The Mental Health Cost of Terrorism

A Replication Study of Kim and Albert Kim (*Health Economics*, 2018)

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Data Availability: The data and STATA code to reproduce the results of Smith and Coupé's replication (2021) can be downloaded at IREE's data archive (DOI: 10.15456/iree.2020126.035353).

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Abstract
This paper replicates the analysis of Kim and Albert Kim (2018). Kim and Albert Kim (2018) find a sizeable and negative impact of the Charlie Hebdo terrorist attack on various indicators of mental health. Overall, our results confirm the conclusions of Kim and Albert Kim (2018).

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1 Introduction

In the aftermath of a terrorist attack, governments, media outlets and citizens all demand information about how the attack is likely to impact upon society (see for example Kerdemelidis and Reid, 2019). Hence, the replicability of academic studies researching the impact of terrorist attacks is not just important from a purely academic point of view, but also from a policy point of view since such studies can inform policy makers when an attack happens. In this paper, we report the results of our attempt to replicate a recent paper in this literature, Kim and Albert Kim (2018).

Kim and Albert Kim (2018) examine the effect of the 2015 Charlie Hebdo shooting on mental health in France. Applying a difference in difference methodology, they find a significant negative and sizeable effect on a range of mental health measures including happiness, sadness, loneliness and others. They find more sizeable treatment effects for immigrants and low-income individuals and lesser effects for extreme right-wing supporters.

2 Replicating the Sample

Kim and Albert Kim (2018) use data from the seventh edition of the European Social Survey (ESS) with respondents interviewed between April 2014 and September 2015. The ESS is a large-scale multi-country study undertaken biennially in Europe. Representative surveys of between 800-3000 individuals from over 20 countries in Europe and the Middle East are taken on questions concerning demographics, socioeconomic status, attitudes and beliefs.

We obtained the 7th wave of ESS data from the ESS website.[1] We use the 2.2 edition of this dataset, which was released on 1 December 2018. The initial edition, made public in 2016, has been revised a couple of times, but differences between editions (which are described on the ESS website) are small. Earlier editions are no longer available from the ESS website.[2] Kim and Albert Kim (2018) do not mention which version of the dataset they used.

The difference in differences methodology identifies the impact of the terrorist attack by comparing the values of the dependent variables before and after the attack. To minimize the chance that this difference in values is influenced by events other than the terrorist attack, Kim and Albert Kim (2018) restrict the dataset to a 23-day event window around the date of the attack.[3] Furthermore, Kim and Albert Kim (2018) only include observations for which no values of both the dependent variables and covariates are missing. After these manipulations, Kim and Albert Kim (2018)'s dataset counts 3,056 observations. Following these steps described in the paper, we obtained a dataset with 2,971 observations.

[1] The dataset can be obtained from www.europeansocialsurvey.org/data/download.html?r=7.

[2] See www.europeansocialsurvey.org/data/ESS7_version_notes.html for further details on the changes between different editions of the 7th wave.

[3] In footnote 5 of Kim and Albert Kim's (2018), the authors motivate the choice of 23 days as follows: "We selected 23 days because there are zero observations between 25 and 53 days after the shooting and 24 days before the shooting in France. As such, expanding the range further is difficult. The survey was 97% complete by 24 days after the shooting, and the remaining 3% were interviewed between 54 and 75 days after the shooting." While in our dataset, there are indeed 0 observations 24 days before the attack, there are observations available 25 days before and after the attack. Adding an additional week of data before and after the attack to the analysis gives similar results, however. In the working paper version, Kim and Albert Kim's (2016) use a 30 days window and also report similar results.

Note that in their regression analysis, Kim and Albert Kim (2018) weigh observations by design weights "to correct for differentiated sample design methods across countries". ESS's weighting guide explains that design weights are to make the sample of a given country representative for that country. However, design weights do not address population size differences between sampled countries and the ESS weighting guide recommends that "when comparing data of two or more countries and with reference to the average (or combined total) of those countries, design or post-stratification weight in combination with population size weights should be applied" (European Social Survey, 2014). In the difference-in-differences analysis, French respondents are compared to respondents from other sampled countries and hence using population weights in addition to design weights seems reasonable in the context of this paper. More generally, Solon et al (2015) argue weighted estimates should always be checked against unweighted ones as heterogeneity in the impact of an intervention can imply that neither the weighted nor the unweighted estimates will identify the population average effect. Therefore in this replication, we will present three sets of results, those: without weights, with design weights like Kim and Albert Kim (2018) and with both population and design weights.

