Food Safety and Restaurant Food[1]

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Abstract

Food safety is a major issue for global public health and for the restaurant industry. In this paper we analyze the effects of a media and policy event regarding food safety on restaurant food supply and demand. The event we examine is the highly publicized discovery by China's customs in June 2015 of "Zombie meat" – meat that has been frozen for decades and is therefore beyond its expiration date – that was being smuggled into China. To identify the effects of the Zombie meat event on daily supply and demand for restaurant food in China, we use a unique daily spatially-disaggregated order-level restaurant dataset of 1.6 million dining orders of 1,215 different dishes placed in 58 restaurants across multiple cities in China. We first conduct a regression discontinuity analysis and find that customers who ordered meat dishes following the Zombie meat event tended to order more expensive meat dishes, perhaps because they viewed these more expensive dishes as having higher quality and more fresh meat. We then estimate an empirical model of consumer demand, and similarly find that after the Zombie meat event, consumers in Beijing and Tianjin were more likely to buy more expensive pork dishes. Our results suggest that a possible means by which restaurants can weather food safety crises is to offer high quality dishes prepared in such a way that the quality of ingredients is easier to observe, and to establish and maintain a reputation for quality.

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1. Introduction

Food safety is a major global public health issue, and is particularly important in heavily populated countries such as China, where rapid industrialization, modernization, and globalization are having profound effects on food safety (Lam et al., 2013). The rapidly growing Chinese economy has led to a gradual change in focus in China from food supply to food safety: in a 2011 survey, food safety was ranked first in the top five safety issues that worried the Chinese population, surpassing public safety, traffic safety, health safety, and environmental safety (Lam et al., 2013). An important food safety concern in China is meat safety: according to a recent McKinsey & Company article (Grimmelt, 2023), Chinese meat consumers care about the safety and quality of meat, which may reflect "a history of incidents involving meat safety and quality, along with questions about the adequacy of standards in the Chinese meat industry."

The effects of media reports and policy events related to food safety have important implications for the food and restaurant industry. Food safety incidents cause significant economic losses in a multitude of ways, including discomfort, pain, loss in productivity, and death (Pouliot and Wang, 2018). In addition, foodborne illness outbreaks and food safety recalls, along with associated media events, can have devastating financial effects on restaurant operations. In 2015, for example, foodborne illness outbreaks related to E. coli and norovirus at the U.S. restaurant company Chipotle resulted in a 30% decline in same-store sales in December 2015, a nearly 53.3% drop in stock price over a five-month period from August to December 2015 (Samson, 2016), and a plunge in quarterly profits of 44% in the fourth quarter of 2015 (Strom, 2015).

In this paper, we analyze the effects of a media and policy event regarding food safety on restaurant food supply and demand in China. The restaurant market in China is large: during 2019, for example, almost 27 percent of the people living in China dined out several times per week, and over 34 percent dined out a few times a month (Wunsch, 2022).

We build on the previous literature on food safety (Adalja and Lichtenberg, 2018; Schmit et al., 2020; Adalja, Lichtenberg and Page, 2021), food demand (Zhu, Lopez and Liu, 2016; Yeh, Gómez and Kaiser, 2019; Adalja et al., 2023; Adalja, 2025); restaurant meat consumption (Kurz, 2018), restaurant food demand (Cawley, Susskind and Willage, 2020; Todd et al., 2021); restaurant hygiene, inspections, and food safety (Jin and Leslie, 2003; Jin and Leslie, 2005; Simon et al., 2005; Jin and Leslie, 2009; National Research Council, 2011; Jin and Lee, 2014; Bederson et al., 2018; Jin and Lee, 2018); consumers' perceptions of restaurant quality (Gergaud, Storchmann and

Verardi2015); the effects of a media-induced food scare (Payne, Messer and Kaiser, 2009) and food recall information (Zhou and Liu, 2023) on meat demand; and the effects of food pricing (Richards, Hamilton, Gómez, and Rabinovich, 2017; Verteramo Chiu, Liaukonyte, Gómez, and Kaiser, 2017), media (Lopez, Liu and Zhu, 2015), and policy (Liu, Lopez and Zhu, 2014) on food consumption and demand. We innovate on the previous literature by analyzing the effects of a media and policy event regarding food safety on the supply and demand for restaurant food; and by analyzing these issues in a heavily populated developing country.

The food safety-related event we examine is a media and policy event that took place in China regarding "Zombie meat", which is meat that has been frozen for decades and is therefore beyond its expiration date. On June 1, 2015, China's General Administration of Customs discovered Zombie meat that was being smuggled into China, and announced a special campaign against the smuggling of Zombie meat (China News, 2015; China Network Television, 2015). The discovery of Zombie meat by China's customs on June 1, 2015 quickly grasped the attention of government officials and news media, and the fear of encountering Zombie meat in restaurants quickly spread all over China. Many news reports followed, including one from Xinhua News Agency, the official press agency of the People's Republic of China, reporting that "zombie meat" that was produced in the 1970s was being sold decades later in 2015 (Baidu Baike,[2] 2018). USA Today published an article with the headline "40-year-old 'zombie' meat smuggled into China" (Zoroya, 2015). The news reports continued until mid-July 2015 (Baidu Baike, 2018). The topic was the center of media and public attention in China until late July 2015.

As it is relatively easy to identify Zombie meat when it is uncooked, Zombie meat mostly went to restaurants. According to the Xinhua News Agency and other news sources, the smuggle and sale of Zombie meat is handled by multiple smuggling syndicates, including meat suppliers of restaurants. We analyze the effects of the Zombie meat media and policy event on daily supply and demand for restaurant food in China.

For our empirical analysis, we use a unique daily spatially-disaggregated order-level restaurant dataset of 1.6 million dining orders of 1,215 different dishes placed in 58 restaurants across multiple cities in China in 2015, all from a major restaurant chain company in China. We

[2] Baidu Baike is the most widely used encyclopedia website in China, similar to Wikipedia. It is owned and maintained by the largest IT company in China, Baidu.com. Similar to Wikipedia, Baidu Baike allows different users to add their opinion and cite news articles from trusted news article sources.

assume that the Zombie meat event was neither affected nor determined by the particular restaurant chain we analyze, and was therefore exogenous to its restaurant food supply and demand. We exploit the daily variation in our detailed daily data set to identify the effects of the Zombie meat event on daily supply and demand for restaurant food in China.

We employ two different empirical strategies. First, to identify the effects of the Zombie meat media and policy event and address the potential bias caused by time-varying omitted variables, we use a regression discontinuity approach. Within a narrow time window, unobserved factors unrelated to the Zombie meat event that influence daily supply and demand for restaurant food are likely to be similar so that observations prior to the Zombie meat event provide a comparison group for observations after the Zombie meat event.

Our regression discontinuity analysis shows that, as a result of the Zombie meat event, customers tended to order more expensive orders, more expensive dishes, and more desserts. Although the Zombie meat event did not have a statistically significant effect on the total number of dishes ordered that had beef, chicken, or pork, those who ordered dishes that had beef, chicken, or pork after the Zombie meat event tended to order the more expensive beef, chicken, and pork dishes. We also find that restaurants did not significantly increase prices of individual dishes that had beef, chicken, or pork in response to the Zombie meat event.

In addition to our regression discontinuity analysis, we also estimate an empirical model of consumer demand, and similarly find that after the Zombie meat event, consumers in Beijing and Tianjin were more likely to buy more expensive pork dishes. Among 22 popular dishes that were ordered in at least 21 of the 37 restaurants in Beijing, the Zombie meat event had a significant negative total average effect on the least expensive pork dish, Yunnan style ground pork fried rice, but did not have any statistically significant total average effect on the demand for any of the other more expensive pork dishes, chicken dishes, or beef dishes.

Our results suggest that customers who ordered meat following the Zombie meat event tended to order more expensive meat dishes, perhaps because they viewed these more expensive dishes as having higher quality and more fresh meat. For Chinese restaurants in China, higher priced dishes tend to use larger chunks of meat instead of smaller pieces or minced meat, and hence the quality is easier to observe for higher priced meat dishes. Indeed, Yunnan style ground pork fried rice – a popular inexpensive pork dish whose demand we found declined after the Zombie meat event – uses ground pork, for which the quality may be difficult to ascertain. Thus, one

reason why customers who ordered meat following the Zombie meat event may have tended to order more expensive meat dishes is that the quality of higher priced meat dishes is easier to observe.

Our results suggest that a possible means by which restaurants can weather food safety crises is to offer high quality dishes prepared in such a way that the quality of ingredients is easier to observe (e.g., using larger chunks of meat instead of minced meat) and to establish and maintain a reputation for quality.

The balance of our paper proceeds as follows. We describe our empirical setting in Section 2 and our data in Section 3. Section 4 presents our regression discontinuity analysis. Section 5 presents our empirical analysis of consumer demand. We discuss our results and conclude in Section 6.

2. Empirical Setting

Rapid industrialization and modernization are having profound effects on food safety in China (Lam et al., 2013). Recent incidents related to food safety in China that were extensively covered by the media include the melamine milk powder incident in 2008, which harmed thousands of infants (Gossner et al., 2009), as well as food safety incidents involving illegal additives and/or the contamination of the food supply by toxic industrial waste (Lam et al., 2013). China's connections to global agricultural markets are also having important effects on food safety within the country. The rapidly growing Chinese economy has led to a gradual change in focus in China from food supply to food safety: in a 2011 survey, food safety was ranked first in the top five safety issues that worried the Chinese population, surpassing public safety, traffic safety, health safety, and environmental safety (Lam et al., 2013).

An important food safety concern in China is meat safety. According to a recent McKinsey & Company article (Grimmelt, 2023): "When buying meat, Chinese consumers look, first and foremost, for healthiness and product safety and for quality and taste. While the emphasis on these buying factors is undoubtedly related to consumers' growing health concerns, it may also reflect a history of incidents involving meat safety and quality, along with questions about the adequacy of standards in the Chinese meat industry." Yu, Gao and Zeng (2014) find that, on average, Chinese consumers are willing to pay 40% for meat that has received "Green Food" Certification from the China Ministry of Agriculture for being safe and nutritious.

China has a vast and complex food market due to its large population and diverse culinary traditions across the nation. Its restaurant market is large: during 2019, for example, almost 27 percent of the people living in China dined out several times per week, and over 34 percent dined out a few times a month (Wunsch, 2022). The major difference in options for dining out between U.S. and China is that street food stands are popular in China, especially in less developed regions and less developed areas of major cities. These street food stands are hard to inspect and monitor in regarding the food safety issues. Other options for dining out in China are similar to U.S., and include local restaurants and chain restaurants; these restaurants are easier to regulate, inspect, and monitor. Nevertheless, several food safety issues have been found with both high- and low-end restaurants (as well as street food stands), such as the use of recycled gutter oil during cooking (Lu and Wu, 2014).

The food safety-related event we examine in this paper is a media and policy event that took place in China regarding "Zombie meat", which is meat that has been frozen for decades and is therefore beyond its expiration date. On June 1, 2015, China's General Administration of Customs discovered Zombie meat that was being smuggled into China, and announced that 14 provinces and municipalities will participate in a special campaign against the smuggling of Zombie meat and will jointly pay special attention to the smuggling and sale of Zombie meat (China News, 2015; China Network Television, 2015).

Once Zombie meat was discovered by China's customs on June 1, 2015, it quickly grasped the attention of government officials and news media, and the fear of encountering Zombie meat in restaurants quickly spread all over China. Many news reports followed, including one from Xinhua News Agency, the official press agency of the People's Republic of China, reporting that "zombie meat" that was produced in the 1970s was being sold decades later in 2015 (Baidu Baike,[3] 2018). USA Today published an article with the headline "40-year-old 'zombie' meat smuggled into China" (Zoroya, 2015). According to Baidu Baike, the news reports continued until mid-July 2015 (Baidu Baike, 2018). The topic was the center of media and public attention in China until late July 2015.

[3] Baidu Baike is the most widely used encyclopedia website in China, similar to Wikipedia. It is owned and maintained by the largest IT company in China, Baidu.com. Similar to Wikipedia, Baidu Baike allows different users to add their opinion and cite news articles from trusted news article sources.

