

# Reacting to Early Failure in University: Evidence from a Regression Discontinuity Design

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## Gender and Educational Attainment

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- this paper delivers one causal channel for the latter

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- ▶ What is the *causal* effect of failing your very first university exam on university completion for male vs. female students?

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→ Men drop out of university after receiving a negative information shock: failing their first university exam

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- ▶ Compare a student who passed with 17 points to another student who failed the class with 16 points
- ▶ Treatment: *Failed* the very first university exam
- ▶ Assumption: Students close to the threshold are plausibly randomly allocated and similar along observable and unobservable characteristics



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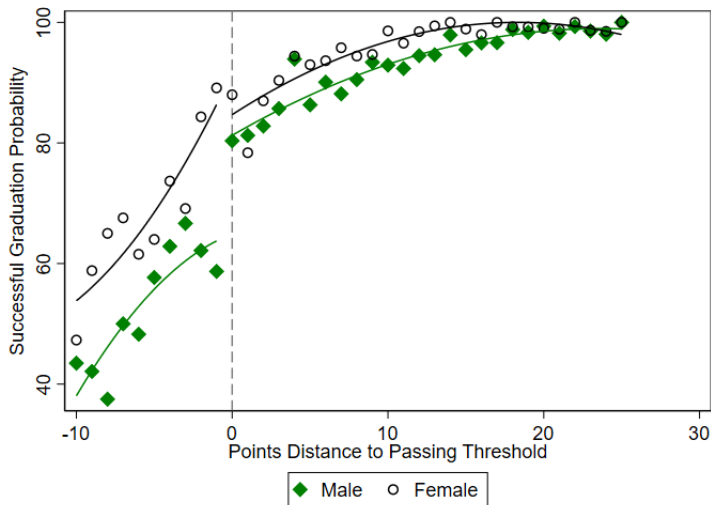
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- ▶ Variables: Gender, Major, Cohort (year), high school average grade, age, German/Non-German

## Regression Discontinuity - Binned Scatterplot



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## Regression Discontinuity - Causal Interpretation

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  - ▶ No bunching of male students around threshold
  - ▶ No discontinuous average high school grades
  - ▶ No discontinuous average age

## Baseline Regression - Results

	(1)	(2)	(3)	(4)	(5)
Sample:	Full Sample	Bandwidth: 2	Bandwidth: 2	Bandwidth: 3	Bandwidth: 4
Polynomial Order:	2	2		1	
<i>Male</i>	-0.04** (-2.50)	-0.03 (-1.37)	-0.07 (-1.44)	-0.05 (-0.76)	-0.06 (-1.12)
<i>Fail</i>	0.02 (0.47)	0.06 (1.31)	0.06 (1.67)	0.17** (2.55)	0.14** (2.57)
<i>Male</i> × <i>Fail</i>	-0.14** (-2.13)	-0.28*** (-5.54)	-0.17** (-3.60)	-0.32*** (-4.05)	-0.24*** (-3.77)
<i>SchoolGPA</i>	-0.05*** (-5.26)	-0.05*** (-5.20)	-0.12** (-3.54)	-0.08** (-3.09)	-0.08** (-2.69)
<i>Age</i>	-0.01*** (-4.26)	-0.01*** (-4.20)	-0.02** (-3.88)	-0.02** (-3.59)	-0.02*** (-4.57)
<i>German</i>	0.08*** (5.59)	0.08*** (5.45)	0.19** (3.55)	0.14** (3.16)	0.15*** (4.04)
Observations	8,563	8,563	797	1,121	1,438
R-squared	0.24	0.24	0.15	0.13	0.14
Major × Year FE	YES	YES	YES	YES	YES

fail

## Heterogeneity: German/Non-German vs. Young/Old students

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  - ▶ Effect confined to German students
  - ▶ Lower switching costs?
- ▶ Split sample into old vs. young students:
  - ▶ Effect confined to older students
  - ▶ Higher opportunity costs?

