models with Interaction Terms (Belief Change*Repeat Applicant)

	Admitted applicants (<i>N</i> = 1,764)		Rejected applicants (<i>N</i> = 2,374)	
	Belief change after admission of first- time applicants (ref. group)	Belief change after admission*repeat applicant (ref. first-time appli- cants)	Belief change after rejection of first- time applicants (ref. group)	Belief change after rejection*repeat applicant (ref. first-time appli- cants)
b (SE)				
<u>Domain-specific beliefs</u>				
University admission depends on one's own				
Effort	.15** (.04)	.19** (.07)	-.04 (.05)	-.06 (.07)
Talent	-.05 (.04)	.31** (.06)	.05 (.05)	.08 (.06)
Luck	-.06 (.04)	.22** (.07)	.31** (.05)	.05 (.06)
<u>Societal beliefs</u>				
Societal success depends on				
Effort	-.00 (.03)	.02 (.05)	-.10** (.04)	.02 (.05)
Talent	-.21** (.03)	.10* (.05)	-.07 (.04)	.02 (.04)
Family	-.09* (.04)	-.05 (.06)	.10* (.04)	.03 (.05)
Money	-.06 (.04)	-.04 (.06)	.16** (.04)	.03 (.05)

Note. Online panel of applicants to medical schools in Germany, 2018. Authors' calculations. Sampling weight applied.

p* < .05. *p* < .01.

S2) MODELS TESTING ALTERNATIVE WEIGHTING STRATEGIES

Selection into survey participation was not random, as demonstrated, for instance, by the overestimated unweighted admissions rate of 46% in our sample (compared to 25% in the overall population). To reduce this source of bias, we constructed a sampling weight based on the application register provided by the central clearinghouse, which covers the whole population of medical school applicants for the winter term 2018. Following recommendations on how to create and apply weights in Stata (Dupraz 2013), we constructed the weight, using the distributions of the following variables: gender, age, high school GPA, and state (*Bundesland*) in which the university entrance certificate was acquired (all interacted with admission status). After applying our cross-sectional sampling weights, the weighted admission rate amounts to 24.98 %. Because we apply the weight to our Wave 2 participants, this accounts for both selection and attrition bias, which is connected to the weighting variables.

We also tested an alternative strategy, that of applying a panel weight, which accounted for differences in survey drop-out between Waves 1 and 2 based on additional characteristics not covered in the register data. We created this weight by multiplying a Wave 1 sampling weight (based on distributions of the variables mentioned above) by the predicted likelihood of Wave 2 participation (based on the mentioned characteristics as well as social origin and migration status as estimated according to logistic regression results). As the admission decision did only take place after Wave 1, we could not consider different distributions of the variables between the group of later admitted or rejected applicants.

For that reason, we decided in the main article to apply the cross-sectional sampling weight to our models, a step that allowed us to account for different distributions of characteristics among admitted and rejected applicants. Because these groups differed substantially in terms of GPA and inequality beliefs, the strategy of using cross-sectional sampling weights seemed to be the most appropriate. However, no matter which strategy pertains – panel

weights, cross-sectional sampling weights, or no weights at all – our main results do not change substantially (Table S2).

Table S2. Linear Fixed-Effect Models with Alternative Weighting Strategies

	No weights applied		Panel weights applied		Cross-sectional sampling weights applied	
<i>N</i>	4167		4118		4138	
	Belief change of rejected applicants (reference group)	Belief change* admission (ref. rejection)	Belief change of rejected applicants (reference group)	Belief change* admission (ref. rejection)	Belief change of rejected applicants (reference group)	Belief change* admission (ref. rejection)
b (SE)						
<u>Domain-specific agency beliefs</u>						
University admission depends on one's own						
Effort	-.07* (.03)	.30** (.04)	-.07* (.03)	.32** (.05)	-.07* (.03)	.31** (.05)
Talent	-.12** (.03)	-.04 (.04)	.10** (.03)	-.00 (.04)	.09** (.03)	-.00 (.04)
Luck	.33** (.03)	-.28** (.04)	.34** (.03)	-.27** (.04)	.33** (.03)	-.29** (.04)
<u>Societal beliefs</u>						
Societal success depends on						
Effort	-.09** (.02)	.08** (.03)	-.09** (.02)	.07* (.03)	-.09** (.02)	.09** (.03)
Talent	-.06** (.02)	-.11** (.03)	-.07** (.02)	-.09** (.03)	-.06** (.02)	-.10** (.03)
Family	.10** (.02)	-.21** (.04)	.12** (.03)	-.22** (.04)	.16** (.03)	-.23** (.04)
Money	.12** (.02)	-.19** (.04)	.14** (.03)	-.22** (.04)	.13** (.03)	-.21** (.04)

Note. Online panel of applicants to medical schools in Germany, 2018. Authors' calculations.
 $p < .1$. * $p < .05$. ** $p < .01$.