Media coverage of Zombie meat also included information that would help consumers identify Zombie meat in a supermarket or farmers market when it is still uncooked. Qingxian Nan, professor at China Agricultural University and Chairman of the Agricultural Products Storage and Processing Branch of the China Association of Agricultural Science Societies, publicly discussed Zombie meat back in 2015 and described Zombie meat as follows:

> "During long-term storage, the surface of frozen meat will turn yellow, brown or even black due to oxidize. The nutrition in meat cells has long been lost, and the fiber quality has also changed. It is difficult to guarantee the storage environment during smuggling. Once the thawing condition of above 0℃ is reached in the vehicle/vessel, bacteria will quickly breed after the frozen meat melts, leading to rottenness. At this time, even if the meat is frozen again, the meat still contains a large number of bacteria harmful to human body." (Beijing News, 2015)

A meat industry expert also provided the following explanation in 2015 for how to identify Zombie meat:

> "This kind of meat is stored for a long time. In order to keep its appearance shiny, it will also be filled with water. When touching it with your hand, the surface feels sticky." (Beijing News, 2015)

While it may be relatively easy to identify Zombie meat in a supermarket or farmers market when it is still uncooked, it is relatively hard to identify Zombie meat in a restaurant, where Zombie meat can be masked by marinade, stir-fry, frying, and other standard meat cooking procedures. As a consequence, Zombie meat mostly went to restaurants. According to the Xinhua News Agency and other news sources, the smuggle and sale of Zombie meat was handled by multiple smuggling syndicates, including meat suppliers of restaurants. Following the Zombie meat discovery and announcement by China's custom on June 1, 2015, local governments in China asked restaurants and meat suppliers to check for meat products whose sources were unknown or unclear. Many local governments also sent out representatives to supervise the self-check or even directly check for meat products whose sources were unknown or unclear. To our knowledge, restaurants did not make any sort of declaration that they did not use Zombie meat.

Although meat smuggling was not a new issue in China in 2015, the Zombie meat event was the first event that was massively reported by the news agencies and searched online by consumers. Similarly, government inspections happened on a smaller scale in 2014 and some

previous years, but did not receive consumer attention. Unlike other government inspections, the Zombie meat event was highly publicized and commanded widespread public attention. As seen in Figure A-1 in Appendix A, which plots how frequently internet users in China searched for the keyword Zombie meat (僵尸肉) from 2011 to the present, there is a spike in searches for the keyword Zombie meat (僵尸肉) following the Zombie meat event in 2015. As evidenced by the surge in internet searches for information related to Zombie meat following the Zombie meat event, the Zombie meat event received widespread public attention.

3. Data

We use a unique daily spatially-disaggregated order-level restaurant dataset of 1.6 million dining orders of 1,215 different dishes placed in 58 restaurants across 6 cities in China (Beijing, Shanghai, Tianjin, Guangzhou, Shenzhen, and Zhengzhou) in 2015, all from a major restaurant chain company in China.[4] The restaurants in the Chinese restaurant chain we analyze are considered mid-range restaurants which are neither high-end fine dining restaurants nor casual fast food restaurants.

Of the 58 restaurants in our dataset, 37 restaurants are located in Beijing, 12 restaurants are located in Shanghai, 4 restaurants are located in Tianjin, 2 restaurants are located in Guangzhou, 2 restaurants are located in Shenzhen, and 1 restaurant is located in Zhengzhou. All 6 of these cities are located in one of the 14 provinces and municipalities that China's General Administration of Customs announced on June 1, 2015 will participate in a special campaign against the smuggling of Zombie meat and will jointly pay special attention to the smuggling and sale of Zombie meat (China Network Television, 2015). Moreover, as seen in Figure A-2 in Appendix A, which plots the internet search frequency for the keyword Zombie meat (僵尸肉) by province and municipality over the time period May 1, 2015 to July 31, 2015, all 6 of these cities are located in provinces and municipalities where there was a relatively high internet search frequency for the keyword Zombie meat (僵尸肉) in response to the Zombie meat event.

To augment our unique daily spatially-disaggregated order-level restaurant dataset, we manually collected information about each of the 1,215 different dishes in the data set in order to

[4] We are extremely grateful to this restaurant chain company (which must remain anonymous due to confidentiality restrictions) for providing us with the order-level data.

construct variables for the characteristics of each dish. In particular, for each of the 1,215 different dishes in the data set, we manually determined whether the dish is a dessert; whether the dish contains beef, chicken, pork, duck, tofu, seafood (fish, prawns, shellfish, and/or squid), mushrooms, vegetables other than mushrooms, and/or rice; whether the cooking method for the dish was by boiling;[5] and whether the flavor of the dish was spicy, sweet, salty, sour, bitter, and/or umami. In addition, we created dummy variables for promotions, sales, and commercials for each dish in each restaurant on each day. To augment our data on promotions, we collected Dianping data (Chinese Yelp) on whether some consumers mention they receive a certain special deal in specific period.

From the raw data, we then created a daily restaurant-dish-level panel data set. Each observation in this daily restaurant-dish-level panel data set is a restaurant-dish-day (i.e., a particular dish in a particular restaurant on a particular day). For each restaurant-dish-day, the variables include the price (in Yuan) of the dish in that restaurant that day, and dummy variables for each of the dish characteristics created above.[6]

We then use our daily restaurant-dish-level panel data set to create another panel data set, a daily restaurant-level panel data set. Each observation in this daily restaurant-level panel data set is a restaurant-day. For each restaurant-day, we created variables for: the total number of orders at that restaurant on that day; the total number of people (or customers) at that restaurant on that day (calculated by summing the number of people per dining party over all dining parties at that restaurant on that day); the total price of all orders at that restaurant on that day (calculated as total price of each order summed over all orders at that restaurant on that day); and the average price of all orders at that restaurant on that day (calculated as the total price of all orders at that restaurant on that day, divided by number of orders at that restaurant on that day). We also created, for each restaurant dish characteristic, variables for: the total number of dishes ordered at that restaurant on that day with that characteristic; the total price of all dishes ordered at that restaurant on that day with that characteristic (calculated as price of each dish with that characteristic times the number of orders of that dish at that restaurant on that day); and the average price of all dishes ordered at

[5] We included hot pot dishes among the dishes cooked by boiling.

[6] To summarize our daily restaurant-dish-level panel data, Appendix B presents time series plots for the dummy variables in our daily restaurant-dish-level panel data set. It is difficult to ascertain whether the Zombie meat event had a significant effect based on the time series plots of the raw data from our daily restaurant-dish-level panel data set.

that restaurant on that day with that characteristic (calculated as the total price of all dishes ordered at that restaurant on that day with that characteristic, divided by the total number of dishes ordered at that restaurant on that day with that characteristic). Prices are in Yuan.[7,8]

4. Regression Discontinuity Analysis

4.1. Methods

In order to analyze and identify the impact of the Zombie meat event on restaurant food supply and demand and address the potential bias caused by time-varying omitted variables, we use a regression discontinuity design. We assume that the Zombie meat media and policy event was neither affected nor determined by the particular restaurant chain we analyze, and was therefore exogenous to its restaurant food supply and demand. We exploit the daily variation in our detailed daily data set to identify the effects of the Zombie meat media and policy event on daily supply and demand for restaurant food in China.

A regression discontinuity design can be used when observations can be ordered according to a forcing (or running) variable and the treatment is assigned above a given threshold. In our case, the forcing variable is time and the threshold is the date of the Zombie meat event (Percoco, 2014). Previous studies that have used a regression discontinuity design with time as the forcing variable include Davis (2008), Auffhammer and Kellogg (2011), Chen and Whalley (2012), Bento et al. (2014), Grainger and Costello (2014), Salvo and Wang (2017), Zhang, Lin Lawell and Umanskaya (2017), Fuje (2019), and Kheiravar and Lin Lawell (2025). Hausman and Rapson (2018) provide an excellent review of these studies and a guide for practitioners. In a regression discontinuity design, there is no value of the forcing variable at which we observe both treatment and control observations; instead, we extrapolate across covariate values, at least in a neighborhood of the discontinuity (Angrist and Pischke, 2019; Imbens and Lemieux, 2018).

[7] To summarize our daily restaurant-level panel data, Appendix C presents scatterplots over time for the variables in our daily restaurant-level panel data set. It is difficult to ascertain whether the Zombie meat event had a significant effect based on the scatterplots of the raw data from our daily restaurant-level panel data set.

[8] As seen in Figure B-5 in Appendix B, and in Figures C-11 and C-12 in Appendix C, few dishes in our data set had duck. Thus, as there were too few dishes with duck, particularly in a window from 5 weeks before to 5 weeks after the Zombie meat event, we do not analyze the effect of the Zombie meat event on the price or quantity of duck dishes ordered.

Gelman and Imbens (2018) recommend using local polynomial regressions instead of high-order global polynomials in regression discontinuity design. We therefore use the local polynomial regression discontinuity robust bias-corrected confidence intervals and inference procedures developed in Calonico, Cattaneo and Titiunik (2014), Calonico, Cattaneo and Farrell (2018), and Calonico et al. (2019). The confidence intervals are constructed using a bias-corrected regression discontinuity estimator together with a novel standard error estimator proposed in Calonico, Cattaneo and Titiunik (2014). In particular, the confidence intervals are constructed using an alternative asymptotic theory for bias-corrected local polynomial estimators in the context of regression discontinuity designs, which leads to a different asymptotic variance in general and thus justifies a new standard error estimator. Bandwidth choices that minimize asymptotic mean squared error (MSE) are derived following Imbens and Kalyanaraman (2012). Calonico, Cattaneo and Titiunik (2014) find that the resulting data-driven confidence intervals performed very well in simulations, suggesting in particular that they provide a robust (to the choice of bandwidths) alternative when compared to the conventional confidence intervals routinely employed in empirical work. Hyytinen et al. (2018) similarly find that bias-corrected regression discontinuity design estimates that apply robust inference are in line with the experimental estimate from an experiment that takes place exactly at the cutoff.

We apply our regression discontinuity analysis on two levels: the daily restaurant level, and the daily restaurant-dish level. The daily restaurant-level analysis uses dependent variables that aggregate or average over all orders and/or over all dishes ordered at a restaurant on a particular day, and therefore enables us to assess the effects of the Zombie meat event on demand, supply, and the market equilibrium. The daily restaurant-dish level analysis uses as dependent variables dish characteristics and the dish price conditional on each of the dish characteristics, which enables us to analyze the effects of the Zombie meat event on the prices and characteristics of individual dishes, and therefore to assess whether any effects we find on the supply-and-demand system from the daily restaurant-level analysis were at least partially the result of a supply-side response wherein restaurants changed the prices or characteristics of individual dishes in response to the Zombie meat event.

For each dependent variable we analyze, we use a two-stage estimation procedure. In the first stage, we run a first-stage regression of the dependent variable on weather and seasonality covariates, and either restaurant fixed effects or restaurant-dish fixed effects. The weather and

seasonality covariates are daily maximum temperature, daily average temperature, daily precipitation, month-of-year dummies, and day-of-week dummies. In the second stage, we run the local linear regression discontinuity regressions with robust confidence intervals proposed in Calonico, Cattaneo and Titiunik (2014) of residuals from the first-stage regression to analyze the effects of the Zombie meat event. We bootstrap the standard errors over both stages of the estimation.

Our regression discontinuity design addresses the potential bias caused by time-varying omitted variables. Within a narrow time window, the unobserved factors unrelated to the Zombie meat event that influence daily supply and demand for restaurant food are likely to be similar so that observations prior to the Zombie meat event provide a comparison group for observations after the Zombie meat event.

The restaurant fixed effects control for time-invariant restaurant heterogeneity. In specifications that include restaurant-dish fixed effects instead, the restaurant-dish fixed effects control for time-invariant restaurant-dish heterogeneity. The indicator variables for month of the year control for monthly variation in restaurant food supply and demand and other factors that affect restaurant food supply and demand. Similarly, the indicator variables for day of the week control for intra-week variation in restaurant food supply and demand and other factors that affect restaurant food supply and demand.

We augment our regression discontinuity estimator with covariates entering in an additively separable, linear-in-parameters way; Calonico et al. (2019) shows that the resulting covariate-adjusted regression discontinuity estimator remains consistent for the standard regression discontinuity treatment effect and can achieve substantial efficiency gains relative to the unadjusted regression discontinuity estimator.

