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Household Expenditure in the Wake of Terrorism: evidence from high frequency in-home-scanner data*

Daniel Mirza[†], Elena Stancanelli[‡] and Thierry Verdier[§]

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Abstract

This paper adds to the scant literature on the impact of terrorism on consumer behavior, focusing on household spending on goods that are sensitive to brain-stress neurocircuitry. These include sweet- and fat-rich foods but also home necessities and female-personal-hygiene products, the only female-targeted good in our data. We examine unique continuous in-home-scanner expenditure data for a representative sample of about 15,000 French households, observed in the days before and after the terrorist attack at the Bataclan concert-hall. We find that the attack increased expenditure on sugar-rich food by over 5% but not that on salty food or soda drinks. Spending on home maintenance products went up by almost 9%. We detect an increase of 23.5% in expenditure on women's personal hygiene products. We conclude that these effects are short-lived and driven by the responses of households with children, youths, and those residing within a few-hours ride of the place of the attack.

Keywords: Conflict economics, Household economics, Food Consumption, Stress

JEL classification: D1 Household behavior and family economics; D12 Consumer economics: empirical analysis; F52 National security, economic nationalism; I12 Health behavior

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Introduction

In recent years, random individuals have been the target of terrorist attacks at sports events, concerts, Christmas markets, shopping centres, pedestrian streets, and café terraces. There is substantive evidence that terrorism causes post-traumatic stress disorder (Galea et al. 2002; Marshall et al. 2007; Tsai and Venkataramani, 2015) and negatively impacts the mental well-being of individuals well beyond the direct victims (Clark, Doyle and Stancanelli, 2020; Metcalfe, Powdthavee, and Dolan, 2011; Rossin-Slater et al. 2020). Earlier studies also concluded that terrorism affects individual consumption choices across various dimensions (Atkin, Sirah and Shayo, 2021; Becker and Rubinstein, 2011; Christelis and Georgarakos. 2009; Knudsen *et al.*, 2005; Pesco, 2014; Pesco and Baum, 2016). Here we examine the impact of the Paris-Bataclan terrorist attack on expenditure on goods that are sensitive to stress, according to the biological, psychological and medical literature.

In particular, acute stress¹ has been found to increase the consumption of sugar- and fat-rich food (Yau and Potenza, 2013), especially via snacks taken outside main meals, by individuals who would normally restrict high-caloric food intake, for weight loss or health reasons (restrained-eaters, Zellner et al. 2006), or who are impulsive and seek immediate rewards (i.e., who have “fast life history strategies”, Fennis et al. 2022). In contrast, individuals who are more reflective, have longer term goals, and more regulatory control (i.e., those with “slow life history strategies”, Fennis et al. 2022) or have no reasons to restrict their intake of high-caloric food (non-dieters, Zellner et al. 2006) tend to reduce their food intake under situations of acute stress (Sieber, 2007). This is in line with the “stress-eating paradox”, which predicts that stress can both increase and/or reduce food intake and appetite (Stone and Brownell, 1994; Reichenberger et al., 2020). It follows that terrorism, by causing situations of

¹ In particular, the literature indicates that it is “acute” stress, rather than chronic or long-term stress, that impacts food-intake.

immediate intense stress, may increase the intake of foods rich in sweets and fats for certain groups, including children and high-Body-Mass-Index individuals, thus adding to obesity risks and inequality (Belot and James, 2011; Bhattacharya and Sood, 2011; Currie, 2009; Pereda and Policarpo Garcia, 2020; Strupat et al., 2021). Thus, we examine the effect of the Bataclan attack on household spending on sweets, salty snacks and soda drinks (defined as non-alcoholic beverages excluding fruit-juices).²

Earlier studies also point out that stress induces consumers to save more, but also to target spending on goods perceived as necessities, in an attempt to restore control of their environment (Christelis and Georgarakos, 2009; Durante and Laran, 2016). Here we study how the Bataclan attack affected household spending on home-maintenance products.

The medical literature indicates that stress adversely impacts female vaginal health (Amabebe and Anumba, 2018), causes irregular menstrual cycles (Gilbrech, 2020) and negatively affects new-born health (Aizer, Stroud and Buka, 2016). There is indeed evidence that women were more sensitive than men to 9/11 post-traumatic stress disorder (for instance, Olf et al., 2007; Schlenger et al., 2002) and that terrorism negatively impacted new-born health (Armijos Bravo and Vall Castello, 2021; Camacho, 2008; Quintana-Domeque and Rodenas Serrano, 2017). We add to this literature by focusing on the effect of the Bataclan terrorist attack on spending on female personal hygiene products.

Our study also adds to a thin literature on the consumption effects of terrorism, which concluded that 9/11 reduced alcohol consumption (Knudsen *et al.*, 2005) but increased tobacco use (Pesco, 2014, Pesco and Baum, 2016). Moreover, Becker and Rubinstein (2011) found differential responses of occasional versus regular users of buses and bars after terrorist attacks

² We have separated sweets from salty snacks and soda drinks because we only have available an aggregated category for sweets that included desserts, cakes, biscuits, chocolates and candies. We felt that sweets (with the exception of candies) are not necessarily as “unhealthy” as soda drinks and salty snacks (like chips). It is also true that if we pool together in one category sweets, salty snacks and soda drinks, that would lead to imprecise estimates as the effects of the Bataclan attack appear to go in opposite directions for these different categories.

in Israel, with significant consumption declines only for occasional users. Christelis and Georgarakos (2009) studied the effects of 9/11 on household insecurity feelings, portfolio choices and spending for Americans aged over 50, finding an increase in spending on the house and on female personal care products and a decline in leisure spending. Hafsa (2017) found that terrorism increased overall food consumption and reduced the consumption of other non-durable and durable goods in Pakistan. Conflicts in India were found to impact the consumption of “identity” food categories (i.e., alcohol, beef, pork) related to the own and the enemy’s religious beliefs (Atkin, Sirah and Shayo, 2020).

Preliminary suggestive evidence indicates that Google searches for the word “restaurant” (see Figure A in the Appendix) show a small decline around the days of the Bataclan attack, contrary to the trends in the earlier years, which may suggest that individuals ate out less. Google searches for the word “Anxiolytics” increased around the days of the Bataclan attack (see Figure B in the Appendix) suggesting an increase in stress and a search for remedies.

We use for our analysis a rich longitudinal dataset on continuous in-home-scanner expenditure of around 15,000 households, representative of the French population, collected by the Kantar panel, to examine the responses of household expenditure to the terrorist attack at the Bataclan theatre and nearby bars and restaurants on 13 November, 2015, an attack that led to the death of 130 people and injured 413 others. Since normal consumers were the target of the terrorists, we expect that individuals indirectly exposed to this terror episode, via the media - and especially the social media that covered the attack widely (11 million related tweets were archived in the 24 hours following the attack) - experienced immediate stress that may have impacted their expenditure on goods that have been shown in the literature to be sensitive to stress.

Terrorist attacks are, almost by definition, random and unexpected from the consumer perspective, and yet they are often planned by terrorists on specific days to maximize the number of casualties and attract the most media attention. In particular, the Bataclan attack on Friday November 13th, 2015, was timed just a couple of days after a French national vacation day, the 11th November, which is a War Memorial Day, often extended into a long weekend. Because on festive days expenditure behaviour is likely to be different than on normal days, to capture the effect of terrorism on household expenditure, we combine a regression discontinuity design (in which the running variable is the days elapsed since the terrorist attack) with a differences-in-differences approach, that exploits observations for the same calendar days in the two years before as the counterfactual. We also control for household, municipality, year, month and day fixed effects, which may capture the effect of the weather,³ as well as household consumption habits and variations in local prices.

We find that households increased their expenditure on sweets (by over 5%) but not on salty snacks and soda drinks (that declined by 7% to 12%, but only for some subgroups of households), in response to the Bataclan terrorist attack. Expenditure on home maintenance products went up significantly (by almost 9%), as well as purchases of women's personal hygiene products (by 23.5%), due to the attack. There is a great deal of heterogeneity, with the responses being driven by youths (who made up most of the Bataclan public), households with kids, and households located within a few-hours-ride from Paris.

This paper is structured as follows. Section 1 describes the data. The empirical model is presented in Section 2. Graphical evidence follows in Section 3, while the results of estimations are provided in Section 4. The final Section draws conclusions.

³ For example, Cherchye et al. 2020 conclude that the weather is an important determinant of food shopping behaviour.

1. The data

The expenditure data for this study comes from the French Kantar panel that collects unique continuous data on non-durable expenditure⁴ for in-home consumption.⁵ Earlier work used Kantar panel data to investigate, for example, obesity (Bonnet, Dubois, Orozco, 2013), junk-food (Dubois, Griffith, O Connel, 2017), soda taxes (Dubois, Griffith, O Connel, 2020) and the economic drivers of variations in individual food choices (Cherchye *et al.* 2020).

One respondent in each Kantar household is responsible for continuously reporting purchases by scanning the barcodes of the items purchased. A subsample of the French Kantar panel of households (including approximately 60% of the households) is also asked to report all purchases of items that do not have barcodes by using a computer-assisted routine procedure. The accuracy of the shopping data reported is regularly checked and monitored by Kantar France experts.⁶ Households that fail to comply with minimal standards of data quality (e.g., are estimated not to report all shopping done, or to misreport it) are dropped from the panel and replaced. The Kantar sample of households is representative of the French population and compares well with population statistics from the French National Statistical Institute (INSEE). Households stay in the Kantar panel for about four years, on average. Respondents are attributed an encrypted identifier by Kantar France since Kantar panel data is highly confidential. Respondents' names or any other identifying information are not provided to users, in strict compliance with General Data Protection Rules (GDPR).

⁴ Information on the type of shops from which goods are purchased is also collected and we estimated that only 3.5% of all shopping was done online, without any noticeable variation in the aftermath of the Bataclan attack.

⁵ Food expenditure outside the home was not collected by Kantar France until after the period of interest for our study. This contrasts with the Kantar UK panel that has collected data on expenditures in bars and restaurants for quite some time.

⁶ Kantar France currently employs 140 people who are in charge of managing data, processing, and monitoring its quality.

Outcome Variables

For each household, we aggregate the raw expenditure data by shopping day. We have access to data on aggregated categories of spending for home consumption, which enables us to consider the following outcome variables:

_the daily expenditure on salty snacks and soda drinks (i.e., non-alcoholic beverages, excluding fruit juices);

_the daily expenditure on sweets, including candies, chocolates, biscuits, and cakes;

_the daily expenditure on home maintenance products including home cleaning products, kitchen paper and toilet paper;

-the daily expenditure on (female) personal care products, including sanitary towels, cleansing and soothing products;

_the total daily expenditure on perishable goods for home consumption, including any food, drinks, home-cleaning and personal-hygiene products.

We deflated daily expenditure using the monthly National Institute of Statistics (INSEE)⁷ consumption price index (excluding tobacco), with base 2015.⁸

Explanatory variables

We have the following information on the households of the Kantar France panel:

- the monthly income in 18 brackets, giving the income group to which the household belongs across 18 income categories, ranging from the lowest (0 to 300 euros per month) to the highest income group (7,000 and more euros per month);
- the family-type of households (junior; couple; senior; with or without kids);
- the municipality of residence;

⁷That can be downloaded at <https://www.insee.fr/fr/statistiques/serie/001763852>.

⁸ Using either deflated or non-deflated total expenditure does not change the results.

- the region of residence (defined as the French administrative department);⁹
- the population size of the municipality of residence (in six broad categories, ranging from less than 2,000 inhabitants to over 200,000 inhabitants).

From these variables, we construct a series of indicators for:

- the household income class,
- senior households,
- couple households
- households with kids (including single parent)¹⁰
- rural households, defined as households residing in a municipality with less than 2,000 inhabitants.

We also manually include in the data information on whether a given day of shopping was a national vacation day (e.g., Christmas or New Year) or a regional school vacation day.

Additionally, we construct indicators for the day of the week (Monday to Sunday), as shopping typically varies by day of the week, with most people doing their shopping on Fridays or Saturdays.

We manually include information on whether there was a Muslim Mosque in the municipality of residence and construct an indicator for this, since residents of these neighbourhoods, may, for various reasons, respond differently to terrorism (Tsukashima and Montero, 1976; Gould and Klor, 2014; Armijos Bravo and Vall Castello, 2021).

We merge the Kantar data with geolocation data, enabling us to calculate the geographical distance of the municipality of residence from the site of the attack (since individuals located farther away may feel less at risk of future attacks), the size of the population of the municipality

⁹ In France there are 95 administrative departments, including mainland France and Corsica, and excluding Reunion Island, Guadeloupe, Martinique and other ex-colonial territories not covered by Kantar-panel.

¹⁰ We know there are children living in the household, but we do not have additional information on whether a given household with children is a single parent or a couple. By constructing a separate dummy for couple households, we can identify childless couples from couples with children or single parents.

of residence (since larger cities may be at higher risk of future attacks), and construct a dummy for individuals residing in the principal town of each region or in a city with administrative offices, which may be more likely targets of terrorist attacks than an “ordinary” city.

Descriptive statistics of the data are provided in the Appendix (see Table A). The average monthly food expenditure of the Kantar panel households compares quite well with the French National Statistical Institute (INSEE) estimates of adjusted household non-durable expenditure, with Kantar monthly expenditure being 3 to 5€ larger, on average, than the INSEE adjusted estimates (see Figure C in the Appendix). In fact, Kantar data better track the day-to-day variations in household expenditure, as well as the heterogeneity of households. INSEE household expenditure surveys (“enquêtes budget des ménages”) are cross-sectional and are conducted only every 5 years, which makes it impossible to use them for the purposes of our study.

2. Empirical Method

Following Loewenstein (2000), we hypothesize that the household utility function depends not only on leisure and consumption but also on a so-called “visceral factor”, here driven by fear of and stress from terrorism, that affects directly the desirability (and the marginal utility of consumption) of goods that have been shown to be sensitive to brain-stress neurocircuitry, based on the biological, psychological, and medical literature.

Household expenditure responses to stress induced by terrorism can be neatly identified as, contrary to natural disasters (Henry, Spencer and Strobl, 2020) or the Covid-19 pandemic lockdowns (Goolsbee and Syverson, 2021; Hung-Hao and Meyerhoefer, 2021), terrorism cannot be anticipated¹¹ and it does not normally impact household income.

¹¹ Natural disasters often occur in areas at risk and their propagation to other areas can be forecast, likewise the spread of the Covid-19 virus and its lock-downs from Wuhan to the rest of the world.

To estimate the effect of the terrorist attack at the Bataclan on expenditure on selected goods, we implement a Regression Discontinuity Design (see, for instance, Lee and Lemieux, 2010, for an overview of this research method) in which the running variable is the calendar days elapsed before and after the Bataclan terror episode. This amounts to comparing expenditures in the days before the attack to those in the days after the attack. The difference between the two is assumed to be caused by the terror attack. For this assumption to hold, a number of conditions need to be satisfied (Lee and Lemieux, 2010) and these are tested for in the next Section.

While terrorism comes as an unexpected shock to consumers, terrorists often plan their attacks for special occasions. The Bataclan attack on Friday November 13th, 2015, was timed for just a couple of days after a French national vacation day, the 11th November, which is a War Memorial Day, often extended into a long weekend, and comes shortly after two weeks of Fall school vacations.¹² Individual consumption behaviour is likely to differ on vacation days than on “normal” days and this needs to be taken into account to accurately measure the impact of terrorism. To this end, we construct an additional counterfactual by exploiting expenditure data around the same calendar days in the previous two years, 2013 and 2014, and combine the RDD with differences-in-differences (DD).¹³ In particular, we consider expenditures around Friday 15 November 2013 and Friday 14 November 2013, respectively, as counterfactuals for expenditures around Friday 13 November 2015 when the attack at the Bataclan concert hall occurred, given that consumer behavior typically varies by day-of-the-week.

Let C be the outcome variable, (e.g., total expenditure per day on sweets), d the running variable, standing for the days elapsed since the treatment, which is the day of the

¹² All schools from day-care to high-school are on vacation for two weeks, while most universities and other tertiary education centers are closed for a week.