S3) MODELS ACCOUNTING FOR ORDINAL SCALE OF DEPENDENT VARIABLES

As commonly done to facilitate interpretation (e.g., Czymara 2020), we treated our ordinal dependent variables as continuous ones in our main models. However, statistical literature suggests that a linear approach should only be used if the dependent variables are normally distributed and have at least seven values (Bauer and Sterba 2011). We therefore ran fixed-effect ordered logit models, using the Stata package “feologit” (Baetschmann and Staub 2020) and estimated the margins resulting from the models, for they are comparable to the linear fixed-effect coefficients.

Table S3. Fixed-Effect Ordered Logit Models (Margins)

	Linear fixed-effect models (xtreg, fe)		Fixed-effect ordered logit models (feologit)	
<i>N</i>	4,138		2,593	
	Belief change of re- jected applicants (reference group)	Belief change* admission (ref. rejection)	Belief change of re- jected applicants (reference group)	Belief change* admission (ref. rejection)
	b (SE)		Margins (SE)	
<u>Domain-specific beliefs</u>				
University admission depends on one’s own				
Effort	-.07* (.03)	.31** (.05)	-.07* (.03)	.33** (.05)
Talent	.09** (.03)	-.00 (.04)	.09** (.03)	.01 (.05)
Luck	.33** (.03)	-.29** (.04)	.35** (.03)	-.31** (.05)
<u>Societal beliefs</u>				
Societal success depends on				
Effort	-.09** (.02)	.09** (.03)	-.13** (.03)	.14** (.05)
Talent	-.06** (.02)	-.10** (.03)	-.08** (.03)	-.15** (.05)
Family	.12** (.03)	-.23** (.04)	.14** (.03)	-.28** (.05)
Money	.13** (.03)	-.21** (.04)	.16** (.03)	-.26** (.05)

Note. Online panel of applicants to medical schools in Germany, 2018. Authors’ calculations. Sampling weight applied.

* $p < .05$. ** $p < .01$.

Table S3 shows that the coefficients from our linear fixed-effect models do not substantially differ from margins of fixed-effect ordered logit models. If anything, the linear

specification leads to more conservative point estimates. Overall, the linear approach seems to measure the differences in changes in beliefs fairly accurately. We see no reason why the same should not be true for our analyses of effect heterogeneity. For the purpose of facilitating the interpretation of our results, we think our linear estimation strategy is feasible.

S4) CORRELATIONS BETWEEN DISTINCT INEQUALITY BELIEFS

Previous research suggests that meritocratic and nonmeritocratic beliefs are not mutually exclusive from each other but that most people think that an interplay of factors determines success (e.g., Kreidl 2000). Furthermore, attribution theory (Weiner 1985) proposes that meritocratic beliefs in the importance of effort and of talent are distinct concepts, as well as nonmeritocratic beliefs in the importance of luck and structural factors.

These theoretical assumptions are supported by our survey data. Correlations between the beliefs are displayed in Table S4, including inequality beliefs of Wave 1 and Wave 2. Only the correlation between the belief in the importance of family background and money for success (two structural beliefs) is rather strong (.78); the other correlations between beliefs are very weak to moderate.

The meritocratic beliefs in the importance of effort and talent are weakly to moderately positively correlated (.48 for agency beliefs, .31 for societal beliefs). For domain-specific agency beliefs, meritocratic and fatalistic beliefs are only very weakly negatively correlated (-.12 and -.07), suggesting that many applicants believe that admission depends on meritocratic as well as on nonmeritocratic factors. For societal beliefs, the belief in effort-based success is moderately negatively correlated with structural beliefs (-.34 and -.36), while there seems to be no substantial negative correlation between the belief in talent-based success and structural beliefs (-.04 and -.06). While all beliefs can coexist, it seems that structural beliefs

are rather contradictory to the belief that one can be successful through effort and hard work but not to the belief that one's talent or intelligence drives success.

Table S4. Correlation Matrix of Inequality Beliefs

		<u>Domain-specific beliefs: University admission depends on one's own</u>			<u>Societal beliefs: Societal success depends on</u>			
		Effort	Talent	Luck	Effort	Talent	Family	Money
Pearson's Correlation Coefficient								
<u>Domain-specific beliefs</u> University admission depends on one's own	Effort	1.00						
	Talent	.49**	1.00					
	Luck	-.12**	-.07**	1.00				
<u>Societal beliefs</u> Societal success depends on	Effort	.29**	.20**	-.06**	1.00			
	Talent	.12**	.31**	.00	.31**	1.00		
	Family	-.16**	-.09**	.10**	-.34**	-.04**	1.00	
	Money	-.18**	-.10**	.13**	-.36**	-.06**	.78**	1.00

Note. Online panel of applicants to medical schools in Germany, 2018. Authors' calculations. Sampling weights applied. N = 4138.