We mitigate concerns regarding time-varying treatment effects by using local polynomial regressions instead of high-order global polynomials in our regression discontinuity design, and by using narrow time windows of no more than 10 weeks before and after the Zombie meat event, rather than time windows of multiple years (Hausman and Rapson, 2018).

Since we analyze the effects of the Zombie meat event on several dependent variables, we apply the Bonferroni correction to adjust for multiple hypothesis testing (Bland and Altman, 1995; Napierala, 2012).

4.2. Daily Restaurant-Level Analysis

To assess the effects of the Zombie meat event on demand, supply, and the market equilibrium, we first run the local linear regression discontinuity regressions with robust confidence intervals using our daily restaurant-level panel data set. The daily restaurant-level dependent variables y_{it}^{r} we analyze include: the total number of orders at restaurant *i* on day *t*, the total number of people at restaurant *i* on day *t*, the total price of all orders at restaurant *i* on day *t*, the total number of orders at restaurant *i* on day *t* that had at least one dish with a particular characteristic, and the average price of all dishes ordered at restaurant *i* on day *t* with a particular characteristic.

For each daily restaurant-level dependent variable y_{it}^{r} that we analyze, our first-stage regression is given by:

$$y_{it}^{r} = x_{it}'\beta^{r} + \alpha_{i}^{r} + \varepsilon_{it}^{r}, \tag{1}$$

where x_{it} is a vector of covariates for restaurant *i* on day *t*, including weather and seasonality covariates; and α_{i}^{r} is a restaurant fixed effect for restaurant *i*.

In the second stage, we take the residuals $\hat{\varepsilon}_{it}^{r}$ from the first-stage daily restaurant-level regression in equation (1) and run local linear regression discontinuity regressions of these residuals $\hat{\varepsilon}_{it}^{r}$ to analyze the effects of the Zombie meat event, using the method for local linear regression discontinuity regressions with robust confidence intervals proposed in Calonico, Cattaneo and Titiunik (2014).

We bootstrap the standard errors over both stages of the estimation. In particular, restaurants are randomly drawn from the data set with replacement to generate multiple independent panels each with the same number of restaurants in the original data set. We then run both stages on each of the new panels. The standard errors are then formed by taking the standard deviation of the bias-corrected local-polynomial regression discontinuity estimates from each of the panels.

The results of our daily restaurant-level regression discontinuity analysis are presented in Table 1.[9] Results show that the Zombie meat event resulted in a significant increase in the total price of all orders; in the total number of orders that were desserts; in the average price of all dishes ordered that were desserts; in the average price of all dishes ordered that had beef, chicken, pork, seafood (fish, prawns, shellfish, and/or squid), tofu, mushrooms, other vegetables, or rice; in the average price of all dishes ordered whose cooking method was boiling, including hot pots; and in the average price of all dishes ordered that were spicy, sweet, salty, sour, or umami. On the other hand, the Zombie meat event did not have a statistically significant effect on the total number of orders; the total number of people (or customers) at the restaurant; the total number of dishes ordered that had beef, chicken, pork, seafood (fish, prawns, shellfish, and/or squid), mushrooms, vegetables other than mushrooms, or rice; the total number of dishes ordered that were spicy, sweet, salty, sour, bitter, or umami; or the average price of all dishes ordered that were bitter.

Our results are robust to whether we use a window of 10 weeks before and after the Zombie meat event, or a window of 5 weeks before and after the Zombie meat event, with the exception that for a window of 5 weeks before and after the Zombie meat event, the Zombie meat event does not have a significant effect on the average price of all dishes ordered that had tofu either after applying the Bonferroni correction. With a window of 5 weeks before and after the Zombie meat event, we did not have sufficient observations of dishes that were bitter in order to analyze the effects of the Zombie meat event on either total number of dishes ordered that were bitter or the average price of all dishes ordered that were bitter.[10]

[9] Appendix D presents residual plots that plot residuals from a first-stage regression of each of the variables in our daily restaurant-level panel data set, using data within a window of 10 weeks before to 10 weeks after the Zombie meat event. The first-stage regressions regress each of the variables in our daily restaurant-level panel data set on weather and seasonality covariates, and restaurant fixed effects. Residual plots for the average price of all dishes ordered at that restaurant on that day with pork, chicken, and beef are also presented in Figure 1.

[10] Small sample sizes in each city preclude us from obtaining robust results from running our daily restaurant-level local linear regression discontinuity analysis separately for each city. We were unable to run separate local linear regression discontinuity analyses for any of the 3 cities that had 2 or fewer restaurants (Guanzhou, Shenzhen, and Zhengzhou), since they each had too few observations. Even for the remaining 3 cities with more than 2 restaurants (Beijing, Shanghai, and Tianjin), there are too few observations in each city for the window from 5 weeks before to 5 weeks after the Zombie meat event to reliably detect any effect by city, especially since we are applying the Bonferroni correction to adjust for multiple hypothesis testing; and only Beijing, which has 37 out of the 58 restaurants, has enough observations for the window from 10 weeks before to 10 weeks after the Zombie meat event to reliably detect any effect by city. The results for Beijing, which has 37 out of the 58 restaurants, are similar to the results from pooling all cities in Table 1, including the results that the Zombie meat event resulted in a significant increase in the average prices but not the number of orders of dishes with meat; and that the Zombie meat event resulted in a significant increase in the total price of all orders, but did not have a statistically significant effect on the total number of orders or the total number of people (or customers) at the restaurant.

The results of daily restaurant-level local linear regression discontinuity regressions therefore show that the Zombie meat event increased the average prices but not the number of orders of dishes with meat. The result that the Zombie meat event increased the average prices of dishes with meat is summarized graphically via residual plots for the average price of dishes ordered with pork, chicken, and beef in Figure 1.[11]

4.3. Daily Restaurant-Dish-Level Analysis

To analyze the effects of the Zombie meat event on the prices and characteristics of individual dishes, and to examine whether the price effects from our daily restaurant-level analysis are a result of restaurants raising the price of individual dishes, we next run local linear regression discontinuity regressions with robust confidence intervals using our daily restaurant-dish-level panel data set. The daily restaurant-dish-level dependent variables y_{ijt}^{d} we analyze include dummy variables for whether for dish *j* in restaurant *i* on day *t* had a particular characteristic, and the dish price for dish *j* in restaurant *i* on day *t* conditional on having a particular characteristic.

For each daily restaurant-dish-level dependent variable y_{ijt}^{d} we analyze, the first-stage regression is given by:

$$y_{ijt}^{d} = x_{it}'\beta^{d} + \alpha_{ij}^{d} + \varepsilon_{ijt}^{d}, \tag{2}$$

where x_{it} is a vector of covariates for restaurant *i* on day *t*, including weather and seasonality covariates, and promotion dummies; and, depending on specification, α_{ij}^{d} is either a restaurant fixed effect for restaurant *i* or restaurant-dish fixed effect for dish *j* in restaurant *i*. The vector of covariates x_{it} includes weather and seasonality covariates, and promotion dummies. In the second stage, we take the residuals $\hat{\varepsilon}_{ijt}^{d}$ from the first-stage daily restaurant-dish-level regression in equation (2) and run local linear regression discontinuity regressions of these residuals $\hat{\varepsilon}_{ijt}^{d}$ to analyze the effects of the Zombie meat event, using the method for local linear regression

[11] Residual plots for each of the variables in our daily restaurant-level panel data set are presented in Appendix D.

discontinuity regressions with robust confidence intervals proposed in Calonico, Cattaneo and Titiunik (2014). We bootstrap the standard errors over both stages of the estimation.[12]

Table 2 presents the results of our daily restaurant-dish-level regression discontinuity analysis of the dish characteristics and the dish price conditional on each of the dish characteristics.[13] The results show that the Zombie meat event had very little significant effect on prices or characteristics of individual dishes. After applying the Bonferroni correction to adjust for multiple hypothesis testing (Bland and Altman, 1995; Napierala, 2012), the only type of dish characteristic on which the Zombie meat event had a significant effect when using a window of 10 weeks before and after the Zombie meat event was sweet flavor: after the Zombie meat event, more restaurant dishes had a sweet flavor. The Zombie meat event did not have a significant effect on the dish price of dishes of any of the dish characteristics we examined, and had only a marginally significant effects (that are no longer significant after applying the Bonferroni correction) on prices of dishes that were prepared using a boiling cooking method, including hotpots.

When using a window of 5 weeks before and after the Zombie meat event, the only type of dish characteristics on which the Zombie meat event had a significant effect were sweet flavor, salty flavor, and umami flavor: after the Zombie meat event, more restaurant dishes had a sweet flavor, and fewer restaurant dishes had a salty flavor or an umami flavor. When using a window of 5 weeks before and after the Zombie meat event, the Zombie meat event did not have a significant effect on the dish price of dishes of any of the dish characteristics we examined.[14]

[12] To bootstrap the standard errors in the daily restaurant-dish-level analysis, restaurant-dishes are randomly drawn from the data set with replacement to generate multiple independent panels each with the same number of restaurant-dishes in the original data set. We then run both stages on each of the new panels. The standard errors are then formed by taking the standard deviation of the bias-corrected local-polynomial regression discontinuity estimates from each of the panels.

[13] Appendix E presents residual plots that plot residuals from a first-stage regression of dish price conditional on each of the dish characteristics in our daily restaurant-dish-level panel data set, using data within a window of 10 weeks before to 10 weeks after the Zombie meat event. The first-stage regressions regress dish price conditional on each of the dish characteristics in our daily restaurant-dish-level panel data set on weather and seasonality covariates, promotion dummies, and restaurant-dish fixed effects.

[14] Similar to the results from pooling all cities in Table 2, results from running our daily restaurant-dish-level regression discontinuity analysis separately by city when using a window from 10 weeks before to 10 weeks after the Zombie meat event show that the Zombie meat event did not have a significant effect on the dish price of dishes of any of the dish characteristics we examined. We find qualitatively similar results by city when using a window from 5 weeks before to 5 weeks after the Zombie meat event, except that the limited number of observations in each city may make it difficult to detect any effect by city after applying the Bonferroni correction to adjust for multiple hypothesis testing.

Thus, the results of our analysis at the restaurant-dish level show that the meat price effects that we found in our restaurant-level analysis were not the result of restaurants changing the prices or characteristics of individual meat dishes in response to the Zombie meat event. Instead, our finding from our restaurant-level analysis that the Zombie meat event increased the average prices of dishes with meat was the result of a compositional change in the types of meat dishes ordered in the aftermath of the Zombie meat event.

4.4. Model Validity

An underlying assumption for regression discontinuity designs is that there are no discontinuous changes in the control variables at the time of the Zombie meat event. To examine if there were any discontinuous changes in the control variables at the time of the Zombie meat event, Table F1a in Appendix F presents results of daily restaurant-level local linear regression discontinuity analyses of our daily weather variables: daily maximum temperature, daily average temperature, and daily precipitation. Table F1b in Appendix F presents results of daily restaurant-dish-level local linear regression discontinuity analyses of our daily promotion dummy variable. We find that there are no discontinuous changes at the time of the Zombie meat event that are significant at a 5% level for any of the weather variables when using a window of 5 weeks before and after the Zombie meat event. When using a window of 10 weeks before and after the Zombie meat event, we find that there are no discontinuous changes at the time of the Zombie meat event that are significant at a 5% level for either daily maximum temperature or daily precipitation. The Zombie meat event did not have any significant effect at a 5% level on the daily promotion dummy variable for either the window of 10 weeks or 5 weeks before and after the Zombie meat event. Thus, the underlying assumption that there are no discontinuous changes in the control variables at the time of the Zombie meat event seems reasonably satisfied, particularly for the window of 5 weeks before and after the Zombie meat event.

5. Restaurant Food Demand

We supplement our regression discontinuity analysis with an empirical model of consumer demand. The results of our local linear regression discontinuity regressions with robust confidence intervals for the dish characteristics and the dish price conditional on each of the dish characteristics using our daily restaurant-dish-level panel data set in Section 4.3 show that

restaurants are not changing the prices or characteristics of individual dishes in response to the Zombie meat event. Moreover, the prices and characteristics for most restaurant dishes do not vary much over time, if at all, in our daily data set for the year 2015, particularly over the narrow window from 5 weeks before to 5 weeks after the Zombie meat event. Thus, the variation in price in our data set is primarily variation across restaurant dish, not variation over time. For restaurant dishes whose price does not vary over time, price is not endogenous to daily demand. In addition, for a restaurant dish whose price does not vary over time, we are unable to identify to effects of the price of that restaurant dish on the daily demand for that restaurant dish.

