ONLINE APPENDIX

A1 Estimation of the intensity of the earthquake

The earthquake had different intensities in different parts of the country. According to the United States Geological Survey (USGS), Arauco, Coronel and Yumbel in Region VIII were the communes that experienced the strongest shaking intensity at VIII on the Modified Mercalli intensity scale (MM), equivalent to "Destructive" (1). On the other hand, in the northern and southern regions of the country the earthquake was barely felt.

To estimate the intensity of the earthquake that the respondents of the EPT experienced, we had to make two choices: first, how to measure the intensity of the earthquake (i.e., in what scale); and second, given that scale, how to estimate the intensity of the earthquake in those places that our survey was collected, but that we did not have a precise measurement of the intensity.

In relation to first choice, there were three basic scales that we could use: the Richter scale, the Modified Mercalli scale (MM), and measurements based on peak ground acceleration (PGA). The Richter scale is based on the energy released by the earthquake and thus it does not vary by location; as a result it was not useful for our purpose. Then we had the MM scale, which does vary by location, but among others it is based on human perceived shakings and building damages and therefore (as it partially captures effects) it was a problematic measurement of "treatment" for our study. We decided to use PGAs because unlike the previous scales it is an entirely physical measure of how strong the earth shakes in a given geographic area. This measure is based on the

acceleration of ground movement in three basic directions (north-south, east-west and up-down), and typically largest of these three values is used.

For the regions most affected by the earthquake (this is, Regions V-IX and the Metropolitan Region), the USGS provides a grid of PGA estimates approximately every 9.26 km (1). In these regions, we calculated the intensity of the earthquake for each commune where we had data as the inverse distance weighted average of the three closest grid estimates. For the adjacent regions (Regions III, IV, XIV and X), we calculated the intensity of the earthquake as the inverse distance weighted average of the three closest station measurements. Finally, in the remaining extreme regions we imputed an intensity of zero, as in these regions the earthquake was barely felt. Figure 1 shows the location of the epicenter of the earthquake and summarizes the intensity estimates for all the communes in our study.

