

SUPPORTING INFORMATION

“Do Survey Experiments Capture Real-World Behavior? External Validation of Conjoint and Vignette Analyses with a Natural Experiment”

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S1 Introduction

This Supporting Information is structured as follows: In the first section we provide more background information about the naturalization referendums. The second section presents evidence that immigration-related preferences remained fairly stable from the time when the use of naturalization referendums ended and the time when we fielded our survey. The third section provides details about the survey. The fourth section provides details about the experimental design. The fifth section reports additional results and robustness checks for the main analysis. The last section reports additional results about the survey engagement in the different experimental designs.

S2 Behavioral Benchmark: Naturalization Referendums

In Switzerland, each municipality autonomously decides on the naturalization applications of its foreign residents who seek Swiss citizenship (for more details on the Swiss naturalization procedure, see [1]). We focus on the group of municipalities that until 2003 used referendums with closed ballots to decide on naturalization requests. A typical naturalization referendum involved two stages. Local voters first received in the mail the ballot and an official voting leaflet that explained the pending naturalization request with a detailed description of each immigrant applicant including information about his or her age, gender, education, origin, language skills and integration status. Figure S1 shows an anonymized example of a typical voting leaflet. Voters then cast a secret ballot on each individual request and applicants with a majority of “yes” votes were granted Swiss citizenship.

We use a subset of the data compiled by Hainmueller and Hangartner [1] that contains applicant characteristics and voting outcomes for 1,503 recorded naturalization referendums held between 1970 and 2003 in the 44 Swiss municipalities that used secret ballot referendums with voting leaflets.¹ The majority of the data consists of naturalization referendums held between 2000 and 2003. The behavioral data is recoded to match the survey attributes discussed below. We use these data to examine how applicant characteristics affect the outcome of naturalization referendums and thereby form the behavioral benchmark that we try to replicate with different survey experimental designs.

S3 Stability of Immigration-related Preferences

The use of naturalization referendums ended in 2003, whereas our survey was administered in 2014. We use two different data sets to examine if voters’ preferences regarding naturalization and immigration might have changed between these years.

First, we use annual panel data from the Swiss Household Panel (SHP), to track changes in attitudes towards immigrants. The only immigration-related question in the SHP reads as follows: “Are you in favour of Switzerland offering foreigners the same opportunities as those offered to Swiss citizens, or in favour of Switzerland offering Swiss citizens better opportunities?”. Answers were recorded on a three point scale as (1) foreigners and Swiss citizens should

¹The 44 municipalities are: Altdorf, Altendorf, Arth, Beckenried, Bühler, Buochs, Chur, Dallenwil, Davos, Einsiedeln, Emmen, Ennetmoos, Feusisberg, Freienbach, Gais, Galgenen, Gersau, Heiden, Hergiswil, Ingenbohl, Küsnacht, Lachen, Malters, Morschach, Oberiberg, Reichenburg, Rothenthurm, Schübelbach, Schwyz, Speicher, St. Margrethen, Stans, Stansstad, Steinen, Teufen, Trogen, Tuggen, Unteriberg, Urnäsch, Walzenhausen, Wangen, Weggis, Wolfenschiessen, and Wollerau.

Figure S1: Sample leaflet sent out to voters (names blacked out)

Aufnahme von [REDACTED], 1965, italienischer Staatsangehöriger, wohnhaft in Steinen, in das Bürgerrecht der Gemeinde Steinen

A. BERICHT

Mit Eingabe vom 6.12.1984 stellt [REDACTED], 1965, italienischer Staatsangehöriger, das Gesuch um Aufnahme in das Bürgerrecht der Gemeinde Steinen.

Der Gesuchsteller wurde am 25.2.1965 in Schwyz als Sohn des [REDACTED] und der [REDACTED] geboren, die damals bereits in Steinen wohnten.

Seit der Geburt hält sich [REDACTED] bei seinen Eltern in Steinen, Sonnenbergli, auf, und verbrachte seine Jugendzeit in Steinen.

Er besuchte in Steinen die Primarschule und die Sekundarschule.

Nach dem Schulabschluss trat [REDACTED] bei der Berner Allgemeinen Versicherungsgesellschaft in Schwyz in die kaufmännische Lehre ein, welche er im Frühjahr 1984 mit der Abschlussprüfung erfolgreich abgeschlossen hat.

Nach der Abschlussprüfung setzte der Gesuchsteller seine Tätigkeit bei der Direktion der Berner Versicherung in Bern fort, wo er gegenwärtig als Unfallschaden-Sachbearbeiter tätig ist.

Er ist in Bern als Wochenaufenthalter gemeldet, wobei der gesetzliche Wohnsitz nach wie vor bei seinen Eltern in Steinen ist.

Nach Abschluss seiner beruflichen Weiterbildung und Absolvierung der Rekrutenschule beabsichtigt [REDACTED] seine Tätigkeit in unserer Umgebung fortzusetzen, und weiterhin in Steinen zu wohnen.

be offered *equal opportunities*, (0) *neither* or (-1) Swiss citizens should be offered *better opportunities*. We use the subset of, on average, $N = 1395$ respondents per wave that reside in cantons that contain at least one target municipality. Figure S2 presents the SHP results. The trends over the years 1999 – 2009² are remarkably stable.

²Unfortunately, the question about opportunities for Swiss natives and foreigners was discontinued in 2010.

Figure S2: Stability of attitudes towards immigrants over time; Swiss Household Panel