Since prices and characteristics of restaurant dishes do not vary much over time, if at all, over the window from 5 weeks before to 5 weeks after the Zombie meat event, following an approach that dates back at least to Lancaster (1971), we estimate demand regressions that represent consumer preferences over restaurant dishes as a function of the price and characteristics of the restaurant dishes, and allow for the possibility that some of the demand parameters may have changed following the Zombie meat event.

In particular, we use observations from our daily restaurant-dish-level panel data set over the window from 5 weeks before to 5 weeks after the Zombie meat event to estimate the following demand regression:

$$q_{ijt} = \beta_p p_{ijt} + c_{ijt}'\beta_c + p_{ijt}c_{ijt}'\beta_{cp} + \beta_{pZ}Z_t p_{ijt} + Z_t c_{ijt}'\beta_{cZ} + Z_t p_{ijt}c_{ijt}'\beta_{cpZ} + x_{it}'\beta_x + \alpha_i + \varepsilon_{ijt}, \qquad (3)$$

where the dependent variable q_{ijt} is the total quantity ordered of dish *j* in restaurant *i* on day *t*; p_{ijt} is the price of dish *j* in restaurant *i* on day *t* ; c_{ijt} is a vector of characteristics of dish *j* in restaurant *i* on day *t*; Z_t is a dummy variable for day *t* being a day on or after the Zombie meat event; x_{it} is a vector of covariates for restaurant *i* on day *t*; and α_i is a restaurant fixed effect for restaurant *i*. The vector of covariates x_{it} includes weather and seasonality covariates, and, in an alternative specification, also includes a dummy for promotions. The weather and seasonality covariates are daily maximum temperature, daily average temperature, daily precipitation, month-of-year dummies, and day-of-week dummies. Since prices of restaurant dishes do not vary much over time, if at all, over the window from 5 weeks before to 5 weeks after the Zombie meat event, the cross-price effects of other dishes offered by the restaurant are absorbed by the restaurant fixed effect.

Our coefficients of interest are β_{cZ}, which measures the effect of the Zombie meat event on the demand for dishes with certain characteristics; and β_{cpZ}, which measures the effect of the Zombie meat event on the demand for dishes with certain characteristics and certain price levels. Barwick et al. (2024) show that the OLS coefficient on the interaction between a treatment and an endogenous variable is consistent if the treatment is conditionally exogenous and conditionally independent of the endogenous variable. Thus, even if prices and characteristics (which do not vary much over time, if at all, over the window from 5 weeks before to 5 weeks after the Zombie meat event) were endogenous, our coefficients of interest -- the coefficients β_{cZ} and β_{cpZ} on the interactions between the Zombie meat event with prices and characteristics -- are consistent because the Zombie meat event is exogenous to the restaurant dish demand, price, and characteristics of any single dish in any particular restaurant in China.

The full set of results for the two specifications of the fixed effects demand regression (our base case and the alternative specification that also includes a dummy for promotions in vector of covariates x_{it}) are presented in Tables G1a and G1b, respectively, in Appendix G; the results for Beijing are also summarized in Table 3. There is some heterogeneity across cities.[15] The pooled results are similar to the results for Beijing, likely because most of the restaurants (37 out of 58) are located in Beijing. We find that after the Zombie meat event, demand in Beijing and Tianjin shifted downward for dishes that had pork; and shifted upward for dishes that had beef, seafood, and vegetables (not including mushrooms). After the Zombie meat event, consumers in Beijing and Tianjin were more likely to buy more expensive pork dishes.

We also estimate the demand regression in equation (3) using an IV fixed effects model in which we instrument for price and the price interactions using the average price of that dish in that city during the first quarter of 2015 (from January 1 to March 31) and its interactions. We report the Angrist-Pischke first-stage F-statistics and Sanderson-Windmeijer first-stage F-statistics for each of endogenous price and price interaction variables in Table G2 in Appendix G. The Angrist-Pischke first-stage F-statistics and Sanderson-Windmeijer first-stage F-statistics are tests of weak identification of individual endogenous regressors, and are constructed by "partialling-out" linear projections of the remaining endogenous regressors (Angrist and Pischke, 2009;

[15] We exclude Zhengzhou from the analysis by city because only 1 restaurant is located in Zhengzhou.

Sanderson and Windmeijer, 2016). As seen in Table G2 in Appendix G, the first-stage F-statistics are all greater than 1 million for each of the endogenous variables, far greater than the threshold of 10 used in current practice (Staiger and Stock, 1997; Stock and Yogo, 2005; Andrews, Stock and Sun, 2019), and also far greater than the threshold of 104.7 for a true 5 percent test (Lee et al., 2022). Moreover, as seen in Tables G3a and G3b in Appendix G, the coefficient on the instrument for price (the average price for that dish in that city during Quarter 1) in the first-stage regression for price is statistically significant and nearly 1.000 in all specifications, and reclassified as exogenous for Tianjin in the specification in Table G3b. Thus, our instrument for price is nearly perfectly correlated with price, which provides further evidence that price is essentially exogenous and rarely changes for a restaurant dish.

The full set of results for the two specifications of the IV fixed effects demand regression (our base case and the alternative specification that also includes a dummy for promotions in vector of covariates x_{it}) are presented in Tables G3a and G3b, respectively, in Appendix G; the results for Beijing are also summarized in Table 3. There is some heterogeneity across cities. The pooled results are similar to the results for Beijing, likely because most of the restaurants (37 out of 58) are located in Beijing. We find that after the Zombie meat event, demand in Beijing and Tianjin shifted downward for dishes that had pork, and consumers in Beijing and Tianjin were more likely to buy more expensive pork dishes.

We use the results from our fixed effects and IV fixed effects demand regressions to calculate the total average effect of the Zombie Meat Event on the demand for a sample of popular dishes offered by this restaurant chain. In particular, our sample of popular dishes consists of all dishes that were ordered at least once over the year 2015 in at least 21 of the 37 restaurants in Beijing; that were ordered over 45 times in Beijing in the window from 5 weeks before to 5 weeks after the Zombie meat event; that were ordered at least once in Beijing in the 5 weeks before the Zombie meat event; that were ordered at least once in Beijing in the 5 weeks on or after the Zombie meat event; that were ordered at least once in the first 3 months of 2015; and that had pork, chicken, beef, seafood, tofu, mushrooms, and/or vegetables. There are 22 dishes that meet these criteria. For each of these 22 dishes, we calculate the total average effect of the Zombie meat event on demand for that dish using the results from the fixed effects and IV fixed effects demand regressions, and evaluated at the dish characteristics and the mean dish price. Standard errors are calculated using the Delta Method (DeGroot, 1986).

Table 4a presents the results of the total average effect of the Zombie meat event on the demand for these 22 dishes in Beijing, as calculated using the results from the fixed effects and IV fixed effects demand regressions for Beijing, and evaluated at the dish characteristics and the mean dish price over all restaurants in Beijing over all days in the window from 5 weeks before to 5 weeks after the Zombie meat event. Table 4b presents the results of the total average effect of the Zombie meat event on the demand for these 22 dishes in all cities, as calculated using the results from the fixed effects and IV fixed effects demand regressions for all cities, and evaluated at the dish characteristics and the mean dish price over all restaurants over all days in the window from 5 weeks before to 5 weeks after the Zombie meat event.

Across the multiple specifications for demand, we find the robust result that the Zombie meat event had a significant negative total average effect on the least expensive pork dish, Yunnan style ground pork fried rice (黑三剁炒饭), but did not have any statistically significant total average effect on the demand for any of the other more expensive pork dishes, chicken dishes, or beef dishes.

6. Discussion and Conclusion

In this paper, we analyze the effects of a media and policy event regarding food safety, the Zombie meat announcement, on the supply and demand for restaurant food. Our results show that the Zombie meat event increased the total price of all orders; the total number of orders that were desserts; the average price of all dishes ordered that were desserts; and the average price of all dishes ordered that had meat.

Our analyses also show that the meat price effects of the Zombie meat event were not the result of restaurants changing the prices or characteristics of individual meat dishes in response to the Zombie meat event. Instead, the effects of the Zombie meat event on the average prices of dishes with meat were the result of a compositional change in the types of meat dishes ordered in the aftermath of the Zombie meat event.

In particular, as a result of the Zombie meat event, customers tended to order more expensive orders, more expensive dishes, and more desserts. Although the Zombie meat event did not have a statistically significant effect on the total number of dishes ordered that had beef, chicken, or pork, those who ordered dishes that had beef, chicken, or pork after the Zombie meat event tended to order the more expensive beef, chicken, and pork dishes. Since restaurants did not

significantly increase prices of individual dishes that had beef, chicken, or pork in response to the Zombie meat event, our results suggest that customers who ordered meat following the Zombie meat event tended to order more expensive meat dishes, perhaps because they viewed these more expensive dishes as having higher quality and more fresh meat.

We also estimate an empirical model of consumer demand. Since results of our regression discontinuity analysis show that prices and characteristics of restaurant dishes do not vary much over time, if at all, over the window from 5 weeks before to 5 weeks after the Zombie meat event, we use observations from our daily restaurant-dish-level panel data set over the window from 5 weeks before to 5 weeks after the Zombie meat event to estimate demand regressions that represent consumer preferences over restaurant dishes as a function of the price and characteristics of the restaurant dishes, and allow for the possibility that some of the demand parameters may have changed following the Zombie meat event.

Results of our empirical model of consumer demand show that after the Zombie meat event, consumers in Beijing and Tianjin were more likely to buy more expensive pork dishes. Among 22 popular dishes that were ordered in at least 21 of the 37 restaurants in Beijing, the Zombie meat event had a significant negative total average effect on the least expensive pork dish, Yunnan style ground pork fried rice, but did not have any statistically significant total average effect on the demand for any of the other more expensive pork dishes, chicken dishes, or beef dishes.

There are several possible reasons why customers who ordered meat following the Zombie meat event tended to order more expensive meat dishes. First, for Chinese restaurants in China, higher priced dishes tend to use larger chunks of meat instead of smaller pieces or minced meat, and hence the quality is easier to observe for higher priced meat dishes. Indeed, Yunnan style ground pork fried rice – a popular inexpensive pork dish whose demand we found declined after the Zombie meat event – uses ground pork, for which the quality may be difficult to ascertain. Thus, one reason customers who ordered meat following the Zombie meat event may have tended to order more expensive meat dishes is that the quality of higher priced meat dishes is easier to observe.

A second possible reason why customers who ordered meat following the Zombie meat event tended to order more expensive meat dishes is that higher priced dishes typically require full onsite cooking, and lower priced dishes sold in restaurants may include outsourced processed food

and/or pre-cooked products from a central kitchen. Thus, since the source and quality of outsourced processed meat and/or pre-cooked meat from elsewhere may be more difficult to verify, consumers may have preferred more expensive meat dishes following the Zombie meat event since higher priced meat dished are less likely to include outsourced processed meat and/or pre-cooked meat from elsewhere.

A third possible reason why customers who ordered meat following the Zombie meat event tended to order more expensive meat dishes is that they may take the higher price itself as a indicator that the meat is of higher quality. According to a recent McKinsey & Company article (Grimmelt, 2023): Chinese consumers, especially those affluent enough to pay more for meat, "see the higher price of beef as a sign of a premium product's higher quality." Results of a survey of consumer perception of fresh meat quality in Germany found that most of the respondents believed that one has to pay a higher price to get good quality meat (Becker, Benner and Glitsch, 2000); it is possible that consumers in Chinese similarly perceive that higher priced meat dishes use higher quality meat.

Our results also suggest that the meat price effects were more pronounced for pork dishes. Results from our demand estimation show that after the Zombie meat event, consumers in Beijing and Tianjin were more likely to buy more expensive pork dishes and that, among 22 popular dishes that were ordered in at least 21 of the 37 restaurants in Beijing, the Zombie meat event had a significant negative total average effect on the least expensive pork dish. Our result that pork dishes were more affected by the Zombie meat event than other meat dishes is consistent with a recent McKinsey & Company article (Grimmelt, 2023) that found that Chinese consumers, consider pork less safe and less healthy than other meat because they "remember the safety issues that have historically been associated with pork".