3 Replicating the Main Regressions

The main variable in Kim and Albert Kim's (2018) analysis is a binary happiness variable which takes a value of one if a respondent's reported happiness was higher than 8 on the 0-10 scale and a value of zero if otherwise.[4] Table 2 in Kim and Albert Kim (2018) reports the results of four regressions. The first regression (1) can be described as:

Kim and Albert Kim (2018) Equation 1

$$Y_i = \alpha_1 PostCH_i + \alpha_2 France_i + \beta PostCH_i \times France_i + X_i\tau + \epsilon_i, \qquad (1)$$

where Y_i is the happiness dummy. $PostCH_i$ is the dummy signifying if the individual was interviewed after the attack, $France_i$ is the dummy for French residents, $PostCH_i \times France_i$ indicates the interaction term between $PostCH_i$ and $France_i$ and describes the treatment effect for French respondents. X_i represents individual control variables. The first regression only includes gender, age and age squared as controls.

Subsequent regressions expand the set of control variables: the second regression (2) includes a wider set of controls like education, if the person was a migrant and their relationship status. As only observations that have no missing values were selected, including further covariates does not change the sample size.

Importantly, the third regression (3) adds country fixed effects, income group fixed effects, day of the week effects and a covariate for the persons distance from the attack at the time of the interview ('distance from Paris'). Kim and Albert Kim (2018) mention that 'distance from Paris' is computed as "the straight line distance between the Charlie Hebdo headquarters at 10 Rue Nicolas-Appert, Paris, and the corresponding geographic region of the respondent." We used longitude and latitude coordinate data from the website 'Clearly and Simply' and from Google Maps (Google) and use a standard formula (see Curtis, 2012) to compute distance using latitudes and longitude coordinates based on each individual's regional location at the time of the interview (provided in the ESS

[4] Using OLS on the original 0-10 scale of reported happiness leads to similar but less significant effects.

dataset) to calculate each individual's respective distance to the point of attack. All other variables were coded as per the description given in Kim and Albert Kim (2018). The final regression (4) adds an indicator for how many days, to and from the event, the interview with the respondent took place as well as an interaction of this variable and the $PostCh$ dummy.

As far as standard errors are concerned, robust standard errors are clustered by country. Kim and Albert Kim (2018) write "The asymptotic theory used in standard clustering may not apply to 12 country clusters. We use cluster-robust inferences to deal with the too few clusters issue (Cameron, Gelbach, & Miller, 2008)". Their paper does not provide more details about which specific cluster-robust inference method has been used, but the cited paper, Cameron, Gelbach, and Miller (2008), favours the wild bootstrap. We therefore will present results without few cluster adjustment, with wild bootstrap correction that doesn't impose the null and with wild bootstrap that does imply the null (see Roodman et al. (2018)).

Table 1 gives the results of the replication of Table 2 in Kim and Albert Kim (2018) which regresses the happiness dummy variable on control variables, and two event-related variables ($PostCH_i$, $PostCH_i \times France_i$). We focus on these two event-related variables as they reflect the impact of the attack.

Table 1: Replication of table 2 from Kim and Albert Kim (2018) – Happiness

	Orig. (1)	Rep. (1)	Orig. (2)	Rep. (2)	Orig. (3)	Rep. (3)	Orig. (4)	Rep. (4)
				Happiness				
PostCH	0.000	−0.003	0.003	0.001	−0.008	−0.011	−0.033	−0.008
	(0.015)	(0.016)	(0.015)	(0.015)	(0.017)	(0.018)	(0.049)	(0.025)
PostCH×	−0.062***	−0.061***	−0.068***	−0.069***	−0.062***	−0.065***	−0.055*	−0.064**
France	(0.016)	(0.016)	(0.019)	(0.019)	(0.021)	(0.021)	(0.027)	(0.025)
Obs.	3056	2971	3056	2971	3056	2971	3056	2971
R^2	0.008	0.009	0.044	0.043	0.076	0.073	0.076	0.073

Standard errors in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Despite the different numbers of observations, we get similar results both in terms of significance and in terms of the size of the estimated coefficients. Like Kim and Albert Kim (2018), we estimate that the Charlie Hebdo attack decreased happiness in France by about 6 percentage points and had no significant impact on happiness in the rest of Europe.

