**Supplementary Information**

“Language Heightens the Political Salience of Ethnic Divisions”

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This Supplementary Information (SI) file contains the following information:

* SI.1: Background and data on Estonia’s Russian-speaking minority.
* SI.2: Information on the administration of our surveys, identification of bilinguals, sample characteristics, and randomization and balance checks.
* SI.3: Full item wording for our dependent variables in Studies 1 and 2 and notes on item design.
* SI.4: Raw regression output for the analyses reported in the paper.
* SI.5-SI.7: Additional analyses with data from Studies 1 and 2, including an overview of generational differences among our bilingual respondents (SI.5), an examination of ideological and educational differences among them (SI.6), a provisional exploration of possible heterogeneous treatment effects by preferred interview language (SI.7).

**SI.1: Background and Data on Estonia’s Russian-Speaking Minority**

While the Estonian people have lived along the Baltic coast for more than 1,500 years, Estonia only gained its independence in 1918. Before that, and starting with the Northern Crusades, Estonia was a battleground where Denmark, Germany, Poland, Sweden, and Russia fought wars and claimed parts or all of Estonia’s territory at varied times. Still, ethnic Estonians have generally been Estonia’s largest ethnic group. Even in the late 1800s, when Estonia was still part of the Russian Empire, 90.5% of the population in Estonian territory was Estonian, 3.9% Russian, and 3.5% German. In 1922, these shares were 87.6, 8.2, and 1.7, respectively. The share of Russians did increase slightly when Estonia gained Russian territory after a successful war of independence. But as Table SI.1.1 below reveals, the largest influx of ethnic Russians occurred after the Soviet occupation in 1940.

**Table SI.1.1 Ethnic composition of the Estonian population over time**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Census** | | | | | | |
|  | **1897** | **1922** | **1934** | **1959** | **1970** | **1979** | **1989** |
| Estonians | 90.5 | 87.6 | 88.1 | 74.6 | 68.2 | 64.7 | 61.5 |
| Russians | 3.9 | 8.2 | 8.2 | 20.1 | 24.7 | 27.9 | 30.3 |
| Germans | 3.5 | 1.7 | 1.5 | 0.1 | 0.6 | 0.3 | 0.2 |

*Note*: The table entries report the population share of the three historically largest ethnic groups in the Estonian territory: Estonians, Germans, and Russians. Sources: 1897 census: Первая Всеобщая перепись населения Российской Империи 1897 г. Таблица XIII. Распределение населения по родному языку. Т.Т.1-50. С.-Петербург: 1903-1905. All other censuses: Statistics Estonia.

Since Soviet withdrawal from Estonia in 1991, Estonians and Russians have struggled to build an integrated society, although relations between them are not violent (Laitin 1998). Soviet rule positioned Russian as Estonia’s dominant tongue. After Soviet occupation, Estonians downgraded Russian to a minority language (Darden and Grzymala-Busse 2006). Many Estonians therefore view Estonian Russians as unwelcome, with declaration of Estonian as the official language and adoption of restrictive citizenship further marginalizing this minority. Nonetheless, schooling and news programming in Estonia are widely available in Russian. Hence, Estonia’s language politics resemble those in nations where minority tongues are held in lower regard due to past occupation, colonization, and/or conflict (Horowitz 1985).

**SI.2: Information on the Surveys and Auxiliary Analyses**

Our studies were administered via telephone by TNS Emor, a leading Estonian survey firm with extensive experience conducting survey research for public and private sector clients, including the Eurobarometer Survey (since 2004). Study 1 ran from March 22 to April 10, 2016 (N = 262), while Study 2 ran from May 26 to June 12, 2014 (N = 1,200). Study 1’s smaller sample is due to resource constraints. As such, it comes with a reduction in statistical power, from Study 2’s 0.90 to a more modest 0.60. This reduction increases the odds of failing to reject the null hypothesis when it is false, from 1 in 10 times (Study 2) to 2 in 5 times (Study 1), which works against finding meaningful effects in our first study.

Both studies’ universe includes Estonian residents, ages 18-74, who live in private households and can speak Estonian and Russian. The sampling frame for our surveys consisted of randomly drawn landline and mobile phone numbers in Estonia.

**Bilinguals in Estonia**

Estonia’s current official language is Estonian. Yet the country was part of the USSR until 1991, which made Russian a prominent tongue, with most Estonian speakers acquiring at least working knowledge of Russian and many becoming proficient. Large-scale immigration of Russians before 1991 also created a sizeable Russian-speaking population that acquired proficiency in Estonian. Integration programs, inter-marriages, and schools offering general education (equivalent to K-12) in either Estonian or Russian further increased this bilingual population.