* $p < .05$. ** $p < .01$.

We also explored whether correlations between beliefs seem to change through admission or rejection. While most correlations remained fairly similar, we found that for those who got admitted, the correlation between domain-specific effort and talent belief about admission decreased from .54 to .42 and for societal effort and talent belief from .33 to .23. This descriptive exploration of the data already suggests that an admission might affect the beliefs in the importance of effort and of talent differently.

S5) BELIEF CHANGES AFTER GETTING ADMITTED THROUGH DIFFERENT QUOTAS

For our cohort of applicants in 2018, study places at public medical schools in Germany were mainly allocated via three quotas: (a) 20% by grade point average (GPA), (b) 20% by waiting-time, and (c) 60% by university-specific criteria. For the university-specific quota, GPA is also the most important criterion, while other factors like work experience or civic engagement are also considered. Hence, the GPA quota and the university-specific quota can be regarded as merit-based quota. 20% of the places were, however, allocated by waiting-time, a nonmeritocratic criterion.

When receiving a positive admission decision, applicants are informed through which quota they were admitted. Potentially, getting admitted based on merit could affect inequality beliefs differently than getting admitted based on waiting-time. Hence, we examined the pre and post beliefs as well as belief changes separately for applicants who were admitted through each quota.

Figure 5 shows that, prior to getting admitted, meritocratic belief about own admission differed substantially between those who will get admitted through one of the merit-based quotas and those who will get admitted through the waiting-time quota. This finding is not surprising as applicants are aware through which quotas they applied and based on which qualifications (GPA or waiting time) they are likely to be admitted.

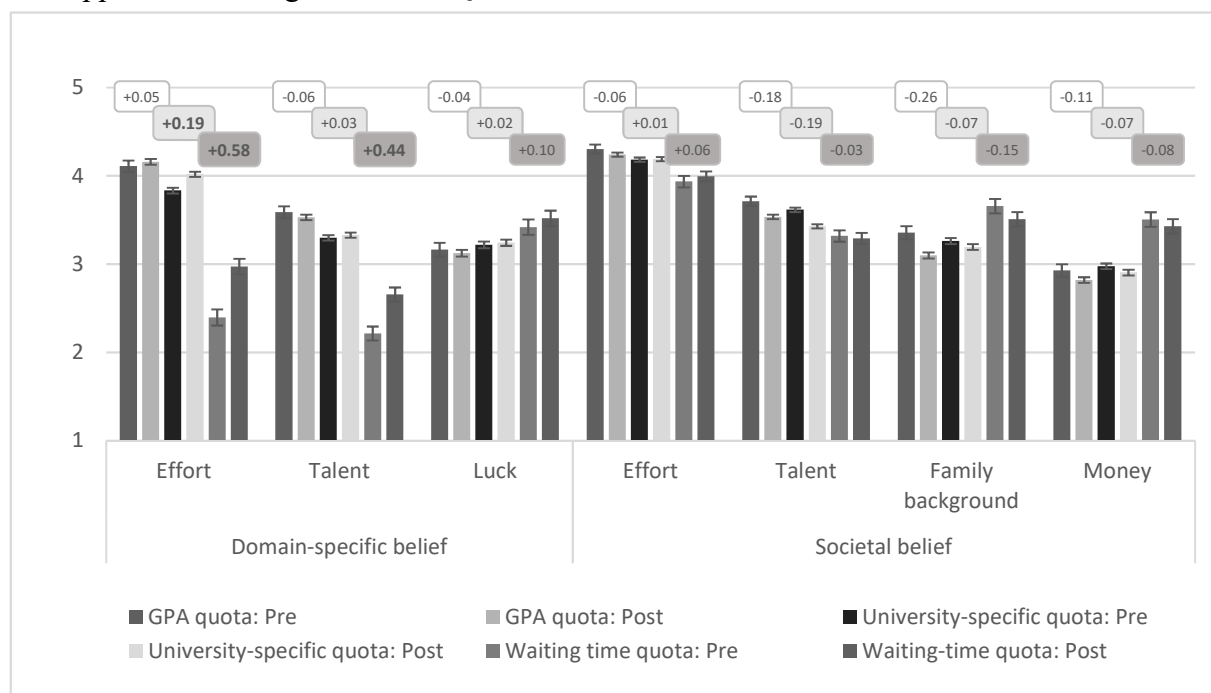
Receiving an admission, however, seems to increase the beliefs that own admission depends on effort and talent for admission via all quotas – even more strongly for getting admitted through the waiting-time quota than through the GPA or university-specific quota.