In our replication of **Table 2**, we so far did not adjust standard errors to be robust for the number of clusters to be small (there are only 12 countries in the sample). To allow for cluster robust inferences, the boottest function (Roodman et al., 2018) is used to get 'wild bootstrapped' p-values. Boottest does not alter the coefficient estimates from **Table 1**, it only affects standard errors. While the default setting of boottest imposes the null when bootstrapping, we also checked results of not imposing the null when bootstrapping. An alternative wild bootstrap procedure available in STATA, cgmwildboot (which is slower than boottest), has a default setting that does not impose the null.

The p-values in **Table 2** suggest that when the null is not imposed, the difference in difference estimate is always highly significant. However, imposing the null makes a big difference. Once the null is imposed when bootstrapping standard errors, none of the p-values are smaller than 10% and hence, at convention significance level, the impact of the terrorist attack on happiness would be deemed not statistically significant.[5]

Table 2: Robustness Check – Wild Bootstrapping with or without imposing the null

All values indicate p-values		(1)	(2)	(3)	(4)
No-Null	PostCH	0.82	0.96	0.55	0.76
	PostCH×France	0.00	0.00	0.00	0.02
Null-Imposed	PostCH	0.82	0.96	0.54	0.74
	PostCH×France	0.37	0.40	0.15	0.13

While the robustness check in **Table 2** focused on standard errors, the next robustness checks focuses on the robustness of both the estimated coefficients and the standard errors. **Table 3** and **4** show what happens when we change the weights of the observations used in the regression.[6] As explained above, design weights were used by Kim and Albert Kim (2018) but alternatively no weights (**Table 3**) or combined design and population weights (**Table 4**) can be used. Without the presence of weights, the estimated impact for French respondents remains negative, but is less than half the size of **Table 1** and always insignificant (see **Table 3**). With the combined population and design weight, the estimated impact is significant and bigger than in **Table 1** except for Equation 4, which is a bit smaller and no longer significant at the 10% significance level.

Table 3: Robustness Checks – Observations are not weighted

	(1)	(2)	(3)	(4)
	Happiness			
PostCH	−0.002	−0.001	−0.012	0.000
	(0.019)	(0.018)	(0.020)	(0.028)
PostCH×France	−0.022	−0.028	−0.023	−0.023
	(0.019)	(0.020)	(0.019)	(0.021)
Observations	2971	2971	2971	2971
R^2	0.008	0.043	0.072	0.072

Standard errors in parentheses:
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

[5]The wild cluster bootstrap fails when only a small number of clusters are treated (Mackinnon and Webb (2017)). In our case, there is in fact only one treated cluster (France). To increase the number of treated clusters, McCoy et al. (2019) propose to cluster at the country by pre versus post or by week level. Applying this to our dataset leads to similar results as those reported.

[6]We keep other methodological choices the same as in Table 2 of Kim and Albert Kim (2018), replicated in Table 1 of this paper.

Table 4: Robustness Checks – Observations are weighted using both design and population weights

	(1)	(2)	(3)	(4)
	Happiness			
PostCH	0.019	0.028**	0.011	0.029
	(0.013)	(0.011)	(0.024)	(0.035)
PostCH×France	−0.085***	−0.094***	−0.070*	−0.056
	(0.013)	(0.017)	(0.037)	(0.040)
Observations	2971	2971	2971	2971
R^2	0.016	0.058	0.093	0.094

Standard errors in parentheses:
* p < 0.10, ** p < 0.05, *** p < 0.01

The difference in treatment effect estimates between the different weight specifications may suggest treatment heterogeneity amongst different sampled countries. Estimating the individual treatment effects for those countries which we have a somewhat bigger number of observations in the 23-day period around the attack (Czech Republic, Germany and France) didn't show any significant effect and both positive and negative signs depending on the specification.[7]

4 *Additional Regressions*

Besides using happiness, Kim and Albert Kim (2018) also run regressions like those reported in **Table 1**, using 8 others mental health indicators as dependent variable. **Table 5** replicates Table 3 from Kim and Albert Kim (2018), which focuses on the estimates for regression (3, column 1) and regression (4, column 2). Also for this table, we get results that are quantitatively and qualitatively similar to those presented in Kim and Albert Kim (2018).