Because we used self-reports of language skills to identify bilinguals, one might be concerned that respondents in our study over-report their fluency in a second language, which would mean that our sample is not truly bilingual. There are two reasons why over-reporting fluency in a second language is unlikely to be a problem. First, based on their extensive experience with the Estonian social context, survey firm representatives suggested that, if anything, respondents are likely to under-report their fluency in a second language. Second, we would have expected over-confident respondents to drop the interview at the language manipulation stage, i.e., when it was clear that they may have to demonstrate fluency in their second language. No respondent dropped the interview at that stage. Any remaining over-/under-reporting of fluency would only serve to increase the amount of measurement error in participants’ survey responses, making it harder to find any language effects.

**Translation and interviewer protocols**

Our treatments and survey items were designed in (or adapted from) English by both authors and translated into Estonian by one author. This Estonian instrument was then verified by TNS Emor and translated by them into Russian. Throughout this process, we avoided creating translations that were exact in length, word for word. This strategy can yield translations with different and grammatically incorrect meanings, thus rendering any language comparisons useless. Instead, we prioritized the development of translated questions that meant the same thing to different language speakers (i.e., functional equivalence), since detecting real opinion differences assumes that people share the same notion of what is being asked (Pérez 2009).

Live bilingual interviewers conducted our phone survey via CATI (i.e., computer-assisted telephone interviewing). All our interviewers were first language Estonian speakers and completely fluent in both languages. This allows us to hold any effect of interviewer ethnicity constant across respondents. Less importantly for the current study: all our interviewers were also women. Our choice to keep key interviewer demographics constant was partially determined by the pool of interviewers that the survey firm had available: of the bilingual interviewers that the survey firm employed, only 10% were first language Russian speakers and only five were men. Given such a skewed distribution on the key demographics, we decided to keep these demographics entirely constant among our interviewers.

**Identification of bilinguals and language assignment**

TNS Emor identified eligible bilinguals with two items measuring self-rated skill in Estonian and Russian, respectively. After first indicating their native language, potential respondents were asked about their fluency in it on a 5-point scale: (1) Do not know the language at all; (2) Can understand a little, but cannot speak; (3) Can understand and can speak a little; (4) Can understand, speak, and write; and (5) Fluent. The same question was also asked of their second language. Bilingual respondents who answered “4” or “5” on both of these items were randomly assigned to interview in Estonian or Russian.

We designed our language manipulation to set a distinct linguistic milieu by informing bilinguals that all subsequent instructions and questions would be in their assigned tongue.[[1]](#footnote-1) Specifically, in Study 2, our language treatment was worded as follows:

“Based on your answers to some of the previous questions, it appears that you are fluent in both Estonian and Russian. Therefore, we will let the computer program randomly select which language we continue this interview in [SHORT PAUSE].

[*Estonian/Russian*] was selected. This means that after this point, the rest of the interview will take place in [*Estonian/Russian*]. This is not a language test. We are simply interested in your opinions as an [*Estonian/Russian*] speaker.”

In Study 1, the treatment followed the same interviewer script as above, except it omitted the last sentence.

**Bilingual Samples Compared to the Estonian Sample of the World Values Survey**

Before proceeding with randomization and balance tests, we benchmark our bilinguals to respondents in the Estonian sample of the latest wave of the World Values Survey (WVS), which was gathered from 2010-2014 and is closest to our fielding of Study 2.

By design, our respondents are a subset (but not a random sample) of bilingual Estonian adults. Thus, we expect our bilinguals to differ somewhat from average Estonian respondents in the WVS. Table SI.2.1 below compares our bilinguals from each experiment to WVS respondents in terms of: (1) the proportion of females, (2) average age, (3) average education level, and (4) average ideological self-placement (only in Study 2). We find reliable but modest differences between these samples. For example, while there is no reliable difference in the proportion of females in Study 1 and the WVS, Study 2 contains slightly more females than the WVS. Further, while bilinguals in Study 1 and 2 are slightly younger than WVS respondents, the median age hovers in the middle-age range in all three samples. Finally, while ideological gaps emerge between all three studies, the mean ideological score in all samples is in the right-of-center range.

These differences are unproblematic for our purposes since we are interested in estimating the causal effect of our language manipulation (e.g., Druckman and Kam 2011; Franco, Malhotra, Simonovits, and Zigerell 2017; Miratrix, Sehkon, Theodoridis, and Campos 2018). For estimating our sample average treatment effect (SATE), it is essential that interview language is effectively randomized, which we provide evidence for in the next section of the SI.