For societal inequality beliefs, waiting-time applicants have weaker meritocratic and stronger structural baseline beliefs than applicants who get admitted through merit-based quotas. This might be the case because the group of waiting-time applicants has worse school

grades (average GPA of to be admitted waiting-time quota applicants is 2.47, while it is 1.01 for GPA quota applicants and 1.27 for university-specific quota applicants) and possibly believes less in upward mobility through academic performance. Differences in belief changes between the admission quotas, however, do not seem to follow any specific pattern.

Overall, in line with previous research (e.g., Molina, Bucca, and Macy 2019), success seems to shape inequality beliefs in a self-serving way, regardless of whether the success was actually based on one's own merit.

Figure S5. Average Inequality Beliefs Pre and Post Admission and Belief Changes for Admitted Applicants Through Different Quota



Note. From online panel of applicants to medical schools in Germany, 2018. Authors' calculations. Sampling weights applied. N = 1,663 admitted applicants through three main admission quotas (244 admitted through GPA-quota, 1,194 through university-specific quota, 225 through waiting-time quota). Belief changes after admission through GPA-quota displayed in white boxes, through university-specific quota in light grey boxed, and through waiting-time quota in dark grey boxes. Significant changes ($p < .05$) displayed in bold numbers.

S6) BELIEF CHANGES ONLY FOR THOSE WHO DID NOT APPLY TO OTHER STUDY PROGRAMS SIMULTANEOUSLY

Even though medicine is a very popular study program and is likely to be the first choice for most applicants, it is possible that applicants simultaneously applied to other study programs. Admission decisions for these other programs could also influence their inequality beliefs and bias our results. Hence, as a robustness check, we excluded everyone who applied for other study programs as well in 2018 – to a medical program at a private university or abroad, or to a non-medical program – from our analysis.

Table S6. Linear Fixed-Effect Models Excluding Those with Simultaneous Admission Decisions

	Models with whole sample		Models only for those without simultaneous admission decisions	
<i>N</i>	4,138		2,721	
	Belief change of rejected applicants (reference group)	Belief change* admission (ref. rejection)	Belief change of rejected applicants (reference group)	Belief change* admission (ref. rejection)
	b (SE)		b (SE)	
<u>Domain-specific beliefs</u>				
University admission depends on one's own				
Effort	-.07* (.03)	.31** (.05)	-.07 (.04)	.31** (.06)
Talent	.09** (.03)	-.00 (.04)	.13** (.04)	-.00 (.05)
Luck	.33** (.03)	-.29** (.04)	.31** (.04)	-.24** (.05)
<u>Societal beliefs</u>				
Societal success depends on				
Effort	-.09** (.02)	.09** (.03)	-.07* (.03)	.10* (.04)
Talent	-.06** (.02)	-.10** (.03)	-.09** (.03)	-.05 (.04)
Family	.12** (.03)	-.23** (.04)	.12** (.03)	-.23** (.05)
Money	.13** (.03)	-.21** (.04)	.14** (.03)	-.22** (.05)

Note. Online panel of applicants to medical schools in Germany, 2018. Authors' calculations. Sampling weight applied.

* $p < .05$. ** $p < .01$.

Table S6 shows that the results of this robustness check are fairly similar to our main results, suggesting that while other experiences might affect inequality beliefs, they do not confound our results.

S7) BELIEF CHANGES APPLYING FUZZY RDD

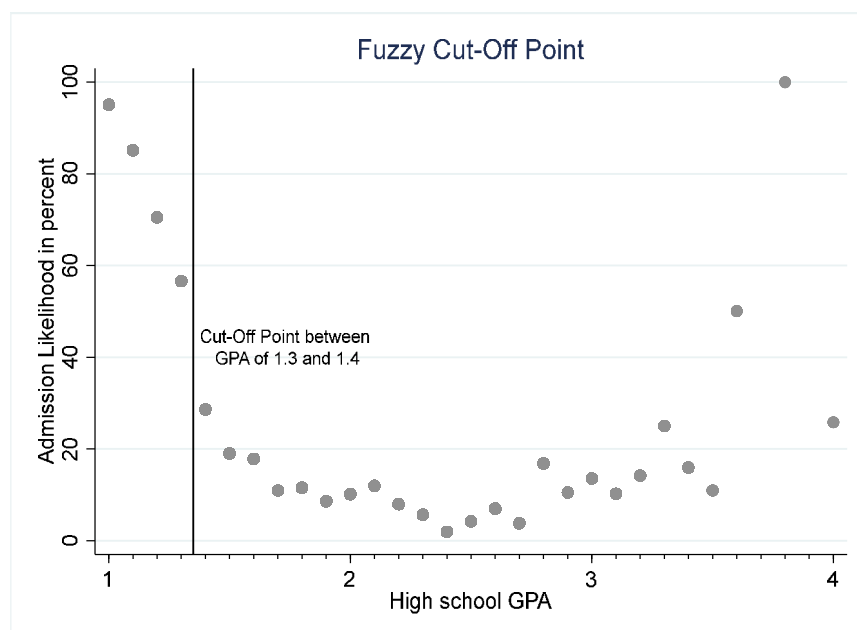
We find that baseline differences in inequality beliefs between those who will be admitted and those who will be rejected are quite substantial. The admission decision for medical schools in Germany is based on several factors, with high school grade point average (GPA) being by far the most important one. GPA is tied to experiences (of success or failure) adolescents make in high school – experiences which shape inequality beliefs.