Interestingly, for most of these dependent variables the sign and significance of the estimated treatment effect coefficients is consistent across the various ways observations can be weighted. Exceptions are the variables restless, for which the population weighted estimates are insignificant, and social activity, for which the unweighted estimates are negative rather than positive. Like for the main variable of interest, we find, however, that few-cluster robust standard errors that impose the null while bootstrapping tend to make estimates insignificant.[8]

Kim and Albert Kim (2018) also test whether certain demographics were affected differently as a result of the attack. Four sub-groups of interest are considered by the authors. Distance to the origin is used to analyse if the impact of terrorism varied by the respondents' distance to the origin of the attack. Consideration is also given to how low income and immigrants responded after the attack. Finally, the study also tests how existing supporters of far-right political parties reacted to the attack.

[7] We do not provide the tables here but they can be found in the log file of the push button replication file.
[8] The results for these robustness checks can be found in the Push Button replication file.

Table 5: Replication Table 3 from Kim and Albert Kim (2018) – Other Dependent Variables

	Original (1)	Replication (1)	Original (2)	Replication (2)
Felt Happy	−0.045***	−0.037***	−0.062***	−0.049***
	(0.010)	(0.012)	(0.012)	(0.013)
Depressed	0.073***	0.074***	0.087***	0.078***
	(0.012)	(0.013)	(0.016)	(0.014)
Effort to Live	0.049***	0.055***	0.051***	0.054***
	(0.008)	(0.009)	(0.009)	(0.009)
Sleep Quality is Bad	0.058***	0.070***	0.061***	0.070***
	(0.010)	(0.013)	(0.010)	(0.014)
Sad	0.023**	0.029***	0.032**	0.027**
	(0.008)	(0.009)	(0.014)	(0.009)
Restless	0.027**	0.033**	0.032**	0.032**
	(0.011)	(0.012)	(0.013)	(0.012)
Lonely	0.047***	0.047***	0.049***	0.042***
	(0.014)	(0.014)	(0.012)	(0.011)
Social Activity	0.047***	0.062***	0.043***	0.066***
	(0.010)	(0.017)	(0.009)	(0.017)

Standard errors in parentheses: * p < 0.10, ** p < 0.05, *** p < 0.01

Estimation of the effect of the distance to the attack is described in Equation 2.

Kim and Albert Kim (2018) Equation 2

$$\begin{aligned} Y_i = {} & \alpha_1 PostCH_i + \alpha_2 France_i + \alpha_3 Border_i \\ & + \beta_1 PostCH_i \times France_i + \beta_2 PostCH_i \times Border_i \\ & + X_i \tau + \delta_{income} + \delta_{country} + \delta_{\text{day of the week}} + \epsilon_i, \end{aligned} \tag{2}$$

$Border_i$ defines a dummy variable signifying if the respondent was from a neighbouring country of France included in the sample (Belgium, Germany or Switzerland).[9] The second interaction term featured in the equation controls for respondents in French border countries having different effects to those interviewed in non-bordering countries.

Table 6a and **6b** replicates Kim and Albert Kim (2018)'s Table 4.

Estimates of the treatment effect by countries bordering France and respondents' geographical distance from the Charlie Hebdo headquarters in Paris at the time of their interview (presented in **Tables 6a** and **6b**) are fairly similar, with some small differences. For example, Kim and Albert Kim estimated that a one standard deviation increase in the distance from Paris decreases the probability of it being more of an effort to live (estimated coefficient of -0.067, significant at the 5% level,

[9]The reduced dataset only includes observations from 12 European countries.