We also find that, as a result of the Zombie meat event, customers ordered more desserts, which did not have any meat, possibly as a result of some substitution away from less expensive meat dishes. Perhaps relatedly, we also find that more restaurant dishes had a sweet flavor after the Zombie meat event. It is possible that some consumers who may have otherwise ordered a less expensive meat dish prior to the Zombie meat event may have responded to the Zombie meat event by ordering a dessert instead; desserts may be viewed by some consumers as partial substitutes to less expensive meat dishes since desserts tend to be less expensive than higher-priced meat dishes. We hope to further explore this phenomenon in future work.

Our results are consistent with the anecdotal experience of high-end French restaurants during the mad cow disease epidemic in France. When bovine spongiform encephalopathy (BSE) was assessed as a possible human transmissible disease, a variant of Creutzfeldt-Jakob disease (vCJD), in 1996, French people entered into a long period of fear and avoidance of beef and bovine byproducts, which produced an unprecedented collapse in the beef market at least until the early 2000s (Setbon, 2005). Nevertheless, anecdotal evidence suggests that beef demand at gourmet butcheries and high-end restaurants in France did not decrease and may have even increased as a result of the mad cow disease epidemic, perhaps because they were more trusted by customers to provide high quality beef (Rosenblum, 2000).

The restaurants in the Chinese restaurant chain we analyze are considered mid-range restaurants which are neither high-end fine dining restaurants nor casual fast food restaurants. Our results suggest that the restaurants we analyze were in a good position at the onset of the Zombie meat crisis because they had more expensive (and possibly higher quality) meat dishes as well as delectable desserts to which customers could shift. It is possible, for example, that lower-end restaurants that did not have more expensive meat dishes may have experienced a decline in the demand for all their meat dishes, rather than a shift in demand towards more expensive dishes. Furthermore, the affiliation itself with a mid-range Chinese restaurant chain with high quality dishes may also have been beneficial to the restaurants we analyzed in their ability to withstand the Zombie meat event; in their analysis of restaurant hygiene inspections in Los Angeles, for example, Jin and Leslie (2009) find that chain affiliation provides reputational incentives for good hygiene. Reputation concerns may be stronger for chain-affiliation restaurants, or restaurants that rely relatively more on repeat business (Bar-Isaac and Tadelis, 2008).

Our result that customers who ordered meat following the Zombie meat event tended to order more expensive meat dishes, perhaps because they viewed these more expensive dishes as having higher quality and more fresh meat, suggests that a possible means by which restaurants can weather food safety crises is to offer high quality dishes prepared in such a way that the quality of ingredients is easier to observe (e.g., using larger chunks of meat instead of minced meat) and to establish and maintain a reputation for quality.

In addition, as our results suggest that customers care about the quality of restaurant dishes during food safety crises, restaurants and policymakers may wish to consider adopting quality assurance mechanisms to help provide information about product quality to customers. Quality

certification programs help consumers identify high-quality products or sellers in markets with information asymmetries (Elfenbein, Fisman and McManus, 2015). While branding, experience, word-of-mouth, and warranties are common forms of quality assurance mechanisms, quality disclosure – which is an effort by a certification agency to systematically measure and report product quality for a nontrivial percentage of products in a market – may be an important tool for facilitating consumer purchases when other forms of quality assurance are inadequate (Dranove and Jin, 2010). For example, Jin and Leslie (2003) find that a regulation in Los Angeles County that requires restaurants to publicly display hygiene grade cards resulting from Department of Health Services hygiene inspections creates economic incentives for restaurants to improve hygiene, leading to a significant improvement in public health outcomes (Jin and Leslie, 2005). It is possible that a similar policy requiring food safety inspections and the public display of food safety inspection results may similarly enhance restaurant dish quality and help restaurants withstand food safety crises. Voluntary disclosure, government mandates, and third-party certifiers do not necessarily improve social welfare, however, and it is important to design quality-rating systems carefully, evaluate their effectiveness ex post, and improve system design based on theory and evidence (Dranove and Jin, 2010). For example, the investigation and identification of food safety issues in China is difficult owing to a lack of any credit system for food safety; according to Liu Pinxin, a professor at the Law School of Renmin University of China, China should establish a record system for food and give all food items a traceable number, after which the smuggled food has 'no record on file' and naturally has 'nowhere to hide' (Xinhua News, 2015).

Our research has important implications for the food industry and food policy, including for policymakers who wish to assess the benefits of implementing preventive food safety and sanitation policies, and restaurant firms that wish make more informed decisions about voluntarily implementing stricter food safety systems in their operations. Our results contribute to a better understanding on the part of policymakers as well as industry stakeholders of the impact of food safety events on the restaurant industry.

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Table 1. The Effects of Zombie Meat Event on Daily Restaurant-Level Variables

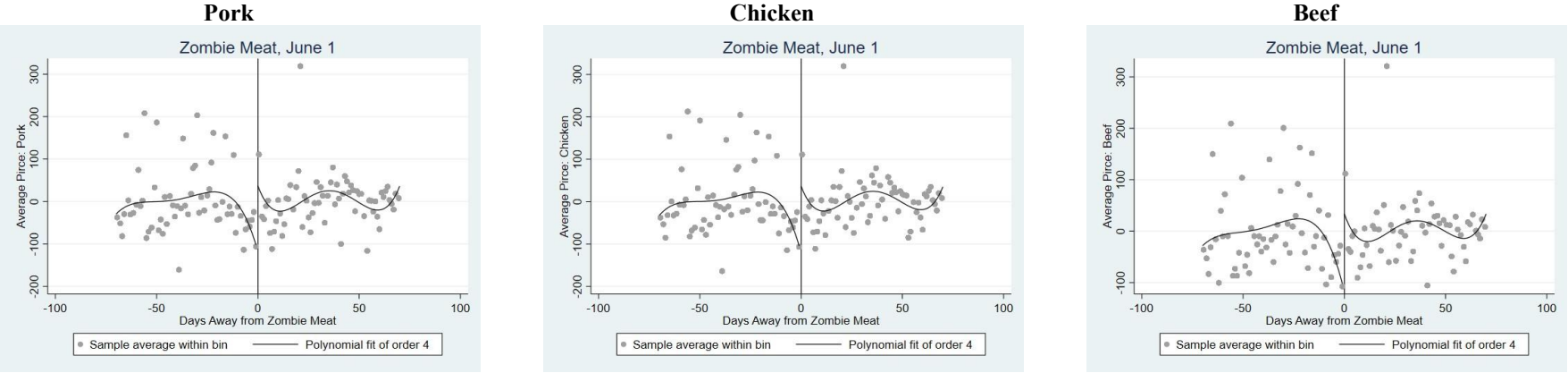
# weeks before and after event	10	5
Restaurant fixed effects	Y	Y
Dependent variable is residualized daily restaurant restaurant-level variable for:		
Total number of orders at that restaurant on that day	-4.497	-80.808
	(23.66)	(49.781)
Total number of people at that restaurant on that day	-72.062	-373.86
	(102.54)	(161.81)
Total price of all orders at that restaurant on that day	169.04*	218.17*
	(41.62)	(58.13)
Average price of all orders at that restaurant on that day	-0.309	-0.560
	(0.217)	(0.325)
Average price of dishes ordered at that restaurant on that day with characteristic:		
Dessert	168.256*	211.217*
	(40.723)	(55.979)
Beef	172.362*	219.560*
	(40.725)	(56.335)
Chicken	169.436*	213.670*
	(40.328)	(56.168)
Pork	169.633*	215.270*
	(39.550)	(56.576)
Seafood	170.164*	213.546*
	(40.700)	(56.002)
Tofu	212.032*	273.730
	(40.419)	(83.286)
Mushroom	172.449*	224.537*
	(40.785)	(56.847)
Vegetable Excluding Mushroom	173.067*	222.154*
	(39.806)	(58.104)
Rice	175.632*	222.994*
	(40.255)	(55.483)
Boiling, including Hotpot	172.121*	219.397*
	(40.314)	(58.081)
Spicy	170.087*	214.715*
	(39.956)	(56.221)
Sweet	164.916*	210.188*
	(40.314)	(56.217)
Salty	174.439*	224.120*
	(39.893)	(58.284)
Sour	169.893*	213.758*
	(40.314)	(56.121)
Umami	173.431*	220.489*
	(40.504)	(57.735)
Total number of dishes ordered at that restaurant on that day with characteristic:		
Dessert	22.294*	20.695*
	(4.051)	(5.039)
Beef	-2.243	-2.361
	(1.826)	(3.548)

Chicken	0.027	-9.347
	(3.595)	(6.618)
Pork	-0.930	-15.654
	(2.751)	(6.641)
Seafood	0.115	-12.672
	(3.392)	(7.163)
Tofu	-32.237*	-45.433*
	(6.404)	(8.556)
Mushroom	-2.681	7.139
	(4.020)	(4.010)
Vegetable Excluding Mushroom	6.744	-6.374
	(5.388)	(11.495)
Rice	1.742	-8.608
	(3.969)	(5.912)
Boiling, including Hotpot	-25.926*	-35.657*
	(7.185)	(9.711)
Spicy	10.341	-15.292
	(7.231)	(17.784)
Sweet	5.061	-7.390
	(7.977)	(14.124)
Salty	-0.538	-53.799
	(15.872)	(33.783)
Sour	3.185	-23.370
	(7.877)	(15.790)
Umami	-7.134	-52.419
	(14.041)	(27.483)

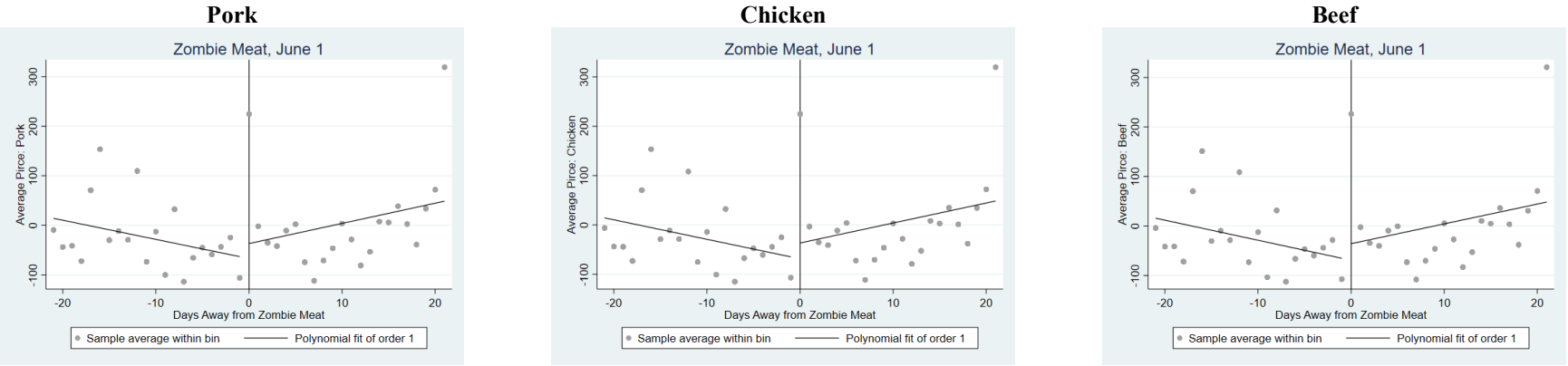
Notes: Each of the cells in this table reports estimates from separate daily restaurant-level local linear regression discontinuity regressions. Each of the 38 rows presents results from using a separate dependent variable. For each of the 38 dependent variables, we run separate daily restaurant-level local linear regression discontinuity regressions using 2 different windows of the residual from a first-stage regression of the variable in that row on weather and seasonality covariates, and restaurant fixed effects. The unit of observation in each daily restaurant-level local linear regression discontinuity regression is a restaurant-day. Prices are in Yuan. Bootstrapped standard errors are in parentheses. Significance code: * indicates significant at a 5% level after applying the Bonferroni correction to adjust for multiple hypothesis testing.