**Table SI.2.1: Bilingual Samples to Estonian Sample From World Values Survey (Wave 6)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **WVS Estonia** | **Study 1** | **Study 2** | **Difference (SE):**  **Study 1 vs. WVS** | **Difference (SE):**  **Study 2 vs. WVS** |
| Female  (proportion) | 0.55 | 0.53 | 0.61 | -0.02  (0.03) | 0.05\*  (0.02) |
| Age  (mean) | 48.57 | 54.01 | 50.64 | -5.44\*  (1.19) | 2.07\*  (0.64) |
| Education  (mean) | 3.34 | 3.69 | 3.76 | 0.35\*  (0.07) | 0.42\*  (0.04) |
| Ideology  (mean) | 5.39 |  | 5.65 |  | 0.26\*  (0.09) |

*Note:* The WVS records education levels using categories that are finer-grained than those in our studies. We merged some of the WVS categories to yield broadly comparable scales. Using WVS variable X025, we recoded its categories as follows: (a) “inadequately completed elementary education” (keyed as “1”) and “completed elementary education” (keyed as “2”) were reclassified as “1” to match our “elementary education” category; (b) “incomplete secondary school: vocational” (keyed as “3”) and “incomplete secondary: university-prep” (keyed as “5”) were reclassified as “2” to match our “primary school education” (i.e., completed pre-secondary school education) category; (c) “complete secondary school: vocational” (keyed as “4”) and “complete secondary: university-prep.” (keyed as “6”) were recoded as “3” to match our “secondary and vocational education” category; (d) “some university without degree” (keyed as “7”) was recoded as “4” to match our “incomplete university education” category; (e) “university with degree” (keyed as “8”) was recoded as “5” to match our “complete university” category. Ideology is on a continuous scale from 0-most left-wing to 10- most right-wing. \**p*<0.05

**Study 1: Sample, randomization, and balance**

In Study 1, 38% of our sample consisted of bilinguals whose first language is Russian. Fifty-eight percent (58%) of bilinguals reported Estonian as their first language, while 4% indicated that Russian and Estonian were both first languages. In order to conserve space, we did not query respondents about how old they were when they learned each of their languages. Finally, fifty-three percent (53%) of our respondents are female, with a median age of 55. Forty percent (40%) reported “some college” or higher in terms of education. Pre-treatment covariates (respondents’ age, education level, gender, first language learned, and preferred language of interview) are generally balanced across both experimental conditions (Table SI.2.2). Table SI.2.3 uses these covariates to predict our respondent’s assignment to interview in Estonian or Russian. A Wald test shows we cannot reject the null that these covariates are simultaneously equal to zero (χ2 = 5.07, Prob χ2 (5) > 5.07 = 0.41), which is consistent with the random assignment of interview language.

**Table SI.2.2. Study 1 Distributions of Pre-Treatment Covariates (Balance Check)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Estonian interview** | **Russian interview** | **Chi-square test** | **Wilcoxon-Mann-Whitney test** |
| Education (percent) | 41% | 40% | χ2 (1)= 0.017, *p* < 0.897 | --- |
| Female (percent) | 53% | 54% | χ2 (1)= 0.060, *p* < 0.806 | --- |
| Age (median) | 54 | 57 | --- | z = 1.968,  Prob > |z| = 0.049 |
| Russian first (percent) | 39% | 37% | χ2 (1)= 0.090, *p* < 0.764 | --- |
| Prefer Russian (percent) | 31% | 32% | χ2 (1)= 0.007, *p* < 0.935 | --- |

*Note: S*tatistical tests performed reflect the nature of the covariates under analysis (e.g., dichotomous versus interval). All significance tests are two-tailed.

**Table SI.2.3. Study 1 Randomization Check: Language Manipulation is Unrelated to Pre-Treatment Covariates**

|  |  |
| --- | --- |
|  | **Estonian Interview (=1)** |
| Education | -0.033  (0.165) |
| Female | -0.024  (0.160) |
| Age | -0.013  (0.006) |
| Russian first | 0.149  (0.276) |
| Prefer Russian | -0.209  (0.292) |
| Constant | 0.606  (0.376) |
| N | 262 |

*Note:* Labels in left-most column denote names of all pre-treatment covariates collected for Study 1. Entries are probit coefficients with standard errors in parentheses. An omnibus Wald test shows that one cannot reject the null that the covariates in Table SI.2.3 are simultaneously equal to zero, i.e., unassociated with the language manipulation (χ2 = 5.07, Prob χ2 (5) > 5.07 = 0.41, two-tailed).

The range and units of the covariates are as follows:

*- Education* is a dichotomous variable where ‘1’ indicates R completed some college or higher and ‘0’ indicates R completed secondary school or less.

*- Female* is a dummy variable where males are the omitted category.

*- Age* in years.

*- Russian first* indicates bilingual R learned Russian first.

*- Prefer Russian* indicates bilingual R prefers to interview in Russian.