In our paper, we view admission to medical school as a further experience of success and failure which is crucial for applicants and their future social positioning. Even though we see admission or rejection only as one further step on the developmental paths of “winners” and “losers,” with this additional analysis, using a fuzzy regression discontinuity design (RDD), we want to ensure that admission itself has a causal effect on inequality beliefs which is not solely driven by different developmental paths.

Due to the quota system, for admission to medical school in Germany, there is no clearly definable cut-off point which decides whether people will get admitted or rejected but still GPA is a rather good predictor of admission likelihood. Therefore, a standard RDD is not feasible but a fuzzy RDD can be applied (Angrist and Pischke 2015).

Looking at weighted group means of admission rates by GPA (Figure S7a), we identified the fuzzy cut-off point to be between a GPA of 1.3 and 1.4 where admission likelihood drops most substantially. Hence, we applied the same steps of analysis we conducted for the whole sample of applicants to those close to this cut-off point, who are rather similar in their GPA score and related experiences but different in their admission likelihood: Applicants with a GPA of 1.3 and 1.4.

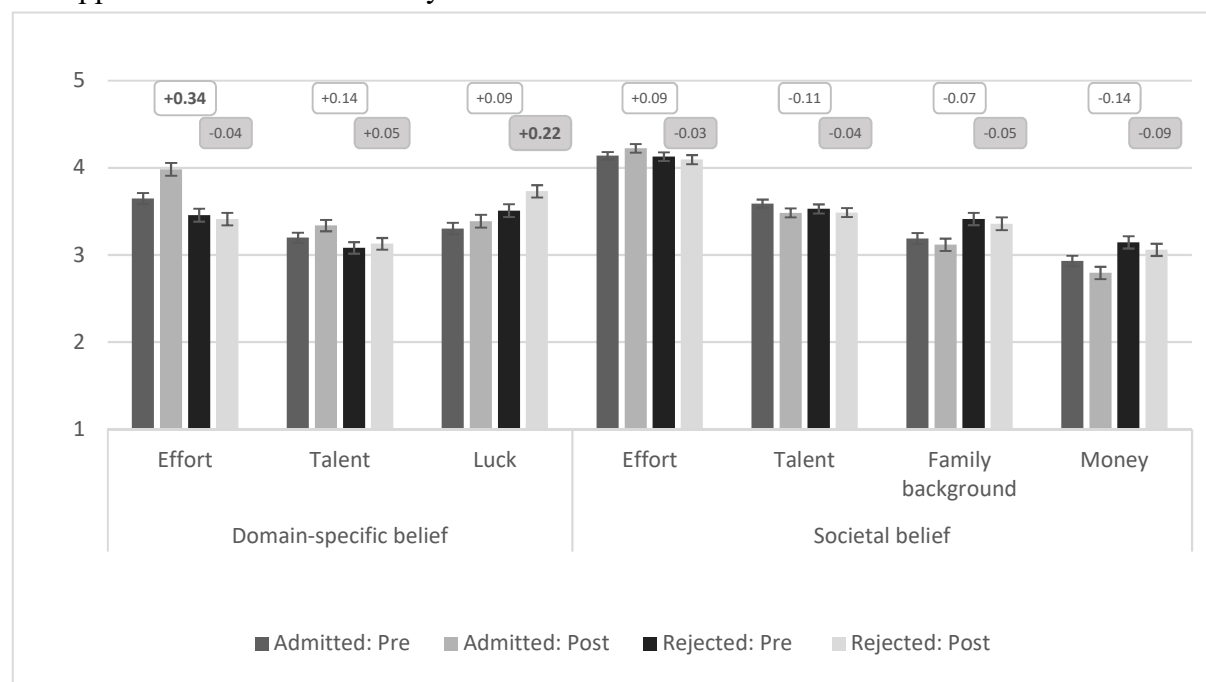
Figure S7a. Fuzzy Cut-Off Point of Drop in Admission Likelihood



Note. From online panel of applicants to medical schools in Germany, 2018. Authors' calculations. Admission likelihood calculated as weighted group means. N = 4138.