Figure 1. Residual Plots for Average Price of Meat Dishes Ordered

(a)



(b)



Notes: Figure presents residual plots of the average price of all dishes ordered at that restaurant on that day with pork, chicken, and beef, respectively, using data within a window of (a) 10 weeks before to 10 weeks after and (b) 3 weeks before to 3 weeks after the Zombie meat event. The residual plots plot residuals from a first-stage regression of the average price of all dishes ordered at that restaurant on that day with pork, chicken, and beef from our daily restaurant-level panel data set on weather and seasonality covariates, and restaurant fixed effects. The results of our local linear regression discontinuity regressions with robust confidence intervals of residuals from first-stage regressions of each of the variables in our daily restaurant-level panel data set are presented in Table 1. The full set of residual plots for each of the variables in our daily restaurant-level panel data set for within a window of 10 weeks before to 10 weeks after the Zombie meat event is in Appendix D.

Table 2. The Effects of Zombie Meat Event on Daily Restaurant-Dish-Level Variables

# weeks before and after event	10	10	5	5
Restaurant dish fixed effects	Y	N	Y	N
Restaurant fixed effects	N	Y	N	Y
Dependent variable is residualized daily restaurant-dish-level variable for:				
Dummy variable for dish in that restaurant that day having the characteristic:				
Dessert	0.000	0.003	0.000	0.002
	(0.000)	(0.002)	(0.000)	(0.003)
Beef	0.000	-0.001	0.000	-0.003
	(0.000)	(0.001)	(0.000)	(0.001)
Chicken	0.000	-0.002	0.000	-0.003
	(0.000)	(0.001)	(0.000)	(0.002)
Pork	0.000	-0.005		-0.002
	(0.000)	(0.002)		(0.002)
Seafood	0.000	-0.001	0.000	-0.003
	(0.000)	(0.001)	(0.000)	(0.002)
Tofu	0.000	-0.002	0.000	-0.002
	(0.000)	(0.001)	(0.000)	(0.001)
Mushroom	0.000	0.001	0.000	0.002
	(0.000)	(0.002)	(0.000)	(0.002)
Vegetable Excluding Mushroom	0.000	-0.004		-0.004
	(0.000)	(0.002)		(0.003)
Rice	0.000	-0.001	0.000	-0.002
	(0.000)	(0.001)	(0.000)	(0.001)
Boiling, including Hotpot	0.000	-0.005*		-0.008
	(0.000)	(0.001)		(0.002)
Spicy	0.000	-0.004	0.000	-0.007
	(0.000)	(0.002)	(0.000)	(0.003)
Sweet	0.000	0.019*	0.000	0.025*
	(0.000)	(0.004)	(0.000)	(0.005)
Salty	0.000	-0.017*	0.000	-0.023*
	(0.000)	(0.004)	(0.000)	(0.005)
Sour	0.000	-0.002		0.004
	(0.000)	(0.003)		(0.003)
Umami	0.000	-0.013*	0.000	-0.017*
	(0.000)	(0.003)	(0.000)	(0.004)

Promotions – Any	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.004)
Price of dish in that restaurant that day with characteristic:				
Dessert	0.541	0.227	0.445	0.253
	(0.410)	(0.495)	(0.457)	(0.547)
Beef	0.523	0.308	0.353	-0.154
	(0.418)	(0.578)	(0.484)	(0.626)
Chicken	0.560	0.300	0.535	0.178
	(0.407)	(0.475)	(0.483)	(0.533)
Pork	-0.080	-0.700	0.018	-0.774
	(0.395)	(0.465)	(0.486)	(0.500)
Seafood	0.494	-0.548	0.494	-0.748
	(0.416)	(0.565)	(0.492)	(0.622)
Tofu	0.327	0.254	0.164	0.125
	(0.402)	(0.475)	(0.462)	(0.531)
Mushroom	0.261	-1.228	0.061	-1.416
	(0.410)	(0.641)	(0.436)	(0.644)
Vegetable Excluding Mushroom	0.476	0.406	0.356	0.238
	(0.393)	(0.398)	(0.455)	(0.458)
Rice	0.641	0.657	0.596	0.750
	(0.416)	(0.510)	(0.476)	(0.558)
Boiling, including Hotpot	0.740	1.434	0.668	0.916
	(0.411)	(0.541)	(0.454)	(0.536)
Spicy	-0.039	-0.626	-0.087	-0.782
	(0.381)	(0.412)	(0.464)	(0.475)
Sweet	-0.247	-1.092	-0.088	-1.104
	(0.369)	(0.518)	(0.449)	(0.614)
Salty	-0.145	-0.168	-0.144	-0.311
	(0.401)	(0.408)	(0.479)	(0.465)
Sour	-0.013	-1.091	0.071	-1.635
	(0.410)	(0.479)	(0.445)	(0.527)
Umami	-0.019	-0.261	-0.070	-0.396
	(0.381)	(0.412)	(0.466)	(0.463)
Promotions – Any	0.976	-0.228	0.821	0.241
	(1.273)	(0.725)	(0.447)	(1.449)

Notes: Each of the cells in this table reports estimates from separate daily restaurant-dish-level local linear regression discontinuity regressions. Each of the 36 rows presents results from using a separate dependent variable. For each of the 36 dependent variables, we run separate daily restaurant-dish-level local linear regression discontinuity regressions using 2 different windows of the residual from a first-stage regression of the variable in that row on weather and seasonality covariates, promotion dummies, and either restaurant fixed effects or restaurant-dish fixed effects. The unit of observation in each daily restaurant-dish-level local linear regression discontinuity regression is a restaurant-day. Each of the regressions using a window of 10 weeks before to 10 weeks after the Zombie meat event has 392,952 observations. Each of the regressions using data a window of 5 weeks before to 5 weeks after the Zombie meat event has 190,278 observations. Prices

are in Yuan. Bootstrapped standard errors are in parentheses. Significance code: * indicates significant at a 5% level after applying the Bonferroni correction to adjust for multiple hypothesis testing.

Table 3. Daily Restaurant Dish Demand in Beijing

Dependent variable is Total Number of Orders of a Dish a Restaurant on a Day	Fixed Effects (Table G1a)	Fixed Effects (Table G1b)	IV Fixed Effects (Table G3a)	IV Fixed Effects (Table G3b)
Post Zombie Meat Event * Price	-0.0026	-0.0057*	0.0209***	0.0112**
	(0.0023)	(0.0023)	(0.0036)	(0.0037)
Post Zombie Meat Event * Vegetable Excluding Mushroom	1.4020**	1.3164**	0.7203	1.4222**
	(0.5065)	(0.5074)	(0.5399)	(0.5393)
Post Zombie Meat Event * Mushroom	-0.0827	-0.1275	0.6957	0.4940
	(0.6051)	(0.6048)	(0.6311)	(0.6308)
Post Zombie Meat Event * Tofu	-2.2853**	-2.1011*	-3.8931***	-3.9554***
	(0.8161)	(0.8241)	(1.1278)	(1.1261)
Post Zombie Meat Event * Seafood	5.3536***	5.1406***	7.2645***	6.7021***
	(0.9905)	(0.9903)	(1.0470)	(1.0464)
Post Zombie Meat Event * Pork	-5.9312***	-6.0779***	-4.2652***	-6.8714***
	(0.7474)	(0.7482)	(0.8009)	(0.7932)
Post Zombie Meat Event * Chicken	0.2483	0.0802	1.3975	1.0783
	(0.9644)	(0.9644)	(1.0543)	(1.0538)
Post Zombie Meat Event * Beef	2.0322*	2.0688*	0.6337	0.4429
	(0.8199)	(0.8194)	(0.8633)	(0.8627)
Post Zombie Meat Event * Any Type of Promotion		-0.8080*		-1.0167**
		(0.3138)		(0.3375)
Post Zombie Meat Event * Price * Vegetable Excluding Mushroom	-0.0457**	-0.0447**	-0.0398*	-0.0655***
	(0.0146)	(0.0146)	(0.0157)	(0.0156)
Post Zombie Meat Event * Price * Mushroom	-0.0092	-0.0076	-0.0312**	-0.0225
	(0.0108)	(0.0108)	(0.0116)	(0.0116)
Post Zombie Meat Event * Price * Tofu	0.0653*	0.0579*	0.0986**	0.0978**
	(0.0287)	(0.0290)	(0.0375)	(0.0374)
Post Zombie Meat Event * Price * Seafood	-0.0845***	-0.0805***	-0.1365***	-0.1233***
	(0.0157)	(0.0157)	(0.0167)	(0.0166)
Post Zombie Meat Event * Price * Pork	0.1299***	0.1333***	0.0742***	0.1442***
	(0.0187)	(0.0187)	(0.0204)	(0.0201)
Post Zombie Meat Event * Price * Chicken	-0.0249	-0.0214	-0.0795**	-0.0694**
	(0.0240)	(0.0240)	(0.0262)	(0.0262)
Post Zombie Meat Event * Price * Beef	-0.0318	-0.0316	-0.0346*	-0.0262
	(0.0166)	(0.0166)	(0.0175)	(0.0175)
IV for Price and Price Interactions	N	N	Y	Y
Promotion and Promotion Interactions	N	Y	N	Y
Price, Characteristics, and Price*Characteristics Interactions	Y	Y	Y	Y
Post Zombie Meat Event Dummy	Y	Y	Y	Y
Weather and Seasonality Controls	Y	Y	Y	Y
Restaurant Fixed Effect	Y	Y	Y	Y
# Observations	154,693	154,693	144,662	144,662
p-value (Pr > F)	0.0000	0.0000	0.0000	0.0000

Notes: We use observations from the 5 weeks before to 5 weeks after the Zombie meat event. We control for dish price, dish characteristics, and dish price interacted with dish characteristics. Price is in Yuan. The weather and seasonality covariates are daily maximum temperature, daily average temperature, daily precipitation, month-of-year dummies, and day-of-week dummies. For the IV fixed effects regressions, we instrument for price and the price interactions using the average Quarter 1 price of that dish in that city and its interactions. Standard errors are in parentheses. Significance codes: * 5% level, ** 1% level, and *** 0.1% level. Full regression results are presented in Tables G1a, G1b, G3a, and G3b in Appendix G.

Table 4a. Total Average Effect of Zombie Meat Event in Beijing

Dish Name in English	Dish Name in Chinese	Avg. Price (Yuan)	Total Average Effect in Beijing using results from daily restaurant dish demand for Beijing			
			Fixed effects (Table G1a)	Fixed effects (Table G1b)	IV fixed effects (Table G3a)	IV fixed effects (Table G3b)
Pork dishes						
Yunnan style ground pork fried rice	黑三剁炒饭	29	-2.7326** (0.955)	-2.7269** (0.9566)	-1.5073 (1.0012)	-2.3187* (1.0221)
Yunnan bamboo shoots sauté bacon	云南腊肉炒香笋	38	-2.2103 (1.3067)	-1.9607 (1.3017)	-1.4435 (1.3815)	-1.9869 (1.3924)
Olive oil Nuodeng ham stew with wheat melon	橄榄油诺邓火腿焖小麦瓜	39	-2.1363 (1.3237)	-1.8778 (1.3184)	-1.3882 (1.4002)	-1.897 (1.4105)
Yunnan spicy trotters	老滇香辣猪蹄	40	-1.3323 (1.0869)	-1.3233 (1.0884)	-0.4612 (1.1524)	-0.6093 (1.1669)
Dai flavor roast pork	傣味烤五花肉	43	-0.8948 (1.1328)	-0.8847 (1.1342)	-0.1343 (1.2046)	-0.0752 (1.2171)
Matsuzaka meat with pickles (pork neck)	腌菜松板肉（黄金 6 两）	79	0.8556 (2.1282)	1.4739 (2.1115)	0.8476 (2.2794)	1.7378 (2.2705)
Chicken dishes						
Lemongrass grilled wings (two pairs)	香茅草烤翅中（两对）	29	-1.0423 (1.214)	-1.0551 (1.2148)	-0.3019 (1.3037)	-0.5634 (1.328)
Cold chicken noodle	鸡丝凉米线	40	-1.3469 (1.3851)	-1.3553 (1.3858)	-0.951 (1.4949)	-1.208 (1.5163)
Yongping potato chicken stew	永平洋芋焖鸡	42	-1.3998 (1.4178)	-1.4074 (1.4185)	-1.0637 (1.5314)	-1.32 (1.5523)
Thai style chicken lemon geranium	泰式柠檬香叶鸡	49	-1.5923 (1.5429)	-1.5971 (1.5435)	-1.4739 (1.6706)	-1.7274 (1.6899)
Beef dishes						
Yi shredded pepper and beef tendon	彝族手撕美人椒拌牛筋	32	0.1347 (1.2254)	0.4118 (1.2213)	-0.358 (1.2712)	-0.6648 (1.2946)
Beef stew with fresh mint	鲜薄荷配卤牛肉	37	0.276 (1.0515)	0.3498 (1.052)	0.1307 (1.0843)	-0.0618 (1.1134)
Simmering eight hours Kunming old style crispy beef	文火慢炖 8 小时老昆明大酥牛肉	87	-1.4441 (1.685)	-1.5153 (1.6853)	-0.5544 (1.7737)	-0.8118 (1.7929)