**Study 2: Sample, randomization, and balance**

In Study 2, 38% of our sample consists of bilinguals whose first language is Russian, and who, on average, learned Estonian at the age of fifteen. In turn, those bilinguals in our sample (62%) whose first language is Estonian learned Russian, on average, at the age of fourteen. Finally, sixty-one percent (61%) of our respondents are female, with a median age of 52 and secondary level of education. Pre-treatment covariates (respondents’ age, education level, gender, ideology, first language learned, and preferred language of interview) are generally balanced across both experimental conditions (Table SI.2.4). Table SI.2.5 uses these covariates to predict our respondent’s assignment to interview in Estonian or Russian. A Wald test shows we cannot reject the null that these covariates are simultaneously equal to zero (χ2 = 8.50, Prob χ2 (8) > 8.50 = 0.39), which is consistent with the random assignment of interview language.

**Table SI.2.4. Study 2 Distributions of Pre-Treatment Covariates (Balance Check)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Estonian interview** | **Russian interview** | **Chi-square test** | **Wilcoxon-Mann-Whitney test** |
| Education (median) | 3 | 3 | --- | z = 0.029,  Prob >|z| = 0.977 |
| Female (percent) | 59% | 63% | χ2 (1)= 2.660  *p* < 0.103 | --- |
| Age (median) | 50 | 53 | --- | z = 1.981,  Prob > |z| = 0.048 |
| Left (percent) | 10% | 11% | χ2 (1)= 0.641  *p* < 0.423 | --- |
| Right (percent) | 24% | 24% | χ2 (1)= 0.065  *p* < 0.799 | --- |
| Center (percent) | 26% | 27% | χ2 (1)= 0.176  *p* < 0.675 | --- |
| Russian first (percent) | 38% | 38% | χ2 (1)= 0.084  *p* < 0.772 | --- |
| Prefer Russian (percent) | 31% | 31% | χ2 (1)= 0.024,  *p* < 0.876 | --- |

*Note:* Statistical tests performed reflect the nature of the covariates under analysis (e.g., dichotomous versus interval). All significance tests are two-tailed.

**Table SI.2.5. Study 2 Randomization Check: Language Manipulation is Unrelated to Pre-Treatment Covariates**

|  |  |
| --- | --- |
|  | **Estonian Interview (=1)** |
| Education | 0.006  (0.037) |
| Female | -0.115  (0.076) |
| Age | -0.005  (0.003) |
| Left | -0.145  (0.126) |
| Right | -0.095  (0.100) |
| Center | -0.087  (0.092) |
| Russian first | 0.049  (0.121) |
| Prefer Russian | -0.082  (0.124) |
| Constant | 0.397  (0.214) |
| N | 1,200 |

*Note:* Entries are probit coefficients with standard errors in parentheses. An omnibus Wald test shows that one cannot reject the null that the covariates in Table SI.2.5 are simultaneously equal to zero, i.e., unassociated with the language manipulation (χ2 = 8.50, Prob χ2 (8) > 8.50 = 0.39).

The range and units of the covariates are as follows:

*- Education* runs from 1-Elementary to 5-University in single units.

*- Female* is a dummy variable where males are the omitted category.

*- Age* in years.

*- Left*, *Right*, and *Center* are dummy variables with “don’t knows” and “refusals” as the omitted category. *Left* indicates R placed themselves on the left side of a 10-point left-right ideology scale, while *Right* indicates R placed themselves on the right side of that same scale. *Center* indicates R placed themselves at the midpoint of this ideology scale.

*- Russian first* indicates bilingual R learned Russian first.

*- Prefer Russian* indicates bilingual R prefers to interview in Russian.

**Table SI.2.6. Language Increases the Salience of Ethnic Divisions (Key Covariates Included)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Model 1:**  **Importance of**  **integration**  **(ordered logit)** | **Model 2:**  **Importance of integration**  **(ordered logit)** | **Model 3:**  **Nationalist**  **(logit)** | **Model 4:**  **Nationalist**  **(logit)** |
| Assigned Russian  Interview | 0.417\*\*  (0.235) | 0.398\*\*  (0.236) | 0.499\*\*\*  (0.119) | 0.534\*\*\*  (0.122) |
| Prefer Russian interview | --- | -0.040  (0.258) | --- | -1.087\*\*\*  (0.143) |
| Age | --- | 0.008  (0.009) | --- | -0.003  (0.004) |
| N | 262 | 262 | 1,200 | 1,200 |

*Note*: Entries are logit or ordered logit coefficients with standard errors in parentheses. Dependent variables are indicated in column headings. \*\*\* *p*<0.01, \*\**p*<0.05, one-tailed.