A2 Covariate balance compared to balance expected from complete

randomization

Figure A2: Balance for the 46 covariates in the study before and after matching compared to balance expected from complete randomization. If the study were a randomized experiment we would expect all the P-values to lie over the 45-degree, and one out of 20 P-values to fall below the dashed line, showing a difference in means significant at the 5 percent level. Before matching, 29 white circles fell below the dashed line, showing that 29 covariates had differences in means between the exposed and control samples significant at the 5 percent level. After matching, all the black circles lay over both the dashed and the 45-degree lines, showing that matching did not only balance all the observed covariates but that achieved greater balance than expected in a randomized experiment.
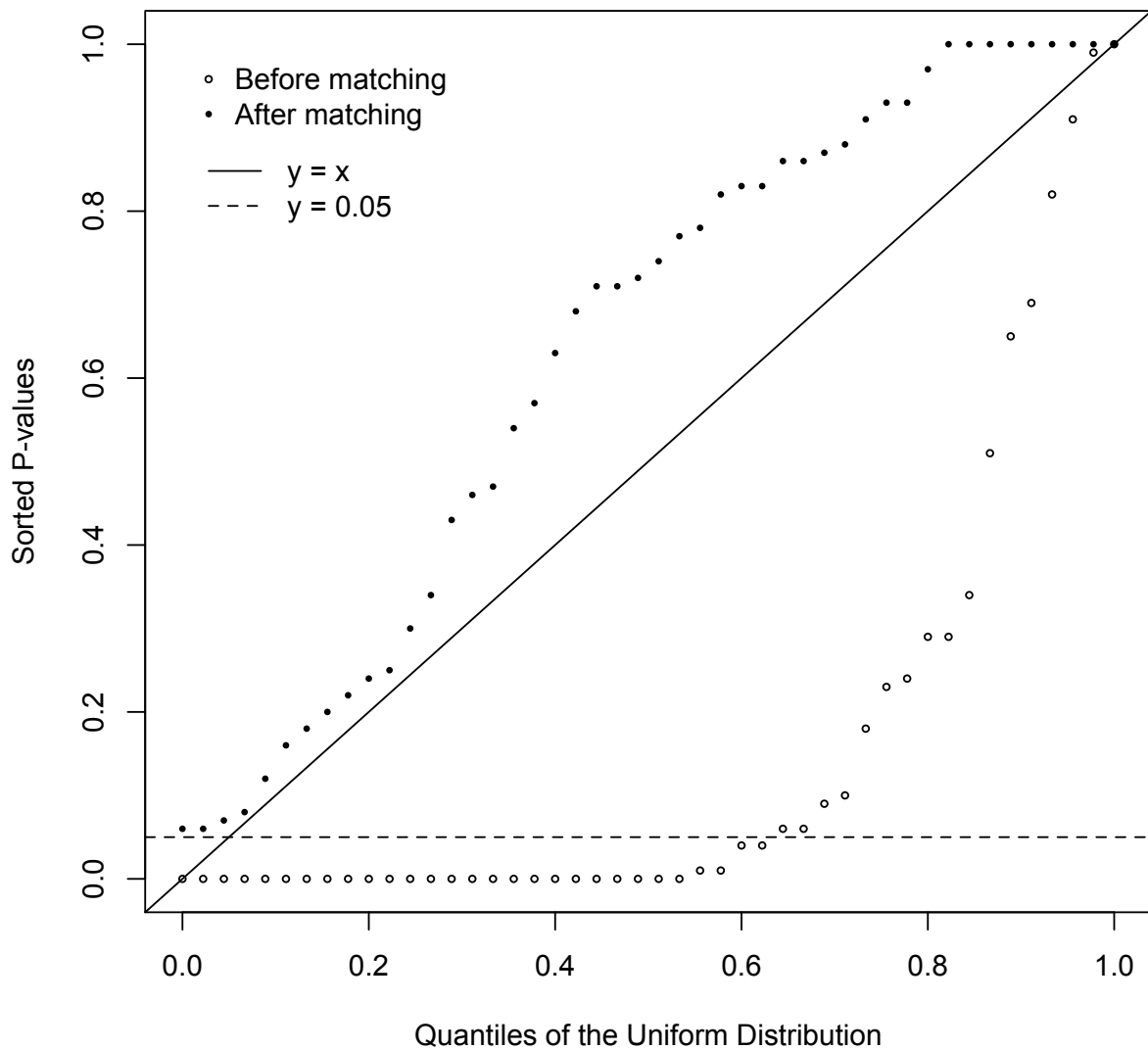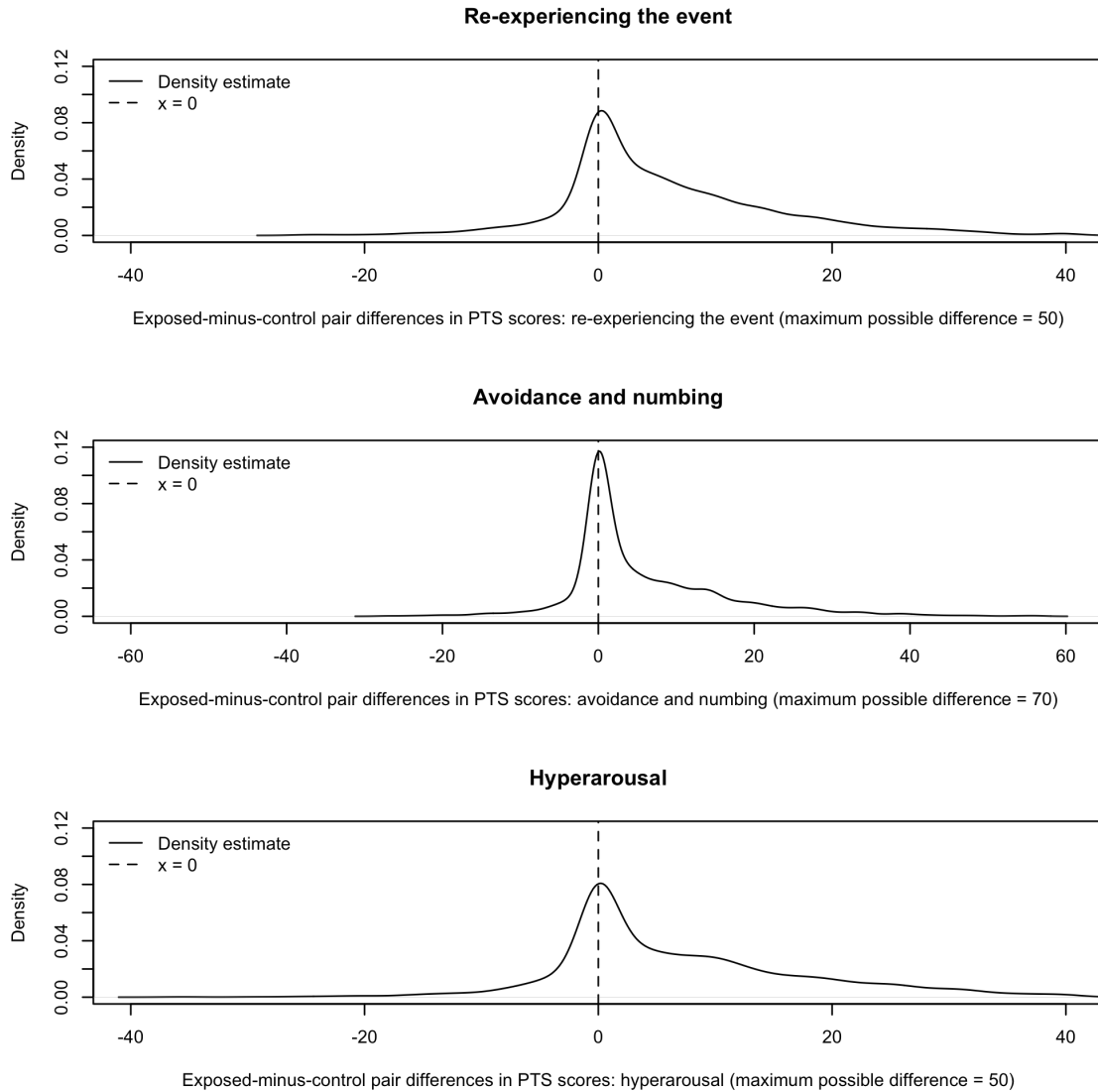
A3 Differences in posttraumatic stress symptoms by gender, age and ethnic group