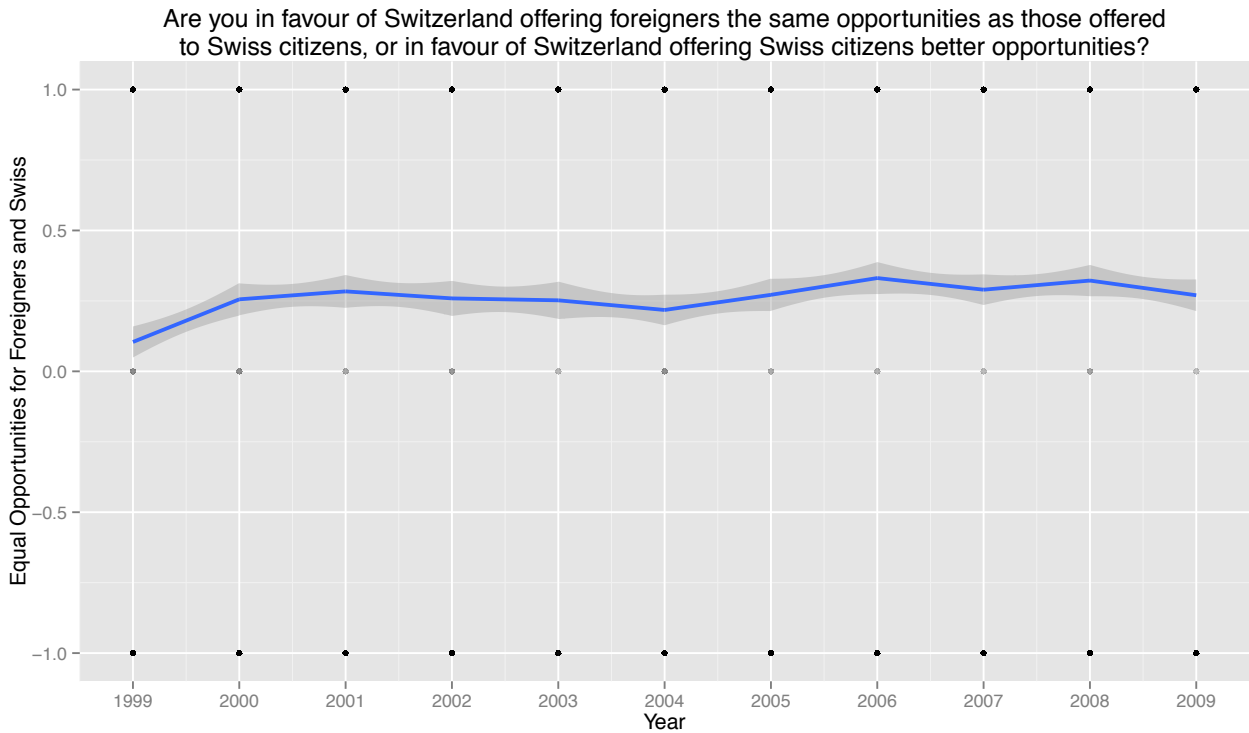


Figure shows year-to-year ordinary least squares estimates and corresponding 95 % confidence intervals. Dependent variable measures attitudes towards immigrants over the years 1999–2009. Data: Swiss Household Panel, focusing on respondents from cantons that contain at least one target municipality. The sample size consists of, on average, $N = 1395$ respondents per year.

Second, we use the VOX survey, a post-referendum survey conducted about 3 – 6 times per year with a sample size of approximately 1000 respondents per wave. The only immigration-related question that is repeatedly asked in the VOX survey is identical to the one from the SHP but coded slightly differently insofar as answers were recorded on a six point scale from (1), Swiss citizens should be offered *better opportunities*, to (6), foreigners and Swiss citizens should be offered *equal opportunities*. We use the subset of, on average, $N = 104$ respondents per year that reside in one of the 44 target municipalities. Figure S3 presents the VOX results. While there is some year-to-year variance due to the small sample size, the overall trends over the years 1996 – 2013 are remarkably stable.

Figure S3: Stability of attitudes towards immigrants over time; VOX survey

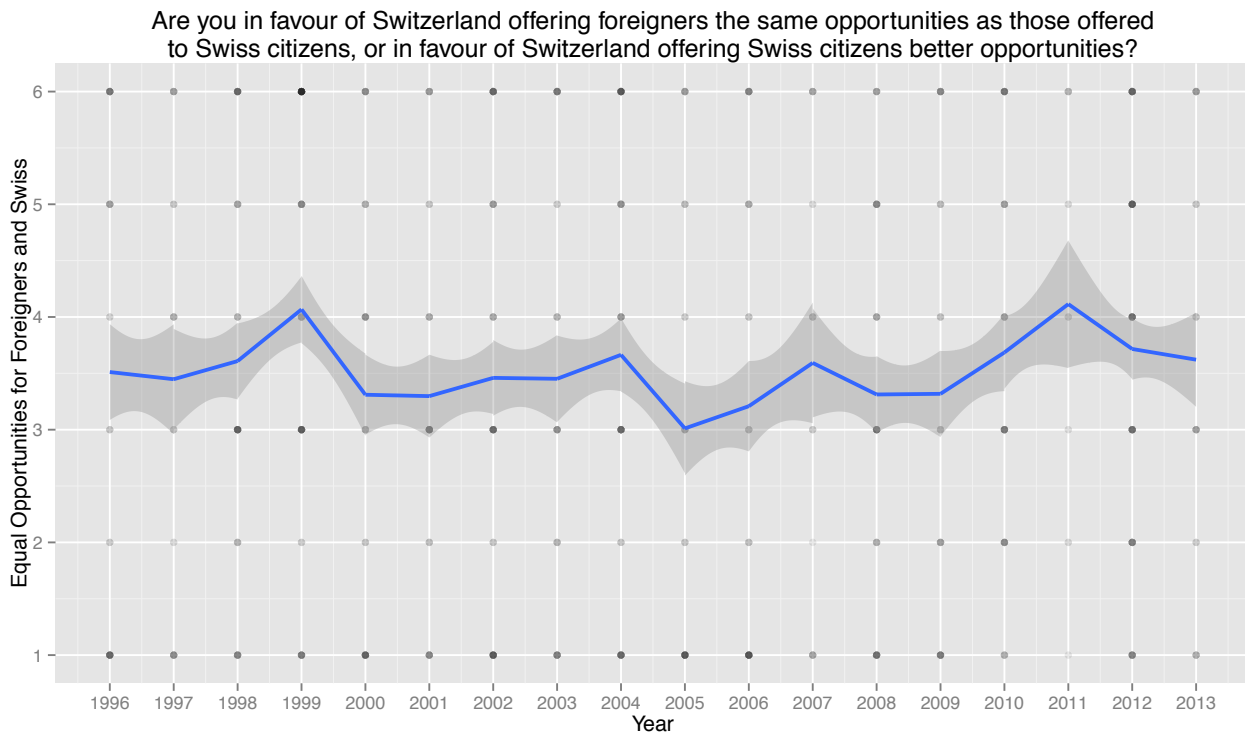


Figure shows year-to-year ordinary least squares estimates and corresponding 95 % confidence intervals. Dependent variable measures attitudes towards immigrants over the years 1996–2013. Data: Swiss post-referendum survey VOX, focusing on respondents from target municipality. The sample size consists of, on average, $N = 104$ respondents per year.