**Table SI.2.7. Re-analysis of Treatment Effects with Mismatched Interview as a Covariate**

|  |  |  |
| --- | --- | --- |
|  | **Model 1:**  **Importance of integration**  **(ordered logit)** | **Model 2:**  **Nationalist**  **(logit)** |
| Assigned Russian interview | 0.345\*  (0.254) | 0.785\*\*\*  (0.133) |
| Mismatched interview | 0.183  (0.252) | -0.718\*\*\*  (0.133) |
| N | 262 | 1,200 |

*Note*: Entries are logit or ordered logit coefficients with standard errors in parentheses. Dependent variables are indicated in column headings. *Mismatched interview* is a dummy variable, with 0 indicating respondents whose assigned interview language *matched* their preferred interview language, and 1 indicating respondents whose assigned interview tongue *did not match* their preferred interview tongue.

\*\*\* *p*<0.01, \*\**p*<0.05, \**p*<.10, one-tailed.

The preceding table reveals that entering *Mismatched interview* as a covariate leaves unchanged our inferences about assigned interview language, i.e., assigned interview language still heightens the salience of ethnic divisions across both dependent variables. In the case of model 1, the results privilege a simpler model that omits *Mismatched interview*, since this covariate is positively, but unreliably, associated with the outcome *Importance of integration*. In the case of model 2, the covariance between *Mismatched interview* and our *Nationalist* outcome is negative and reliable, yet *Assigned Russian interview* still has a positive and significant effect on this dependent variable. This latter pattern suggests that while *Mismatched interview* explains some variance in *Nationalist* outcome, *Assigned Russian interview* continues to exercise unique causal leverage.

**SI.3: Question Wording and Notes on Item Design**

**Study 1**

**Variable *Importance of integration***

Next, I am going to read you a list of issues. After reading this list, please rank these issues from the “most important problem facing Estonia today” to the “least important problem facing Estonia.” The issues are:

[RANDOMIZE RESPONSE OPTIONS]

1) Performance of the economy

2) Immigrant and refugee policy

3) Integration of the Russian-speaking population

4) Unemployment

a. Which of these issues do you think is the “most important problem facing Estonia today?”

b. Which issue would you rank as the 2nd most important issue after [INSERT ISSUE NAMED IN ‘A’]

c. Which issue you rank as the 3nd most important issue after [INSERT ISSUE NAMED IN ‘B’]

[MARK THE REMAINING ISSUE AS THE LEAST IMPORTANT]

**Notes on design of *Importance of Integration***

One concern about this item is that broaching the “integration of Russian-speakers” creates an artificial correlation between this issue and interviewing in Russian. We think this is unlikely because respondents must rank four randomly presented issues, which minimizes order effects. Moreover, respondents must consider four issues, three of which are unrelated to Estonia’s main ethnic divide, thus further stacking the deck against our issue of interest. Ultimately, if the language-opinion connection we anticipate is really driven by our accessibility mechanism, then a comparable result should emerge on a different dependent variable that is structured differently than this one (i.e., the *Nationalist* variable in Study 2).

In designing the *Importance of Integration* item, our attempt was to use an inclusive frame rather than an Estonian or Russian frame for the ethnic relations issue. To this end, we drew on government reports and studies commissioned by the Ministry of Culture to find an appropriate frame. We believe the phrasing we use provides an inclusive frame for how the topic of ethnic relations was discussed and understood in Estonia at the time of our surveys. Consider the most recent study of integration in Estonia commissioned by the Ministry of Culture (Kallas et al. 2015), which identifies three main dimensions in Estonia’s integration policy: (1) acquisition of citizenship, (2) improved language skills, (3) increased social and political participation. Given this broad definition of “integration,” the item phrasing we use allows for a flexible and comprehensive frame of reference, which lets us gauge the broad salience of minority integration to respondents, give or take some measurement error.

Furthermore, note that this frame of reference does not imply that integration is only the responsibility of Russians. The three dimensions of integration listed above can be interpreted either as Russians needing to do more (for example, to acquire citizenship or increase their political activism) or Estonians needing to provide more (e.g., make citizenship more easily attainable, language instruction better available, etc.). In fact, an important part of how (a) the above-mentioned study, (b) government integration policy, and (c) Estonian and Russian politicians across different parties (Mahlakõiv 2012) define and measure integration success includes expectations of positive attitudes and openness of Estonians to welcoming Russians into their communities (Kallas et al. 2015).

Research on Estonian and Russian language print media further suggests that both ethnic communities have developed a comparable understanding of the meaning and need for integration. More specifically, in 2001, the Integration and Migration Foundation commissioned a report from the University of Tartu on the coverage of the integration issue in Russian and Estonian language print media in the calendar year of 2000 (Kõuts 2001). According to this report, print media in both languages:

(a) positively covered government projects geared toward helping the Russian-speaking population integrate into the Estonian society;

(b) similarly defined the meaning of integration as including both improved tolerance of the Russian-speaking population among Estonians and willingness of that population to adapt culturally, linguistically and politically to the Estonian society;

(c) supported to the same extent a simplification of the citizenship process (with Estonians seeing this as a primary tool to increase the loyalty of the Russian-speaking population to the Estonian state); and

(d) shared a common understanding of the need for Russian-language speakers to acquire working knowledge of Estonian.