Seafood dishes						
Dai flavor lemongrass grilled tilapia	傣味香茅草烤罗非鱼	58	-0.2049 (1.3738)	-0.2218 (1.3744)	0.5417 (1.4434)	0.229 (1.462)
Fish in sour soup with Banna wild berries	版纳野果酸汤鱼	67	-0.9818 (1.4727)	-0.9908 (1.4732)	-0.4895 (1.5522)	-0.7711 (1.5686)
Yunnan Yang Lin fish in sour soup	云南杨林酸菜鱼	87	-2.6926 (1.7115)	-2.6839 (1.712)	-2.7601 (1.8141)	-2.9729 (1.826)
Tofu dishes						
Shiping style panfried tofu	香煎石屏豆腐	29	-0.9328 (1.1996)	-0.914 (1.2121)	-0.3756 (1.5816)	-0.7009 (1.5988)
Mushroom dishes						
Dai flavor roasted mushroom	傣味香烤菌菇	36	-1.0006 (0.7609)	-0.9557 (0.7619)	0.3249 (0.7678)	0.1333 (0.8088)
Wild porcini mushrooms cooked in banana leaf	包烧野生牛肝菌	88	-1.6142 (1.1684)	-1.6473 (1.1691)	-0.2107 (1.2412)	-0.4543 (1.2689)
Vegetable dishes						
Grandma potato with scallion	老奶洋芋(葱香)	9	0.4045 (0.5745)	0.5122 (0.5762)	0.5498 (0.5591)	0.9783 (0.6131)
Zhe Ergen crispy potato	折耳根咔嚓洋芋	22	-0.3209 (0.6502)	-0.1418 (0.648)	0.3045 (0.6458)	0.2737 (0.6924)
Dai flavor pineapple rice	傣味菠萝饭	43	-1.5191 (0.8636)	-1.2221 (0.8522)	-0.1006 (0.8837)	-0.8902 (0.9165)

Notes: Table presents the results of the total average effect of the Zombie meat event on the demand for 22 dishes in Beijing, as calculated using the results from the fixed effects and IV fixed effects demand regressions for Beijing, and evaluated at the dish characteristics and the mean dish price over all restaurants in Beijing over all days in the window from 5 weeks before to 5 weeks after the Zombie meat event. The fixed effects and IV fixed effects demand regressions for Beijing are reported in Tables G1a, G1b, G3a, and G3b in Appendix G and summarized in Table 3. Average price in Beijing is average price of dish in all restaurants in Beijing in all days within 5 weeks of Zombie meat event. Some of the meat dishes also had vegetables. Standard errors are in parentheses. Significance codes: * 5% level, ** 1% level, and *** 0.1% level.

Table 4b. Total Average Effect of Zombie Meat Event in All Cities

Dish Name in English	Dish Name in Chinese	Avg. Price (Yuan)	Total Average Effect using results from daily restaurant dish demand for all cities			
			Fixed effects (Table G1a)	Fixed effects (Table G1b)	IV fixed effects (Table G3a)	IV fixed effects (Table G3b)
Pork dishes						
Yunnan style ground pork fried rice	黑三剁炒饭	29	-2.8935***	-2.8826***	-1.7176	-2.4326**
			(0.8706)	(0.8724)	(0.9172)	(0.9377)
Yunnan bamboo shoots sauté bacon	云南腊肉炒香笋	38	-2.1755	-2.2318	-1.6884	-2.1305
			(1.1881)	(1.1897)	(1.2664)	(1.2776)
Olive oil Nuodeng ham stew with wheat melon	橄榄油诺邓火腿焖小麦瓜	39	-2.0864	-2.1411	-1.6269	-2.0325
			(1.2034)	(1.205)	(1.2836)	(1.2943)
Yunnan spicy trotters	老滇香辣猪蹄	40	-1.3051	-1.2898	-0.5164	-0.5263
			(0.9917)	(0.9933)	(1.0561)	(1.0714)
Dai flavor roast pork	傣味烤五花肉	44	-0.7718	-0.755	-0.1131	0.1138
			(1.037)	(1.0385)	(1.1077)	(1.1212)
Matsuzaka meat with pickles (pork neck)	腌菜松板肉（黄金 6 两）	80	1.5404	1.5509	0.8765	1.9566
			(1.937)	(1.938)	(2.0964)	(2.0911)
Chicken dishes						
Lemongrass grilled wings (two pairs)	香茅草烤翅中（两对）	29	-0.8924	-0.9054	-0.0242	-0.1747
			(1.0706)	(1.0717)	(1.1728)	(1.196)
Cold chicken noodle	鸡丝凉米线	40	-1.1989	-1.2085	-1.2444	-1.3859
			(1.2251)	(1.226)	(1.3488)	(1.369)
Yongping potato chicken stew	永平洋芋焖鸡	42	-1.246	-1.2551	-1.4321	-1.5722
			(1.2512)	(1.2521)	(1.3785)	(1.3983)
Thai style chicken lemon geranium	泰式柠檬香叶鸡	49	-1.4364	-1.4434	-2.1902	-2.3247
			(1.3619)	(1.3628)	(1.5041)	(1.5223)
Beef dishes						
Yi shredded pepper and beef tendon	彝族手撕美人椒拌牛筋	32	0.5046	0.532	-0.4802	-0.6908
			(1.1263)	(1.1272)	(1.181)	(1.2021)
Beef stew with fresh mint	鲜薄荷配卤牛肉	37	0.5746	0.6616	0.114	0.0341
			(0.9749)	(0.9755)	(1.0147)	(1.0411)
Simmering eight hours Kunming old style crispy beef	文火慢炖 8 小时老昆明大酥牛肉	87	-1.2805	-1.3835	-0.641	-0.801
			(1.5643)	(1.5647)	(1.6566)	(1.6729)

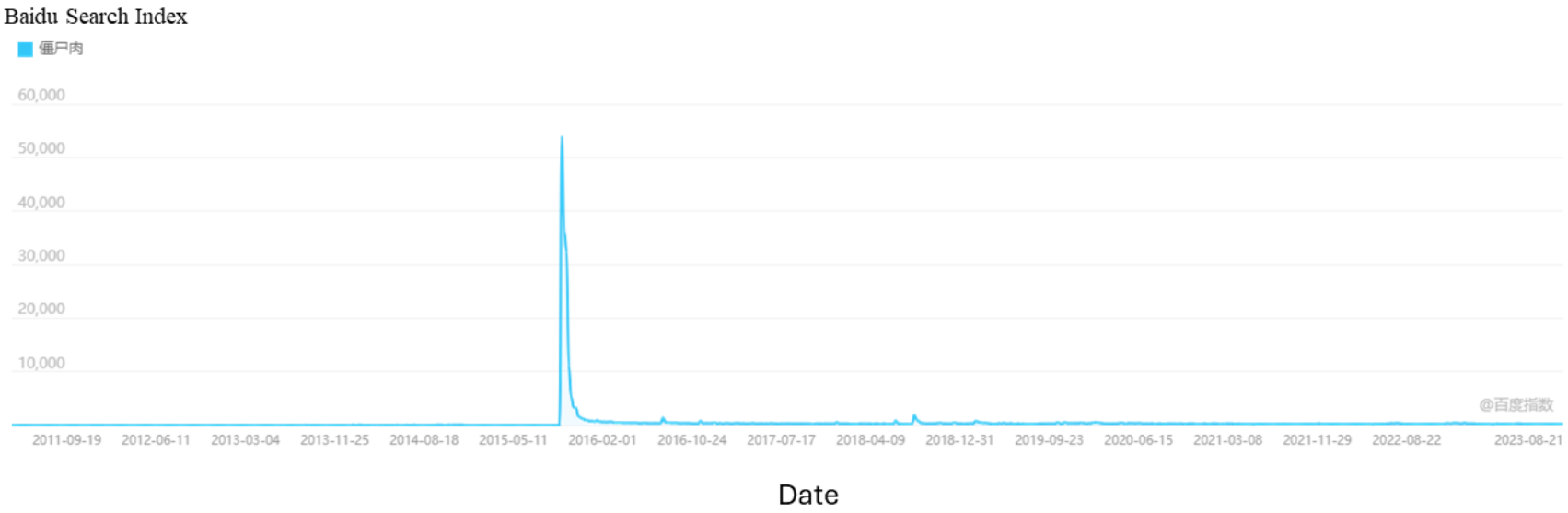
Seafood dishes						
Dai flavor lemongrass grilled tilapia	傣味香茅草烤罗非鱼	59	-0.0845 (1.2333)	-0.0987 (1.234)	0.4333 (1.3191)	0.2375 (1.3396)
Fish in sour soup with Banna wild berries	版纳野果酸汤鱼	67	-0.7575 (1.3208)	-0.7682 (1.3215)	-0.5355 (1.4165)	-0.6947 (1.4356)
Yunnan Yang Lin fish in sour soup	云南杨林酸菜鱼	87	-2.2671 (1.5359)	-2.27 (1.5365)	-2.7089 (1.6548)	-2.7858 (1.6712)
Tofu dishes						
Shiping style panfried tofu	香煎石屏豆腐	30	-1.0392 (1.1468)	-1.0205 (1.156)	-0.4203 (1.5169)	-0.6413 (1.5341)
Mushroom dishes						
Dai flavor roasted mushroom	傣味香烤菌菇	36	-0.7086 (0.7067)	-0.6604 (0.7079)	0.4167 (0.7162)	0.3346 (0.7537)
Wild porcini mushrooms cooked in banana leaf	包烧野生牛肝菌	88	-1.1246 (1.0902)	-1.1648 (1.0909)	-0.1969 (1.1574)	-0.331 (1.181)
Vegetable dishes						
Grandma potato with scallion	老奶洋芋(葱香)	9	0.588 (0.5258)	0.6331 (0.5281)	0.6156 (0.5134)	1.1793* (0.5634)
Zhe Ergen crispy potato	折耳根咔嚓洋芋	22	-0.1637 (0.5918)	-0.1469 (0.5939)	0.2738 (0.5926)	0.3698 (0.6355)
Dai flavor pineapple rice	傣味菠萝饭	44	-1.4325 (0.783)	-1.4635 (0.7845)	-0.3031 (0.8143)	-0.9967 (0.8436)

Notes: Table presents the results of the total average effect of the Zombie meat event on the demand for 22 dishes in all cities, as calculated using the results from the fixed effects and IV fixed effects demand regressions for all cities, and evaluated at the dish characteristics and the mean dish price over all restaurants over all days in the window from 5 weeks before to 5 weeks after the Zombie meat event. The fixed effects and IV fixed effects demand regressions for all cities are reported in Tables G1a, G1b, G3a, and G3b in Appendix G. Average price is average price of dish in all restaurants in all days within 5 weeks of Zombie meat event. Some of the meat dishes also had vegetables. Standard errors are in parentheses. Significance codes: * 5% level, ** 1% level, and *** 0.1% level.