Table 6a: Replication Table 4 from Kim and Albert Kim (2018) – By Countries Bordering France and By Distance to Paris

	POSTCH × FRANCE (A)		POSTCH × BORDER (A)		POSTCH × DISTANCE (B)	
	Original	Replication	Original	Replication	Original	Replication
Happiness	−0.058**	−0.055**	0.016	0.034	0.051	0.052
	(0.021)	(0.021)	(0.032)	(0.031)	(0.033)	(0.052)
Felt Happy	−0.044***	−0.032**	0.005	0.016	0.045	−0.026
	(0.011)	(0.013)	(0.019)	(0.021)	(0.063)	(0.039)
Depressed	0.082***	0.083***	0.029	0.030	−0.038	−0.023
	(0.014)	(0.014)	(0.016)	(0.019)	(0.033)	(0.042)
Effort to Live	0.051***	0.057***	0.007	0.008	−0.065**	−0.057
	(0.010)	(0.012)	(0.011)	(0.012)	(0.025)	(0.032)
Sleep Quality is Bad	0.066***	0.080***	0.026*	0.034**	−0.067*	−0.077**
	(0.012)	(0.015)	(0.013)	(0.013)	(0.031)	(0.032)
Sad	0.032***	0.037***	0.029*	0.030*	−0.039**	−0.053**
	(0.007)	(0.008)	(0.015)	(0.014)	(0.014)	(0.019)
Restless	0.039***	0.044***	0.041***	0.039**	−0.018	−0.022
	(0.009)	(0.010)	(0.009)	(0.013)	(0.045)	(0.050)
Lonely	0.051**	0.052**	0.014	0.018	−0.027	−0.028
	(0.018)	(0.018)	(0.023)	(0.024)	(0.040)	(0.048)
Social Activity	0.040**	0.059**	−0.022	−0.010	0.0001	0.014
	(0.013)	(0.020)	(0.018)	(0.056)	(0.035)	(0.065)

Standard errors in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

panel B), whereas this replication study finds a coefficient of -0.057 which is not significant at the 10% level.[10]

Note further that the text in reference to panel B of Table 4 in Kim and Albert Kim (2018) does not seem entirely consistent with the estimated coefficients in the table. They write:

> "Only the treatment effect for feeling happy or sad is statistically significant. A one standard deviation increase in the distance from Paris increases the probability of happiness by 3.1 percentage points and reduces the probability of feeling sad by 1.8 percentage points, according to panel B."

However, in panel B of Table 4, the coefficient β for the dependent variable felt happy (or happiness) is not significant and furthermore in none of panels B-E are both treatment coefficients for these variables (happiness and sad) significant in the same panel.

Small differences between Kim and Albert Kim's (2018) estimates and our replication are also evident in panels D and E, with some significant effects not being significant in the replication and vice versa. These differences could be attributable to different source data used to calculate

[10]Note we had to divide distance by 1000 to get similar estimate sizes.

Table 6b: Replication Table 4 from Kim and Albert Kim (2018) – By Countries Bordering France and By Distance to Paris

	POSTCH × LN (DISTANCE) (C)		POSTCH × LN (DISTANCE) (200 MI) (D)		POSTCH × LN (DISTANCE) (600 MI) (E)	
	Original	Replication	Original	Replication	Original	Replication
Happiness	0.025**	0.022*	−0.102***	−0.069**	−0.041*	−0.029
	(0.009)	(0.012)	(0.024)	(0.027)	(0.021)	(0.020)
Felt Happy	0.013	−0.002	−0.009	0.009	−0.027	0.007
	(0.017)	(0.006)	(0.016)	(0.014)	(0.027)	(0.015)
Depressed	−0.011	−0.003	0.011	0.008	−0.018	−0.009
	(0.007)	(0.006)	(0.025)	(0.035)	(0.030)	(0.017)
Effort to Live	−0.013	−0.007	−0.014	0.010	0.002	0.006
	(0.011)	(0.004)	(0.009)	(0.019)	(0.023)	(0.013)
Sleep Quality is Bad	−0.022**	−0.021***	0.001	−0.066***	0.023	−0.016
	(0.009)	(0.005)	(0.033)	(0.006)	(0.025)	(0.014)
Sad	−0.004	−0.003	0.018	0.021*	−0.001	−0.003
	(0.007)	(0.007)	(0.027)	(0.011)	(0.013)	(0.010)
Restless	−0.003	−0.005	0.044***	0.027	0.025	0.001
	(0.009)	(0.007)	(0.011)	(0.016)	(0.034)	(0.009)
Lonely	−0.008	−0.006	0.020	0.004	0.038	0.004
	(0.009)	(0.008)	(0.012)	(0.011)	(0.024)	(0.014)
Social Activity	−0.007	0.017	−0.003	0.017	0.001	−0.013
	(0.010)	(0.011)	(0.023)	(0.082)	(0.014)	(0.022)

Standard errors in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

the 'Distance to Paris' variable or to differences in the exact sample used. However, without more information from the researchers about the exact data used, this is not possible to test with certainty.