# Channels

- ▶ What can explain a different response for men vs. women to failing your first university exam?
- ▶ Approach here: Survey evidence

# Survey Evidence

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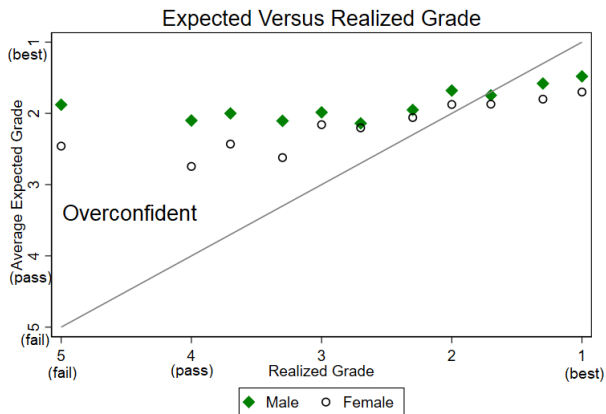
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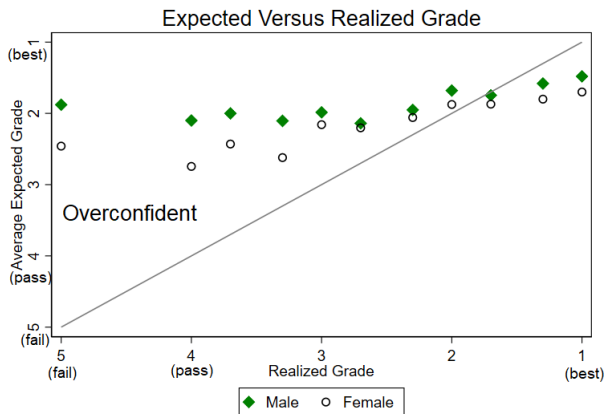
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- ▶ Focus on analyzing gender differences. Particular focus: students around passing threshold

## Channel: Overconfident Male Students

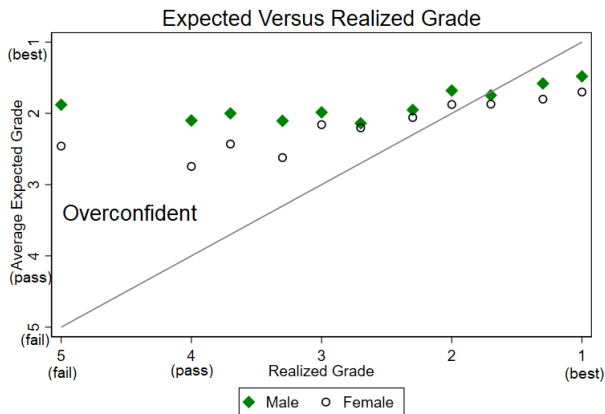


## Channel: Overconfident Male Students



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Male students are more overconfident than female students  
Especially around passing threshold

## Channel: Expectations and Failure

	(1)	(2)	(3)	(4)
	Surprised if fail exam	Afraid of course	Burden if fail	Drop out if fail
<i>Male</i>	0.40*** (6.59)	-0.66*** (-8.94)	-0.10* (-1.81)	0.08 (1.20)
Major FE	YES	YES	YES	YES
Observations	927	927	926	926
R-squared	0.16	0.20	0.02	0.00

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R-squared	0.16	0.20	0.02	0.00

Male students seem much less emotionally prepared for failure than female students



## Channel: Competitiveness

	(1)	(2)	(3)	(4)
	Compare results with peers	Important to be better than peers	Want to win game	Performance important self-worth
<i>Male</i>	0.17*** (2.60)	0.20*** (2.94)	0.41*** (7.27)	-0.18*** (-3.17)
Major FE	YES	YES	YES	YES
Observations	927	927	927	926
R-squared	0.04	0.11	0.06	0.01

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Male students are much more competitive than female students