In summary, both tests support the conclusion that attitudes towards immigrants have not considerably changed over the ten years separating the behavioral data from our survey experiment.

S4 Survey Design and Sample

Recruitment and Response Rate

Our main experiment was embedded in a survey that we conducted with the Swiss research firm gfs.bern. The field work took place between March 5 and July 25, 2014. The sampling design was a stratified random sampling. The recruitment was done by gfs.bern who contacted a stratified (by age and gender) random sample of 12,236 individuals in the target municipalities by telephone to invite them to participate in our online survey and collect baseline demographics and respondents' email addresses. Of these, 2,517 respondents agreed to participate in our online survey and were invited by email. Of those that expressed their willingness to participate, $N = 1,979$ respondents completed the survey, yielding a retention rate of 78.6% from telephone

interview to online survey of 78.6.³ Overall this corresponds to a participation rate of 20.6 %⁴ and a cumulative response rate 3 (RR3) as defined by AAPOR of 12.8 %. Note that this RR3 is substantially higher than that of comparable online surveys. For example, a typical study conducted via Knowledge Networks, widely regarded as one of the best probability based online panels in the U.S., yields an RR3 of 2.8 % [2].

Sample Descriptives

Figure S1 shows the respondent characteristics for the unweighted survey sample, the Swiss post-referendum study VOX, and the reweighted survey sample. The VOX survey is the best available data on the Swiss voting population.

We see that the raw characteristics in our survey sample are pretty close to the VOX survey. To address the small remaining differences we use entropy balancing [3] to reweight the survey sample based on the margins for age, gender, political interest, hypothetical participation in referendums, education, and employment to the margins computed from the VOX data. To create the margins for the reweighting procedure, we only focus on the VOX respondents that live in one of the target municipalities between 2003–2013. After reweighting the characteristics in the two samples match very closely.

Table S1: Descriptive Statistics of Unweighted Survey, Target Sample Margins, and Weighted Survey

	Survey unweighted	2003–2013 VOX	Survey reweighted
Age	53.38	49.18	49.24
Female	0.50	0.53	0.53
Political Interest	3.31	2.87	2.88
Referendums	8.37	7.15	7.18
Education: 1	0.03	0.09	0.09
Education: 2	0.35	0.47	0.49
Education: 3	0.10	0.09	0.09
Education: 4	0.26	0.11	0.11
Education: 5	0.08	0.08	0.05
Education: 6	0.17	0.17	0.18
Employment	0.49	0.60	0.60

Table shows the descriptive statistics of the unweighted survey sample (Column 1), the VOX survey between 2003–2013 in the target municipalities that is used as target sample (Column 2) and the reweighted survey sample (Column 3). Reweighting was performed using entropy balancing based on the following covariates: Age, Female (0/1), Political Interest (1–4), the number of hypothetical referendums that respondents turnout out if there are 10 per year, education (Education 1: compulsory schooling, Education 2: vocational training, Education 3: secondary schooling incl. *Matura*, Education 4: lower professional school, Education 5: higher professional school, Education 5: University degree) and Employment (0/1).

³All respondents who initially agreed to participate in the online survey were reminded twice per email and a third time per telephone in the two four weeks following the initial email invitation.

⁴Due to the forced response format of the survey, item nonresponse was nonexistent for the questions we use in the analysis below.

Student Sample

In addition to the main survey, we also conducted a similar experiment on a sample of Swiss undergraduate and graduate students as well as administrative and faculty staff of the University of Zurich. The participants were recruited between July 11, 2014 and August 3, 2014 via an email invite sent out to all students and University employees. One-third of all respondents were randomly assigned to answer the paired profiles conjoint design with forced choice. $N = 652$ respondents completed this survey and form the basis for the student sample. A primary purpose of this additional experiment was to examine whether the results in the main experiment could also be replicated on a separate sample representing a very different population of Swiss citizens.

S5 Experimental Design

Attributes and Attribute Levels

Table S2 details the attributes and attribute levels used to generate the profiles. The attribute levels are randomized under the following two constraints to rule out illogical combinations: age \geq years since arrival and immigrants from Austria and Germany have a higher than “adequate” German language proficiency. The ordering of the attributes is fixed to match the typical leaflets as used in the actual naturalization referendums.

Table S2: Applicant Attributes and Attribute Levels

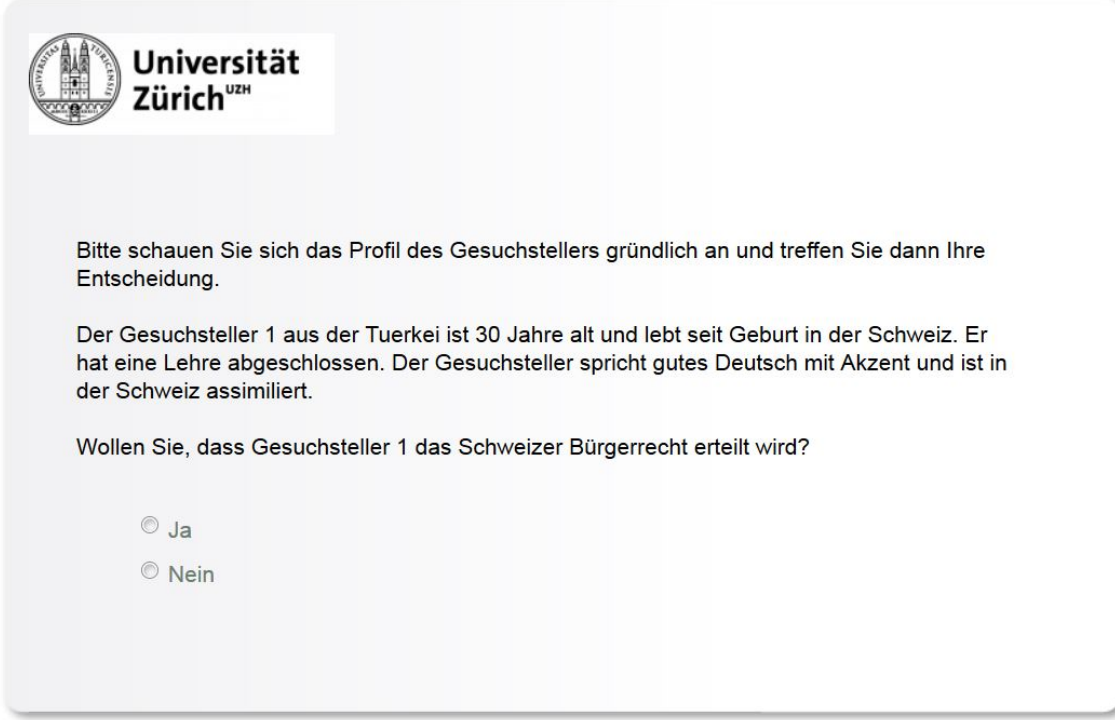
Attribute	Attribute Level
Gender \in	Male, Female
Origin \in	Germany, Austria, Netherlands, Italy, Turkey, Croatia, Former Yugoslavia, Bosnia and Herzegovina
Age \in	21 years, 30 years, 41 years, 55 years
Years since arrival \in	14 years, 20 years, 29 years, Born in CH
Education \in	Primary School, High School, University
German proficiency \in	“Adequate”, “Good with accent”, “Unaccented”, “Swiss German”
Integration status \in	“Assimilated”, “Integrated”, “Indistinguishable”, “Familiar with Swiss traditions”