¹³ We only consider two previous years since we felt that two years would be enough to gather counterfactual evidence on the behaviour of the outcomes around similar calendar periods. Additional years of data would otherwise have to be purchased from Kantar.

(counterfactual) terror attack that we set equal to day “zero”. Let T be a dummy for the treatment, which takes value 1 in the days after the (counterfactual) attack and 0 in the days before. The RDD-DD specification can be written as follows:

$$1) \quad C_{it} = \xi T_{it} * Year_{it} + \varphi f(d_{it}) * T_{it} * Year_{it} + \varrho f(d_{it}) * (1 - T_{it}) * Year_{it} + \alpha f(d_{it}) * T_{it} + \eta f(d_{it}) * (1 - T_{it}) + \omega T_{it} + \psi X_{it} + \sigma Z_t + v_i + u_{it}$$

where $Year$ denotes 2015, the year of the Bataclan attack, i denotes the household, t the calendar days, and X being a matrix of household characteristics, including dummies for households with children (including single parents), childless couples, senior households, residing in a rural municipality (with less than 2,000 inhabitants), residing in a regional principal town, the population size of the municipality of residence and its geographical distance from Paris, and total daily expenditure for in-home consumption,¹⁴ as well as fixed effects for the household income category and the region (see data Section for more details). The matrix Z includes indicators for whether the day of the shopping was a national vacation or a school vacation day, day of the week fixed effects, and month and year fixed effects. Household fixed effects are captured by v , and u is a random error that we assume to be distributed normally.

The symbol f stands for a polynomial function of the running variable and we take it to be linear, based on visual inspection of the data (see Figures D and E in the Appendix that plot the raw data), but also following Gelman and Imbens (2019), who advise against using higher than first- or second-order RDD polynomials. Under this set up, ξ is the parameter of interest that measures the impact of the Bataclan attack on outcome C . In particular, ξ measures the local average treatment effect (LATE). We assume that everyone is treated, which seems plausible, since everyone was exposed to the terror attack via the media. We do not include the

¹⁴ The latter is obviously not included among controls when it enters as the outcome (see the relevant column in all the results tables). Because we enter total daily expenditure among the controls, our findings are robust to specifying the model in shares (results available from the authors).

day of the attack (or the counterfactual attack day) in the estimation period, as some households may not yet be aware of it and this may confound the estimates. Nonetheless, our conclusions are robust to including the day of the attack and the counterfactual attack day in the estimation sample (results available from the authors). We use the procedure in Calonico *et al.* (2014) to determine the optimal bandwidth, which varies with the outcome considered (between 16 and 31 days) and we opt for taking a 30-day bandwidth for all the outcomes for the sake of simplicity, but we also present the results of estimation for the optimal bandwidth (see Table 1), as well as testing for the robustness of the estimates to varying the bandwidths, as is customary. The standard errors are robust and clustered at the level of the running variable. Clustering them at both the level of the running variable and at the level of the household does not affect our conclusions (results available from the authors).

3. Descriptive and graphical analysis

We first test for the continuity of the running variable (i.e., the days elapsed since the Bataclan terrorist attack), which corresponds to checking that households did not discontinue scanning their purchases in the aftermath of the Bataclan attack. It is a standard requirement for the validity of the RDD that the running variable behaves smoothly around the days of the exogenous shock (McCrary, 2008). Figure 1 illustrates this, respectively, for the Bataclan attack on Friday 13th November 2015 (first chart from the left in Figure 1), as well as for the counterfactual days in the earlier years, i.e., respectively, Friday 14th November 2014 (second chart from the left in Figure 1) and Friday 15th November 2013 (third chart from the left in Figure 1). The continuity assumption is satisfied with the t-statistics (these are given in the note to Figure 1) indicating that there is no statistically significant break in scanning shopping around the Bataclan days or their counterfactuals.

Next, we check the continuity of survey participants' characteristics around the RDD cut-off (see Figure 2). In particular, since we include several controls in the model (see Equation

1 of Section 2), we predict the outcomes as a function of these controls and plot them against the running variable (this is standard practice when there are many covariates, as in Card et al., 2015). As required for RDD validity, Figure 2 indicates no discontinuity in household characteristics at the RDD cut-off (i.e., the day of the attack and its counterfactual days).¹⁵

To gather preliminary insights into household expenditure responses to the Bataclan attack, we plot the raw data on the outcomes against the running variable (see Appendix Figures D, E, F and G). To account for the high-variability of the data, we build the residuals from linear regressions of the outcomes on household characteristics and day-of-the-week, month, household and region fixed effects, and estimated non-parametric triangular Kernel functions of these residuals as a function of the running variable (i.e., the calendar days elapsed between the shopping day and the day of the attack or its counterfactual). Figures 3 and 4 plot these Kernel estimates and their confidence intervals, to show that the outcomes behave somewhat differently after the Bataclan attack than in the earlier years. In particular, expenditure on sweets (top charts in Figure 3) displays a (weakly significant) increase after the Bataclan attack but a (non-significant) decline after the counterfactual days in the earlier years, which taken together points to a significant increase after the 2015 attack relative to earlier years. Expenditure on salty snacks and soda drinks (bottom charts in Figure 3) shows a significant decline after the Bataclan attack but also after the counterfactual attack day in November 2013, which anticipates that the drop in 2015 is not significant when usual behaviour in earlier years is accounted for. Expenditure on women's personal hygiene products increases (though non-significantly) in 2015, while it declines (non-significantly) in 2013 and 2014, so that the 2015 increase is statistically significant when these facts are put together in the RDD-DD model. Expenditure on home maintenance products declines significantly after the counterfactual attack day both in 2013 and 2014, while there is no significant decline in 2015, which suggests that it did actually

¹⁵ This figure plots the predicted values of spending on home maintenance, but similar charts are obtained for the other outcomes; or for the explanatory variables considered one by one, and are available from the authors.

increase around the day of the attack in 2015 relative to the earlier years, as we find in the RDD-DD estimates. Therefore, the graphical analysis confirms our intuition that one needs to control also for the shopping behaviour around the counterfactual days of the attack in earlier years, to pin down the effect of the attack. These graphs also suggest that the effects at stake are not very large, which may be due to heterogenous responses, with some individuals reducing expenditures and food-intake and others increasing them, in line with the predictions of the biological and psychological literature.

Finally, as is customary when applying differences-in-differences, we check that the characteristics of the panel of Kantar households do not vary significantly before and after the Bataclan terror episode in 2015, and the counterfactual days in the years before. The t-tests for the statistical significance of the difference in the means of the household characteristics considered across the various “before” and “after” periods indicate that the null hypothesis of statistical significance is rejected for nine out of ten variables in 2015 (the year of the attack, which is the most important, as we want to exclude any difference not due to the terrorist attack), six out of ten in 2014 and eight out of ten in 2013 (see Table A in the Appendix).¹⁶ We include all these variables as controls in the RDD-DD estimation model and also, control for household fixed effects; and we check the robustness of the estimation results to including or excluding covariates, as well as to considering either 2013 or 2014 or both years as the counterfactual (see Table 1).

4. Results of estimation

The results of the estimation of the RDD-DD model described in Equation 1 for the outcomes are provided in Table 1, which also presents a number of specification checks. We find that the Bataclan attack led to a significant increase in expenditure on sweets, but not on

¹⁶ These differences are due to households moving geographically or across income and household categories, due, for example, to moving in or out of employment, having a baby or growing older.

salty snacks and soda drinks. We also detect significant increases in spending on home maintenance products¹⁷ and women's personal hygiene products. We conclude that expenditure on sweets increased by over 5%, home maintenance products by almost 9%, and women's personal hygiene products by 23.5%, on average.

We find no significant impact on total daily expenditure for home consumption, which suggests that spending on some other goods for in-home consumption declined, although when using aggregated weekly data (and dropping the spending data for the whole week of the attack)¹⁸, we detect a significant increase in total spending (see Table 5), which suggests that households may have spent less outside the home, at bars and restaurants, or on clothing, etc., all expenditures that we do not observe.

Robustness checks and placebos

Our main findings hold whether we exclude controls (first block of results in Table 1, specification a) or include them (second block of results in Table 1, specification b, that corresponds to Equation 1), with the estimates of the effects of interest being slightly larger when controls are included. Indeed, this is our preferred specification, as it enables us to also control for household characteristics and fixed effects for day, month and geographical location, in addition to household fixed effects that are included in all specifications.

Our estimates of the effects of the Bataclan attack on consumers' expenditure hold true whether we only consider a counterfactual year (either 2014, as in specification c, or 2013, as in specification d, in Table 1) instead of two earlier years, or we do not cluster the standard error at the level of the running variable (specification f in Table 1)¹⁹. When we estimate the

¹⁷ In particular, spending on toilet paper and kitchen paper did not increase, suggesting that the estimates are driven by an increase in expenditure on cleaning products. These extra results are available from the authors.

¹⁸ Since using weekly aggregated data, one cannot distinguish for the week of the attack, the days before or after the attack.

¹⁹ The findings are also robust to clustering the standard errors at both the level of the household and the level of the running variable (results available from the authors), which is likely due to including household fixed effects in all specifications.

RDD-DD model applying the 2015 optimal bandwidth (specification e in Table 1) - which is equal to 30 days for total expenditure and sweets, 16 days for salty snacks and soda drinks, 28 days for maintenance products, and 31 days for women's personal hygiene products - the estimates are comparable.

Table 2 shows the sensitivity of our findings (reported in specification a of Table 2, which is the same as specification b of Table 1) to varying the bandwidth. In particular, when applying a bandwidth of 31 days (specification b in Table 2) the estimates of interest are very similar to those when using a 30-day bandwidth, as in our main model. Considering a 60 days bandwidth (specification c, Table 2) all the estimates but the one for women's personal hygiene products lose statistical significance. In contrast, for a bandwidth of 45 days (specification d, Table 2) or 38 days (specification e, Table 2), the estimates of the effect of the Bataclan attack on the outcomes are comparable to those in the main model, although somewhat smaller, which is reasonable. When narrowing the bandwidth to 24 days²⁰ (specification f, Table 2) the estimate of the effect of the Bataclan attack on sweets loses statistical significance, but the estimates of the effect on home maintenance products and women's personal hygiene products remain statistically significant and close in size to those with a one-month bandwidth. However, when considering a smaller bandwidth of 14 days²¹ (specification g, Table 2) all the estimates lose statistical precision, as the number of households observed drops and household heterogeneity may prevail, concealing the effects at stake (see the next subsection on heterogeneous responses).

We also test for the robustness of the estimates to dropping observations located at different distances from the cut-off (as suggested, for instance, by Barreca et al. 2011), by first, dropping observations closer to the cut-off (i.e., the day of the attack) and then, progressively, farther away (see Appendix Table B). Moreover, we test for the sensitivity of the estimation

²⁰ The reason for choosing 24 days is to vary the preferred bandwidth by seven days.

²¹ This corresponds to 2 weeks. However, the estimates of interest are very similar for other close choices of the bandwidth, such as 15 or 16 or 17 days. We control in all the models for day-of-the-week by including dummies for Mondays to Sundays (with reference day Mondays).

results to eliminating observations for a given region (France is divided into 95 administrative departments and we drop all of them one by one; see Appendix Table C). Our conclusions are robust to dropping observations for days close to the cut-off or dropping regions one by one (see Tables B and C, respectively, in the Appendix). Our conclusions are also robust to²² including fixed effects for household and day or to clustering the standard errors at the level of both days elapsed since the attack (and its counterfactual) and the household; or to specifying the outcomes as shares of total daily expenditure.

Next, we run various placebo tests and report the results in Table 3. First, we set the Bataclan attack on the counterfactual day of 2014, i.e., Friday 14th November 2014 (specification a in Table 3) and apply an RDD-DD with 2013 as counterfactual year, to conclude that there was no effect on any of the outcomes. Second, we assume that the attack took place on a different Friday in November 2015, for example, Friday 4th November (specification b in Table 3) to conclude for no effect on any of the outcomes. Third, we set the attack on a day other than a Friday, for instance, Thursday 3rd November 2015, which shows no significant effect on the outcomes. Therefore, this placebo evidence corroborates our findings and suggests that our specification really captures the effect of the Bataclan terrorist attack (that took place on Friday 13th November 2015), since we find no significant effect on the outcomes when we set the attack on days when it did not happen.

Additional specifications: extensive margin, weekly data, duration of effects, anniversary

The estimates of our main model (see our preferred specification, b in Table 1) capture the intensive margin responses. We also estimated a similar specification for the extensive margin, considering the discrete probability of purchasing a positive amount of each of the goods considered (see Table 4). We find an increase of 18% in the chances of purchasing some personal hygiene products due to the Bataclan attack, but no significant impact on purchasing

²² For the sake of conciseness, these additional results are available from the authors.

sweets, salty snacks, soda drinks or home maintenance products at the extensive margin. This seems plausible because one would mostly expect people who usually purchase sweets, salty snacks, soda drinks, and home maintenance products to purchase more of them due to increased stress. As far as the increase in the probability of buying personal hygiene products goes, this result, taken together with the fact that this effect is not significant for households with children or senior households (see Table 6), suggests that some young single-men started purchasing these products, possibly for their (non-cohabiting) girlfriend. Moreover, there is ground to believe that the increase concerns soothing products rather sanitary towels, as the medical literature predicts that stress would negatively impact female intimate health (Amabebe and Anumba, 2018) but does not increase the menstrual cycle (Gilbrech, 2020).

Next, we estimated our model using aggregated weekly data and considering a four weeks bandwidth, excluding from the estimation sample data for the week of the Bataclan attack and the counterfactual Bataclan weeks in 2013 and 2014. The results of estimation (see Table 5) are in line with our main conclusions of significant increases in expenditure on sweets, personal hygiene products and home maintenance products in the aftermath of the Bataclan attack. The size of the estimates is greater than when using daily data, as is plausible, and indicates that the Bataclan attack immediately increased weekly expenditure on sweets by 8%; expenditure on women's personal hygiene products by 38%; and home maintenance products by 13%. Using weekly aggregated data, we also find a significant increase of 4% in total weekly expenditure, while using daily data the estimated coefficient is positive but not statistically significant.

Regarding the duration of the effects, Clark, Doyle and Stancanelli (2020), using the well-being module of the American Time Use Survey, found a sharp drop in happiness and an increase in stress following the 2013 Boston marathon bombing, but concluded that these effects lasted only for a week. Metcalfe, Powdthavee, and Dolan (2011) estimated a significant

negative impact of 9/11 on the mental well-being of the Brits, which lasted according to their estimates for a month. For our data, the estimated coefficients ϕ and ρ from Equation 1 (i.e., the interaction terms between the days elapsed before and after the Bataclan attack and the dummy that takes value 1 in the days after the 2015 Bataclan attack) provide information on the rate of decay of the effect of the attack on the outcomes. However, it is difficult to reach a conclusion because these two estimates are not statistically significant for sweets, but statistically significant and opposite in sign for salty snacks and soda drinks, while only the term from the left is statistically significant and negative for home maintenance products and only the term from the right is statistically significant and negative for women's personal hygiene products. In particular, the latter estimate suggests that the positive effect of the Bataclan attack on expenditure on women's personal hygiene products decayed after around 35 days.

Last but not least, we also estimate whether there was any effect of the anniversary of the Bataclan attack on 13 November 2016, one year later, replicating the estimation of the model but without including the 2015 data, to find no effect on any of the outcomes, except for a decline in expenditure on salty snacks and soda drinks, and a weakly significant decline in total expenditure (results available from the authors). This suggests that the effects are very different when remembering a stressful event than when experiencing it and that, overall, most of effects of the shock on spending do not come back a year later.

Heterogenous findings

One would a priori expect households that resemble the victims of Bataclan (i.e., young people) or have emotional attachments to those victims (parents of young people) or live closer to the place of the attacks (based on geolocation) or in a big town (at risk of future attacks), to react more strongly to the terror. Moreover, based on the biological and psychological literature, certain groups, including children, who are more likely to be impatient, and women (who are,

on average, more likely to be restrained-eaters) are predicted to be more sensitive to stress-induced eating of hypocaloric food (see the Introduction Section for an overview).