The report also argued that these commonalities in viewing the integration issue across the two sets of print media have increased over time, and made specific comparisons of similar coverage in the previous calendar year.

In sum, while it is the case that in the early-to-mid 90s Estonians and Russians had very different views of integration and ethnic relations were a source of political tensions, by the early 2000s, and certainly by the time our studies were fielded in 2014 and 2016, both communities have developed a similar understanding of the meaning and need for integration and see members of both communities as being responsible for successful integration of the Russian-speaking minority (Kruusvall 2000; Pettai 2000).

**Study 2**

**Variable *Nationalist***

In general, thinking about the political parties in Riigikogu, which of the following parties is the most nationalist?

1. Reform Party
2. Center Party
3. Union of Pro Patria and Res Publica
4. DK

**Notes on design of *Nationalist***

Political knowledge is often gauged via closed- or open-ended questions, each with tradeoffs. Open-ended items capture knowledge as stored in memory, but complicate the coding of responses because many people report incomplete answers (Gibson and Caldeira 2009). Closed-ended questions simplify knowledge reports by offering people response options, but induce some lucky guesses of correct answers (Luskin and Bullock 2011). Since both tradeoffs introduce error, we chose to minimize subjective coding of responses via our closed-ended item. Still, we note that both item types reliably gauge knowledge *despite* some measurement error.

One might also be concerned about the translation of this item because the notion of “nationalism” as we know it from the Anglo-Saxon tradition sounds very different in many Slavic languages. As we explain in SI.2 (p. 2), we designed the questionnaire in English and one of the authors translated it to Estonian. This author is a native Estonian speaker who grew up in Estonia, i.e., they have the necessary language skills and cultural/historical knowledge to produce conceptually accurate translations. The survey firm TNS Emor further verified our translation to Estonian and used the Estonian questionnaire to produce an equivalent questionnaire in Russian. Their Russian language translator was a native Russian language speaker, who grew up in Estonia, and who has a university degree in Russian language and literature. The Russian language questionnaire was then independently verified by the Estonian-speaking co-author (who also speaks Russian) and by a research assistant who is a native Russian speaker. As for the specific question about “the most nationalist party,” we translated “nationalist” using the word, in each language, that is commonly used to describe the ideology of that party (i.e., Union of Pro Patria and Res Publica).

It is worth adding that the status of Union of Pro Patria and Res Publica (IRL) as the most nationalist party of the three is uncontroversial (see, e.g., Bustikova 2017; Polk et al. 2017; Tavits 2008). Bustikova (2017), for example, classifies IRL as a radical right-wing party on its nationalist stance alone. We can also consider the 2014 expert placement of Estonian parties (Polk et al. 2017): the experts rated all parties on several issues, including nationalism using an 11-point scale, where 0 = “Strongly promotes cosmopolitan rather than nationalist conceptions of society” and 10 = “Strongly promotes nationalist rather than cosmopolitan conceptions of society.” IRL received a score of 8.13 while the Reform Party’s score was only 5.38 (which is close to the average score of all parties in Estonia) and the Center Party’s score was 4.63. The IRL score is almost two standard deviations above the mean nationalism score for Estonian parties. Furthermore, the party defines itself by a nationalist-conservative worldview and is currently planning to change its name to Pro Patria because, as the party claims, this name would more precisely match their ideology of “positive nationalism, the aim of which is nothing less than to preserve and maintain the Estonian state, the people, the language and the culture.”[[2]](#footnote-2)

**SI.4. Full Regression Results for Model 1**

**Table SI.4.1: Full Results for Model 1 Presented in the Main Text**

|  |  |
| --- | --- |
|  | **Model 1** |
|  | **Importance of integration**  **(ordered logit)** |
| Russian | 0.417\*\*  (0.235) |
| Cut 1 | 0.111  (0.182) |
| Cut 2 | 1.506  (0.207) |
| Cut 3 | 2.801  (0.280) |
| N | 262 |

*Note*: Table entries are ordered logit coefficients with standard errors in parentheses. Dependent variable is indicated in the column heading. \*\**p*<0.05, one-tailed.

**SI.5. Generational Differences Among Bilingual Respondents**

We examine here whether generational differences exist among our respondents in both studies, and whether this generational variation undermines our treatment effects in both experiments. First, we start with descriptive statistics by age and first language learned. In Study 1, respondents who first learned Russian were older than those who first learned Estonian. Specifically, respondents who first learned Russian had a mean age of 56 years old, while those who learned Estonian first had a mean age of 51 years old: a 5 year difference that is statistically significant (*t*260 = 3.07, *p*<0.002, two-tailed).