German GPA ranges from 1.0 (excellent) to 4.0 (sufficient).

Figure S7b. Average Inequality Beliefs Pre and Post Admission Decision and Belief Changes for Applicants Close to the Fuzzy Admission Likelihood Cut-Off: GPA 1.3 – 1.4



Note. From online panel of applicants to medical schools in Germany, 2018. Authors' calculations. Sampling weights applied. N = 329 admitted applicants; 279 rejected applicants. Belief changes after admission displayed in white boxes; changes after rejection displayed in grey boxes. Significant changes displayed in bold.

In Figure S7b applicants' inequality beliefs before and after receiving the admission decision, as well as belief changes are displayed for this subgroup. As expected, baseline differences in meritocratic beliefs about admission between to be admitted and to be rejected

applicants are substantially smaller in the group of applicants with a 1.3-1.4 GPA than in the whole sample; the goal of the fuzzy RDD to make the admitted and rejected group more comparable seems to be achieved.

Table S7. Fixed-Effect RDD Models with Interaction Term (Belief Change*Admission)

	Belief change of rejected applicants (reference group)	Belief change*admission (ref. rejection)
	b (SE)	
<u>Domain-specific beliefs</u>		
University admission depends on my own		
Effort	-.05 (.08)	.38** (.11)
Talent	.05** (.08)	.09 (.09)
Luck	.22* (.09)	-.14 (.11)
<u>Societal beliefs</u>		
Societal success depends on		
Effort	-.03 (.06)	.12 (.08)
Talent	-.04 (.06)	-.06 (.08)
Family	-.06 (.07)	-.02 (.09)
Money	-.09 (.07)	-.05 (.09)

Note. Online panel of applicants to medical schools in Germany, 2018, restricted to applicants with a high school GPA of 1.3 and 1.4. Authors' calculations. $N = 608$; sampling weight applied.

* $p < .05$. ** $p < .01$.

However, even in this homogenous group, receiving an admission seems to increase the belief that admission depends on effort substantially (.34), and this belief change differs substantially from the change after receiving a rejection (see Table S7). A rejection seems to increase the belief that admission depends on luck (.22), even though the difference in effect of admission and rejection does not reach statistical significance – an occurrence which could, however, mainly be caused by low case numbers. Overall, receiving an admission or rejection decision seems to change beliefs about admission similarly for the RDD group as for the overall sample; there seems to be a (causal) self-serving effect of the decision also for a rather homogenous group of applicants.

The changes in societal beliefs, however, partly differ for the group of applicants with a GPA of 1.3-1.4 from the overall sample, especially changes after receiving a rejection. The belief changes after getting admitted are rather similar for the RDD sample and the whole sample of applicants (even though they fail to reach statistical significance, again probably due to lower statistical power). Getting rejected does, however, not substantially decrease the belief that success depends on effort and tentatively rather decreases than increases structural beliefs.

When examining applicants with a GPA of 1.3 or 1.4, the group becomes even more selective than it is the case when observing the whole sample. Rejected applicants with such good school grades are likely to be disappointed and self-serving mechanisms might bias beliefs about admission. However, they are not real “losers:” They achieved by far above average GPAs and many other career paths are open to them, which might explain why self-serving bias does not occur for societal inequality beliefs.

This fuzzy RDD analysis should be seen as an additional analysis, exploring the local effect of the admission decision for the group of applicants who are similarly likely to be admitted or rejected. It supports our idea that admission or rejection to medical schools indeed has a causal effect on inequality beliefs, which is not only driven by diverging paths of “winners” and “losers” prior to receiving the admission outcome. In our main analysis, however, we estimate the local effect of admission for a sample that is more representative of the overall population of applicants to medical schools in Germany, deliberately considering that winners and losers differ from each other already before the admission.