In Table 6, we examine the heterogeneity of responses by household composition, considering households with or without kids living at home (specifications b and c, respectively), as well as senior versus non-senior households (specifications d and e, respectively) and households with income below or above a monthly household income of 1,500 Euro, which is the closest income threshold to the minimum wage (specifications f and g, respectively). The level of income may capture education, which is not measured by Kantar, but it could also capture spending possibilities, as households with income below the minimum wage may be less able to adapt their expenditure to stress stimuli. Also, Belot et al. (2021), in a laboratory experiment, conclude that food choices of mothers of low socio-economic status are not responsive to stressors.

We conclude that the significant responses of household expenditures to terrorism that we have found are driven by the responses of households with kids (specification b in Table 6), non-seniors (specification e in Table 6) and those with income above 1,500 Euro per month (specification g in Table 6). Indeed, none of the effects are significant for households without children (specification c in Table 6) or senior households (specification d in Table 6), while for households with income below 1,500 Euro per month (specification f in Table 6) expenditure on salty snacks and soda drinks weakly declines and that on home maintenance products increases (also at the ten per cent statistical significance level).

Heterogeneity of household responses may also arise due to geographical location. Table 7 reports the results of estimations distinguishing subgroups of households, depending on the distance from Paris (the site of the Bataclan attack). One may hypothesize that households located in Paris and closer to Paris, may feel more at risk and react more strongly

than households located further away. Also, most of the victims were from Paris and the region of Paris.

Focusing on households within 200 kilometres of Paris (specification a in Table 7), we observe a significant decline in expenditure on salty snacks and soda drinks, and a large increase in purchases of women's personal hygiene products. However, when considering shorter distances from Paris, the sample size shrinks and heterogeneity may prevail, which may explain the less precise estimates (see specification a, Table 7). Considering households located within 300 kilometres of Paris (specification b in Table 7), we find a significant decline in expenditure on salty snacks and soda drinks, and increases in expenditure on sweets, home maintenance products, and women's personal hygiene products. The results of estimations are very similar for households located within 400 kilometres of Paris (specification c in Table 7), though for them, as for the full sample (see Table 1, specification b), we find no significant effect on salty snacks and soda drinks.

Households located further than 400 kilometres from Paris (specification d in Table 5) are not affected by the Bataclan terrorist attack. The 400km threshold may capture the distance likely travelled by the terrorists when escaping from Paris, in the minds of people, but also the distance travelled by the victims attending the Bataclan attack, who mostly came from regions close to Paris. All in all, these findings indicate that households geographically closer to Paris, within 400 kilometres - so roughly 3 hours away by car or two hours by fast train - responded to the Bataclan attack, but not those located farther away, for whom none of the estimates are statistically significant.

Finally, we consider whether the type of municipality may impact household expenditure responses to the Bataclan attack (see Table 8). One may expect stronger responses from households located in the regional capital (each of the 95 administrative department has a regional capital) than from rural households, since big cities are more often the target of

terrorism. However, as terrorists may also go through small villages in their escape this may not be that clear-cut. Also, we distinguish municipalities based on the presence of a Muslim Mosque, as Muslims, who are likely more represented in these neighbourhoods, may undergo additional stress from fears of being associated with the perpetrators (Gould and Klor, 2014; Armijos Bravo and Vall Castello, 2021) while perhaps non-Muslim households residing in a municipality with a Muslim Mosque may feel less fearful, due, for instance, to contact-hypothesis types of argument (Tsukashima and Montero, 1976).²³

We find that households located in rural municipalities (specification a in Table 8) respond as much as non-rural households (specification b in Table 8) and even more strongly for sweets. The same applies to households not located in the capitals of each region (specification d in Table 8) that react to the Bataclan attack as much as those in the capital towns (specification c in Table 8) and even more strongly for sweets.

Concerning households in municipalities with a Muslim Mosque (specification e in Table 8), their expenditures on sweets and home maintenance products do not appear to respond to the Bataclan attack, but the intake of salty snacks and soda drinks declines weakly and expenditure on women's personal hygiene products increases by over 40%, more than twice as much as for women residing in areas without a Muslim Mosque (specification f in Table 8). The latter effect is somewhat in line with the findings of Armijos Bravo and Vall Castello (2021) of adverse effects on the health of new-borns from Muslim mothers residing close to the site of the 2017 Catalan terrorist attacks.

5. Conclusions

A solid literature concludes that terrorism generates post-traumatic stress disorders that negatively affect individual mental well-being. Much less is known about its impact on

²³ Individuals residing in a municipality with a Muslim Mosque may also perhaps feel less at risk of jihadist attacks, though in the case of the Bataclan attack some of the direct victims of the attack at the Bataclan concert hall came from municipalities with a Muslim Mosque.

consumers 'expenditure on goods that may be triggered by stress. Here, we focus on highly palatable and rewarding food including sweets, salty snack, and soda drinks. We also examine spending on women's personal hygiene products, which are the only female-targeted good in the data, but also may be sensitive to stress. Finally, since stress can affect spending on goods perceived as necessities, which help restore control of the environment (Durante and Laran, 2016), we study expenditure on home maintenance products.

We use for our analysis Kantar panel in-home-scanner expenditure data for over 15,000 households, representative of the French population. The Bataclan attack on Friday 13 November 2015, was timed just a couple of days after a French national vacation day, the 11th November, which is a War Memorial Day, often extended into a long weekend, and spending is likely sensitive to festivities. Therefore, to estimate the impact of the Bataclan terrorist attack on expenditure, we implement a Regression Discontinuity Design, in which calendar days serve as the running variable, combined with a Differences-in-Differences approach whereby similar calendar days in the two earlier years are the counterfactual. We also control for household, municipality, year, month, and day-of-the-week fixed effects, which may capture the weather as well as household consumption habits and local price variations.

We find that the Bataclan attack caused an immediate increase in expenditure on sweets and, for certain groups of the population, a decline in salty snacks and soda drinks. Specifically, household expenditure on sweets went up by over 5%, for the average population household, although this effect is not statistically significant for households without kids. In contrast, spending on salty snacks and soda drinks declined by 7% to 12%, but mostly only for households with income around the minimum wage or located within a few-hours-ride from Paris or in a municipality with a Muslim Mosque. The fact that terrorism impacts in opposite directions expenditure on sweets versus that on salty snacks and soda drinks was not expected a priori and deserves further study. Although the biological and psychological literature

indicates that stress may either increase or reduce the intake of high-caloric foods, it is normally concluded that these opposite stress-induced behaviours are driven by differences in personal traits, while we conclude that they may also depend on the type of hyper-caloric food.

Spending on home maintenance products increased by almost 9%, in line with the prediction that consumers spend more on necessities in response to stress. We detect a significant increase of 23.5% in expenditure on women's personal hygiene products (the only female-targeted expenditure in the Kantar basket of goods), driven by non-senior households and those located within a few-hours-ride of the site of the attack, with the effect being twice as large for households residing in a municipality with a Muslim Mosque. This last finding is in line with evidence that the 2017 Catalan terrorist attacks had adverse effects on the health of new-borns from Muslim mothers residing close to the place of attack.

All these findings are robust to a wealth of specification checks, including dropping covariates, increasing the sample bandwidth, dropping observations close to the RDD cut-off or dropping regions one by one. There is a great deal of heterogeneity, with responses being driven mainly by non-senior households and those located within a few-hours-ride from Paris, which may be explained by the fact that the Bataclan-concert attendees were largely young people from the region of Paris. Moreover, the spending increases in sweets and home-maintenance products are not significant for households without kids, possibly due to parents' protective feelings magnifying the impact of stress, but also to the desires of children themselves for sweets, in line with the prediction of the psychological literature for personality traits such as impatience.

Excessive sugar-intake may generate addictive behaviours and adverse health consequences, and this is also true for women's intimate health. These findings may deserve further attention, and ways to reassure the population need to be devised, such as possibly reducing the media coverage of terrorism, or advising parents to reduce their kids' exposure to

the media, which typically is the main conveyor of the impact of terrorism on those not directly hit.

In line with our findings, one would expect the recent Covid-19 pandemics to have generated similar, and likely more prolonged effects, due to stress from fear of the virus, and this is worth further investigation in future studies.

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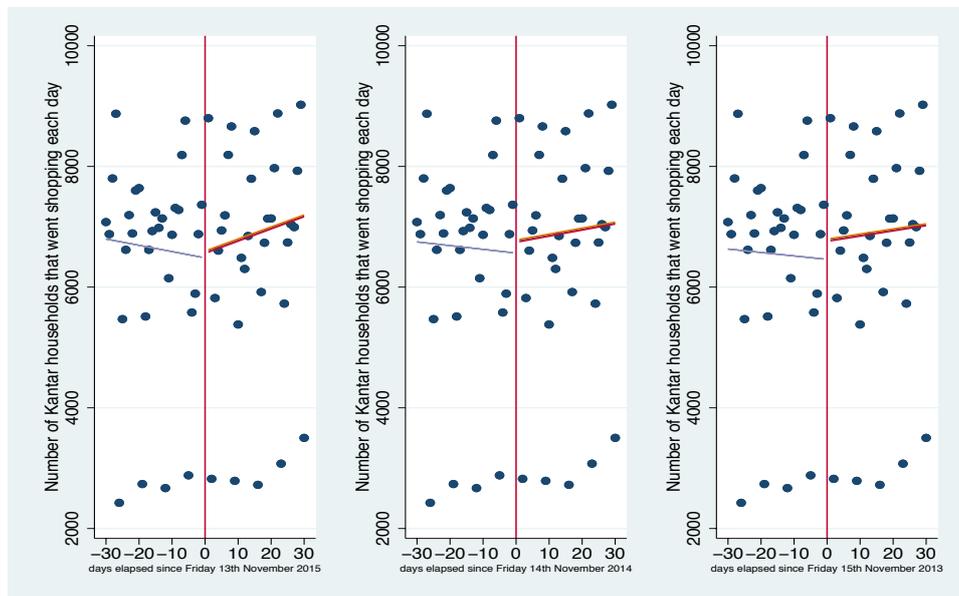
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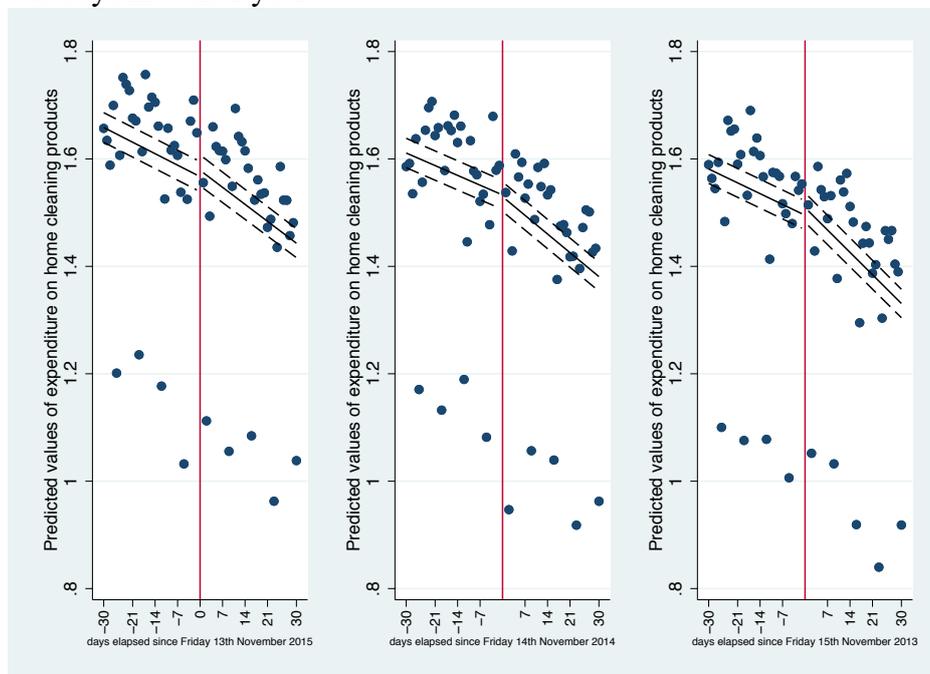
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Figure 1. Continuity of the shopping data before and after the Bataclan attack, and its counterfactual days in the earlier years.



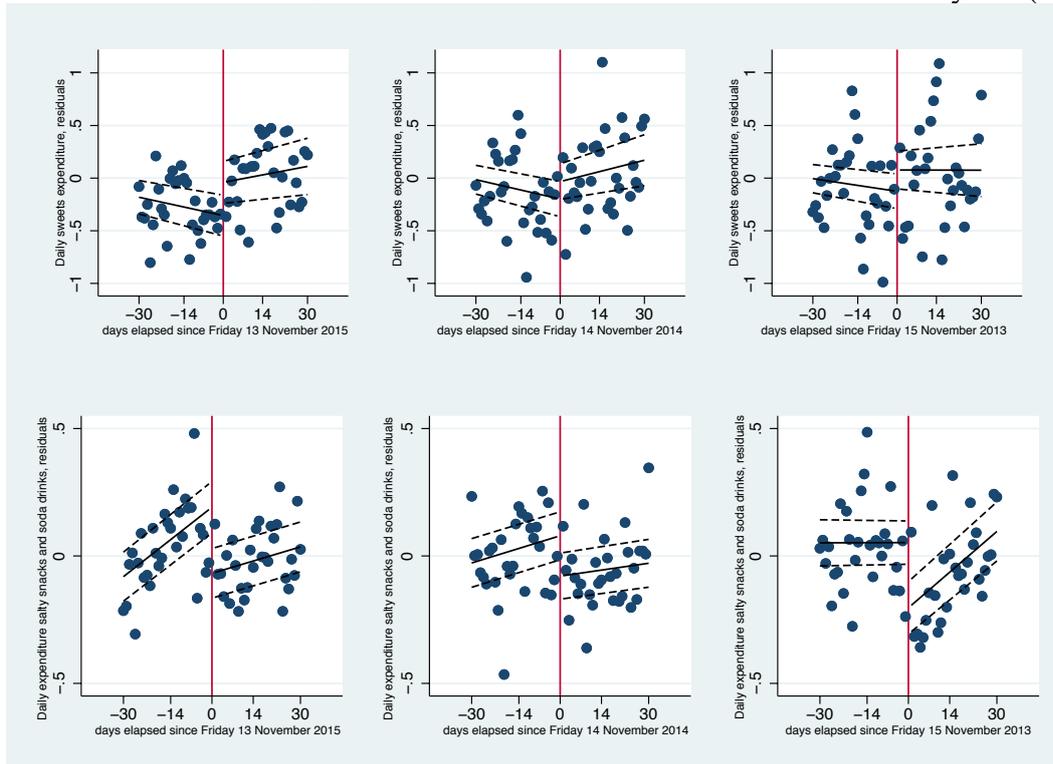
The vertical lines are drawn on the day corresponding to the Bataclan attack (Friday 13th November 2015) and its counterfactual days in the earlier years (respectively, Friday 14 November 2014 and Friday 15 November 2013). The dots are the raw data means (most bottom dots depict Sunday shopping), while the lines are linearly interpolated through triangular kernel estimates. There is no significant discontinuity at the cut-off, with the relevant statistics being, respectively, equal to 118.58 with a standard error of 670.86 for 2015, 149.06 with a standard error of 657.8633 for 2014, and 132.43 with a standard error of 664.35 for 2013.

Figure 2. Continuity of the explanatory variables before and after the Bataclan attack and the counterfactual days in earlier years.