In contrast, in Study 2, respondents who first learned Russian were younger than those who first learned Estonian. Specifically, respondents who first learned Russian had a mean age of 47 years old, while those who learned Estonian first had a mean age of 53 years old: a 6-year difference that is statistically meaningful (*t*1,198 = 7.47, *p*<0.001, two-tailed). This variation in age and first language learned across studies makes us more confident in the robustness of our main results.

Second, we consider possible generational differences among our respondents. In Estonia, the critical year is 1991, when Soviet occupation of that country formally ended. Thus, we created a dummy variable, *Adult post-1991*, indicating whether a respondent in each study was 18 years old or younger by 1991 (“1”) or not (“0”). This variable, then, distinguishes those respondents whose adulthood coincided with Estonian independence from those whose adulthood was lived during Soviet occupation. In Study 1, 30% of respondents came into young adulthood after Estonian independence. In Study 2, 23% is the comparable figure. We then enter *Adult post-1991* as a covariate in a re-analysis of our main results and examine the robustness of our original results. Table SI.5.1 below reveals that this generational break among our respondents is unrelated to each outcome, thus leaving our treatment effects fully intact.

**Table SI5.1. Treatment Effects are Robust to Generational Differences**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Model 1:**  **Importance of**  **integration**  **(ordered logit)** | **Model 2:**  **Importance of integration**  **(ordered logit)** | **Model 3:**  **Nationalist**  **(logit)** | **Model 4:**  **Nationalist**  **(logit)** |
| Assigned Russian  Interview | 0.417\*\*\*  (0.235) | 0.411\*\*  (0.235) | 0.499\*\*\*\*  (0.119) | 0.495\*\*\*  (0.119) |
| Adult  post-1991 | --- | -0.212  (0.283) | --- | -0.081  (0.131) |
| N | 262 | 262 | 1,200 | 1,200 |

*Note*: Entries are logit or ordered logit coefficients with standard errors in parentheses. Dependent variables are indicated in column headings. \*\*\* *p*<0.01, \*\**p*<0.05, one-tailed.

**SI.6. Ideological and Educational Differences Among Bilingual Respondents**

One potential concern about our result for the “nationalist party” knowledge question is that we failed to recruit enough bilinguals who (a) are highly nationalistic, and (b) learned Estonian first and Russian second. Hence, the gap in knowledge about Estonia’s nationalist party might actually be driven by the fact that our sample contains too few bilinguals who are more likely to know Estonia’s nationalist party.

One way to test this possibility is to examine the ideological distribution of our bilinguals in Study 2, which collected ideological self-reports pre-treatment. Of particular relevance here is the proportion of bilinguals who learned Estonian first/Russian second, and who classified themselves as right-of-center. That is, what proportion of our sample consists of Estonian bilinguals who might be predisposed to nationalist politics (and, thus, might be especially likely to know who the Estonian nationalist party is)?

Out of our 744 Estonian first/Russian second bilinguals, 243 of them (or 33%) self-identify as right-of-center. We think this is inconsistent with the view that we failed to recruit substantial numbers of Estonian first/Russian second bilinguals with some degree of nationalist affinity. We note that this figure is also unsurprising in light of how our study recruitment took place. Recall that bilinguals were recruited to our studies on the basis of self-reported proficiency in each tongue. Thus, respondents were aware that they were being asked to answer basic demographic questions, but they were never informed that (a) the survey was about the connection between language and survey response, (b) they would be answering “nationalist” questions, or (c) they would be randomly assigned to interview in one of their tongues.

A final way to test this alternate explanation is to examine education levels among our bilingual respondents, on the grounds that a wide education gap between our bilinguals is what drives the observed treatment effect on individual reports of Estonia’s nationalist party. To this end, we look at education levels among our bilingual respondents in Study 2 (reported pre-treatment) and find that the median education level for bilinguals who learned Estonian first/Russian second is “3” or secondary education. Among bilinguals who learned Russian first/Estonian second, the median level of education is also “3.”