Treatment Conditions: Five Survey Designs

For the core of the experiment, we asked participants to decide on naturalization applicants of immigrants. We randomly allocated respondents to five groups of equal size and presented each group with one of five survey formats, namely the *single profile vignette*, *paired profile vignette*, *single profile conjoint*, *paired profile conjoint*, and the *forced choice conjoint*. In the following we describe each design.

Figure S4 shows a screenshot from the *single profile vignette*. The design presents a single immigrant profile in the form of a short paragraph that describes the applicant with the attributes listed in the text and then respondents are asked to accept or reject the applicant.

Figure S4: Single profile vignette



The screenshot shows a survey interface for the University of Zurich (UZH). At the top left is the UZH logo. The main text asks respondents to evaluate a candidate's profile. The candidate is described as a 30-year-old male from Turkey who has lived in Switzerland since birth, completed a degree, speaks German well with an accent, and is assimilated. The question is whether Swiss citizenship should be granted. Two radio buttons are provided for 'Ja' (Yes) and 'Nein' (No). At the bottom right, there is a red button labeled 'WEITER' (Next).

Universität
Zürich^{UZH}

Bitte schauen Sie sich das Profil des Gesuchstellers gründlich an und treffen Sie dann Ihre Entscheidung.

Der Gesuchsteller 1 aus der Tuerkei ist 30 Jahre alt und lebt seit Geburt in der Schweiz. Er hat eine Lehre abgeschlossen. Der Gesuchsteller spricht gutes Deutsch mit Akzent und ist in der Schweiz assimiliert.

Wollen Sie, dass Gesuchsteller 1 das Schweizer Bürgerrecht erteilt wird?

Ja

Nein

Survey Powered By [Qualtrics](#) WEITER

Figure shows *single profile vignette* in German. Attributes levels for Gender, Origin, Age, Years since arrival, Education, German proficiency and integration status are randomized subject to logical constraints. Attribute order is fixed. Respondents are asked to vote “yes” or “no” on each applicant.

Figure S5 shows a screenshot from the *paired profiles vignette*. This design is similar to the single profile vignette except that two immigrant vignettes are presented below each other and then respondents are asked to accept or reject each of the two applicants.

Figure S5: Paired evaluation vignettes

Universität Zürich^{UZH}

Bitte schauen Sie sich die Profile der beiden Gesuchsteller gründlich an und treffen Sie dann Ihre Entscheidung.

Der Gesuchsteller 1 aus dem ehem. Jugoslawien ist 30 Jahre alt und lebt seit 29 Jahren in der Schweiz. Er hat die Universität abgeschlossen. Der Gesuchsteller spricht akzentfrei Schweizerdeutsch und ist vom Schweizer kaum zu unterscheiden.

Der Gesuchsteller 2 aus Oesterreich ist 30 Jahre alt und lebt seit 29 Jahren in der Schweiz. Er hat eine Lehre abgeschlossen. Der Gesuchsteller spricht akzentfrei Schweizerdeutsch und ist vom Schweizer kaum zu unterscheiden.

Wollen Sie, dass den Gesuchstellern das Schweizer Bürgerrecht erteilt wird?

	Ja	Nein
Gesuchsteller 1	<input type="radio"/>	<input type="radio"/>
Gesuchsteller 2	<input type="radio"/>	<input type="radio"/>

Survey Powered By [Qualtrics](#) WEITER

Figure shows *paired profiles vignette* in German. Attributes levels for Gender, Origin, Age, Years since arrival, Education, German proficiency and integration status are randomized subject to logical constraints. Attribute order is fixed. Respondents are asked to vote “yes” or “no” on each of the two applicants.

Figure S6 shows a screenshot from the *single profile conjoint*. This design presents one immigrant profile in the form of table that resembles a CV with two columns. The first column lists the names of the attributes and the second column lists the attribute values. Again respondents are asked to accept or reject the applicant.

Figure S6: Single profile conjoint

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Bitte schauen Sie sich das Profil des Gesuchstellers gründlich an und treffen Sie dann Ihre Entscheidung.

	Gesuchsteller 1
Geschlecht	weiblich
Herkunftsland	Italien
Alter	55 Jahre
In der Schweiz seit	Geburt
Bildungsstand	obligatorische Schule
Sprachkenntnisse	spricht akzentfrei Schweizerdeutsch
Integrationsstatus	unterscheidet sich kaum vom Schweizer

Wollen Sie, dass Gesuchsteller 1 das Schweizer Bürgerrecht erteilt wird?

Ja

Nein


Survey Powered By [Qualtrics](#)

WEITER

Figure shows *single profile conjoint* in German. Attributes levels for Gender, Origin, Age, Years since arrival, Education, German proficiency and integration status are randomized subject to logical constraints. Attribute order is fixed. Respondents are asked to vote “yes” or “no” on each applicant.

Figure S7 shows a screenshot from the *paired profiles conjoint*. This design is similar to the single profile conjoint except that two immigrant profiles are presented next to each other in the conjoint table. Respondents are asked to accept or reject each of the two applicants.

Figure S7: Paired profiles conjoint

 **Universität Zürich** UZH

Bitte schauen Sie sich die Profile der beiden Gesuchsteller gründlich an und treffen Sie dann Ihre Entscheidung.