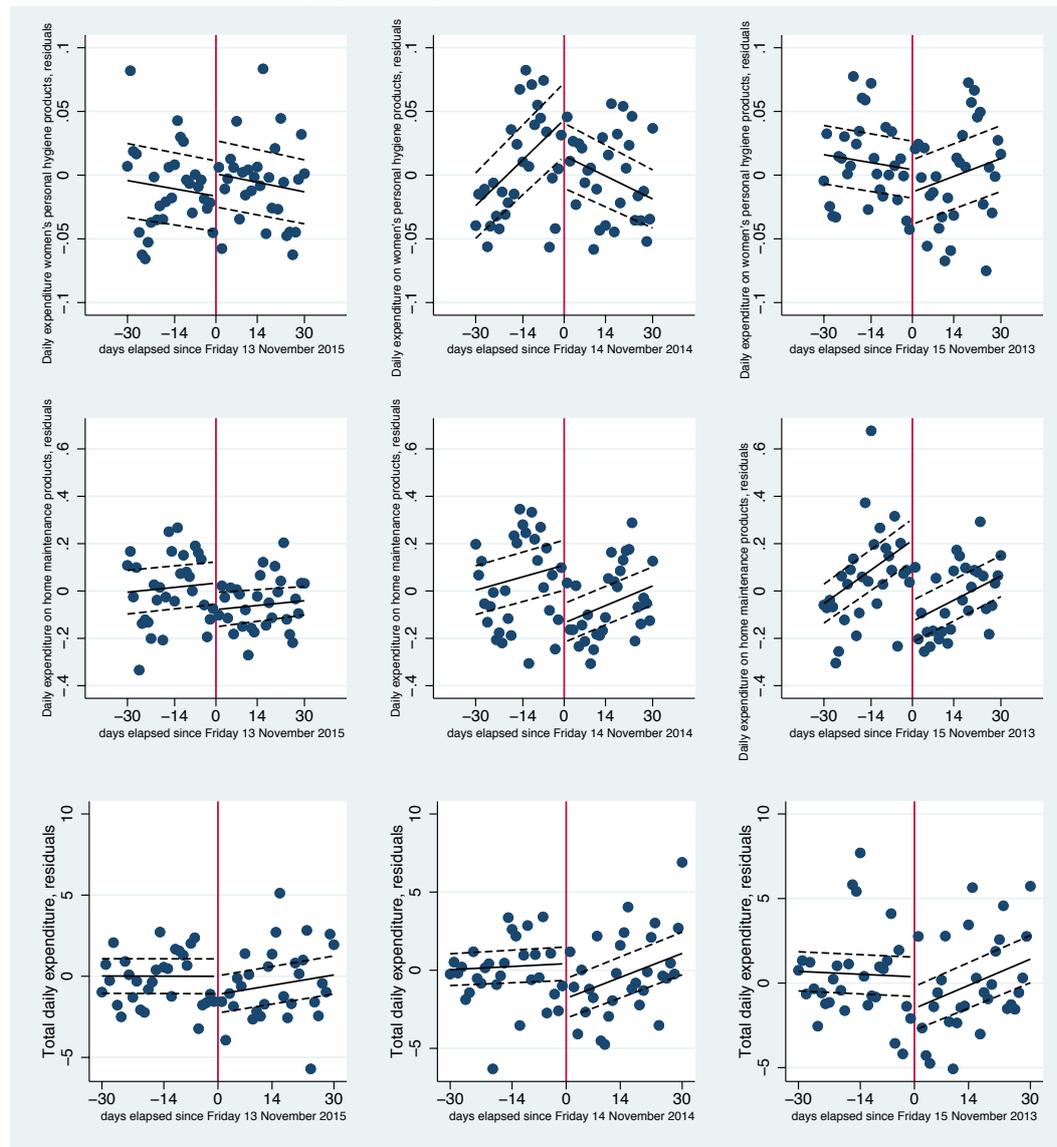
The vertical lines are drawn on the day corresponding to the Bataclan attack (Friday 13th November 2015) and its counterfactual days in the earlier years (respectively, Friday 14 November 2014 and Friday 15 November 2013). Daily expenditure on home maintenance products is predicted as a function of all the covariates that enter our estimation model. This is a standard practice when there are many covariates, as in Card et al. (2015). The dots are the raw expenditure data, while the lines are linearly interpolated through triangular kernel estimates of the predicted values, and the dashed lines are the 95% confidence intervals around these estimates. Similar graphs for the other outcomes (or for the covariates one by one) are available from the authors.

Figure 3. RDD estimates of total daily expenditure on sweets, salty snacks and soda drinks before and after the 2015 Bataclan attack and its counterfactual in earlier years (2013, 2014).



The dots are the raw data means of, respectively, expenditure on sweets, salty snacks and soda drinks, while the lines are linearly interpolated through triangular kernel estimates of the residuals from linear regressions of the outcomes (respectively, sweets, salty snacks and soda drinks) on household characteristics and fixed effects for day-of-the-week, month, and municipality of residence. The dashed lines are the 95% confidence intervals around these estimates. We also produce these graphs plotting kernel estimates of the raw data (see the Appendix). The RDD-DD estimates are provided in Table 1.

Figure 4. RDD estimates of daily expenditure on women’s personal hygiene products, home maintenance goods and total daily expenditure, before and after the 2015 Bataclan attack and its counterfactuals in 2013 and 2014.



The dots are the raw data means of the three outcomes while the lines are linearly interpolated through triangular kernel estimates of the residuals from linear regressions of each outcome on household characteristics and fixed effects for day-of-the-week, month, and municipality of residence, to control for the high variability of expenditure. The dashed lines are the 95% confidence intervals around these estimates. Kernel estimates of the raw data are given in the Appendix. The RDD-DD estimates are provided in Table 1.

Table 1. Results of estimation of the effect of the 2015 Bataclan attack on the outcomes: RDD-Differences-in-Differences estimates using 2014 and 2013 as counterfactual years.

	Total Expenditure	Salty snacks and soda drinks	Sweets	Home maintenance products	Women's personal hygiene products
<i>Means month before Bataclan</i>	51.69	2.05	4.55	1.46	0.21
a) RDD*DD, data from 2015, 2014 & 2013, bandwidth 30 days, without controls					
Dummy Bataclan * 2015	1.279 (0.864)	0.0421 (0.0519)	0.200** (0.0854)	0.128*** (0.0465)	0.0302** (0.0124)
<i>Households</i>	15,056	15,056	15,056	15,056	15,056
<i>Observations</i>	388,869	388,869	388,869	388,869	388,869
<i>R squared</i>	0.339	0.237	0.224	0.137	0.132
b) RDD*DD, data from 2015, 2014 & 2013, bandwidth 30 days, with controls					
Dummy Bataclan * 2015	0.937 (0.930)	-0.0627 (0.0610)	0.247** (0.106)	0.187*** (0.0661)	0.0494*** (0.0176)
<i>Observations</i>	388,869	388,869	388,869	388,869	388,869
<i>R squared</i>	0.345	0.239	0.226	0.139	0.133
c) RDD*DD, data only from 2015 & 2014, bandwidth 30 days, with controls					
Dummy Bataclan * 2015	1.042 (1.051)	-0.112 (0.0732)	0.266** (0.115)	0.141* (0.0792)	0.0477** (0.0195)
<i>Observations</i>	259,058	259,058	259,058	259,058	259,058
<i>R squared</i>	0.357	0.251	0.236	0.153	0.152
d) RDD*DD, data only from 2015 & 2013, bandwidth 30 days, with controls					
Dummy Bataclan * 2015	0.751 (1.050)	-0.00598 (0.0677)	0.228* (0.136)	0.225*** (0.0741)	0.0517** (0.0209)
<i>Observations</i>	258,167	258,167	258,167	258,167	258,167
<i>R squared</i>	0.359	0.256	0.240	0.153	0.153
e) RDD*DD, data from 2015, 2014 & 2013, optimal bandwidth, with controls					
Dummy Bataclan * 2015	0.937 (0.930)	-0.0285 (0.0657)	0.247** (0.106)	0.176** (0.0746)	0.0561*** (0.0179)
<i>Observations</i>	388,869	205,503	388,869	308,908	401,324
<i>R squared</i>	0.345	0.270	0.226	0.147	0.133
f) RDD*DD, data from 2015, 2014 & 2013, bandwidth 30 days, with controls, not clustering the standard errors					
Dummy Bataclan * 2015	0.937 (0.570)	-0.0627 (0.0534)	0.247*** (0.0932)	0.187*** (0.0488)	0.0494*** (0.0170)
<i>Observations</i>	388,869	388,869	388,869	388,869	388,869
<i>R squared</i>	0.345	0.239	0.226	0.139	0.133

The outcomes are daily expenditures in Euro. The models estimated are specified in Equation 1, Section 3. All the models include household fixed effects. All the models, except for specification a, include controls (see the text for the list of controls). All the models, except for specification e, cluster the standard errors at the level of the running variable. The optimal bandwidth in specification e) is of 30 days for total expenditure and sweets; 16 days for salty snacks and soda drinks; 28 days for home maintenance products; and 31 days for women's personal hygiene products. Standard errors are given in brackets. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 2. Robustness checks. Varying the sample bandwidth.
 RDD-Differences-in-Differences estimates using 2014 and 2013 as counterfactual years.

	Total Expenditure	Salty snacks and soda drinks	Sweets	Home maintenance	Women's personal hygiene
a) RDD*DD, bandwidth 30 days					
Dummy Bataclan * 2015	0.937 (0.930)	-0.0627 (0.0610)	0.247** (0.106)	0.187*** (0.0661)	0.0494*** (0.0176)
<i>Households</i>	15,056	15,056	15,056	15,056	15,056
<i>Observations</i>	388,869	388,869	388,869	388,869	388,869
<i>R squared</i>	0.345	0.239	0.226	0.139	0.133
b) RDD*DD, bandwidth 31 days					
Dummy Bataclan * 2015	0.928 (0.923)	-0.0641 (0.0592)	0.282** (0.107)	0.169** (0.0652)	0.0561*** (0.0179)
<i>Households</i>	15,093	15,093	15,093	15,093	15,093
<i>Observations</i>	401,324	401,324	401,324	401,324	401,324
<i>R squared</i>	0.344	0.238	0.223	0.138	0.133
c) RDD*DD, bandwidth 60 days					
Dummy Bataclan * 2015	-0.215 (0.509)	-0.0181 (0.0359)	0.115 (0.0781)	-0.00939 (0.0350)	0.0181** (0.00869)
<i>Households</i>	15,747	15,747	15,747	15,747	15,747
<i>Observations</i>	730,535	730,535	730,535	730,535	730,535
<i>R squared</i>	0.325	0.219	0.195	0.122	0.112
d) RDD*DD, bandwidth 45 days					
Dummy Bataclan * 2015	0.958 (0.895)	-0.0109 (0.0642)	0.259** (0.105)	0.128** (0.0563)	0.0372*** (0.0140)
<i>Households</i>	15,359	15,359	15,359	15,359	15,359
<i>Observations</i>	568,107	568,107	568,107	568,107	568,107
<i>R squared</i>	0.330	0.224	0.200	0.127	0.120
e) RDD*DD, bandwidth 38 days					
Dummy Bataclan * 2015	2.046** (0.909)	0.0122 (0.0600)	0.350*** (0.102)	0.148*** (0.0552)	0.0451*** (0.0151)
<i>Households</i>	15,274	15,274	15,274	15,274	15,274
<i>Observations</i>	497,215	497,215	497,215	497,215	497,215
<i>R squared</i>	0.336	0.230	0.209	0.131	0.125
f) RDD*DD, bandwidth 24 days					
Dummy Bataclan * 2015	0.772 (1.111)	-0.0602 (0.0631)	0.0988 (0.129)	0.176** (0.0746)	0.0320* (0.0186)
<i>Households</i>	14,714	14,714	14,714	14,714	14,714
<i>Observations</i>	308,908	308,908	308,908	308,908	308,908
<i>R squared</i>	0.352	0.248	0.238	0.147	0.142
g) RDD*DD, bandwidth 14 days					
Dummy Bataclan * 2015	-0.190 (1.526)	-0.0379 (0.0705)	0.139 (0.193)	0.0822 (0.113)	0.0188 (0.0191)
<i>Households</i>	13,666	13,666	13,666	13,666	13,666
<i>Observations</i>	180,015	180,015	180,015	180,015	180,015
<i>R squared</i>	0.374	0.275	0.272	0.172	0.171

The outcomes are daily expenditures in Euro. The models estimated are specified in Equation 1, Section 3. All the models include household fixed effects and controls (see the text for the list of controls). Standard errors (in brackets) are clustered at the level of the running variable. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 3. Placebos

	Total Expenditure	Salty snacks and soda drinks	Sweets	Home maintenance products	Women's personal hygiene products
a) Assuming that the attack took place on the equivalent day of 2014 (Friday 14 November 2014) and using 2013 and 2014 data (not using 2015 data)					
"Bataclan placebo"	-0.287 (0.902)	0.105 (0.0683)	-0.0194 (0.117)	0.0897 (0.0726)	0.00305 (0.0178)
<i>Observations</i>	260,290	260,290	260,290	260,290	260,290
<i>R squared</i>	0.354	0.251	0.238	0.149	0.143
b) Assuming that the attack took place on Friday 4th November 2015					
"Bataclan placebo"	0.300 (0.876)	0.00232 (0.0590)	0.0744 (0.114)	0.00856 (0.0773)	0.00344 (0.0183)
<i>Observations</i>	361,710	361,710	361,710	361,710	361,710
<i>R squared</i>	0.349	0.240	0.242	0.138	0.133
c) Assuming that the attack took place on Thursday 3rd November 2015 and using 2015, 2014 and 2013 data					
"Bataclan placebo"	0.720 (0.904)	0.0342 (0.0631)	0.0922 (0.121)	-0.0243 (0.0761)	-0.00982 (0.0173)
<i>Observations</i>	362,062	362,062	362,062	362,062	362,062
<i>R squared</i>	0.350	0.240	0.244	0.138	0.135

The outcomes are daily expenditures in Euro. The models estimated are specified in Equation 1, Section 3, with the treatment T taking value one on the placebo day and Year taking the value of the placebo year. All the models include household fixed effects and controls. Standard errors (in brackets) are clustered at the level of the running variable. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 4. Extensive margin results. Probability to purchase a positive quantity of each good. RDD-Differences-in-Differences estimates using 2014 and 2013 as counterfactual years.

	Salty snacks and soda drinks	Sweets	Home maintenance products	Women's Personal Hygiene
<i>Means month before</i>	0.639	0.456	0.318	0.057
Dummy Bataclan * 2015	-0.00127 (0.00772)	0.00614 (0.00984)	0.0102 (0.0107)	0.0103*** (0.00338)
<i>Households</i>	15056	15056	15056	15056
<i>Observations</i>	388,869	388,869	388,869	388,869
<i>R squared</i>	0.267	0.201	0.139	0.134

The models estimated are linear probability models specified as in Equation 1, Section 3. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 5. Results of estimation using aggregated weekly data and four weeks bandwidth. RDD-Differences-in-Differences estimates using 2014 and 2013 as counterfactual years.

	Total Expenditure	Salty snacks and soda drinks	Sweets	Home maintenance products	Women's personal Hygiene
<i>Means month before</i>	103.35	4.2	6.97	4.899	0.444
Dummy Bataclan * 2015	4.253*** (1.543)	-0.131 (0.128)	0.584*** (0.160)	0.621*** (0.195)	0.167*** (0.0313)
<i>Households</i>	15,028	15,028	15,028	15,028	15,028
<i>Observations</i>	194,951	194,951	194,951	194,951	194,951
<i>R squared</i>	0.389	0.310	0.297	0.195	0.216

The models estimated are as in Equation 1, Section 3, as in our preferred specification, 1b in Table 1. Data for the 2015 Bataclan week and the counterfactual Bataclan weeks in 2013 and 2014 are not included in the estimation sample. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 6. Heterogenous results by household composition and income.
 RDD-Differences-in-Differences estimates using 2014 and 2013 as counterfactual years.