We then looked at the median education level in a nationally representative survey in Estonia – the World Value Study (WVS) wave 6 – in order to see if the education level of our bilinguals was substantially different from that of the general population. The WVS records respondent’s level of education using categories that are comparable (but more fine grained) to those in our surveys. We merged some of the WVS categories to match the scales. Specifically, we used WVS variable X025 and recoded the values as follows:

1. “inadequately completed elementary education” (originally keyed as “1”) and “completed elementary education” (originally keyed as “2”) were both recoded as “1” to match the coding for “elementary education” in the bilingual surveys;
2. “incomplete secondary school: vocational” (originally keyed as “3”) and “incomplete secondary: university-prep.” (originally keyed as “5”) were both recoded as “2” to match the coding for “primary school education” (i.e., completed pre-secondary school education) in the bilingual surveys;
3. “complete secondary school: vocational” (originally keyed as “4”) and “complete secondary: university-prep.” (originally keyed as “6”) were both recoded as “3” to match the coding for “secondary and vocational education” in the bilingual surveys;
4. “some university without degree” (originally keyed as “7”) was recoded as “4” to match the coding for “incomplete university education” in the bilingual surveys;
5. “university with degree” (originally keyed as “8”) was recoded as “5” to match the coding for “complete university” in the bilingual surveys.

Using the scale that matches our bilingual survey, we find that the median level of education in the WVS sample is also “3” or completed secondary education.

**SI.7. Exploring Heterogeneous Treatment Effects**

We designed our experiments to assess whether, on average, people who are randomly assigned to interview in a minority vs. majority language are significantly more likely to interpret politics through an ethnic lens. An interesting offshoot of this analysis would be an exploration of heterogeneous treatment effects. Specifically, are the treatment effects we uncover more pronounced among ethnic Russians vs. ethnic Estonians? We can offer here only a tentative exploration of this question because our studies were not explicitly designed for this purpose: we measured ethnicity by proxy and this variable is observed, not randomly assigned. Moreover, it is theoretically unclear to us whether and how ethnicity should moderate the effect of language. We are therefore very much in uncharted territory here, which means we consider the analysis below provisional at best.

In order to examine the possibility of heterogeneous treatment effects, we treat *Prefer Russian interview*, our proxy for ethnicity, as a moderator of our treatment. Table SI.7.1 presents the results of these analyses for Study 1 and 2.

**Table SI.7.1. Heterogeneous treatment effects by preferred interview language, Studies 1 and 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Study 1** | | **Study 2** | |
|  | **Importance of integration**  **(ordered logit)** | **Importance of integration**  **(ordered logit)** | **Nationalist**  **(logit)** | **Nationalist**  **(logit)** |
| Assigned Russian interview | 0.417\*\*  (0.235) | 0.522\*\*  (0.281) | 0.499\*\*\*  (0.119) | 0.079  (0.139) |
| Prefer Russian interview |  | 0.117  (0.387) |  | -2.408\*\*\*  (0.294) |
| Assigned\*Prefer Russian |  | -0.348  (0.510) |  | 2.114\*\*\*  (0.345) |
| Constant |  |  |  | -0.123  (0.098) |
| Constant cut 1 | 0.111  (0.182) | 0.146  (0.217) |  |  |
| Constant cut 2 | 1.506  (0.207) | 1.543  (0.239) |  |  |
| Constant cut 3 | 2.801  (0.280) | 2.839  (0.305) |  |  |
| N | 262 | 262 | 1,200 | 1,200 |

*Note*: Entries are (ordered) logit coefficients with standard errors in parentheses. Dependent variables are in column headings. \*\*\* *p*<0.01, \*\**p*<0.05, one-tailed.

The results for Study 1 provide no evidence that ethnicity moderates the treatment effect: the interaction term between the treatment (*Assigned Russian interview*) and our proxy for ethnicity (*Preferred Russian interview*) is indistinguishable from zero, suggesting the treatment effect for ethnic Estonians is not significantly different from the one for ethnic Russians. In contrast, the results for Study 2 suggest some moderation by our ethnicity proxy. The positive and reliable interaction term indicates the treatment effect is stronger among respondents who prefer to interview in Russian.

These mixed findings cannot support any firm conclusions about heterogeneous treatment effects by ethnicity. On the one hand, one might be inclined to weight more heavily Study 1’s results because the outcome there most directly captures the salience of ethnic divisions. If so, then one might be tempted to conclude that the absence of a heterogeneous treatment effect here means our language effect operates similarly for members of an ethnic majority and minority. On the other hand, one might be inclined to weight more heavily Study 2’s results given that the larger sample size there is more highly powered. However, this would leave one hard pressed to explain why this moderating influence changes directions across our outcomes. Ultimately, these checkered results underline a need for additional theory-building on the possible moderating effects of ethnicity, as well as new studies that are expressly designed to test for such heterogeneous effects.

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1. This effort was further bolstered by the fact that our bilingual interviewers were trained to strictly engage respondents in the assigned interview language. [↑](#footnote-ref-1)
2. The Baltic Times. 2018. “Estonia: IRL Party Becomes Pro Patria.” May 7. https://www.baltictimes.com/estonia\_\_irl\_party\_becomes\_pro\_patria/ [↑](#footnote-ref-2)