	Gesuchsteller 1	Gesuchsteller 2
Geschlecht	weiblich	maennlich
Herkunftsland	Niederlande	Bosnien und Herzegowina
Alter	55 Jahre	55 Jahre
In der Schweiz seit	Geburt	14 Jahren
Bildungsstand	obligatorische Schule	obligatorische Schule
Sprachkenntnisse	spricht fließend Deutsch ohne Akzent	spricht akzentfrei Schweizerdeutsch
Integrationsstatus	unterscheidet sich kaum vom Schweizer	ist in der Schweiz integriert

Wollen Sie, dass den Gesuchstellern das Schweizer Bürgerrecht erteilt wird?

	Ja	Nein
Gesuchsteller 1	<input type="radio"/>	<input type="radio"/>
Gesuchsteller 2	<input type="radio"/>	<input type="radio"/>

Survey Powered By [Qualtrics](#) WEITER

Figure shows *paired profiles conjoint* in German. Attributes levels for Gender, Origin, Age, Years since arrival, Education, German proficiency and integration status are randomized subject to logical constraints. Attribute order is fixed. Respondents are asked to vote “yes” or “no” on each of the two applicants.

Figure S8 shows a screenshot from the *forced choice conjoint*. This design is identical to the paired profiles conjoint except that respondents are asked to choose which of the two profiles they preferred for naturalization. In other words, respondents are forced to choose one of the two applicants and cannot accept or reject both.

Figure S8: Forced choice conjoint

Universität Zürich UZH

Bitte schauen Sie sich die Profile der beiden Gesuchsteller gründlich an und treffen Sie dann Ihre Entscheidung.

Welchen der beiden Gesuchsteller bevorzugen Sie für die Erteilung des Schweizer Bürgerrechts?

	Gesuchsteller 1	Gesuchsteller 2
Geschlecht	maennlich	maennlich
Herkunftsland	Niederlande	Italien
Alter	30 Jahre	41 Jahre
In der Schweiz seit	20 Jahren	Geburt
Bildungsstand	obligatorische Schule	obligatorische Schule
Sprachkenntnisse	spricht gutes Deutsch mit Akzent	kann sich auf Deutsch gut verstaendigen
Integrationsstatus	mit Schweizer Traditionen bestens vertraut	mit Schweizer Traditionen bestens vertraut
	<input type="radio"/>	<input type="radio"/>

Survey Powered By [Qualtrics](#) WEITER

Figure shows *forced choice conjoint* in German. Attributes levels for Gender, Origin, Age, Years since arrival, Education, German proficiency and integration status are randomized subject to logical constraints. Attribute order is fixed. Respondents are forced to choose one of the two applicants.

S6 Additional Analysis

This section reports additional analyses and robustness tests:

- Table S3 details the estimated effects of the applicant characteristics in actual and hypothetical naturalization referendums that are visualized in Figure 1 in the main text.
- Figure S9 replicates the main results based on the unweighted survey sample. The effects are very similar to the estimates based on the weighted sample displayed in Figure 1.
- Figure S10 and Table S4 replicate the main results but collapse the different country of origins indicators, following the coding of [1], into four roughly equal-sized categories: North West (Austria, Germany, Netherlands), South (Italy), Turkey, and Yugoslavia (Bosnia-Herzegovina, Croatia, and former Yugoslavia). Again, the results are again very similar.
- Table S5 compares the estimated average rejection rate across the different survey designs to the behavioral benchmark. As discussed in the main text, most design underestimate the average rejection rate. The exception are the forced choice designs where the average rejection rate is by design fixed at .50.

Table S3: Attribute Effects in Actual and Hypothetical Naturalization Referendums

Condition	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Behavioral Benchmark	Paired Conjoint	Paired Conjoint Forced	Paired Vignette	Single Conjoint	Single Vignette	Paired Conjoint Forced Students
Gender:							
Male	0.0067 (0.0067)	0.013 (0.014)	0.067 (0.029)	0.00050 (0.015)	-0.0095 (0.019)	0.0088 (0.013)	0.027 (0.012)
Origin:							
Germany	0.028 (0.023)	0.077 (0.041)	0.11 (0.055)	0.077 (0.047)	0.00067 (0.059)	-0.0057 (0.031)	0.10 (0.031)
Austria	0.013 (0.038)	0.026 (0.035)	-0.020 (0.041)	-0.044 (0.036)	-0.021 (0.051)	-0.020 (0.044)	0.081 (0.031)
Italy	0.0030 (0.023)	0.0070 (0.022)	-0.011 (0.043)	-0.0085 (0.022)	-0.042 (0.048)	-0.037 (0.029)	0.0025 (0.024)
Turkey	0.17 (0.028)	0.16 (0.039)	0.19 (0.046)	0.087 (0.035)	0.077 (0.031)	0.036 (0.030)	0.044 (0.024)
Bosnia & Herzegovina	0.19 (0.033)	0.22 (0.052)	0.19 (0.046)	0.13 (0.042)	0.097 (0.042)	0.027 (0.038)	0.037 (0.030)
Croatia	0.15 (0.027)	0.12 (0.040)	0.11 (0.057)	0.10 (0.035)	0.0016 (0.043)	0.046 (0.039)	0.024 (0.029)
Yugoslavia	0.17 (0.026)	0.13 (0.039)	0.19 (0.053)	0.094 (0.033)	0.070 (0.037)	0.0015 (0.039)	0.015 (0.029)
Age:							
30 Years Old	0.012 (0.0057)	0.00017 (0.028)	0.0027 (0.039)	-0.040 (0.028)	0.0035 (0.024)	0.045 (0.030)	-0.012 (0.018)
41 Years Old	-0.011 (0.0067)	0.015 (0.023)	0.013 (0.040)	0.018 (0.037)	0.11 (0.073)	0.059 (0.019)	0.028 (0.019)
55 Years Old	0.0087 (0.0077)	0.0026 (0.025)	0.059 (0.045)	0.024 (0.031)	0.039 (0.035)	0.046 (0.020)	0.062 (0.019)
Years Since Arrival:							
20 Years	-0.0018 (0.0057)	-0.0034 (0.028)	-0.047 (0.029)	-0.028 (0.038)	-0.16 (0.037)	-0.061 (0.024)	-0.088 (0.016)
29 Years	0.0090 (0.012)	-0.071 (0.024)	-0.12 (0.029)	-0.089 (0.040)	-0.14 (0.065)	-0.11 (0.031)	-0.15 (0.018)
Born in Switzerland	-0.0074 (0.012)	-0.098 (0.026)	-0.22 (0.037)	-0.16 (0.034)	-0.19 (0.058)	-0.083 (0.028)	-0.29 (0.017)
Education:							
Middle	-0.0091 (0.0074)	-0.022 (0.028)	-0.095 (0.023)	-0.048 (0.024)	-0.039 (0.023)	-0.028 (0.021)	-0.12 (0.015)
High	-0.032 (0.012)	-0.071 (0.026)	-0.056 (0.032)	-0.023 (0.023)	-0.030 (0.032)	-0.015 (0.018)	-0.17 (0.016)
Integration Status:							
Assimilated	-0.035 (0.023)	0.036 (0.021)	0.073 (0.033)	0.042 (0.020)	0.043 (0.024)	0.037 (0.022)	0.020 (0.017)
Indistinguishable	-0.036 (0.014)	-0.035 (0.020)	-0.035 (0.031)	0.038 (0.021)	0.00032 (0.028)	-0.043 (0.016)	-0.092 (0.017)
Integrated	0.0016 (0.010)	0.027 (0.025)	0.0028 (0.029)	-0.00034 (0.016)	0.0090 (0.025)	0.0079 (0.021)	-0.048 (0.017)
German Proficiency:							
Good	0.0088 (0.025)	-0.042 (0.023)	-0.035 (0.031)	0.015 (0.023)	0.017 (0.028)	0.017 (0.033)	-0.087 (0.017)
Perfect	-0.015 (0.025)	-0.089 (0.022)	-0.13 (0.045)	-0.030 (0.020)	-0.029 (0.022)	-0.033 (0.022)	-0.20 (0.016)
Constant	0.37 (0.049)	0.57 (0.058)	0.24 (0.071)	0.21 (0.046)	0.22 (0.066)	0.15 (0.046)	0.82 (0.030)
Observations	1503	3938	3910	4274	2005	2173	6520

Ordinary least squares regression coefficients shown, with robust clustered standard errors in parentheses. Model 1 is based on the actual naturalization referendums. Models 2-6 are based on our main survey and focus on the subsample of voters that is reweighted to match the margins of the Swiss post-referendum study VOX. Model 7 is based on the survey of the student sample. The reference categories for the various contrasts are: Gender: Female, Origin: Netherlands, Age: 21 Years, Years since Arrival: 14 Years, Education: Low, Integration Status: Traditions, German Proficiency: Adequate.

Figure S9: Effects of Applicant Attributes on Opposition to Naturalization Request (Un-weighted Survey Sample)

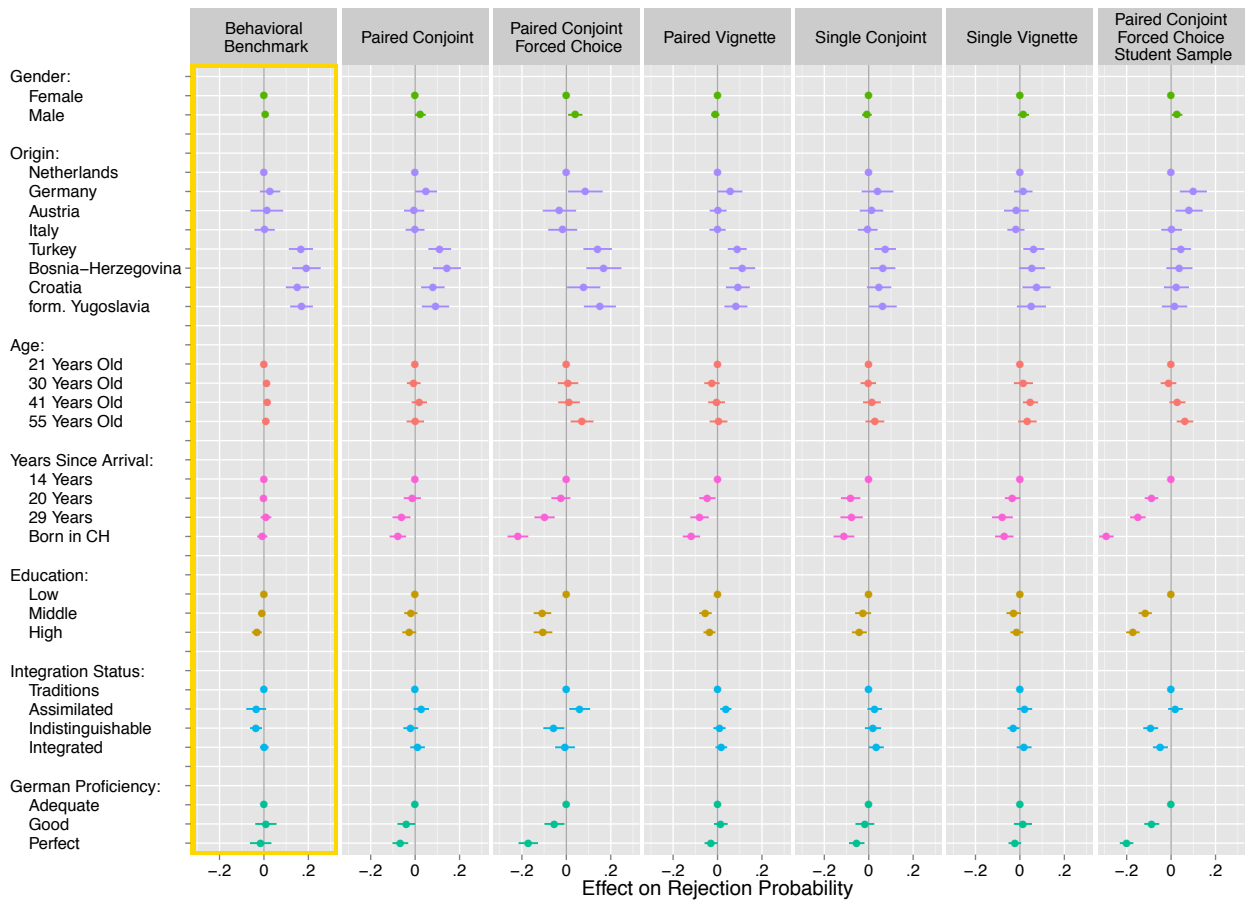


Figure shows point estimates (dots) and corresponding, cluster-robust 95 % confidence intervals (horizontal lines) from ordinary least squares regressions. The dots on the zero line without confidence intervals denote the reference category for each applicant attribute. Model 1 is based on the actual naturalization referendums. Models 2-6 are based on our main survey and focus on the unweighted subsample of voters. Model 7 is based on the survey of the student sample.

Figure S10: Effects of Applicant Attributes on Opposition to Naturalization Request (Aggregated Origin Groups)

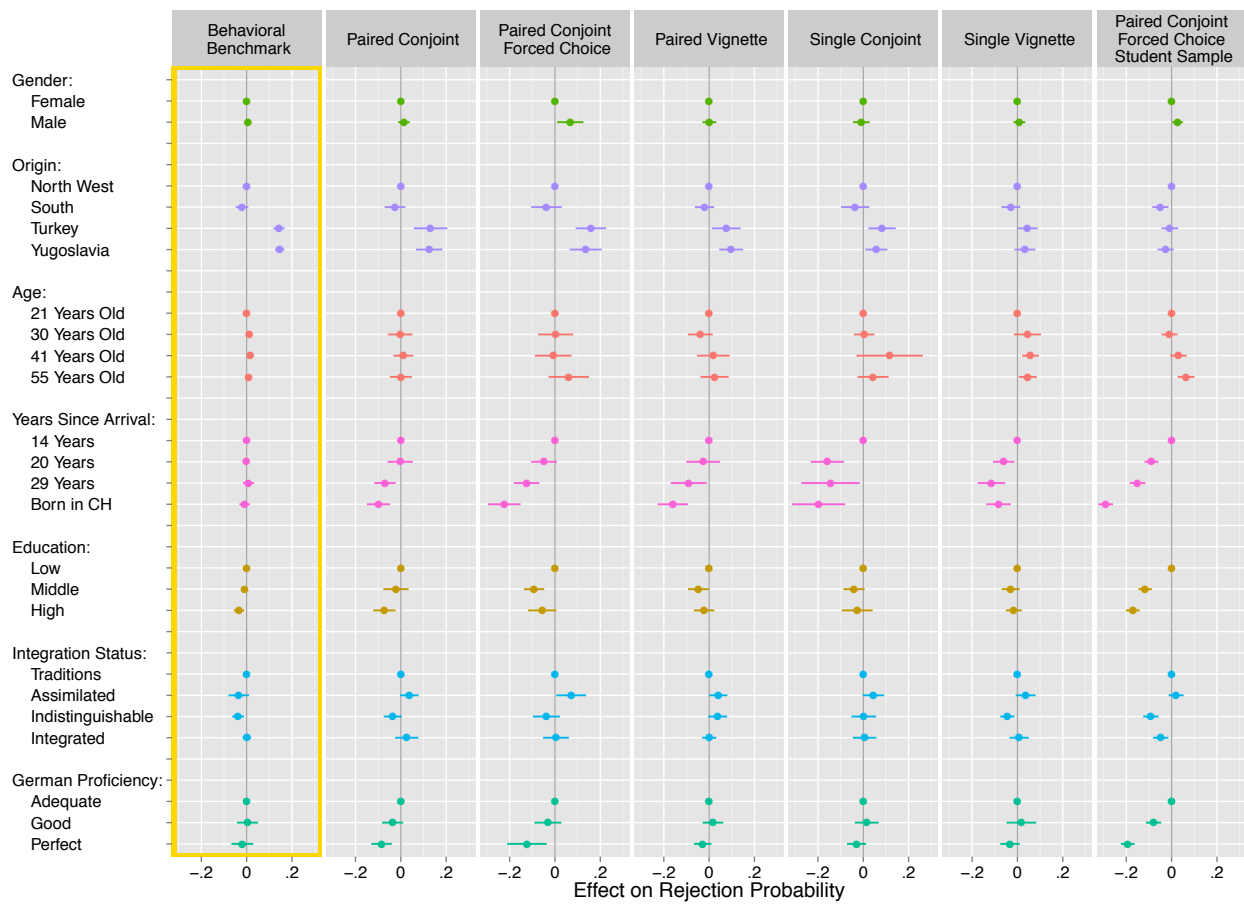


Figure shows point estimates (dots) and corresponding, cluster-robust 95 % confidence intervals (horizontal lines) from ordinary least squares regressions. The dots on the zero line without confidence intervals denote the reference category for each applicant attribute. Model 1 is based on the actual naturalization referendums. Models 2-6 are based on our main survey and focus on the weighted subsample of voters. Model 7 is based on the survey of the student sample.

Table S4: Differences in Effects of Applicant Attributes: Survey versus Behavioral Estimates (Aggregated Origin Groups)

Design:	Absolute Differences			Sig. Diffs		Joint	Cor(Y, \hat{Y})	Cor(\hat{Y}_b, \hat{Y}_s)
	mean	median	max	raw	adj	F-test		
Paired Conjoint	0.02	0.01	0.09	4/17	1/17	2.29	0.47	0.80
Paired Conjoint, FC	0.04	0.02	0.21	6/17	3/17	11.88	0.37	0.64
Paired Vignette	0.03	0.01	0.15	4/17	2/17	3.76	0.34	0.59
Single Conjoint	0.04	0.01	0.19	5/17	3/17	4.96	0.28	0.47
Single Vignette	0.03	0.01	0.12	7/17	3/17	3.94	0.28	0.49
Paired Conjoint, FC (Students)	0.07	0.05	0.28	12/17	8/17	31.15	0.17	0.30
Behavioral							0.58	

Table reports measures of performance for each survey design based on the weighted sample of voters based on the aggregated origin groups. Column 1–3 display the mean, median, and maximum of the absolute differences from the behavioral benchmark across the 21 attribute effects. Column 4 shows the total number of differences from the benchmark estimates that are statistically different from zero at the .05 significance level. Column 5 presents the same metric but with the Bonferroni correction. Column 6 presents an F -statistic for the hypothesis test against the joint null of no difference between the effects in the behavioral benchmark and each survey design. Column 8 presents the bivariate correlation between observed shares of rejection votes and the predicted rejection probabilities. Column 9 presents the bivariate correlation between the predicted rejection probabilities based on the survey estimates and the fitted rejection rates in the behavioral regression. See main text for further details on the procedure used to generate columns 8 and 9.

Table S5: Estimated Average Rejection Rate for the Applicants with Naturalization Referendums

	Estimated Average Rejection Rate
Behavioral Benchmark	.37
Paired Conjoint	.21
Paired Conjoint Forced	.49
Paired Vignette	.17
Single Conjoint	.12
Single Vignette	.10
Paired Conjoint Forced Students	.47

Table shows the estimated average rejection rate for the applicants with naturalization referendums. For the behavioral benchmark the rejection rate is simply the average proportion voting “no” in the referendum sample. For each survey condition we predict the rejection probability for the applicants in the referendum sample by taking their characteristics and multiplying them with the coefficients estimated from the survey respondents and then take the average of these predicted values. For observations with missing attribute information in the behavioral data, we impute missing values with their observed mean levels.

S7 Survey Engagement

This section analyses the differences in respondents' survey engagement across the different designs and thereby offers at least suggestive evidence that one causal pathway that explains why the paired designs produce better estimate of attribute effects than the single profile design, runs through survey engagement. Figure S11 shows that respondents in the paired and single profile conditions perceived no significant difference in the length of the survey, even though the actual response time was almost 50 % longer. Median response time used to complete the 10 decision tasks was 255 seconds for the *paired profile conjoint*, 284 seconds for the *forced choice conjoint*, 262 seconds for the *paired profile vignette*, 176 seconds for the *single profile vignette*, and 186 seconds for the *single profile conjoint*.

Figure S12 shows that respondents in the single profile conditions perceived the survey to be slightly more “complicated” despite the fact that the latter evaluated twice as many applicant profiles.

Figure S11: Perceived Survey Length Across Survey Designs

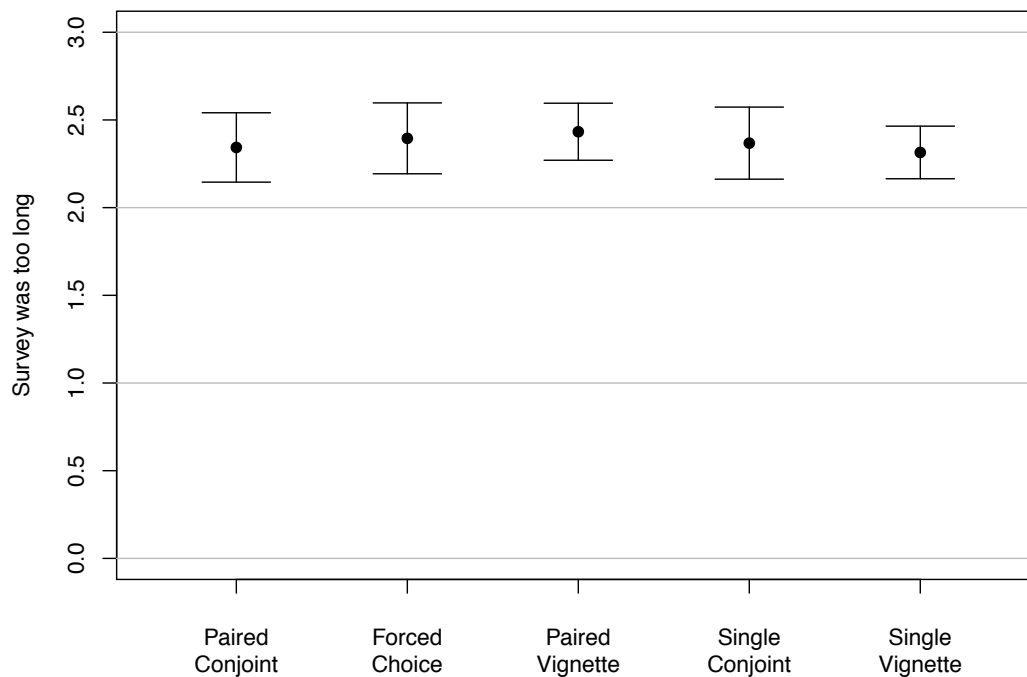


Figure shows estimated means and corresponding 95 % confidence intervals for perceived of survey length. At the end of the survey, respondents were asked if they agree that the survey was too long (4: completely agree, 3: agree, 2: neither, 1: disagree, 0: completely disagree)

Figure S12: Perceived Survey Difficulty Across Survey Designs

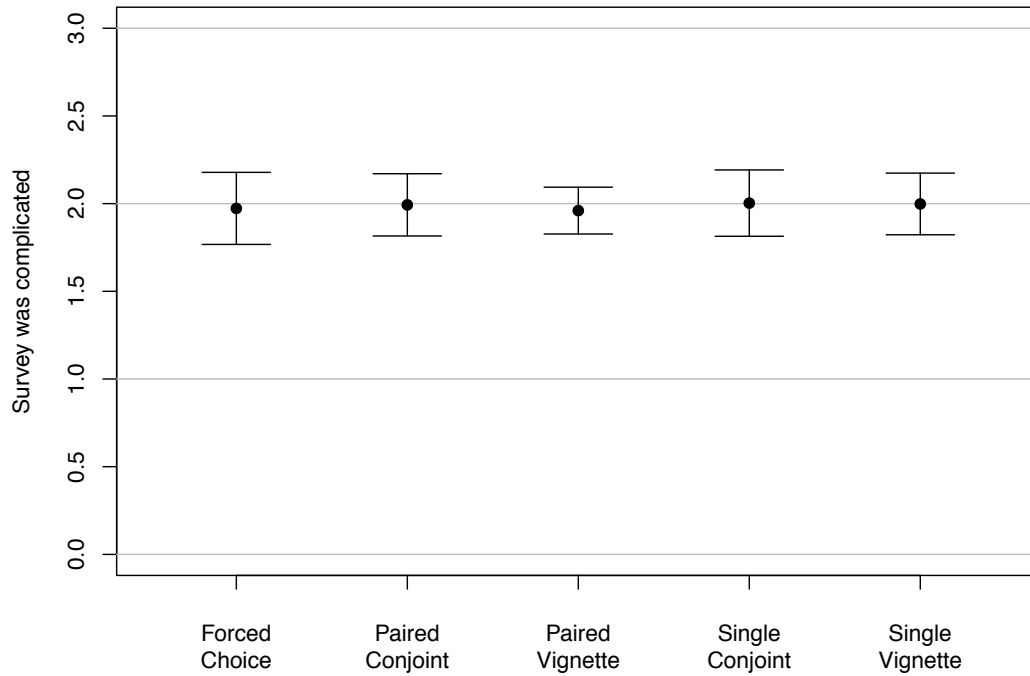


Figure shows estimated means and corresponding 95 % confidence intervals for perceived survey difficulty. At the end of the survey, respondents were asked if they agree that the survey was “complicated” (4: completely agree, 3: agree, 2: neither, 1: disagree, 0: completely disagree)

References

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