	Total Expenditure	Salty snacks and soda drinks	Sweets	Home maintenance products	Women's personal hygiene products
a) Full sample					
<i>Means month before</i>	51.69	2.05	4.55	1.46	0.21
Dummy Bataclan * 2015	0.937 (0.930)	-0.0627 (0.0610)	0.247** (0.106)	0.187*** (0.0661)	0.0494*** (0.0176)
<i>Households</i>	15,056	15,056	15,056	15,056	15,056
<i>Observations</i>	388,869	388,869	388,869	388,869	388,869
<i>R squared</i>	0.345	0.239	0.226	0.139	0.133
b) Households with kids living at home					
<i>Means month before</i>	64.59	2.94	6.23	1.82	0.288
Dummy Bataclan * 2015	2.092 (1.267)	-0.0697 (0.110)	0.458** (0.175)	0.374*** (0.124)	0.101 (0)
<i>Households</i>	7,381	7,381	7,381	7,381	7,381
<i>Observations</i>	158,096	158,096	158,096	158,096	158,096
<i>R squared</i>	0.294	0.214	0.206	0.109	0.084
c) Household without kids living at home					
<i>Means month before</i>	42.41	1.41	3.34	1.192	0.159
Dummy Bataclan * 2015	0.111 (0.92)	-0.0543 (0.0568)	0.0935 (0.0952)	0.0541 (0.0567)	0.0128 (0.0167)
<i>Households</i>	8,094	8,094	8,094	8,094	8,094
<i>Observations</i>	230,756	230,756	230,756	230,756	230,756
<i>R squared</i>	0.340	0.210	0.193	0.134	0.16
d) Senior households					
<i>Means month before</i>	40.64	1.11	3.09	1.11	0.15
Dummy Bataclan * 2015	-0.680 (1.163)	0.0209 (0.0711)	0.0295 (0.134)	0.00331 (0.0881)	-0. (0.0262)
<i>Households</i>	2,938	2,938	2,938	2,938	2,938
<i>Observations</i>	103,238	103,238	103,238	103,238	103,238
<i>R squared</i>	0.325	0.150	0.164	0.120	0.166
e) Non-Senior households					
<i>Means month before</i>	55.65	2.38	5.079	1.58	0.236
Dummy Bataclan * 2015	1.490 (1.081)	-0.0951 (0.0766)	0.323** (0.136)	0.253*** (0.0901)	0.0678*** (0.0195)
<i>Households</i>	12,477	12,477	12,477	12,477	12,477
<i>Observations</i>	285,622	285,622	285,622	285,622	285,622
<i>R squared</i>	0.337	0.234	0.227	0.141	0.124
f) Income below middle range					
<i>Means month before</i>	38.186	1.45	3.42	1.12	0.18
Dummy Bataclan * 2015	-0.214 (0.868)	-0.176* (0.0900)	0.210 (0.186)	0.150* (0.0882)	0.0218 (0.0377)
<i>Households</i>	2,795	2,795	2,795	2,795	2,795
<i>Observations</i>	68,096	68,096	68,096	68,096	68,096
<i>R squared</i>	0.381	0.269	0.233	0.152	0.141
g) Income equal and above middle range					
<i>Means month before</i>	57.2	2.297	5.01	1.59	0.224
Dummy Bataclan * 2015	1.175 (1.046)	-0.0381 (0.0725)	0.256** (0.120)	0.194** (0.0778)	0.0557** (0.0243)
<i>Households</i>	12,662	12,662	12,662	12,662	12,662
<i>Observations</i>	320,759	320,759	320,759	320,759	320,759
<i>R squared</i>	0.326	0.232	0.221	0.135	0.133

The outcomes are daily expenditures in Euro. The models estimated are specified in Equation 1, Section 3. All the models include household fixed effects and controls (see the text for the list of controls). Standard errors (in brackets) are clustered at the level of the running variable. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 7. Heterogenous results by household geographical distance. RDD-Differences-in-Differences estimates using 2014 and 2013 as counterfactual years.

	Total Expenditure	Salty snacks and soda drinks	Sweets	Home maintenance products	Women's personal hygiene
a) <200 km from Paris					
<i>Means month before</i>	51.52	2.07	4.34	1.51	0.22
Dummy Bataclan * 2015	0.0689 (1.224)	-0.256** (0.101)	0.101 (0.144)	0.174 (0.108)	0.0698** (0.0342)
<i>Households</i>	5,385	5,385	5,385	5,385	5,385
<i>Observations</i>	144,811	144,811	144,811	144,811	144,811
<i>R squared</i>	0.350	0.247	0.238	0.138	0.120
b) <300 km from Paris					
<i>Means month before</i>	51.93	2.09	4.37	1.50	0.21
Dummy Bataclan * 2015	0.747 (1.133)	-0.164** (0.0785)	0.222* (0.125)	0.194** (0.0797)	0.0685*** (0.0256)
<i>Households</i>	7,672	7,672	7,672	7,672	7,672
<i>Observations</i>	202,232	202,232	202,232	202,232	202,232
<i>R squared</i>	0.244	0.234	0.271	0.138	0.122
c) <= 400 Km from Paris					
<i>Means month before</i>	52.06	2.09	4.54	1.47	0.21
Dummy Bataclan * 2015	1.250 (0.974)	-0.0635 (0.0679)	0.257** (0.109)	0.228*** (0.0756)	0.0556** (0.0218)
<i>Households</i>	10,565	10,565	10,565	10,565	10,565
<i>Observations</i>	274,025	274,025	274,025	274,025	274,025
<i>R squared</i>	0.347	0.244	0.229	0.138	0.134
d) >400 Km from Paris					
<i>Means month before</i>	50.82	1.96	4.59	1.43	0.22
Dummy Bataclan * 2015	0.197 (1.147)	-0.0647 (0.0854)	0.222 (0.157)	0.0918 (0.0921)	0.0347 (0.0285)
<i>Households</i>	4,560	4,560	4,560	4,560	4,560
<i>Observations</i>	114,843	114,843	114,843	114,843	114,843
<i>R squared</i>	0.340	0.224	0.218	0.140	0.131

The outcomes are daily expenditures in Euro. The models estimated are specified in Equation 1, Section 3. All the models include household fixed effects and controls (see the text for the list of controls). Standard errors (in brackets) are clustered at the level of the running variable. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 8. Heterogenous results by type of municipality and presence of a Muslim Mosque. RDD-Differences-in-Differences estimates using 2014 and 2013 as counterfactual years.

	Total Expenditure	Salty snacks and soda drinks	Sweets	Home maintenance products	Women's personal hygiene products
a) Rural households (< 2000 inhabitants)					
<i>Means month before</i>	61.98	2.46	5.84	1.74	0.267
Dummy Bataclan * 2015	1.915 (1.404)	-0.0567 (0.117)	0.480** (0.202)	0.204* (0.119)	0.0550** (0.0275)
<i>Households</i>	4,523	4,523	4,523	4,523	4,523
<i>Observations</i>	118,130	118,130	118,130	118,130	118,130
<i>R squared</i>	0.343	0.234	0.224	0.133	0.118
b) Not Rural households (>= 2000 inhabitants)					
<i>Means month before</i>	48.23	1.91	4.122	1.36	0.195
Dummy Bataclan * 2015	0.633 (0.93)	-0.0646 (0.0582)	0.166* (0.0985)	0.117 (0.0709)	0.0588*** (0.0198)
<i>Households</i>	10,708	10,708	10,708	10,708	10,708
<i>Observations</i>	294,185	294,185	294,185	294,185	294,185
<i>R squared</i>	0.347	0.242	0.223	0.136	0.113
c) Regional principal town					
<i>Means month before</i>	50.029	1.989	4.42	1.41	0.21
Dummy Bataclan * 2015	1.577 (1.091)	0.0389 (0.0940)	-0.154 (0.174)	0.204* (0.119)	0.0550** (0.0275)
<i>Households</i>	4,448	4,448	4,448	4,448	4,448
<i>Observations</i>	118,130	118,130	118,130	118,130	118,130
<i>R squared</i>	0.343	0.234	0.224	0.133	0.118
d) Not a regional principal town					
<i>Means month before</i>	52.413	2.081	4.611	1.478	0.214
Dummy Bataclan * 2015	0.693 (1.031)	-0.106 (0.066)	0.424*** (0.109)	0.180** (0.0701)	0.0475*** (0.0173)
<i>Households</i>	10,844	10,844	10,844	10,844	10,844
<i>Observations</i>	270,727	270,727	270,727	270,727	270,727
<i>R squared</i>	0.347	0.243	0.227	0.142	0.141
e) Presence of a Muslim Mosque					
<i>Means month before</i>	47.14	2.021	4.084	1.37	0.189
Dummy Bataclan * 2015	-0.313 (1.295)	-0.145* (0.0731)	0.239 (0.206)	0.0530 (0.0939)	0.0805*** (0.0288)
<i>Households</i>	3,407	3,407	3,407	3,407	3,407
<i>Observations</i>	90,825	90,825	90,825	90,825	90,825
<i>R squared</i>	0.355	0.254	0.229	0.139	0.105
f) Absence of a Muslim Mosque					
<i>Means month before</i>	53.38	2.1	4.73	1.5	0.219
Dummy Bataclan * 2015	1.287 (1.085)	-0.0398 (0.0727)	0.244** (0.121)	0.225*** (0.0683)	0.0404* (0.0206)
<i>Households</i>	11,843	11,843	11,843	11,843	11,843
<i>Observations</i>	298,039	298,039	298,039	298,039	298,039
<i>R squared</i>	0.340	0.236	0.224	0.139	0.140

The outcomes are daily expenditures in Euro. The models estimated are specified in Equation 1, Section 3. All the models include household fixed effects and controls (see the text for the list of controls). Standard errors (in brackets) are clustered at the level of the running variable. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Appendix for Online Publication

Figure A. Google searches for the term “restaurant”

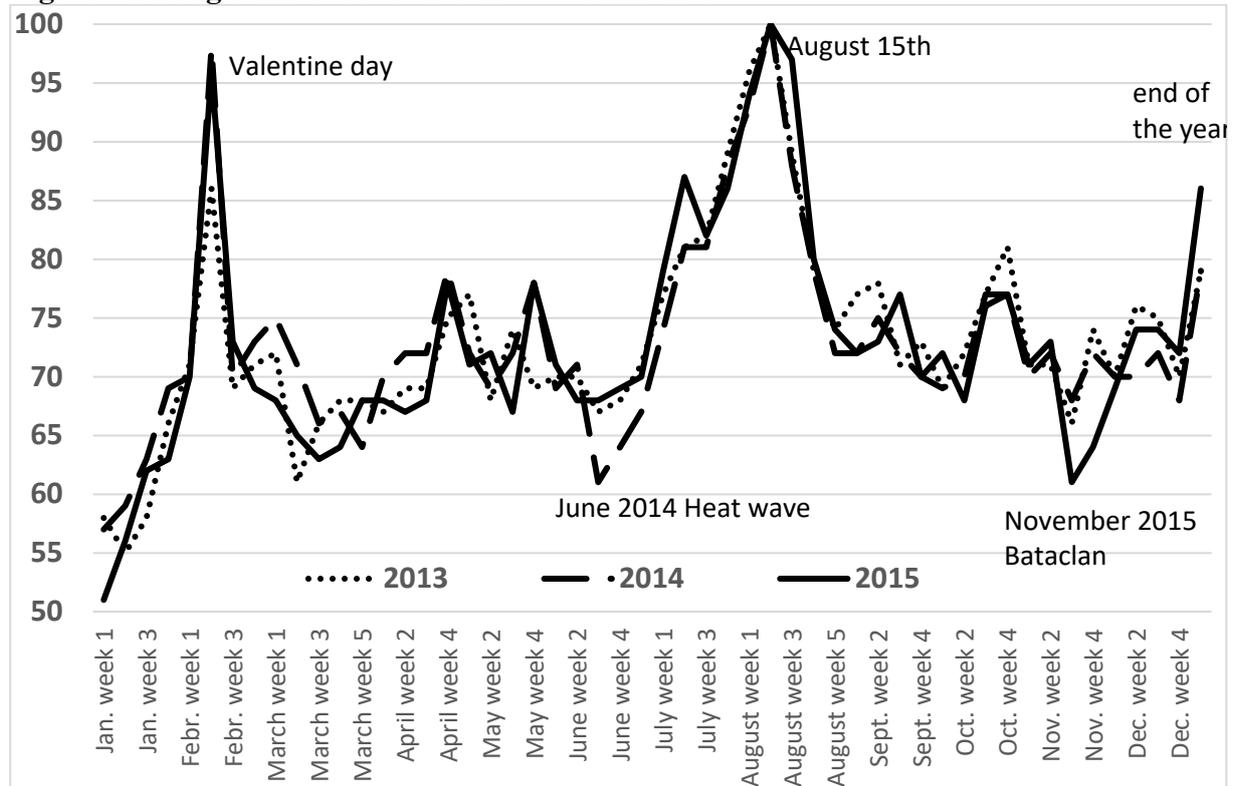
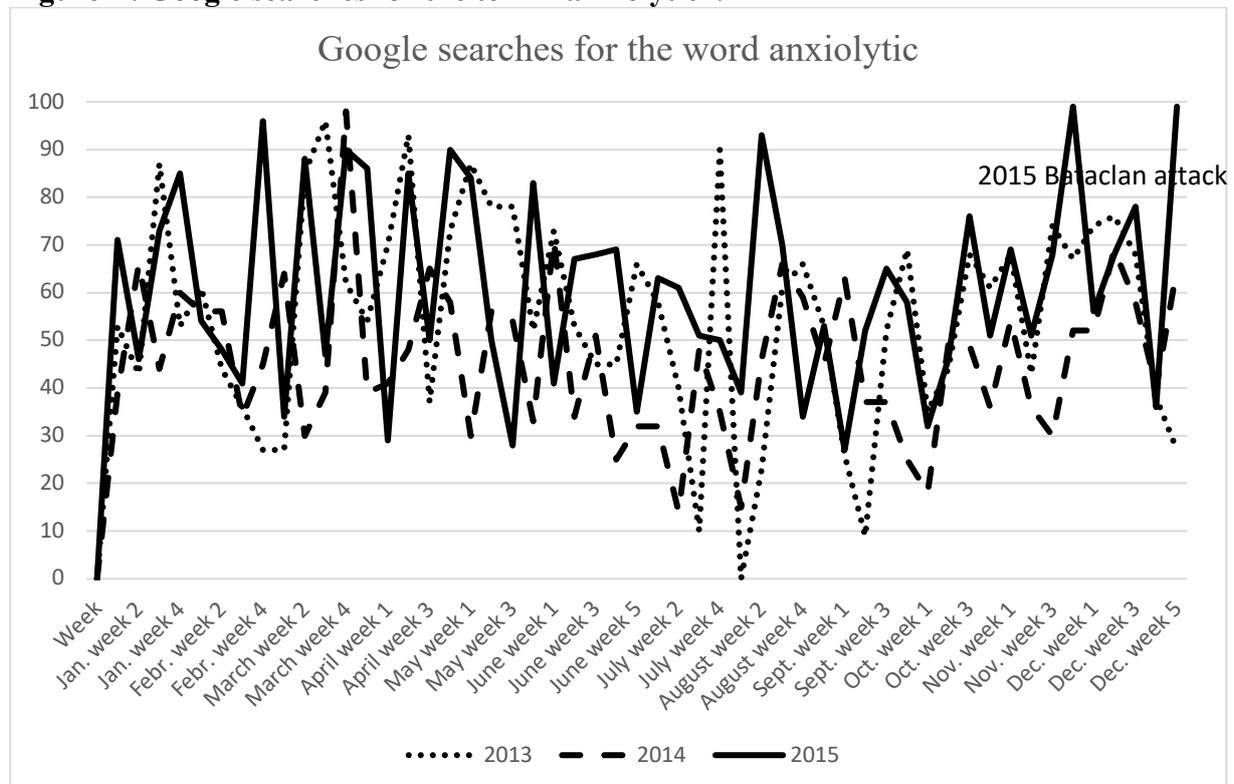
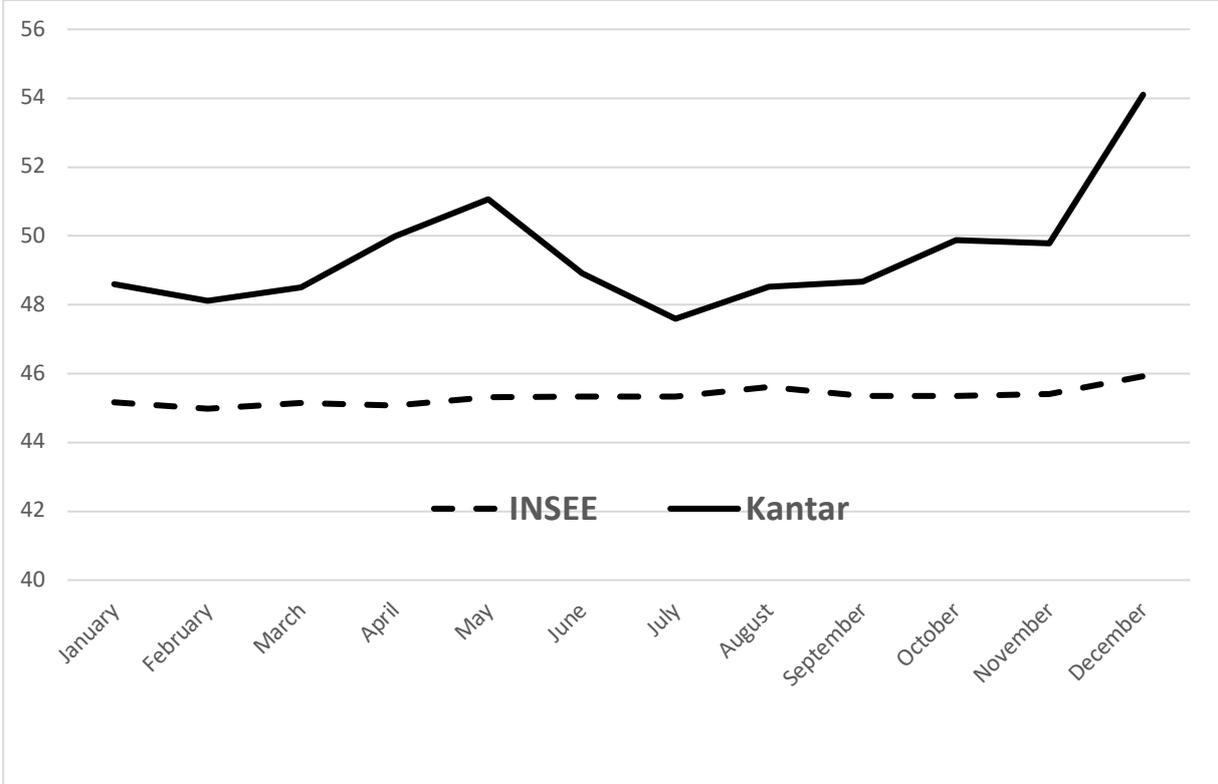


Figure B. Google searches for the term “anxiolytic”.