Finally, the effect of the attack on the demographics' low income, immigrants and supporters of far-right political parties are estimated via Equation 3.

Kim and Albert Kim (2018) Equation 3

$$\begin{aligned} Y_i = {} & \alpha_1 PostCH_i + \alpha_2 France_i + \alpha_3 G_i \\ & + \beta_1 PostCH_i \times France_i + \beta_2 PostCH_i \times G_i + \beta_3 France_i \times G_i \\ & + \theta PostCH_i \times France_i \times G_i + X_i \tau + \delta_{income} + \delta_{country} + \delta_{\text{day of the week}} + \epsilon_i, \end{aligned} \tag{3}$$

This equation matches the setup of the previous two except G_i represents whether the respondent belonged to one of the three sub-groups (immigrant, low income or far-right political supporter). The inclusion of G_i separates out the treatment effect for each sub-group allowing the researchers to consider the treatment effect on each group.

Estimates of the treatment effect by the demographic group immigrants, low-income individuals and proponents of far-right political parties (**Table 7**) are all in line with the results presented in the paper. Coefficient estimates and their relevant significant levels are similar to those presented in Table 5 of Kim and Albert Kim (2018) except for two cases (Felt Happy, specification 1 and Social Activity, specification 3).

Table 7: Replication Table 5 from Kim and Albert Kim (2018) – Subgroup difference-in-differences analysis

	POSTCH × POOR × FRANCE		POSTCH × IMMIGRANTS× FRANCE		POSTCH × FAR RIGHT × FRANCE	
	Original	Replication	Original	Replication	Original	Replication
Happiness	−0.112***	−0.120***	−0.200***	−0.221***	0.081	0.107
	(0.027)	(0.029)	(0.036)	(0.042)	(0.138)	(0.180)
Felt Happy	−0.056	−0.088**	−0.051	−0.050	−0.061	−0.082
	(0.032)	(0.029)	(0.067)	(0.071)	(0.069)	(0.104)
Depressed	0.052***	0.066***	0.033	0.036	−0.102**	−0.143***
	(0.015)	(0.015)	(0.038)	(0.038)	(0.043)	(0.035)
Effort to Live	0.060*	0.058*	0.096*	0.091*	−0.163*	−0.232***
	(0.031)	(0.032)	(0.045)	(0.049)	(0.078)	(0.070)
Sleep Quality is Bad	−0.001	−0.024	0.076	0.059	−0.252***	−0.278**
	(0.031)	(0.031)	(0.054)	(0.049)	(0.080)	(0.090)
Sad	0.035**	0.042**	−0.249***	−0.246***	−0.057	−0.063
	(0.016)	(0.014)	(0.039)	(0.037)	(0.055)	(0.064)
Restless	0.022	0.021	−0.062*	−0.056*	−0.007	−0.024
	(0.023)	(0.023)	(0.032)	(0.030)	(0.044)	(0.056)
Lonely	−0.005	0.017	−0.134***	−0.122***	−0.157***	−0.193***
	(0.011)	(0.012)	(0.032)	(0.030)	(0.047)	(0.038)
Social Activity	−0.066***	−0.099***	0.156***	0.194***	0.030	0.364***
	(0.011)	(0.022)	(0.022)	(0.053)	(0.055)	(0.044)

Standard errors in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

5 *Conclusion*

Overall, this paper successfully replicated the main findings presented in Kim and Albert Kim (2018). Using the choices Kim and Albert Kim (2018) made in terms of weighting observations and in terms of what standard errors to use, we indeed find a significant negative effect on happiness and other indicators of wellbeing, with effect sizes similar to those reported in the Kim and Albert Kim (2018). These results are, overall, reasonably robust to changing how observations are weighted, with an exception being the impact on the main happiness variable, which becomes insignificant when not using weights. Similarly, using standard errors that take into account the fact the number of clusters is small and impose the null while bootstrapping tend to make estimates insignificant.

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