S8) SYSTEMATIC ILLUSTRATION OF RESULTS OF HYPOTHESES TESTING

Table S8. Systematic Illustration of Results of Hypotheses Testing

Hypotheses	Domain-specific beliefs about admission				Societal beliefs			
	Effect of Success		Effect of Failure		Effect of Success		Effect of Failure	
	Meritocratic Beliefs	Non-meritocratic Beliefs	Meritocratic Beliefs	Non-meritocratic Beliefs	Meritocratic Beliefs	Non-meritocratic Beliefs	Meritocratic Beliefs	Non-meritocratic Beliefs
H1a: Individuals' experiences of success strengthen domain-specific meritocratic beliefs about admission and weaken nonmeritocratic beliefs, whereas experiences of failure weaken meritocratic beliefs and strengthen nonmeritocratic beliefs.	+	-	(+)	+				
	(for effort but not for talent)		(for effort but not for talent)					
H1b: Individuals' experiences of success strengthen societal meritocratic beliefs and weaken nonmeritocratic beliefs, whereas experiences of failure weaken meritocratic beliefs and strengthen nonmeritocratic beliefs.					-	+	+	+
							(for effort but not for talent)	
H2a: Individual experiences of success strengthen meritocratic beliefs and weaken nonmeritocratic beliefs more strongly for socially disadvantaged than for advantaged groups.	-	-			-	-		
	(homogenous effects)	(no systematic pattern)			(homogenous effects)	(homogenous effects)		
H2b: Experiences of failure weaken meritocratic beliefs and strengthen nonmeritocratic beliefs more strongly for disadvantaged than for advantaged groups.			(+)	-			(+)	-
			(for effort but not for talent)	(homogenous effects)				(homogenous effects)
H3a: Experiences of success strengthen meritocratic beliefs and weaken nonmeritocratic beliefs more strongly for persons who have experienced failure in similar domain-specific situations than for those who have not.	+	-			-	(+)		
		(difference in opposite direction)			(homogenous effects)			
H3b: Experiences of failure weaken meritocratic beliefs and strengthen nonmeritocratic beliefs more strongly for persons who have had similar domain-specific experiences of failure in the past than for those who have not.			(+)	-			-	-
			(for effort but not for talent)	(homogenous effects)			(homogenous effects)	(homogenous effects)

+ Hypothesis supported by findings: belief change $p < .05$ (see Figures 2-4) and belief change substantially different from belief change of reference group (see Table 2, and Online Supplementary, Tables S1a + S1b); (+) Findings tentatively point in expected direction of hypothesis but either belief change $p > .05$ (see Figures 2-4) or/and belief change does not substantially differ from belief change of reference group (see Table 2, and Online Supplementary, Tables S1a + S1b); - Findings do not support Hypothesis

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Do Experiences of Success and Failure Influence Beliefs about Inequality? Evidence from Selective University Admission

Wetter, Rebecca and Claudia Finger. 2023. "Do Experiences of Success and Failure Influence Beliefs about Inequality? Evidence from Selective University Admission." *Social Psychology Quarterly* 86 (2): 170-194.

What are inequality beliefs?

People attribute success and failure to different meritocratic and nonmeritocratic factors: Explanations that shape their justice perceptions

Meritocratic beliefs

- Beliefs that attribute success or failure to individual differences in merit, like effort and talent

Nonmeritocratic beliefs

- Structural beliefs that group membership (i.e., belonging to an advantaged or disadvantaged group) influences chances of success, like differences in social and cultural capital due to parents' socioeconomic status
 - Fatalistic beliefs that success is based on luck
-
- Meritocratic and nonmeritocratic beliefs not mutually exclusive but often coexist within individuals
 - Inequality beliefs can have different reference points; they can refer to inequalities in specific domains as well as to broader societal inequality

Research Questions and Hypotheses I

How do experiences of success and failure influence beliefs about the factors behind an individual's own outcome in a specific domain?

- *H1a*: Individuals' experiences of success strengthen domain-specific meritocratic beliefs about admission and weaken nonmeritocratic beliefs, whereas experiences of failure weaken meritocratic beliefs and strengthen nonmeritocratic beliefs.

Do the effects extend to general beliefs about social inequality?

- *H1b*: Individuals' experiences of success strengthen societal meritocratic beliefs and weaken nonmeritocratic beliefs, whereas experiences of failure weaken meritocratic beliefs and strengthen nonmeritocratic beliefs.

Research Questions and Hypotheses II

The role of previous experiences for belief changes after success and failure

How do the effects of experiencing success and failure vary with applicants' social origin?

- *H2a:* Individual experiences of success strengthen meritocratic beliefs and weaken nonmeritocratic beliefs more strongly for socially disadvantaged than for advantaged groups.
- *H2b:* Experiences of failure weaken meritocratic beliefs and strengthen nonmeritocratic beliefs more strongly for disadvantaged than for advantaged groups.

How do they vary by their previous experiences in similar situations?

- *H3a:* Experiences of success strengthen meritocratic beliefs and weaken nonmeritocratic beliefs more strongly for persons who have experienced failure in similar domain-specific situations than for those who have not.
- *H3b:* Experiences of failure weaken meritocratic beliefs and strengthen nonmeritocratic beliefs more strongly for persons who have had similar domain-specific experiences of failure in the past than for those who have not.