## Retake Exam Behavior

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- ▶ Conditional on retaking Male students are about 5% less likely to pass
- ▶ Worse performance of male students in retake indicates that they might exert less effort compared to female students

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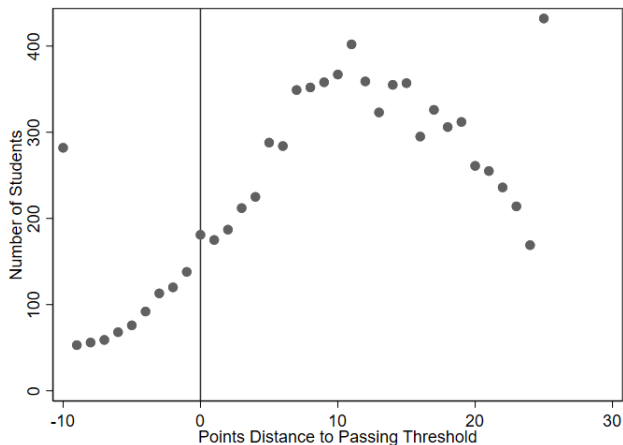
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Likely due to:

- ▶ Overconfident (relatively bad performing) male students
- ▶ Competitive (relatively bad performing) male students
- ▶ What to do with this project?
- ▶ Approach someone in the literature?

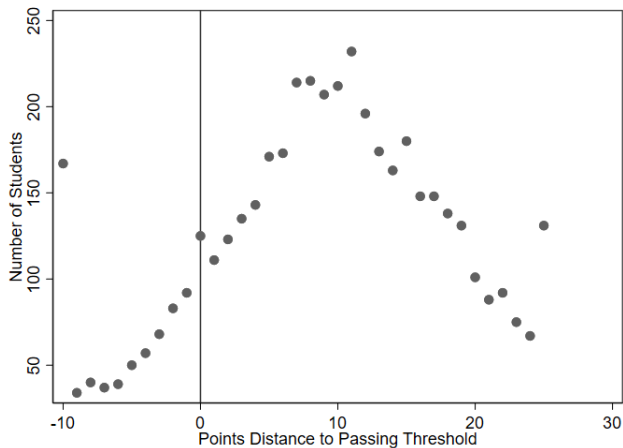
## Threshold Manipulation - Male and female students



manipulation

female

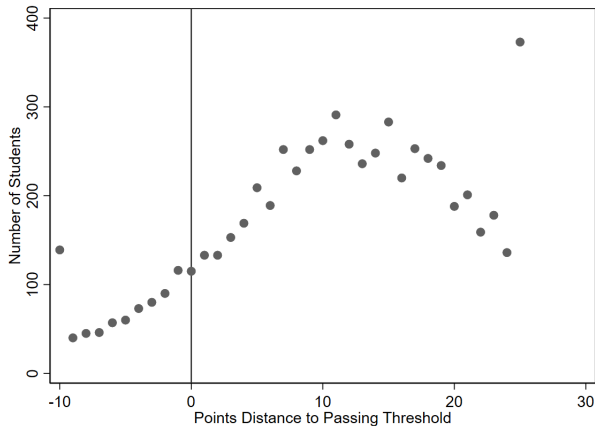
## Threshold Manipulation - Only female students



manipulation

male

# Threshold Manipulation - Excluding 2011 and 2015



## Opportunity and Switching costs

	(1)	(2)	(3)	(4)
Sample:	Young	Old	German	Non-German
<i>Male</i>	-0.07 (-1.50)	-0.10*** (-4.16)	-0.07* (-2.29)	-0.17 (-0.85)
<i>Fail</i>	0.20** (2.97)	0.13* (2.16)	0.16** (3.20)	0.14 (1.13)
<i>Male</i> × <i>Fail</i>	-0.22 (-1.79)	-0.42*** (-12.94)	-0.39*** (-6.93)	0.38 (1.52)
Observations	677	675	1,221	130
R-squared	0.09	0.12	0.10	0.24
Controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES