

Do natives' beliefs about refugees' education level
affect attitudes toward refugees?
Evidence from randomized survey experiments

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Introduction

- In 2015, more than 1.5 million individuals applied for asylum in Europe
 - Germany ~440,000 applications
- Influx also exceptional in terms of origin countries (Syria, Afghanistan, etc.)
 - Refugees perceived as culturally distinct (see Dustmann et al., 2016)
- To preserve solidarity, policies toward refugees should be supported by domestic public
- Little is known about determinants of natives' attitudes, in particular how they respond to specific characteristics of refugees

This paper

- Study causal effect of refugees' perceived education level on natives' attitudes
- Randomized online survey experiment with almost 5,000 students at four German universities
- To shift beliefs about refugees' education level, randomly assign respondents to three experimental groups
- We elicit many specific opinions as potential channels on how perceived education level may affect general attitudes
 - Explicitly differentiate between labor market concerns and fiscal burden concerns
- Investigate aspects that shape respondents' attitudes toward refugees*
- Check replicability, persistence and social-desirability concerns in a follow-up survey with more than 500 respondents

* Use "refugee" as collective term for all persons who seek refuge in Germany, independent of their legal status.

Related literature: Attitudes toward immigration

- Providing information about immigrants (e.g., unemployment rate) leads to more favorable attitudes toward immigrants, but does not affect policy preferences (Grigorieff et al. 2016)
- Based on survey experiment, about 18,000 eligible voters in 15 European countries evaluated different profiles of refugees (Bansak et al. 2016)

Theoretical Predictions

- Two theories on how the skill level of immigrants affects natives' attitudes (Hainmueller and Hiscox 2010)
 1. **Labor market competition model:**
Higher perceived education level increases labor market competition concerns
 2. **Fiscal burden model:** Lower perceived education level increases fiscal burden concerns
 3. These concerns **shift general attitudes** towards refugees

⇒ We test relevance of competing theories and alternative channels in context of European refugee crisis

Randomized survey experiment

- Online survey with 4,831 students at four German universities (TU Dresden, LMU Munich, University Konstanz, TU Chemnitz)
 - Our study relies on self-selected sample of university students
 - Our sample matches characteristics of student population at four universities w.r.t. gender and faculty composition
- Invited students to participate in “short opinion survey on refugees” via email
- Field time: June – August 2016
 - Just after unprecedented refugee influx from 2015 slacked off
 - At this time, public debate started to focus on how to integrate refugees⇒ Education level of refugees moved to center of political debate

- Studies assessing refugees' education level yielded inconsistent and sometimes **contradicting conclusions**

1. **Control group:**

“With this survey, we would like to learn about your opinion on refugees. Please think of the current refugee situation in Germany when answering the survey.”

2. **High Skilled** treatment (based on UNHCR 2015)

“... In this context, a study has found that the education level of refugees is rather high since 43% of the refugees from Syria have attended university.”

3. **Low Skilled** treatment (based on Woessmann 2016)

“... In this context, a study has found that the education level of refugees is rather low because 65% of the school students in Syria do not reach the basic level of academic competencies.”

Experimental survey design

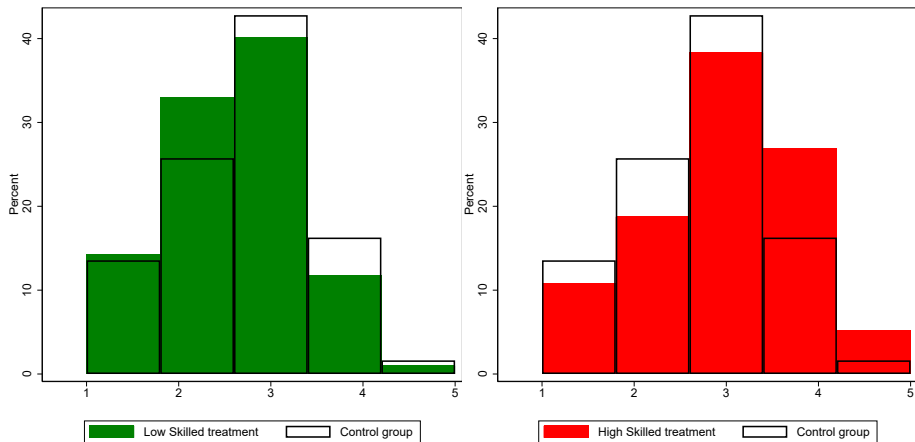
		<i>Experimental groups</i>		
		Control group	High Skilled	Low Skilled
<i>Information treatment</i>		No additional information on top of screen	"...a study has found that the education level of refugees is rather high since 43% of the refugees from Syria have attended university." (based on UNHCR 2015)	"... a study has found that the education level of refugees is rather low because 65% of the school students in Syria do not reach the basic level of academic competencies." (based on Woessmann 2016)
<i>Question Numbers</i>				
1-4	General attitudes toward Refugees	General attitudes toward Refugees with high-skilled information	General attitudes toward Refugees with low-skilled information	
5-17	Specific statements on Refugees	Specific statements on Refugees with high-skilled information	Specific statements on Refugees with low-skilled information	
18-23	Aspects of opinion formation			
24-34	Demographic characteristics			

Survey question on beliefs about education level

- On average, refugees are rather well educated.

[5 answer categories, ranging from “completely disagree” to “completely agree”]

Effect of information treatment on beliefs of refugees



Note: 1 = completely disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = completely agree.

- To evaluate impact of information treatments: Two-stage least squares **instrumental variable** regression, where the belief about refugee education is instrumented by treatment assignment

$$y_i = \beta_0 + \beta_1 \text{BeliefEducationLevel}_i + \delta X_i + \epsilon_i$$

- with X_i student-level controls; e.g., family background
- Always include university \times faculty FEs

Labor market and Fiscal Concern Statements

[5 answer categories, ranging from “completely disagree” to “completely agree”.]

Labor market aspects

- Refugees will increase competition on the labor market for me personally.
- Refugees will increase competition on the labor market in general.
- Refugees will successfully integrate into the labor market.
- Lack of language skills are an obstacle for refugees' labor market integration.

Fiscal aspects

- Refugees will bring more revenues (e.g., earnings tax) than costs for the government (e.g., costs for integration measures).
- Due to the government spending for refugees, I will have to forgo government benefits in the future.
- Due to the government spending for refugees, I will have to pay more taxes in the future.
- Overall, refugees are beneficial for the German economy.

Non-economic aspects

- Refugees are a cultural enrichment for Germany.
- Refugees will successfully integrate into society.
- Overall, refugees are beneficial for Germany.

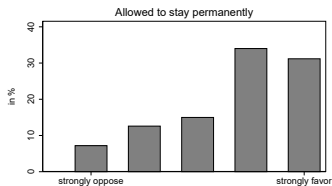
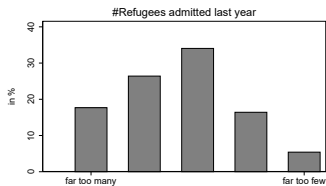
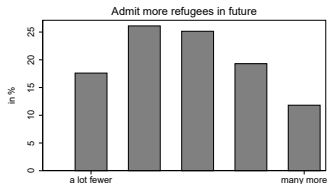
Effect of beliefs about education level on labor market aspects

	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree
	Competition for me		Competition in general		Integrate successfully		Language skills obstacle	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Beliefs about education level	0.043** (0.017)	-0.127*** (0.029)	0.094** (0.037)	-0.094** (0.041)	0.034 (0.039)	-0.019 (0.036)	-0.017 (0.024)	0.000 (0.018)
Control mean	0.04	0.86	0.26	0.46	0.45	0.30	0.90	0.05
First stage F stat	166.4	166.4	167.6	167.6	166.7	166.7	167.0	167.0
Respondents	4,829	4,829	4,825	4,825	4,830	4,830	4,830	4,830

Fiscal and non-economic aspects

- Information treatment has **no impact** on fiscal aspects
- Information treatment has **no impact** on non-economic aspects

General attitudes toward refugees



Effect of beliefs on general attitudes

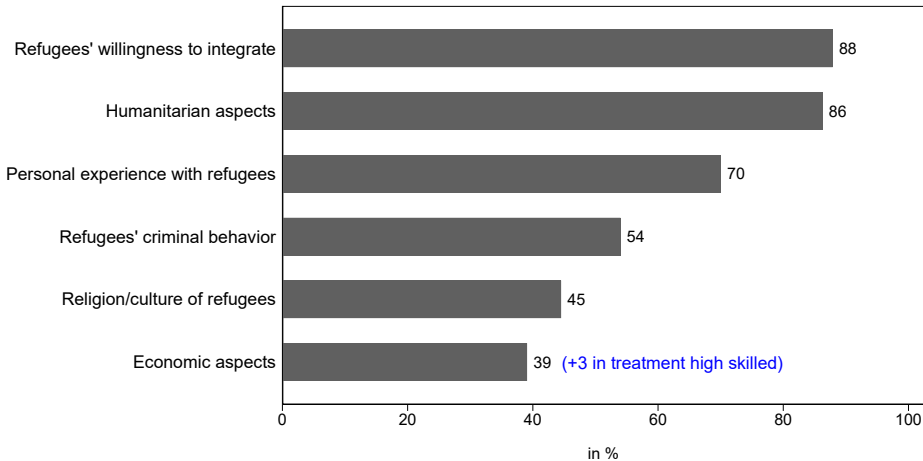
	Admit more refugees in future		#Refugees admitted last year		Allowed to stay permanently	
	More (1)	Less (2)	Too few (3)	Too many (4)	Favor (5)	Oppose (6)
Beliefs about education level	0.003 (0.036)	-0.038 (0.038)	0.005 (0.033)	0.008 (0.040)	-0.004 (0.038)	0.055 (0.034)
Control mean	0.31	0.44	0.22	0.44	0.65	0.20
First stage F stat	166.7	166.7	165.8	165.8	167.3	167.3
Respondents	4,805	4,805	4,810	4,810	4,829	4,829

Aspects of opinion formation

- How important are the following aspects when forming your opinion about refugees?
 1. Humanitarian aspects
 2. Economic aspects
 3. Refugees' criminal behavior
 4. Religion/culture of refugees
 5. Refugees' willingness to integrate
 6. Personal experiences with refugees

[5 answer categories: not important at all, ..., very important]
- Which aspects of attitude formation are affected by providing information on refugees' education level?
- Importance assigned to each aspect allows uncovering channels through which perceived education level affects general attitudes

Importance of opinion formation aspects



Control group: percent "rather important" or "very important"

Follow-up survey: replicability, persistence and issues of social desirability

- Online survey with new sample of 593 students; re-survey of 298 of these participants one week later
- Field time: June + July 2017
- New information treatment: 32% of adult refugees hold a secondary school degree (29% in German population). 13% of refugees hold a university degree (21% in German population). (Source: IAB-BAMF-SOEP Befragung von Gefluechteten, 2016) Treatment Figure
- Information without author interpretation shifts perceived education level upward Replicability
- Information effect persists over a period of one week Persistence
- Item count technique with veiled responses shows no reason to worry about social desirability Social Desirability

Conclusions

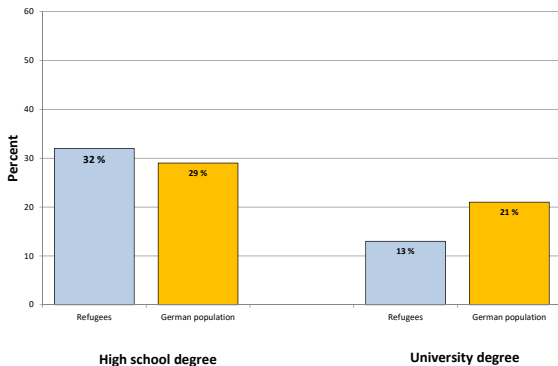
- Study impact of **beliefs about refugee education level** on **natives' attitudes**
- Consistent with **labor market competition model**, beliefs about education level affects labor market concerns
- In contrast, **no evidence** in favor of **fiscal burden model**
- However, labor market concerns **do not translate into general attitudes** since **economic aspects are rather unimportant** for forming attitudes
- While impact of refugees on labor market and government budget remain to be seen, results suggest that developments in these areas will only have limited effect on general attitudes (among high-skilled individuals)

Thank you for your attention!

Comments welcome: simon@ifo.de

Follow up Survey Treatment Info

**Educational degrees of refugees
and of the German population**



Effect of information treatment on beliefs about refugees' education level (follow-up survey)

	Agree		Disagree		Five-point scale	
	(1)	(2)	(3)	(4)	(5)	(6)
Information treatment	0.284*** (0.037)	0.295*** (0.037)	-0.193*** (0.040)	-0.204*** (0.039)	0.597*** (0.081)	0.619*** (0.080)
Covariates	No	Yes	No	Yes	No	Yes
Control mean	0.17	0.17	0.45	0.45	2.62	2.62
Observations	555	555	555	555	555	555
Adj. R2	0.09	0.13	0.04	0.08	0.09	0.14

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Persistence of information treatment effects on perceived education level of refugees

	Agree (1)	Disagree (2)	Five-point scale (3)
Information treatment	0.357*** (0.052)	-0.276*** (0.053)	0.770*** (0.105)
Re-survey	0.043* (0.023)	-0.057* (0.032)	0.106** (0.046)
Information treatment * re-survey	-0.143*** (0.048)	0.114*** (0.042)	-0.292*** (0.075)
Covariates	Yes	Yes	Yes
Control mean	0.16	0.44	2.66
<i>Information treatment effect in re-survey</i>	0.214*** (0.054)	-0.162*** (0.054)	0.478*** (0.103)
Observations (respondents)	281	281	281
Adj. R2	0.15	0.13	0.19

Persistence of information treatment effects on beliefs

Outcome	Estimates high school degree			Estimates university degree			Confidence
	Raw (1)	Abs. deviation (2)	Within 5pp (3)	Raw (4)	Abs. deviation (5)	Within 5pp (6)	7-point scale (7)
Information treatment	9.260*** (1.605)	-4.809*** (1.120)	0.301*** (0.054)	3.572*** (1.114)	0.433 (0.866)	0.082 (0.063)	0.934*** (0.160)
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	21.34	14.01	0.17	13.64	6.46	0.50	3.13
Observations	281	281	281	281	281	281	281
Adj. R2	0.10	0.05	0.11	0.02	-0.06	-0.02	0.11

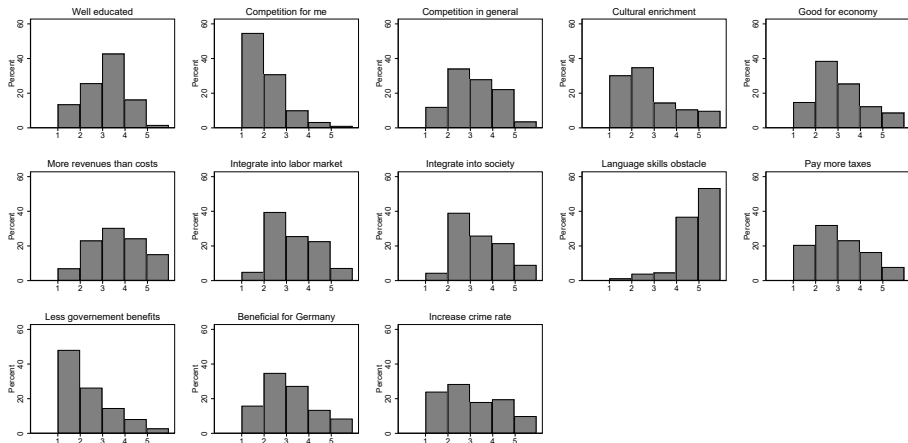
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Effect of veiled response treatment

	Increase competition for me (1)	Increase competition in general (2)	More revenues than costs (3)	Humanitarian aspects (4)	Economic aspects (5)	Laptop usage (6)
Veiled	-0.045 (0.076)	-0.045 (0.076)	-0.113 (0.081)	-0.270*** (0.094)	-0.206*** (0.075)	-0.112 (0.090)
Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Mean (direct response)	0.06	0.44	0.38	0.95	0.69	0.42
Observations	554	554	553	554	555	555
Adj. R2	0.13	0.13	0.07	0.07	0.03	0.05

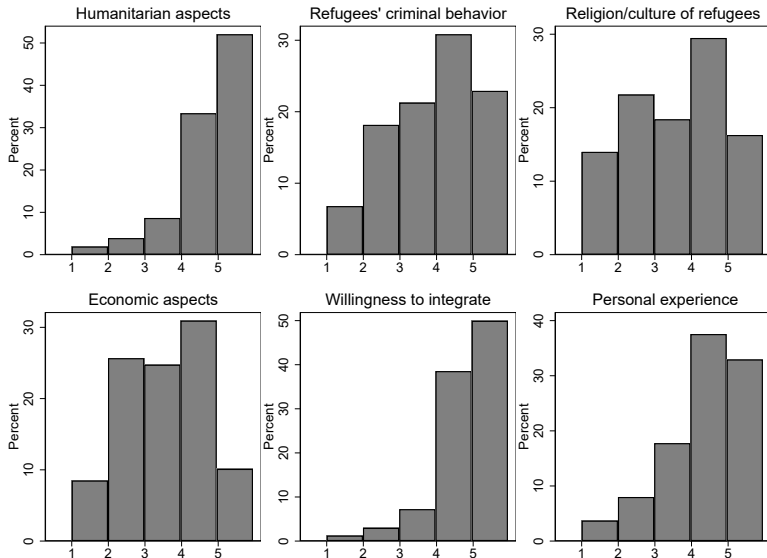
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Specific attitudes toward refugees (control group only)



Note: 1=completely disagree; 2=somewhat disagree, 3=neither agree nor disagree, 4=somewhat agree, 5=completely agree.

Aspects of opinion formation (all respondents)



Compliers: Information treatment effects on perceived education level

	Male		Old		Migrant		Conservative	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High skilled	0.139*** (0.023)	-0.098*** (0.022)	0.149*** (0.022)	-0.123*** (0.022)	0.143*** (0.016)	-0.102*** (0.018)	0.151*** (0.021)	-0.091*** (0.022)
Low skilled	-0.081*** (0.021)	0.068*** (0.025)	-0.072*** (0.017)	0.107*** (0.023)	-0.047*** (0.014)	0.081*** (0.018)	-0.061*** (0.018)	0.077*** (0.024)
high_male	0.001 (0.030)	-0.012 (0.033)						
low_male	0.058** (0.026)	0.004 (0.034)						
high_old			-0.015 (0.026)	0.032 (0.027)				
low_old			0.043** (0.021)	-0.065** (0.028)				
high_mig.					-0.016 (0.040)	-0.020 (0.046)		
low_mig.					-0.011 (0.032)	-0.067 (0.047)		
high_cons.							-0.022 (0.030)	-0.028 (0.033)
low_cons.							0.025 (0.025)	-0.013 (0.034)
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,831	4,831	4,831	4,831	4,831	4,831	4,831	4,831
Adj. R2	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07

Survey questions – General Attitudes (Q1)

Mit dieser Umfrage möchten wir gerne Ihre Meinung zu Flüchtlingen erfahren. Denken Sie bei der Beantwortung der Fragen an die aktuelle Flüchtlingssituation in Deutschland.

Was denken Sie über die Anzahl der Flüchtlinge, die Deutschland im letzten Jahr aufgenommen hat?

Es waren viel zu viele

Es waren eher zu viele

Es war in etwa die richtige Größenordnung

Es waren eher zu wenige

Es waren viel zu wenige

Survey questions – General Attitudes (Q2)

Soll Deutschland in Zukunft mehr Flüchtlinge, weniger Flüchtlinge oder genauso viele Flüchtlinge wie derzeit aufnehmen?

Viel mehr

Etwas mehr

Genau so viele wie derzeit

Etwas weniger

Viel weniger

Survey questions – General Attitudes (Q3)

Sind Sie dafür oder dagegen, dass Flüchtlinge dauerhaft in Deutschland bleiben dürfen?

Ich bin sehr dafür

Ich bin eher dafür

Ich bin weder dafür noch dagegen

Ich bin eher dagegen

Ich bin sehr dagegen

Survey questions – General Attitudes (Q4)

Wie zufrieden sind Sie mit der Asyl- und Flüchtlingspolitik der Bundesregierung?

Ich bin sehr zufrieden

Ich bin eher zufrieden

Ich bin weder zufrieden noch unzufrieden

Ich bin eher unzufrieden

Ich bin sehr unzufrieden

Survey questions – Specific statements on refugees

Inwieweit stimmen Sie folgenden Aussagen zu?

	Ich stimme überhaupt nicht zu	Ich stimme eher nicht zu	Weder noch	Ich stimme eher zu	Ich stimme voll zu
Die Flüchtlinge bringen dem Staat mehr Einnahmen (z.B. Lohnsteuern) als sie Ausgaben verursachen (z.B. Kosten für Integrationsmaßnahmen).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Flüchtlinge werden für mich persönlich die Konkurrenz am Arbeitsmarkt erhöhen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Flüchtlinge sind insgesamt gut für Deutschland.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aufgrund der staatlichen Ausgaben für Flüchtlinge werde ich in Zukunft auf staatliche Leistungen verzichten müssen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aufgrund der staatlichen Ausgaben für Flüchtlinge werde ich in Zukunft mehr Steuern zahlen müssen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Flüchtlinge werden sich erfolgreich in den Arbeitsmarkt integrieren.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Flüchtlinge sind insgesamt gut für die deutsche Wirtschaft.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Flüchtlinge werden sich erfolgreich in die Gesellschaft integrieren.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fehlende Sprachkenntnisse von Flüchtlingen stellen eine Hürde für deren Integration in den Arbeitsmarkt dar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Kriminalitätsrate in Deutschland wird durch Straftaten von Flüchtlingen steigen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Flüchtlinge sind im Durchschnitt eher gut gebildet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Flüchtlinge werden insgesamt die Konkurrenz am Arbeitsmarkt erhöhen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Flüchtlinge sind eine kulturelle Bereicherung für Deutschland.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Survey questions – Aspects of opinion formation

Wie wichtig sind die folgenden Aspekte für Ihre Meinungsbildung beim Thema Flüchtlinge?

	Gar nicht wichtig	Eher nicht wichtig	Weder noch	Eher wichtig	Sehr wichtig
Wirtschaftliche Aspekte	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Religion/Kultur der Flüchtlinge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kriminelles Verhalten von Flüchtlingen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Persönliche Erfahrungen mit Flüchtlingen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Integrationsbereitschaft der Flüchtlinge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Humanitäre Aspekte	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Sample representativeness – LMU Munich and TU Dresden

LMU Munich			TU Dresden		
	Admin Data	Our Sample		Admin Data	Our Sample
Female	59.9%	62.6%	Female	42.4%	44.1%
Foreigner	16.2%	8.7%	Foreigner	13.1%	8.1%
Catholic Theology	1.6%	1.9%	Mathematics and Science	11.7%	10.0%
Protestant Theology	1.5%	0.9%	Education and Pedagogy	11.5%	7.9%
Law	8.9%	6.6%	Law	2.8%	3.0%
Business Administration	5.5%	3.8%	Philosophy	6.1%	10.7%
Economics	2.3%	3.8%	Linguistics and Literature	2.8%	4.4%
Medicine	12.6%	12.0%	Economics and Business	7.8%	6.2%
Veterinary	3.6%	4.3%	Electrical and Computer Engineering	7.3%	6.1%
History and Art History	4.2%	4.7%	Computer Science	5.1%	5.9%
Philosophy	2.2%	2.4%	Mechanical Science and Engineering	17.1%	15.9%
Psychology and Pedagogy	6.4%	9.9%	Architecture	3.2%	2.0%
Cultural Studies	5.9%	3.8%	Civil Engineering	5.2%	4.9%
Linguistics and Literature	15.5%	15.8%	Environmental Sciences	6.9%	7.0%
Social Sciences	4.9%	7.6%	Transportation and Traffic Science	4.1%	8.9%
Mathematics, Computer Studies and Statistics	9.2%	9.9%	Medicine	8.5%	7.1%
Physics	4.8%	4.5%			
Chemistry and Pharmacy	4.3%	2.8%			
Biology	3.9%	2.8%			
Geology	2.7%	2.6%			

- **University of Konstanz:**
 - Females: 43.9% in admin data, 43.7% in sample
 - Foreigners: 16.1% in admin data, 6.7% in sample
- **TU Chemnitz:**
 - Females: 42.8% in admin data, 43.8% in sample
 - Foreigners: 23.7% in admin data, 15.7% in sample

Effect of information treatment on fiscal aspects (IV estimates)

	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree
	More revenues than costs		Pay more taxes		Less gov't benefits		Good for economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Educ. level	0.047	-0.059	-0.004	-0.006	0.011	-0.019	0.060	-0.022
	(0.035)	(0.037)	(0.035)	(0.040)	(0.026)	(0.036)	(0.038)	(0.032)
Instr. F stat	166.9	166.9	166.7	166.7	167.0	167.0	166.6	166.6
Obs	4,823	4,823	4,830	4,830	4,830	4,830	4,829	4,829

Effect of information treatment on non-economic aspects (IV estimates)

	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree
	Cultural enrichment		Integrate into society		Beneficial for Germany		Increase crime	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Educ. level	-0.007	0.021	0.037	0.007	0.046	-0.013	0.037	-0.030
	(0.038)	(0.033)	(0.038)	(0.037)	(0.038)	(0.033)	(0.038)	(0.041)
Instr. F stat	166.6	166.6	166.8	166.8	166.9	166.9	167.0	167.0
Obs.	4,829	4,829	4,830	4,830	4,828	4,828	4,831	4,831

Survey questions: General attitudes

1. What do you think about the number of refugees that Germany admitted last year?

[far too many, somewhat too many, about the right amount, somewhat too few, far too few]

2. Compared to the current situation, should Germany admit more refugees, fewer refugees, or the same number in the future?

[much more, somewhat more, the same amount, somewhat less, much less]

3. Do you favor or oppose that refugees are allowed to stay in Germany permanently?

[strongly favor, somewhat favor, neither favor nor oppose, somewhat oppose, strongly oppose]

4. How satisfied are you with the asylum and refugee policy of the government?

[very satisfied, somewhat satisfied, neither satisfied nor unsatisfied, somewhat unsatisfied,

Heterogeneity of treatment effects by respondents' migration status (1/2)

	Admit more refugees in future				Good for economy		Integrate successfully	
	More (1)	Less (2)	More (3)	Less (4)	Agree (5)	Disagree (6)	Agree (7)	Disagree (8)
High skilled information	-0.018 (0.017)	-0.015 (0.018)	-0.019 (0.017)	-0.019 (0.019)	0.031* (0.018)	-0.015 (0.015)	0.037** (0.019)	-0.028 (0.017)
× born abroad	-0.066 (0.054)	0.061 (0.062)			-0.071 (0.062)	0.087 (0.058)		
× parent(s) born abroad			-0.026 (0.043)	0.055 (0.049)			-0.106** (0.047)	0.105** (0.047)
Low skilled information	-0.010 (0.017)	-0.002 (0.018)	-0.010 (0.017)	-0.000 (0.019)	0.009 (0.018)	-0.010 (0.014)	0.018 (0.019)	-0.017 (0.017)
× born abroad	-0.164*** (0.052)	0.098 (0.065)			-0.124* (0.064)	0.138** (0.062)		
× parent(s) born abroad			-0.080* (0.042)	0.036 (0.049)			-0.084* (0.047)	0.083* (0.046)
Observations	4,823	4,823	4,823	4,823	4,841	4,841	4,844	4,844
Adj. R2	0.04	0.03	0.04	0.03	0.02	0.04	0.04	0.04

Heterogeneity of treatment effects by respondents' migration status (2/2)

	Beneficial for Germany				Increase crime	
	Agree (1)	Disagree (2)	Agree (3)	Disagree (4)	Agree (5)	Disagree (6)
High skilled information	0.030*	-0.004	0.039**	-0.009	-0.008	-0.008
	(0.018)	(0.015)	(0.019)	(0.015)	(0.017)	(0.019)
× born abroad	-0.102*	0.038				
	(0.061)	(0.060)				
× parent(s) born abroad			-0.111**	0.056	0.112**	-0.070
			(0.048)	(0.044)	(0.046)	(0.048)
Low skilled information	0.017	-0.006	0.017	-0.007	-0.020	0.005
	(0.018)	(0.015)	(0.019)	(0.015)	(0.017)	(0.019)
× born abroad	-0.171***	0.118*				
	(0.063)	(0.064)				
× parent(s) born abroad			-0.088*	0.073*	0.083*	-0.071
			(0.048)	(0.044)	(0.046)	(0.049)
Observations	4,841	4,841	4,841	4,841	4,846	4,846
Adj. R2	0.03	0.05	0.03	0.05	0.04	0.03

Comparison of socio-demographic characteristics across treatments (1/2)

	Mean Control group	Difference to control group		Difference High – Low
		High skilled	Low skilled	
Dresden	0.81	-0.00	0.00	-0.00
Munich	0.08	0.01	0.00	0.01
Konstanz	0.09	-0.01	-0.01	0.00
Chemnitz	0.02	0.00	0.01	-0.00
Male	0.54	-0.02	0.03*	-0.05***
Age	24.37	0.11	0.06	0.05
Bachelor	0.30	0.02	-0.01	0.03*
Master	0.20	0.02	0.02*	-0.01
Diploma	0.28	-0.02	-0.01	-0.01
PhD	0.09	0.00	0.00	0.00
Other study level	0.14	-0.01	-0.00	-0.01
Semester	5.63	-0.10	0.02	-0.12
Born abroad	0.07	0.02**	0.00	0.02*
Both parents born in Germany	0.86	-0.02	-0.01	-0.01
One parent born abroad	0.06	-0.01	0.01	-0.01
Both parents born abroad	0.08	0.02**	0.00	0.02*
No parent has college degree	0.37	-0.05***	-0.03**	-0.01

Comparison of socio-demographic characteristics across treatments (2/2)

	Mean Control group	Difference to control group		Difference High – Low
		High skilled	Low skilled	
Need-based student aid	0.42	-0.04**	-0.04**	-0.00
Fraction w/ lower income	54.92	-0.91	-0.33	-0.58
Not encountered refugees	0.14	-0.00	0.01	-0.02
Language, Culture	0.12	-0.00	-0.01	0.00
Psychology	0.00	0.00	0.00	-0.00
Social Sciences and Pedagogy	0.11	-0.00	-0.01	0.00
Law	0.02	0.01*	0.00	0.01
Commercial Information Systems	0.06	-0.00	0.01	-0.01
Business and Economics	0.04	0.01	0.01	0.01
Maths and Science	0.09	0.01	0.01	0.00
Medicine	0.06	0.01	-0.01	0.01
Engineering	0.35	-0.01	0.01	-0.02
Arts and Music	0.00	-0.00	0.00	-0.00
Other faculty	0.13	-0.02*	-0.02	-0.01
Survey completed	0.89	-0.00	0.00	-0.01
Respondents	1,668	1,604	1,629	

Experimenter demand effects

- **Experimenter demand effects (EDE)**

Information treatment contains indications about appropriate answering behavior and respondents answer accordingly to please experimenter

- Several pieces of evidence suggest that our results are not driven by EDE:

1. Online surveys have been shown to be less susceptible to EDE than more traditional survey modes
2. Women have been shown to be more responsive to social desirability bias
→ overall, treatment effects hardly vary by gender
3. Pattern of treatment effects on perceived education level w.r.t. respondents' baseline beliefs suggests that treatment effects are due to genuine belief updating (see next slide)

Effect of information treatment on fiscal aspects

	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree
	More revenues than costs		Pay more taxes		Less gov't benefits		Good for economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High skilled	-0.004	-0.027	0.018	-0.035**	0.010	-0.016	0.025	-0.008
	(0.016)	(0.017)	(0.015)	(0.018)	(0.011)	(0.015)	(0.017)	(0.014)
Low skilled	-0.024	-0.001	0.020	-0.030*	0.005	-0.008	-0.001	0.001
	(0.016)	(0.017)	(0.015)	(0.017)	(0.011)	(0.015)	(0.017)	(0.014)
Control mean	0.30	0.39	0.24	0.53	0.11	0.74	0.53	0.21
Obs.	4,834	4,834	4,843	4,843	4,844	4,844	4,841	4,841

Effect of information treatment on non-economic aspects

	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree
	Cultural enrichment		Integrate into society		Beneficial for Germany		Increase crime	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High skilled	-0.001	0.006	0.012	-0.004	0.023	-0.001	0.008	-0.018
	(0.016)	(0.014)	(0.017)	(0.016)	(0.017)	(0.014)	(0.016)	(0.017)
Low skilled	0.002	-0.004	-0.004	-0.009	0.004	0.004	-0.008	-0.005
	(0.016)	(0.014)	(0.017)	(0.016)	(0.017)	(0.014)	(0.016)	(0.017)
Control mean	0.65	0.20	0.44	0.31	0.51	0.22	0.30	0.52
Obs.	4,846	4,846	4,843	4,843	4,841	4,841	4,846	4,846

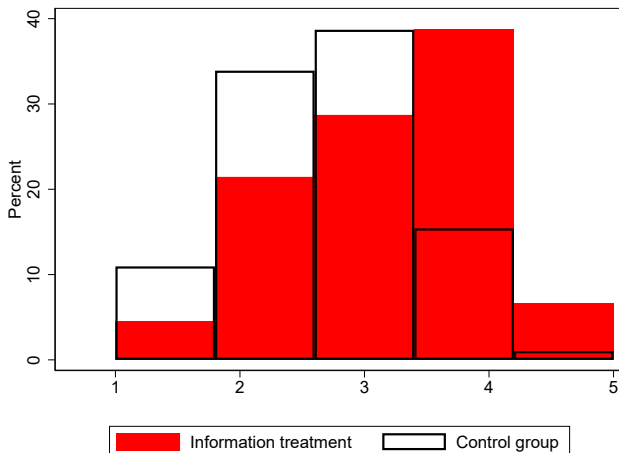
Effect of information treatment on aspects of opinion formation (1/2)

	Refugees' willingness to integrate		Humanitarian aspects		Personal experience with refugees	
	Important (1)	Unimportant (2)	Important (3)	Unimportant (4)	Important (5)	Unimportant (6)
High skilled	0.011 (0.011)	-0.002 (0.007)	-0.013 (0.012)	0.003 (0.008)	0.009 (0.015)	-0.004 (0.011)
Low skilled	0.011 (0.011)	0.002 (0.007)	-0.005 (0.012)	0.000 (0.008)	0.000 (0.015)	-0.004 (0.011)
Control mean	0.88	0.04	0.86	0.06	0.70	0.12
Obs.	4,853	4,853	4,852	4,852	4,854	4,854
Adj. R2	0.02	0.01	0.03	0.02	0.11	0.06

Effect of information treatment on aspects of opinion formation (2/2)

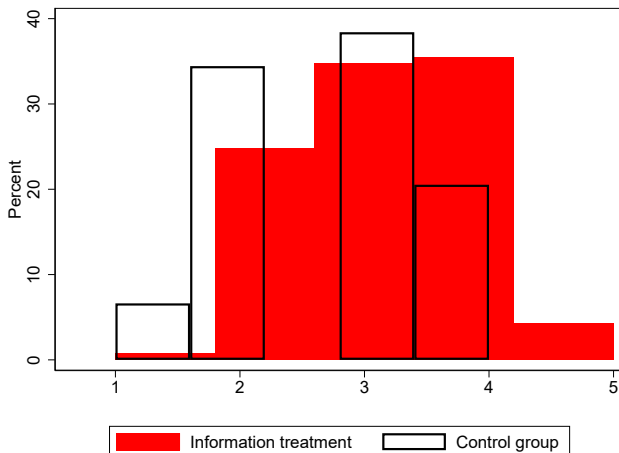
	Refugees' criminal behavior		Religion/culture of refugees		Economic aspects	
	Important (1)	Unimportant (2)	Important (3)	Unimportant (4)	Important (5)	Unimportant (6)
High skilled	-0.000 (0.017)	-0.017 (0.015)	0.028 (0.018)	-0.023 (0.017)	0.032* (0.017)	-0.063*** (0.017)
Low skilled	-0.013 (0.017)	-0.000 (0.015)	-0.001 (0.017)	0.001 (0.017)	0.014 (0.017)	-0.026 (0.017)
Control mean	0.54	0.26	0.45	0.37	0.39	0.37
Obs.	4,852	4,852	4,853	4,853	4,850	4,850
Adj. R2	0.03	0.02	0.01	0.01	0.03	0.02

Effect of information treatment on perceived education level (Survey 1, all participants)



Note: 1 = completely disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = completely agree.

Effect of information treatment on perceived education level (Survey 2)



Note: 1 = completely disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = completely agree.

Evidence for genuine believe updating

	Agree (1)	Disagree (2)
High skilled	0.115*** (0.017)	-0.148*** (0.025)
× high baseline belief	0.057** (0.029)	0.073** (0.030)
Low skilled information	0.004 (0.014)	0.026 (0.024)
× high baseline belief	-0.103*** (0.024)	0.077** (0.032)
High baseline belief	0.179*** (0.018)	-0.413*** (0.023)
Controls	Yes	Yes
Respondents	4,829	4,829
Adj. R2	0.11	0.18

Effect of information treatment on perceived education level of refugees

	Agree		Disagree		Five-point scale	
	(1)	(2)	(3)	(4)	(5)	(6)
High skilled information	0.144*** (0.015)	0.140*** (0.015)	-0.100*** (0.017)	-0.104*** (0.016)	0.307*** (0.035)	0.312*** (0.034)
Low skilled information	-0.051*** (0.013)	-0.048*** (0.013)	0.078*** (0.017)	0.071*** (0.017)	-0.142*** (0.033)	-0.125*** (0.032)
Covariates	No	Yes	No	Yes	No	Yes
Control mean	0.18	0.18	0.39	0.39	2.67	2.67
Respondents	4,831	4,831	4,831	4,831	4,831	4,831
Adj. R2	0.04	0.07	0.02	0.07	0.04	0.10

Effect of information treatment on beliefs about refugees' education level (follow-up survey)

	Agree		Disagree		Five-point scale	
	(1)	(2)	(3)	(4)	(5)	(6)
Information treatment	0.284*** (0.037)	0.295*** (0.037)	-0.193*** (0.040)	-0.204*** (0.039)	0.597*** (0.081)	0.619*** (0.080)
Covariates	No	Yes	No	Yes	No	Yes
Control mean	0.17	0.17	0.45	0.45	2.62	2.62
Observations	555	555	555	555	555	555
Adj. R2	0.09	0.13	0.04	0.08	0.09	0.14