Figure A3: The 2520 pair differences in total posttraumatic stress symptoms (PTS) viewed separately by gender, age and ethnic group. Sample sizes appear below the boxplots. P-values are from Wilcoxon's two sample test or the Kruskal-Wallis test for more than two groups. Younger pairs and male pairs had somewhat smaller exposed-minus-control symptom differences.
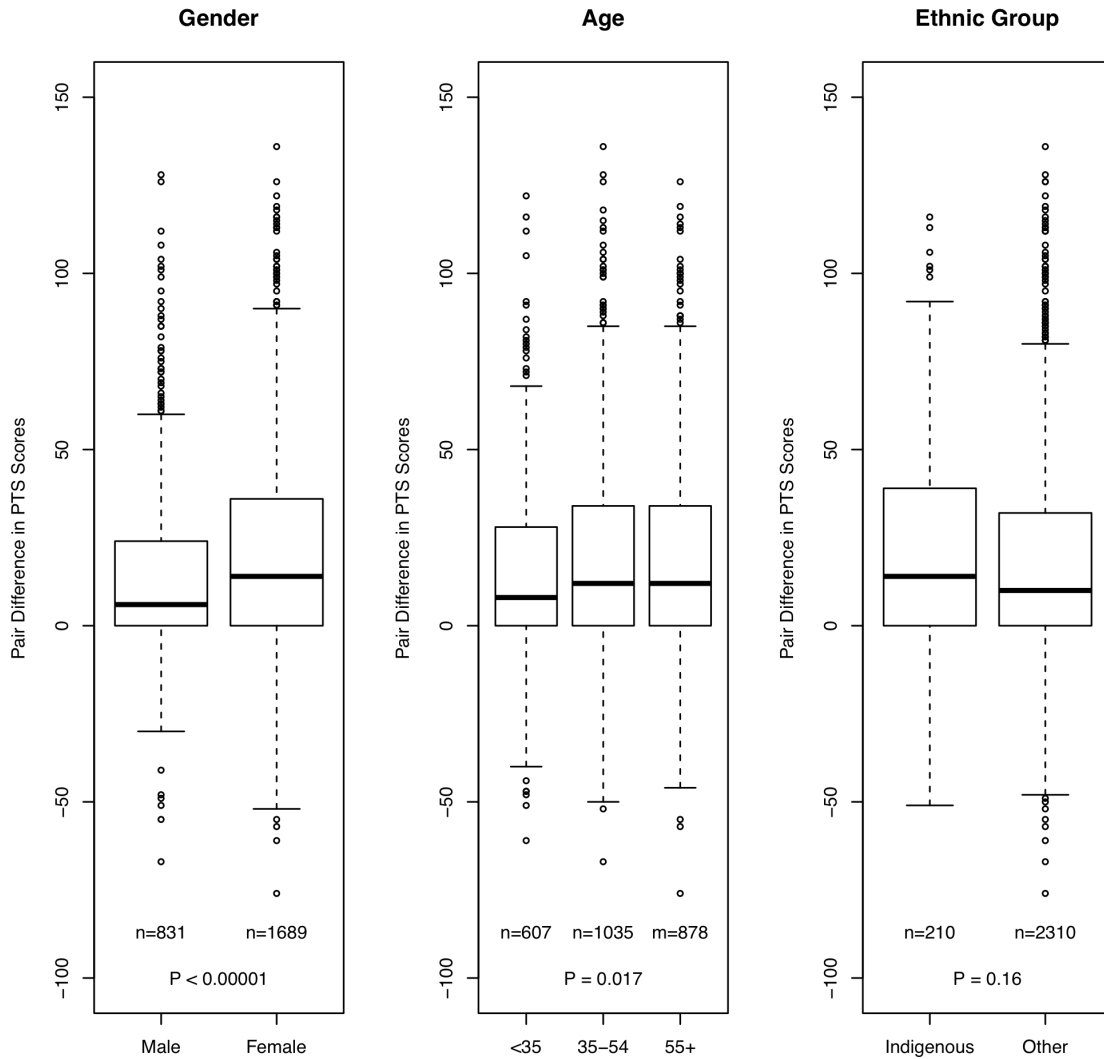
A4 Differences in posttraumatic stress symptoms by symptom group

Figure A4: Exposed-minus-control matched pair differences in posttraumatic stress (PTS) scores for 2520 matched pairs by symptom groups. The three plots are nonparametric density estimates obtained using default settings in R.

Re-experiencing the event

Exposed-minus-control pair differences in PTS scores: re-experiencing the event (maximum possible difference = 50)

Avoidance and numbing

Exposed-minus-control pair differences in PTS scores: avoidance and numbing (maximum possible difference = 70)

Hyperarousal

Exposed-minus-control pair differences in PTS scores: hyperarousal (maximum possible difference = 50)

REFERENCES

1. United States Geological Survey. Pager – M 8.8 – Offshore Maule, Chile: Full City Exposure List. (http://earthquake.usgs.gov/earthquakes/pager/events/us/2010tfan/index.html#cities. (Accessed October 3, 2011).

2. United States Geological Survey. Shakemap us2010tfan. (http://earthquake.usgs.gov/earthquakes/shakemap/global/shake/2010tfan/#download). (Accessed October 3, 2011).