Methodology

Online survey panel of applicants to highly selective medical programs in Germany (N = 4,138)

First wave collected in August 2018, second in October 2018; between the waves applicants were either admitted (= success) or rejected (= rejected)

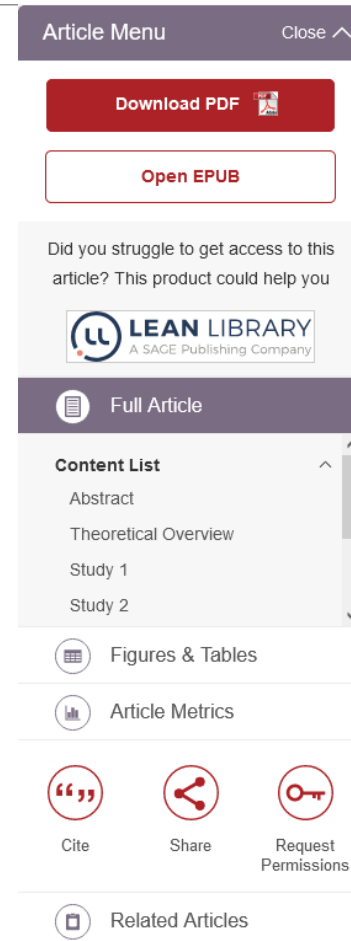
- *Weighting strategy:* Sampling weights created based on information included in application register data (to reduce bias due to selective survey participation and attrition)
- *Descriptive statistics:* Comparison of average inequality beliefs before and after the admission decision, separately for admitted and rejected applicants (Bonferroni post hoc tests)
- *Estimation of effect of being admitted in comparison to being rejected on inequality beliefs:* Individual linear fixed-effect models (controlling for differences in prior inequality beliefs between individuals and for all time-constant unobserved heterogeneity between them)
- *Test for effect heterogeneity:* Individual linear fixed-effect models including interaction terms of admission/rejection * social background as well as admission/rejection * repeated application

Tables/Figures

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Findings I

H1a and H1b supported: Individual experiences of success or failure influence inequality beliefs in a self-serving way

- Admission increased applicants' belief in how important one's own effort is for the admission outcome and decreased the belief in how important family background and economic resources are for societal success
- Rejection decreased beliefs in effort and increased beliefs in nonmeritocratic factors behind selective college admissions and social positioning
- Observed changes were more pronounced for domain-specific beliefs than for societal beliefs

Part of the differences in beliefs between admitted applicants and rejected applicants was already there before they learned about their admission outcome

- Admitted applicants have on average better school grades: They likely accumulated more positive experiences in high school than their peers, increasing their meritocratic beliefs and decreasing their nonmeritocratic beliefs through continuous self-serving belief mechanisms

→ Winners' and losers' diverging paths in inequality beliefs

Findings II

Social origin

- First-generation applicants showed weaker meritocratic beliefs and stronger structural beliefs prior to admission than their more privileged peers
- Applicants with two college parents were over 6 percentage points more likely to get admitted than first-generation applicants (due to better school grades)
- **H2b tentatively supported:** Meritocratic effort beliefs seemed to be most stable and resistant to failure among members of the most advantaged group (differences not statistically significant)

Previous experiences in similar situations

- Repeat applicants had weaker meritocratic beliefs and mostly stronger nonmeritocratic beliefs about admission than first-time applicants (possibly previous experiences shaped the beliefs of repeat applicants in a self-serving way)
- **H3a supported:** For repeat applicants, eventual success had a greater positive effect on the belief in the importance of effort for admission than for first-time applicants, partly outweighing differences in baseline beliefs: Diverging paths in inequality beliefs of winners and losers can be redirected but in reality success is less likely to occur for one group than the other

→ **Widening belief gap between groups differing in their previous short- and long-term experiences**

Limitations

Applicants to medical school are a rather specific, positively selected group in terms of academic performance and motivation: The “losers” among the medical applicant sample are still “winners” in a broader societal context

- Findings cannot unhesitatingly be transferred to other groups
 - Self-serving belief bias that we find in our sample might underestimate the bias that exists in society
- Further studies on less selective groups and situations for the effects that individual experiences have on inequality beliefs desirable

Implications

Study contributes to the understanding of persistence and legitimation of inequality

- 1) Through their experiences of success, people in positions of power have strong meritocratic beliefs: If they interpret processes of status attainment as merit-based and legitimate, they might be less inclined to change them and to address structural barriers that hinder access to desired social positions.
- 2) Losers' decrease in meritocratic beliefs might have negative consequences for their motivation and goal pursuit, leading to a downward spiral in beliefs and motivation

→ Institutions should aim at helping young people develop balanced beliefs that structural factors and merit alike shape success in society