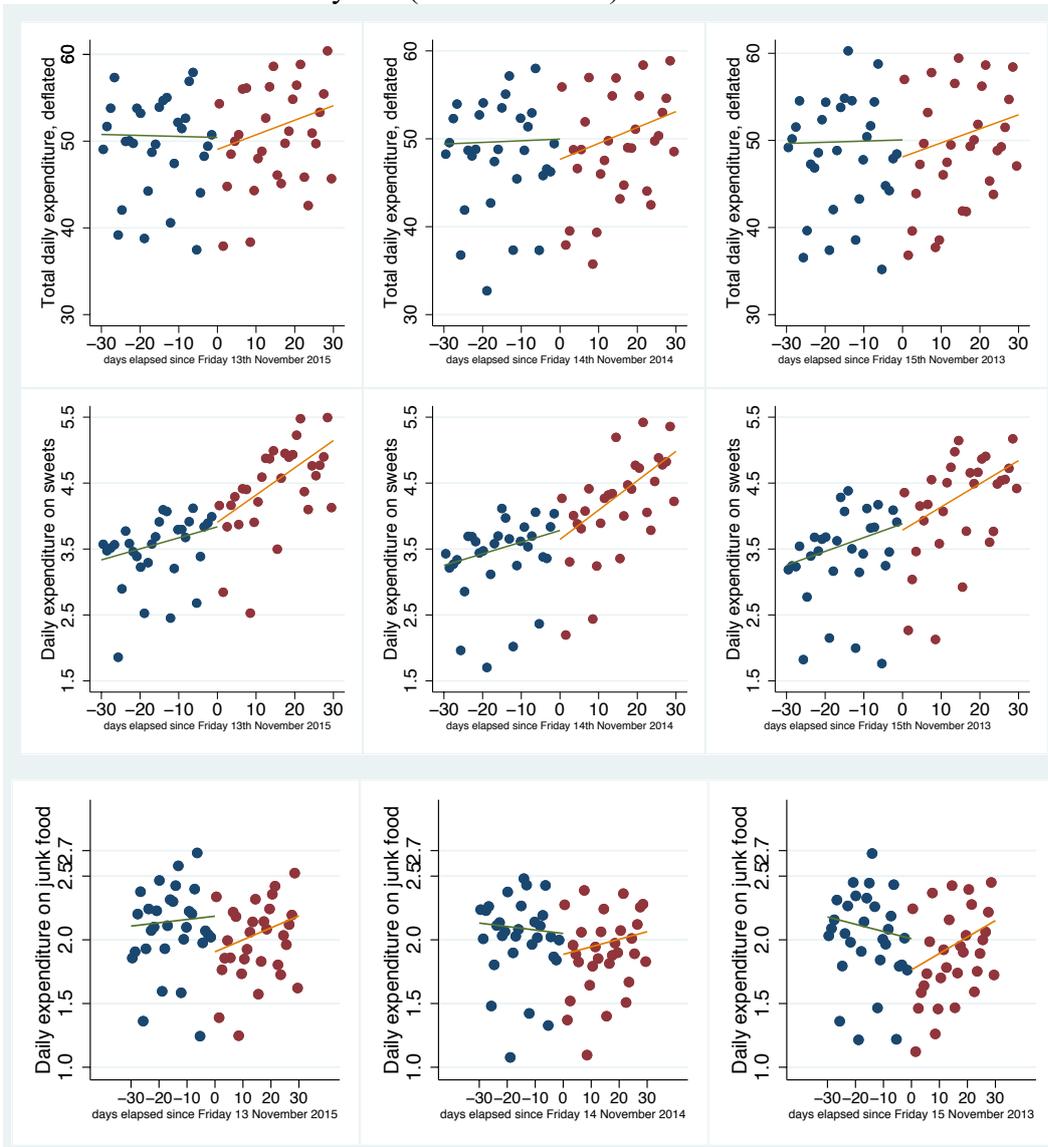
Source: Google trend searches. The frequencies on the vertical axis reflect the relative importance of the search for a given term and not the actual number of clicks.

Figure C. Household non-durable consumption monthly expenditure in 2014.



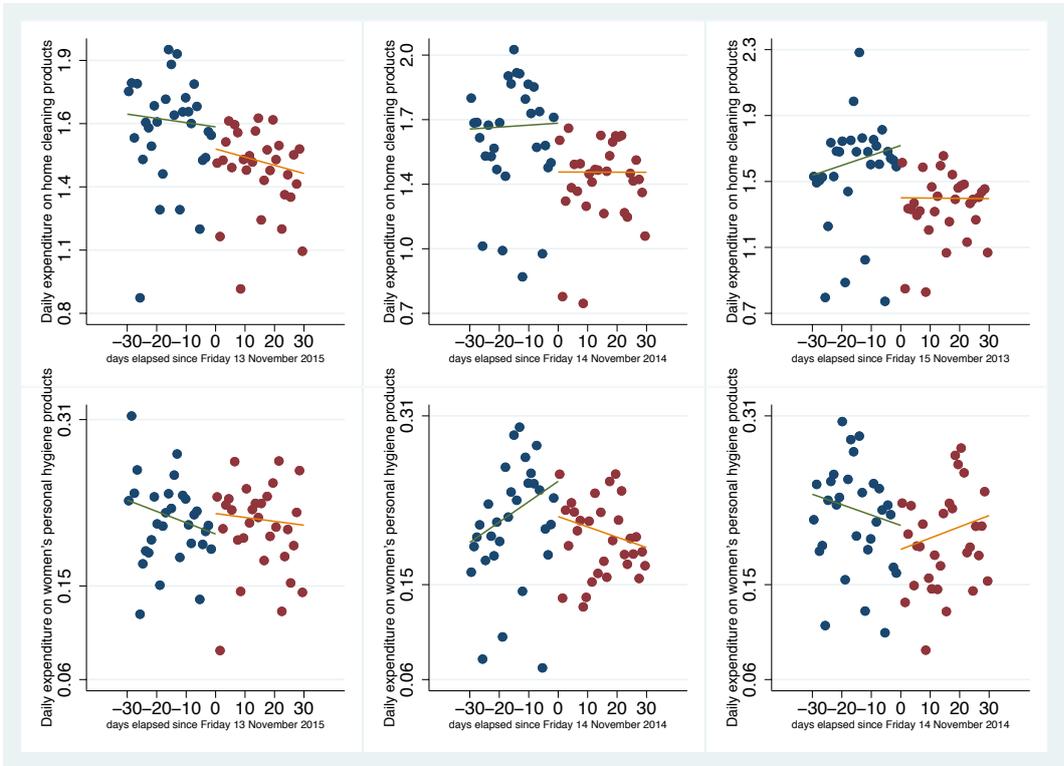
The Kantar data are monthly averages from the high-frequency expenditure data described in Section 2, while the INSEE data are adjusted monthly estimates taken from INSEE online statistics.

Figure D. Total daily expenditure and daily expenditure on sweets or salty snacks and soda drinks (labelled ‘junk food’), before and after the 2015 Bataclan attack and the counterfactual Bataclan attack in earlier years (2014 and 2013).



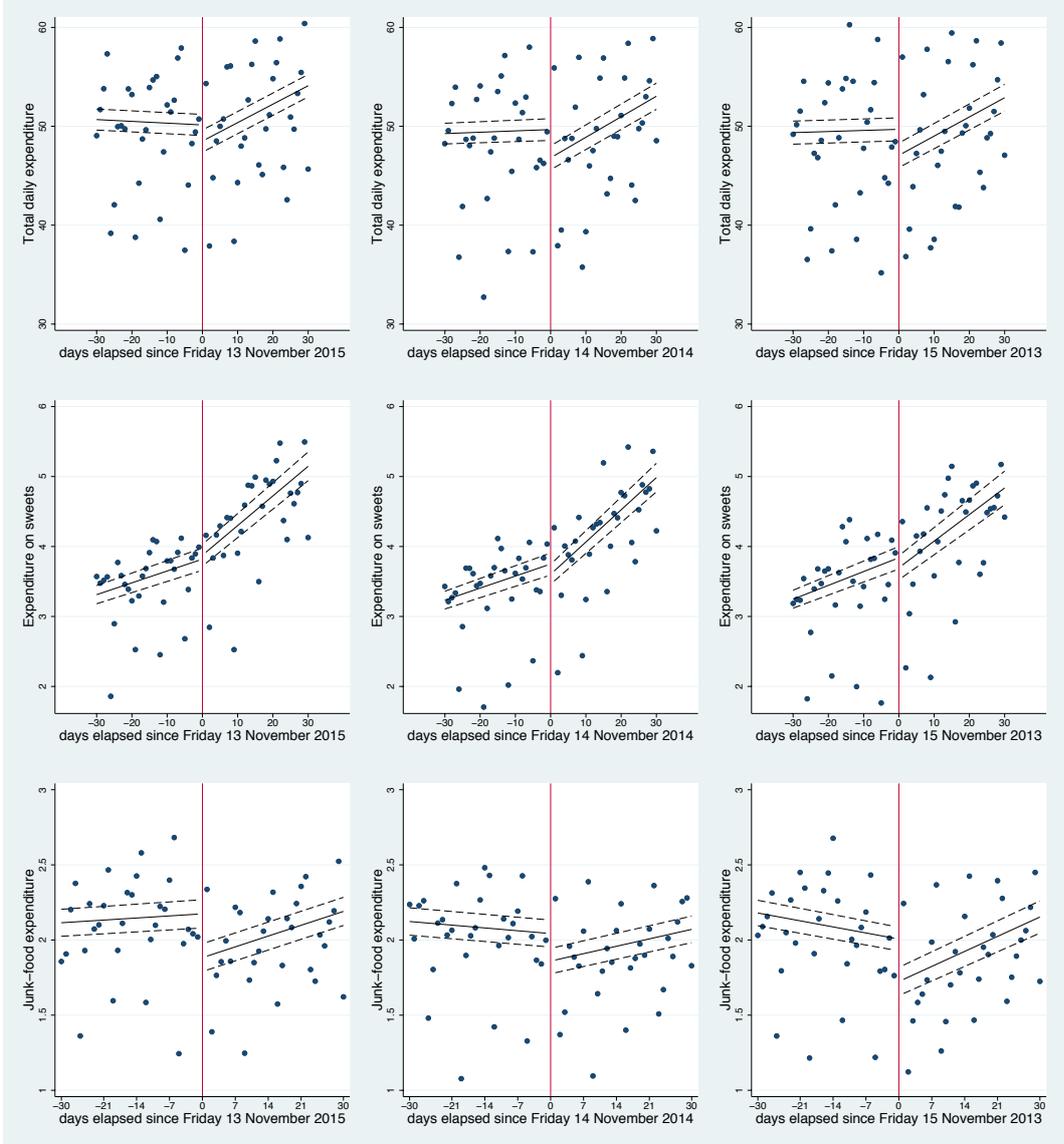
The zero corresponds to the Bataclan attack (Friday 13th November) in 2015 and its counterfactual days in the earlier years (respectively, Friday 14 November 2014 and Friday 15 November 2013). The dots are the daily averages of the raw data points. The lines are linearly interpolated through the raw data.

Figure E. Total daily expenditure on home maintenance products and women’s personal hygiene products, before and after the 2015 Bataclan attack and the counterfactuals in 2013 and 2014.



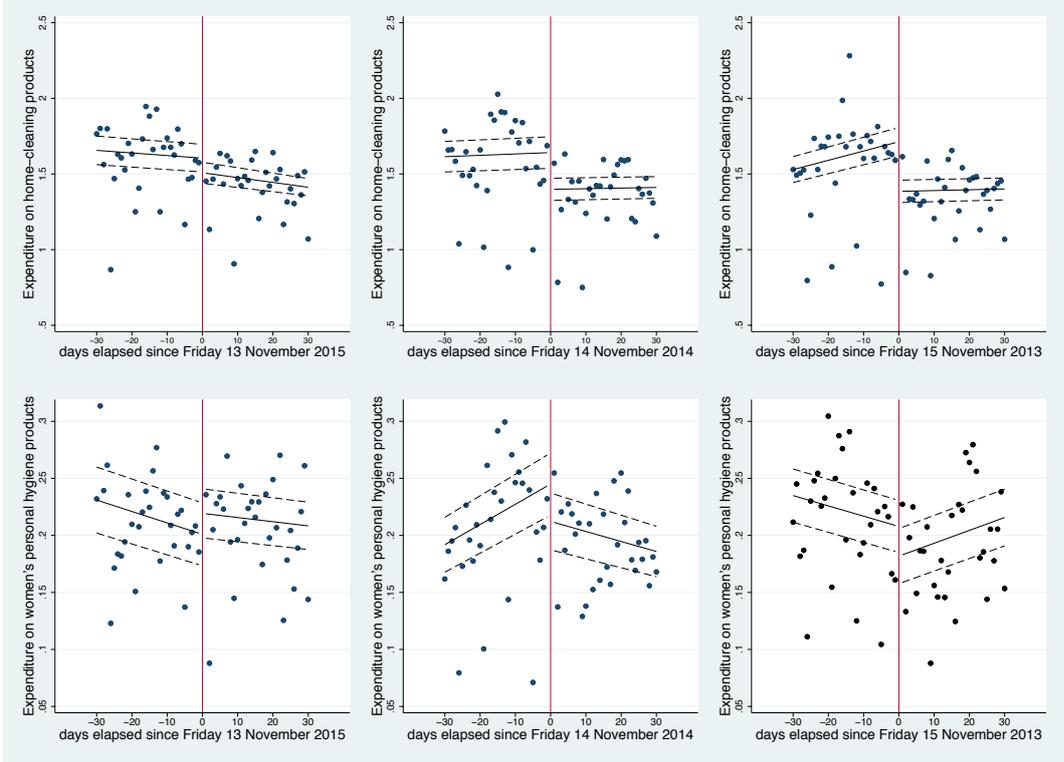
The zero corresponds to the Bataclan attack (Friday 13th November) in 2015 and its counterfactual days in the earlier years (respectively, Friday 14 November 2014 and Friday 15 November 2013). The dots are the daily averages of the raw data points. The lines are linearly interpolated through the raw data.

Figure F. Non-parametric RDD estimates of total daily expenditure and expenditure on sweets and salty snacks and soda drinks (labelled ‘junk food’) before and after the 2015 Bataclan attack and its counterfactual days in earlier years (2013 and 2014).



The dots are the raw data means, while the lines are linearly interpolated through triangular kernel estimates ((without any controls or fixed effects) and the dashed lines are the 95% confidence intervals around these estimates.

Figure G. Non-parametric RDD estimates of daily expenditure on home maintenance products and women’s personal hygiene goods before and after the 2015 Bataclan attack and its counterfactuals in 2013 and 2014, respectively.



The dots are the raw data means, while the lines are linearly interpolated through triangular kernel estimates ((without any controls or fixed effects) and the dashed lines are the 95% confidence intervals around these estimates.

Table A. Descriptive statistics. Differences in means before and after the 2015 Bataclan attack and its counterfactuals in earlier years (2013 and 2014).

	2013	2013	difference	2014	2014	difference	2015	2015	difference
	30 days before	30 days after	in means	30 days before	30 days after	in means	30 days before	30 days after	in means
Couple without children living at home	0.31 (0.001)	0.309 (0.0018)	0.001 (0.002)	0.316 (0.001)	0.319 (0.001)	-0.003 (0.002)	0.306 (0.001)	0.3111 (0.0018)	-0.005 (0.002)
Household with children living at home	0.397 (0.001)	0.4 (0.001)	-0.002 (0.002)	0.405 (0.001)	0.399 (0.001)	0.005 (0.002)*	0.42 (0.001)	0.4182 (0.001)	0.0018 (0.002)
Senior household	0.2646 (0.0017)	0.264 (0.001)	-0.0001 (0.0024)	0.265 (0.001)	0.272 (0.001)	-0.006 (0.002)**	0.26 (0.001)	0.263 (0.0017)	-0.0034 (0.002)
Household income bracket	11.849 (0.0119)	11.897 (0.011)	-0.048 (0.016)	11.93 (0.01)	11.971 (0.011)	-0.033 (0.016)**	11.98 (0.011)	11.99 (0.011)	-0.0142 (0.016)
Distance from Paris	290.55 (0.811)	286.6649 (0.807)	3.88 (1.145)**	289.93 (0.80)	287.391 (0.80)	2.54 (1.13)**	292.88 (0.80)	292.95 (0.805)	-0.076 (1.13)
Population size	160307.6 (2038.139)	178767.8 (2152.682)	-18460.18 (2966.2)**	171667 (2117.07)	177790.4 (2146.4)	-6123.3 (3015.2)**	161518 (2058.6)	160845 (2056.1)	672.9 (2909.5)
Rural municipality	0.24 (0.0016)	0.233 (0.001)	0.00738 (0.002)**	0.2433 (0.001)	0.2395 (0.001)	0.0038 (0.002)	0.253 (0.0017)	0.2514 (0.0017)	0.0023 (0.002)
Regional principal town	0.308 (0.001)	0.306 (0.001)	0.002 (0.002)	0.3054 (0.001)	0.3031 (0.001)	0.002 (0.002)	0.296 (0.0018)	0.302 (0.001)	-0.005 (0.002)**
City with administrative offices	0.127 (0.001)	0.127 (0.001)	-0.0003 (0.001)	0.123 (0.001)	0.124 (0.001)	-0.0005 (0.001)	0.121 (0.001)	0.1194 (0.001)	0.0023 (0.0018)
Municipality with a Muslim Mosque	0.237 (0.001)	0.236 (0.001)	0.0005 (0.0023)	0.233 (0.0016)	0.234 (0.0016)	-0.001 (0.002)	0.23 (0.0016)	0.227 (0.001)	0.0025 (0.002)
Total observations	64328	65547		64880	65815		64243	64395	

Note: Standard errors are reported in brackets. ** indicates statistical significance at the 5% level or above while * indicates statistical significance at the 10% level.

Table B. Robustness checks. Dropping estimation days, two by two.

	Drop -1,+1	Drop -2,+2	Drop -3,+3	Drop -4,+4	Drop -5,+5	Drop -6,+6	Drop -7,+7	Drop -8,+8	Drop -9,+9	Drop -10,+10	Drop -11,+11	Drop -12,+12	Drop -13,+13	Drop -14,+14	Drop -15,+15
'Junk-food'															
Bataclan15	-0.0662 (0.072)	-0.0853 (0.062)	-0.07 (0.0657)	-0.0542 (0.0662)	-0.086 (0.0642)	-0.0561 (0.0665)	-0.0682 (0.065)	-0.0229 (0.0499)	-0.0541 (0.0621)	-0.0694 (0.0636)	-0.0615 (0.0628)	-0.0487 (0.0618)	-0.0656 (0.0615)	-0.0686 (0.0612)	-0.0692 (0.0613)
observations	372681	379157	377148	376668	379037	372898	372470	372900	378755	376600	376218	379888	374846	374064	373011
R-squared	0.241	0.241	0.241	0.24	0.24	0.24	0.24	0.24	0.24	0.241	0.241	0.241	0.241	0.241	0.239
Sweets															
Bataclan15	0.277** (0.112)	0.202* (0.105)	0.240** (0.108)	0.244** (0.113)	0.267** (0.109)	0.270** (0.113)	0.259** (0.114)	0.286*** (0.106)	0.238** (0.107)	0.250** (0.108)	0.251** (0.108)	0.260** (0.106)	0.252** (0.109)	0.243** (0.105)	0.254** (0.104)
observations	372681	379157	377148	376668	379037	372898	372470	372900	378755	376600	376218	379888	374846	374064	373011
R-squared	0.226	0.226	0.227	0.226	0.226	0.226	0.226	0.227	0.226	0.227	0.227	0.227	0.227	0.226	0.226
Home maintenance products															
Bataclan15	0.219*** (0.0643)	0.183*** (0.0676)	0.177** (0.0727)	0.193** (0.0727)	0.180*** (0.0641)	0.192*** (0.0711)	0.200*** (0.0641)	0.176** (0.0696)	0.176** (0.068)	0.186*** (0.0679)	0.192*** (0.0682)	0.190*** (0.0667)	0.192*** (0.0694)	0.168** (0.0658)	0.183*** (0.0667)
observations	372681	379157	377148	376668	379037	372898	372470	372900	378755	376600	376218	379888	374846	374064	373011
R-squared	0.14	0.14	0.141	0.14	0.14	0.14	0.14	0.141	0.14	0.14	0.14	0.14	0.14	0.14	0.139
Women's personal hygiene products															
Bataclan15	0.0541** (0.0205)	0.0628*** (0.0175)	0.0538*** (0.0189)	0.0524*** (0.0192)	0.0503*** (0.0183)	0.0493** (0.0198)	0.0371** (0.0163)	0.0511*** (0.0183)	0.0472** (0.018)	0.0505*** (0.0179)	0.0477** (0.0179)	0.0491*** (0.0179)	0.0504*** (0.0179)	0.0458** (0.0177)	0.0497*** (0.0178)
observations	372,681	379,157	377,148	376,668	379,037	372,898	372,470	373,055	378,755	376,600	376,218	379,888	374,846	374,064	373,011
R-squared	0.136	0.135	0.133	0.133	0.133	0.135	0.133	0.136	0.135	0.134	0.133	0.134	0.133	0.134	0.135
'Junk-food'															
Bataclan15	-0.0589 (0.0603)	-0.0627 (0.0609)	-0.0688 (0.0611)	-0.0625 (0.0611)	-0.0619 (0.0614)	-0.0613 (0.0614)	-0.065 (0.061)	-0.0592 (0.061)	-0.0592 (0.061)	-0.0674 (0.0617)	-0.0648 (0.0617)	-0.0651 (0.0616)	-0.0745 (0.0628)	-0.0754 (0.0618)	-0.055 (0.0582)
observations	379210	376315	376588	378977	374063	373270	373055	373055	378589	376502	376654	379380	372969	373108	372919
R-squared	0.24	0.242	0.241	0.24	0.24	0.24	0.241	0.241	0.242	0.241	0.241	0.241	0.24	0.241	0.241
Sweets															
Bataclan15	0.237** (0.104)	0.242** (0.107)	0.239** (0.106)	0.245** (0.106)	0.249** (0.106)	0.250** (0.104)	0.244** (0.105)	0.255** (0.107)	0.239** (0.106)	0.252** (0.106)	0.236** (0.106)	0.235** (0.11)	0.232** (0.109)	0.220** (0.108)	0.234** (0.109)
observations	379210	376315	376588	378977	374063	373270	373055	378589	376502	376654	379380	372969	373108	372919	378259
R-squared	0.226	0.227	0.227	0.227	0.228	0.227	0.228	0.228	0.228	0.227	0.228	0.227	0.228	0.226	0.227
Home maintenance product															
Bataclan15	0.181*** (0.0664)	0.183*** (0.0664)	0.189*** (0.0668)	0.190*** (0.0663)	0.186*** (0.067)	0.189*** (0.0659)	0.189*** (0.0661)	0.186*** (0.0667)	0.189*** (0.0662)	0.186*** (0.0662)	0.185*** (0.066)	0.174** (0.0661)	0.192*** (0.067)	0.190*** (0.0672)	0.187*** (0.0676)
observations	379210	376315	376588	378977	374063	373270	373055	378589	376502	376654	379380	372969	373108	372919	378259
R-squared	0.14	0.14	0.14	0.139	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Women's personal hygiene products															
Bataclan15	0.0479*** (0.0176)	0.0481*** (0.0175)	0.0480*** (0.0174)	0.0506*** (0.0176)	0.0493*** (0.0175)	0.0503*** (0.0173)	0.0493*** (0.0176)	0.0498*** (0.0174)	0.0510*** (0.0171)	0.0512*** (0.0178)	0.0467** (0.0175)	0.0450** (0.0177)	0.0500*** (0.0184)	0.0495*** (0.0177)	0.0458** (0.0181)
observations	379,210	376,315	376,588	378,977	374,063	373,270	373,055	378,589	376,502	376,654	379,380	372,969	373,108	372,919	378,259
R-squared	0.135	0.134	0.134	0.135	0.137	0.133	0.134	0.135	0.134	0.136	0.134	0.135	0.133	0.133	0.134

The outcomes are daily expenditures in Euro. Salty snacks and soda drinks are labelled 'junk food'. The model estimated is specified in Equation 1, Section 3. All the models include household fixed effects and controls (see the text for the list of controls). Standard errors (in brackets) are clustered at the level of the running variable. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table C. Robustness checks. Dropping regions (i.e., administrative departments) one by one.

'Junk-food'												
Bataclan15	-0.0569 (0.0607)	-0.0437 (0.0602)	-0.0644 (0.0613)	-0.0602 (0.0611)	-0.0627 (0.0612)	-0.0674 (0.0623)	-0.0636 (0.0609)	-0.0647 (0.0621)	-0.0597 (0.0603)	-0.0650 (0.0594)	-0.0642 (0.0612)	-0.0659 (0.0617)
Observations	385,637	384,966	387,076	387,867	387,998	383,111	386,877	386,389	388,023	387,047	387,137	387,485
R-squared	0.240	0.240	0.239	0.239	0.239	0.239	0.239	0.239	0.240	0.240	0.239	0.239
Sweets												
Bataclan15	0.257** (0.104)	0.234** (0.104)	0.248** (0.106)	0.249** (0.105)	0.252** (0.106)	0.257** (0.109)	0.245** (0.105)	0.254** (0.108)	0.250** (0.105)	0.240** (0.105)	0.248** (0.106)	0.245** (0.106)
Observations	385,637	384,966	387,076	387,867	387,998	383,111	386,877	386,389	388,023	387,047	387,137	387,485
R-squared	0.226	0.226	0.226	0.226	0.226	0.226	0.225	0.226	0.226	0.226	0.226	0.226
Home maintenance products												
Bataclan15	0.189*** (0.0657)	0.183*** (0.0662)	0.188*** (0.0664)	0.186*** (0.0660)	0.187*** (0.0666)	0.190*** (0.0671)	0.184*** (0.0671)	0.184** (0.0702)	0.186*** (0.0661)	0.183*** (0.0658)	0.190*** (0.0661)	0.186*** (0.0662)
Observations	385,637	384,966	387,076	387,867	387,998	383,111	386,877	386,389	388,023	387,047	387,137	387,485
R-squared	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.138	0.139	0.139
Women's personal hygiene products												
Bataclan15	0.0505*** (0.0177)	0.0478*** (0.0176)	0.0472*** (0.0177)	0.0483*** (0.0175)	0.0491*** (0.0175)	0.0485*** (0.0172)	0.0494*** (0.0175)	0.0498*** (0.0177)	0.0500*** (0.0177)	0.0499*** (0.0175)	0.0491*** (0.0174)	0.0499*** (0.0176)
Observations	385,637	384,966	387,076	387,867	387,998	383,111	386,877	386,389	388,023	387,047	387,137	387,485
R-squared	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.134	0.133
'Junk-food'												
Bataclan15	-0.0578 (0.0602)	-0.0559 (0.0622)	-0.0600 (0.0608)	-0.0602 (0.0611)	-0.0585 (0.0615)	-0.0667 (0.0608)	-0.0675 (0.0612)	-0.0648 (0.0615)	-0.0676 (0.0621)	-0.0597 (0.0617)	-0.0631 (0.0613)	-0.0671 (0.0615)
Observations	380,751	385,138	388,415	387,016	384,722	386,446	387,248	388,646	386,184	384,891	388,044	386,302
R-squared	0.240	0.239	0.239	0.238	0.239	0.240	0.239	0.239	0.239	0.239	0.239	0.240
Sweets												
Bataclan15	0.258** (0.107)	0.256** (0.108)	0.248** (0.105)	0.244** (0.106)	0.243** (0.106)	0.246** (0.105)	0.248** (0.105)	0.246** (0.106)	0.244** (0.107)	0.254** (0.106)	0.246** (0.105)	0.253** (0.105)
Observations	380,751	385,138	388,415	387,016	384,722	386,446	387,248	388,646	386,184	384,891	388,044	386,302
R-squared	0.227	0.226	0.226	0.225	0.226	0.226	0.226	0.226	0.226	0.225	0.226	0.226
Home maintenance products												
Bataclan15	0.187*** (0.0663)	0.196*** (0.0657)	0.186*** (0.0657)	0.191*** (0.0663)	0.192*** (0.0663)	0.183*** (0.0669)	0.186*** (0.0662)	0.186*** (0.0663)	0.180*** (0.0655)	0.185*** (0.0653)	0.187*** (0.0660)	0.184*** (0.0674)
Observations	380,751	385,138	388,415	387,016	384,722	386,446	387,248	388,646	386,184	384,891	388,044	386,302
R-squared	0.138	0.139	0.139	0.138	0.138	0.138	0.138	0.138	0.138	0.139	0.138	0.139
Women's personal hygiene products												
Bataclan15	0.0504*** (0.0178)	0.0503*** (0.0174)	0.0503*** (0.0175)	0.0496*** (0.0178)	0.0462** (0.0175)	0.0514*** (0.0175)	0.0489*** (0.0176)	0.0499*** (0.0177)	0.0501*** (0.0180)	0.0506*** (0.0180)	0.0482*** (0.0176)	0.0494*** (0.0178)
Observations	380,751	385,138	388,415	387,016	384,722	386,446	387,248	388,646	386,184	384,891	388,044	386,302
R-squared	0.132	0.133	0.133	0.133	0.132	0.132	0.133	0.133	0.133	0.133	0.133	0.133

The outcomes are daily expenditures in Euro. Salty snacks and soda drinks are labelled 'junk food'. The model estimated is specified in Equation 1, Section 3. All the models include household fixed effects and controls (see the text for the list of controls). Standard errors (in brackets) are clustered at the level of the running variable. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table D. Robustness checks. Dropping regions (i.e., administrative departments) one by one. Continued.

'Junk-food'												
Bataclan15	-0.0558 (0.0613)	-0.0628 (0.0605)	-0.0607 (0.0605)	-0.0594 (0.0602)	-0.0559 (0.0612)	-0.0652 (0.0614)	-0.0596 (0.0587)	-0.0648 (0.0611)	-0.0590 (0.0595)	-0.0611 (0.0620)	-0.0750 (0.0620)	-0.0611 (0.0608)
Observations	385,675	386,427	385,595	386,329	381,525	385,499	383,106	388,071	380,775	384,020	381,337	387,178
R-squared	0.240	0.240	0.239	0.239	0.239	0.239	0.240	0.239	0.239	0.239	0.239	0.239
Sweets												
Bataclan15	0.255** (0.107)	0.242** (0.105)	0.236** (0.105)	0.251** (0.106)	0.241** (0.111)	0.237** (0.104)	0.263** (0.107)	0.246** (0.106)	0.236** (0.105)	0.234** (0.104)	0.240** (0.106)	0.253** (0.106)
Observations	385,675	386,427	385,595	386,329	381,525	385,499	383,106	388,071	380,775	384,020	381,337	387,178
R-squared	0.226	0.226	0.225	0.226	0.225	0.226	0.226	0.226	0.225	0.226	0.226	0.226
Home maintenance products												
Bataclan15	0.181*** (0.0669)	0.189*** (0.0662)	0.191*** (0.0658)	0.176*** (0.0655)	0.196*** (0.0663)	0.189*** (0.0640)	0.196*** (0.0643)	0.189*** (0.0658)	0.192*** (0.0664)	0.182*** (0.0663)	0.176*** (0.0659)	0.192*** (0.0660)
Observations	385,675	386,427	385,595	386,329	381,525	385,499	383,106	388,071	380,775	384,020	381,337	387,178
R-squared	0.139	0.139	0.138	0.138	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139
Women's personal hygiene products												
Bataclan15	0.0485*** (0.0173)	0.0491*** (0.0178)	0.0484*** (0.0173)	0.0517*** (0.0182)	0.0490*** (0.0180)	0.0467*** (0.0170)	0.0526*** (0.0175)	0.0490*** (0.0175)	0.0539*** (0.0181)	0.0475** (0.0180)	0.0497*** (0.0182)	0.0499*** (0.0178)
Observations	385,675	386,427	385,595	386,329	381,525	385,499	383,106	388,071	380,775	384,020	381,337	387,178
R-squared	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133
'Junk-food'												
Bataclan15	-0.0785 (0.0613)	-0.0619 (0.0613)	-0.0636 (0.0610)	-0.0685 (0.0599)	-0.0555 (0.0625)	-0.0762 (0.0595)	-0.0611 (0.0613)	-0.0636 (0.0600)	-0.0565 (0.0608)	-0.0684 (0.0620)	-0.0659 (0.0617)	-0.0650 (0.0614)
Observations	384,793	382,441	387,262	386,126	386,163	383,672	387,619	380,542	385,036	387,442	386,740	388,407
R-squared	0.240	0.240	0.239	0.239	0.239	0.240	0.240	0.240	0.240	0.239	0.239	0.239
Sweets												
Bataclan15	0.247** (0.109)	0.254** (0.101)	0.247** (0.104)	0.247** (0.105)	0.252** (0.105)	0.255** (0.105)	0.241** (0.106)	0.217** (0.107)	0.242** (0.105)	0.247** (0.107)	0.251** (0.103)	0.249** (0.107)
Observations	384,793	382,441	387,262	386,126	386,163	383,672	387,619	380,542	385,036	387,442	386,740	388,407
R-squared	0.225	0.225	0.226	0.226	0.225	0.226	0.226	0.226	0.226	0.225	0.226	0.225
Home maintenance products												
Bataclan15	0.191*** (0.0654)	0.182*** (0.0668)	0.189*** (0.0658)	0.186*** (0.0647)	0.182*** (0.0679)	0.181*** (0.0648)	0.184*** (0.0663)	0.189*** (0.0672)	0.192*** (0.0671)	0.186*** (0.0675)	0.187*** (0.0655)	0.188*** (0.0659)
Observations	384,793	382,441	387,262	386,126	386,163	383,672	387,619	380,542	385,036	387,442	386,740	388,407
R-squared	0.138	0.138	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.138	0.139	0.139
Women's personal hygiene products												
Bataclan15	0.0498*** (0.0176)	0.0504*** (0.0176)	0.0501*** (0.0180)	0.0466** (0.0184)	0.0501*** (0.0176)	0.0502*** (0.0178)	0.0507*** (0.0176)	0.0492*** (0.0176)	0.0469** (0.0181)	0.0489*** (0.0176)	0.0501*** (0.0178)	0.0497*** (0.0178)
Observations	384,793	382,441	387,262	386,126	386,163	383,672	387,619	380,542	385,036	387,442	386,740	388,407
R-squared	0.133	0.134	0.132	0.133	0.133	0.133	0.132	0.133	0.132	0.133	0.133	0.133

The outcomes are daily expenditures in Euro. Salty snacks and soda drinks are labelled 'junk food'. The model estimated is specified in Equation 1, Section 3. All the models include household fixed effects and controls (see the text for the list of controls). Standard errors (in brackets) are clustered at the level of the running variable. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table C. Robustness checks. Dropping regions (i.e., administrative departments) one by one. Continued.

'Junk-food'												
Bataclan15	-0.0802 (0.0615)	-0.0561 (0.0612)	-0.0534 (0.0602)	-0.0613 (0.0611)	-0.0646 (0.0606)	-0.0517 (0.0623)	-0.0705 (0.0621)	-0.0628 (0.0623)	-0.0623 (0.0630)	-0.0625 (0.0618)	-0.0658 (0.0645)	-0.0625 (0.0631)
Observations	383,500	385,400	385,506	387,516	386,624	382,513	386,728	383,920	382,637	387,028	372,217	384,498
R-squared	0.239	0.239	0.239	0.240	0.239	0.240	0.239	0.239	0.239	0.239	0.239	0.239
Sweets												
Bataclan15	0.237** (0.108)	0.243** (0.105)	0.258** (0.106)	0.246** (0.106)	0.243** (0.106)	0.232** (0.104)	0.233** (0.104)	0.233** (0.103)	0.257** (0.107)	0.245** (0.105)	0.238** (0.105)	0.246** (0.108)
Observations	383,500	385,400	385,506	387,516	386,624	382,513	386,728	383,920	382,637	387,028	372,217	384,498
R-squared	0.226	0.225	0.225	0.226	0.226	0.226	0.226	0.226	0.226	0.226	0.227	0.225
Home maintenance products												
Bataclan15	0.182*** (0.0667)	0.180*** (0.0663)	0.192*** (0.0662)	0.186*** (0.0662)	0.180*** (0.0656)	0.191*** (0.0674)	0.192*** (0.0681)	0.182*** (0.0676)	0.185*** (0.0667)	0.188*** (0.0665)	0.180** (0.0676)	0.195*** (0.0652)
Observations	383,500	385,400	385,506	387,516	386,624	382,513	386,728	383,920	382,637	387,028	372,217	384,498
R-squared	0.138	0.139	0.139	0.139	0.139	0.138	0.138	0.138	0.139	0.139	0.139	0.139
Women's personal hygiene products												
Bataclan15	0.0500*** (0.0176)	0.0498*** (0.0178)	0.0496*** (0.0174)	0.0502*** (0.0179)	0.0472*** (0.0173)	0.0480*** (0.0178)	0.0509*** (0.0179)	0.0492*** (0.0180)	0.0496*** (0.0176)	0.0500*** (0.0178)	0.0484** (0.0191)	0.0470*** (0.0174)
Observations	383,500	385,400	385,506	387,516	386,624	382,513	386,728	383,920	382,637	387,028	372,217	384,498
R-squared	(0.0176)	(0.0178)	(0.0174)	(0.0179)	(0.0173)	(0.0178)	(0.0179)	(0.0180)	(0.0176)	(0.0178)	(0.0191)	(0.0174)
'Junk-food'												
Bataclan15	-0.0611 (0.0619)	-0.0559 (0.0594)	-0.0680 (0.0618)	-0.0610 (0.0620)	-0.0668 (0.0606)	-0.0620 (0.0618)	-0.0646 (0.0629)	-0.0663 (0.0612)	-0.0668 (0.0603)	-0.0608 (0.0615)	-0.0634 (0.0620)	-0.0664 (0.0600)
Observations	387,206	376,495	385,306	384,901	387,768	386,037	382,330	385,076	379,067	386,963	385,338	385,901
R-squared	0.239	0.239	0.239	0.239	0.239	0.240	0.240	0.239	0.239	0.240	0.239	0.240
Sweets												
Bataclan15	0.245** (0.106)	0.269*** (0.0997)	0.245** (0.107)	0.260** (0.106)	0.252** (0.105)	0.254** (0.106)	0.224** (0.107)	0.239** (0.108)	0.253** (0.105)	0.252** (0.105)	0.252** (0.105)	0.247** (0.106)
Observations	387,206	376,495	385,306	384,901	387,768	386,037	382,330	385,076	379,067	386,963	385,338	385,901
R-squared	0.226	0.226	0.226	0.226	0.226	0.226	0.226	0.226	0.226	0.226	0.225	0.225
Home maintenance products												
Bataclan15	0.181*** (0.0661)	0.185*** (0.0633)	0.191*** (0.0680)	0.195*** (0.0677)	0.190*** (0.0665)	0.186*** (0.0662)	0.184*** (0.0662)	0.188*** (0.0670)	0.187*** (0.0649)	0.181*** (0.0664)	0.186*** (0.0691)	0.184*** (0.0661)
Observations	387,206	376,495	385,306	384,901	387,768	386,037	382,330	385,076	379,067	386,963	385,338	385,901
R-squared	0.139	0.139	0.139	0.138	0.139	0.139	0.139	0.139	0.139	0.138	0.138	0.139
Women's personal hygiene products												
Bataclan15	0.0493*** (0.0177)	0.0494*** (0.0180)	0.0492*** (0.0180)	0.0493*** (0.0178)	0.0499*** (0.0177)	0.0484*** (0.0175)	0.0487*** (0.0181)	0.0518*** (0.0174)	0.0549*** (0.0177)	0.0479*** (0.0180)	0.0493*** (0.0184)	0.0469*** (0.0175)
Observations	387,206	376,495	385,306	384,901	387,768	386,037	382,330	385,076	379,067	386,963	385,338	385,901
R-squared	(0.0177)	(0.0180)	(0.0180)	(0.0178)	(0.0177)	(0.0175)	(0.0181)	(0.0174)	(0.0177)	(0.0180)	(0.0184)	(0.0175)

The outcomes are daily expenditures in Euro. Salty snacks and soda drinks are labelled 'junk food'. The model estimated is specified in Equation 1, Section 3. All the models include household fixed effects and controls (see the text for the list of controls). Standard errors (in brackets) are clustered at the level of the running variable. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table C. Robustness checks. Dropping regions (i.e., administrative departments) one by one. Continued.

'Junk-food'												
Bataclan15	-0.0693 (0.0609)	-0.0579 (0.0602)	-0.0471 (0.0639)	-0.0614 (0.0630)	-0.0486 (0.0613)	-0.0609 (0.0613)	-0.0696 (0.0610)	-0.0595 (0.0609)	-0.0643 (0.0613)	-0.0626 (0.0615)	-0.0572 (0.0621)	-0.0620 (0.0613)
Observations	386,907	385,400	367,299	380,482	380,017	380,530	386,663	385,369	386,636	387,437	382,908	386,187
R-squared	0.239	0.240	0.239	0.239	0.238	0.239	0.239	0.239	0.239	0.239	0.239	0.240
Sweets												
Bataclan15	0.257** (0.107)	0.258** (0.104)	0.264** (0.111)	0.225** (0.108)	0.241** (0.102)	0.262** (0.111)	0.247** (0.108)	0.249** (0.104)	0.240** (0.105)	0.242** (0.107)	0.234** (0.110)	0.239** (0.106)
Observations	386,907	385,400	367,299	380,482	380,017	380,530	386,663	385,369	386,636	387,437	382,908	386,187
R-squared	0.226	0.226	0.223	0.227	0.224	0.226	0.226	0.225	0.226	0.226	0.226	0.225
Home c maintenance products												
Bataclan15	0.192*** (0.0666)	0.188*** (0.0669)	0.205*** (0.0696)	0.193*** (0.0669)	0.195*** (0.0655)	0.173*** (0.0646)	0.191*** (0.0675)	0.184*** (0.0636)	0.183*** (0.0664)	0.191*** (0.0666)	0.199*** (0.0670)	0.185*** (0.0667)
Observations	386,907	385,400	367,299	380,482	380,017	380,530	386,663	385,369	386,636	387,437	382,908	386,187
R-squared	0.138	0.139	0.138	0.139	0.138	0.139	0.138	0.138	0.139	0.138	0.138	0.138
Women's personal hygiene products												
Bataclan15	0.0491*** (0.0179)	0.0483** (0.0181)	0.0503*** (0.0167)	0.0537*** (0.0179)	0.0452** (0.0175)	0.0503*** (0.0176)	0.0478*** (0.0175)	0.0505*** (0.0179)	0.0495*** (0.0179)	0.0503*** (0.0176)	0.0518*** (0.0181)	0.0497*** (0.0177)
Observations	386,907	385,400	367,299	380,482	380,017	380,530	386,663	385,369	386,636	387,437	382,908	386,187
R-squared	0.133	0.133	0.133	0.133	0.134	0.132	0.133	0.134	0.133	0.133	0.133	0.133
'Junk-food'												
Bataclan15	-0.0719 (0.0618)	-0.0679 (0.0607)	-0.0710 (0.0613)	-0.0603 (0.0611)	-0.0615 (0.0622)	-0.0606 (0.0611)	-0.0648 (0.0613)	-0.0506 (0.0623)	-0.0646 (0.0602)	-0.0755 (0.0607)	-0.0597 (0.0600)	
Observations	383,998	386,383	385,921	386,293	386,858	387,976	380,977	378,576	382,271	380,144	382,775	
R-squared	0.239	0.239	0.239	0.240	0.239	0.239	0.240	0.240	0.239	0.239	0.238	
Sweets												
Bataclan15	0.241** (0.105)	0.244** (0.107)	0.239** (0.110)	0.259** (0.106)	0.230** (0.106)	0.250** (0.105)	0.287*** (0.104)	0.247** (0.111)	0.260** (0.107)	0.261** (0.108)	0.229** (0.103)	
Observations	383,998	386,383	385,921	386,293	386,858	387,976	380,977	378,576	382,271	380,144	382,775	
R-squared	0.226	0.226	0.225	0.226	0.226	0.226	0.226	0.226	0.225	0.226	0.224	
Home maintenance products												
Bataclan15	0.177*** (0.0644)	0.183*** (0.0647)	0.181*** (0.0670)	0.186*** (0.0665)	0.185*** (0.0662)	0.186*** (0.0661)	0.131*** (0.0463)	0.183*** (0.0648)	0.183*** (0.0661)	0.188*** (0.0684)	0.178** (0.0683)	
Observations	383,998	386,383	385,921	386,293	386,858	387,976	380,977	378,576	382,271	380,144	382,775	
R-squared	0.139	0.138	0.138	0.138	0.139	0.139	0.138	0.138	0.139	0.139	0.139	
Women's personal hygiene products												
Bataclan15	0.0474*** (0.0176)	0.0496*** (0.0180)	0.0508*** (0.0174)	0.0489*** (0.0176)	0.0469*** (0.0174)	0.0497*** (0.0176)	0.0505*** (0.0171)	0.0530*** (0.0179)	0.0425** (0.0171)	0.0465*** (0.0172)	0.0496*** (0.0186)	
Observations	383,998	386,383	385,921	386,293	386,858	387,976	380,977	378,576	382,271	380,144	382,775	
R-squared	0.133	0.133	0.132	0.133	0.133	0.133	0.134	0.134	0.134	0.133	0.134	

The outcomes are daily expenditures in Euro. Salty snacks and soda drinks are labelled 'junk food'. The model estimated is specified in Equation 1, Section 3. All the models include household fixed effects and controls (see the text for the list of controls). Standard errors (in brackets) are clustered at the level of the running variable. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.