Appendix

Appendix A. Zombie Meat Internet Search Frequency Figures

Figure A-1. Internet Search Frequency for Zombie Meat Over Time, 2011-2023



Notes: Figure plots how frequently internet users searched for the keyword Zombie meat (僵尸肉, searched in Chinese) from 2011 to 2023. The measure of search frequency plotted on the y-axis is the Baidu Search Index, which evaluates the weighted search frequency of the searched keyword and compares the search frequency with total search activities. The index includes searches from users of PCs, portable devices, and mobile devices.
Data Source: Baidu Index.com

Figure A-2. Internet Search Frequency for Zombie Meat By Province and Municipality

Notes: Figure plots how frequently internet users searched for the keyword Zombie meat (僵尸肉, searched in Chinese) by province and municipality over the time period May 1, 2015 to July 31, 2015. The darker the color, the higher the search frequency. The measure of search frequency plotted is the Baidu Search Index, which evaluates the weighted search frequency of the searched keyword and compares the search frequency with total search activities. The index includes searches from users of PCs, portable devices, and mobile devices.
Data Source: Baidu Index.com

Appendix B. Number of Restaurant-Dish-Days With and Without Each Dish Characteristic

Figure B-1. Dessert

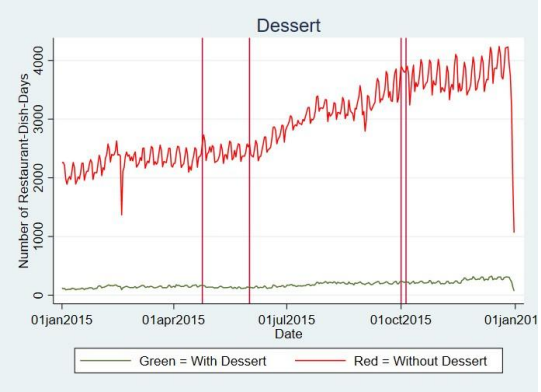


Figure B-2. Beef

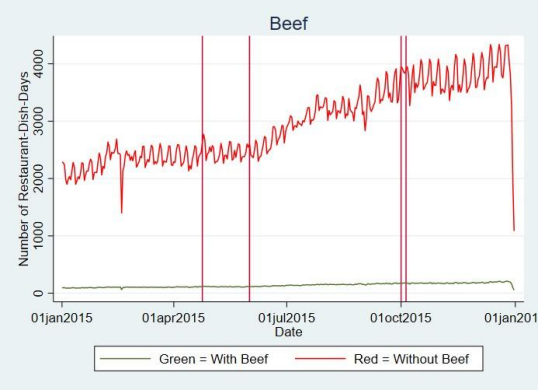


Figure B-3. Chicken

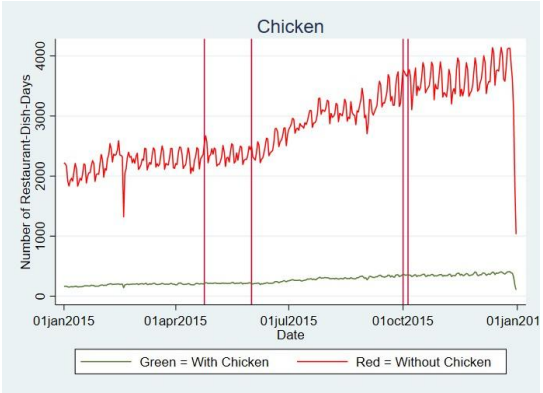


Figure B-4. Pork

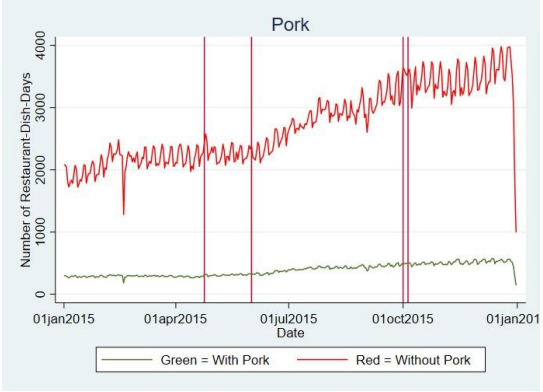


Figure B-5. Duck

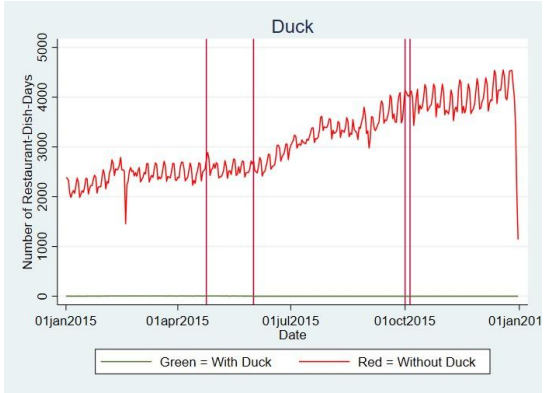


Figure B-6. Tofu

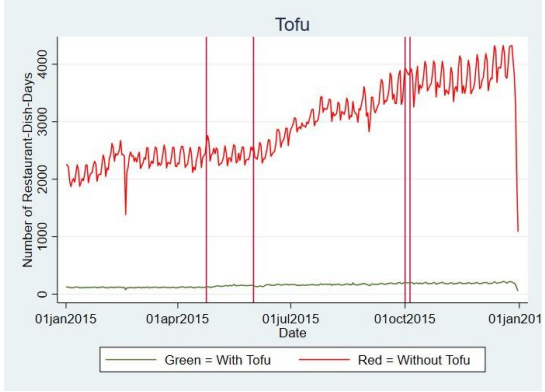


Figure B-7. Seafood

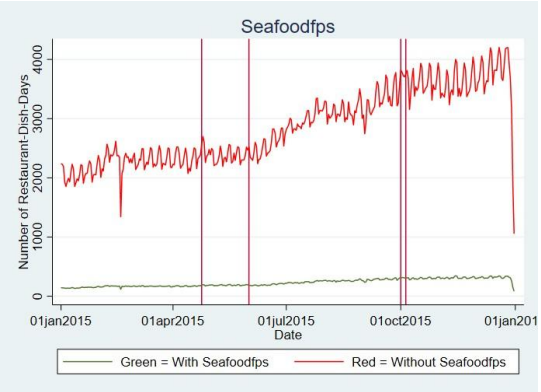


Figure B-8. Mushroom

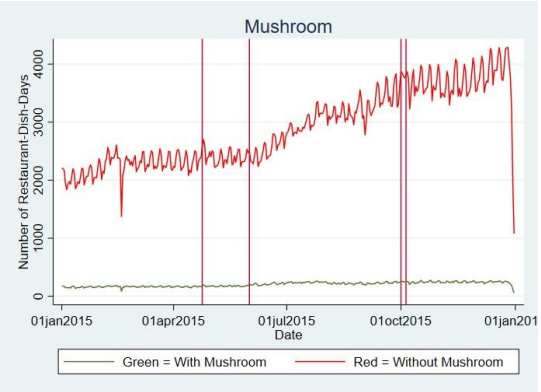


Figure B-9. Vegetable, excluding Mushroom

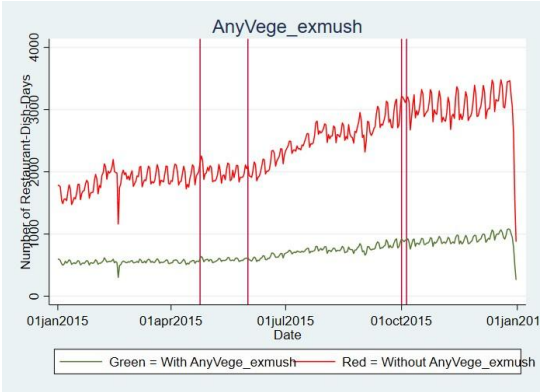


Figure B-10. Rice

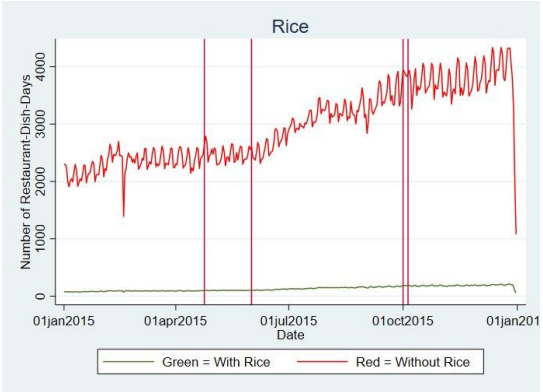


Figure B-11. Boiling, including Hot Pot

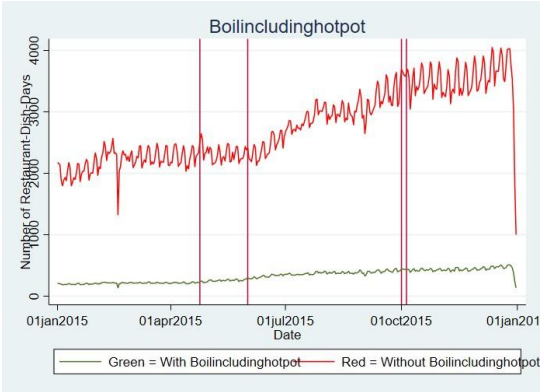


Figure B-12. Spicy

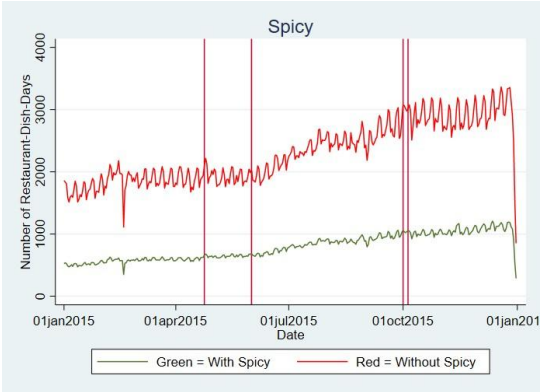


Figure B-13. Sweet

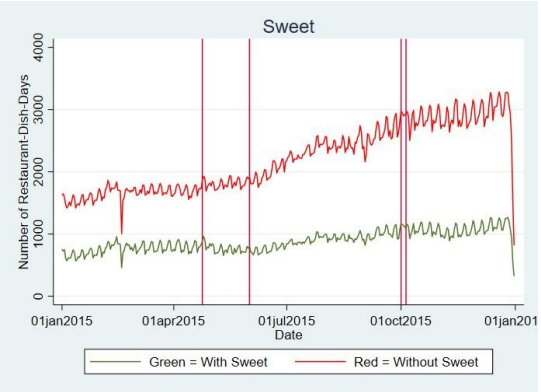


Figure B-14. Salty

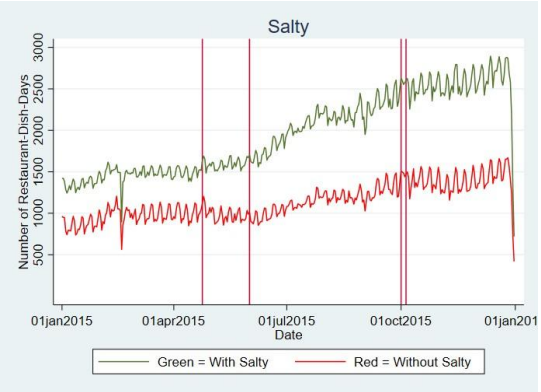


Figure B-15. Sour

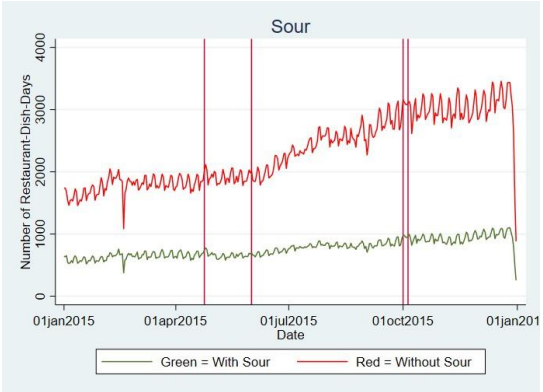
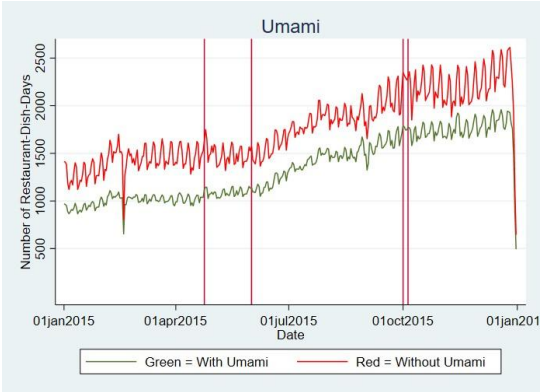


Figure B-16. Umami



Notes: To summarize our daily restaurant-dish-level panel data, Appendix B presents time series plots for the dummy variables in our daily restaurant-dish-level panel data set. For each of the dummy variables in our daily restaurant-dish-level panel data set, we plot (1) the number of restaurant dishes each day that have that dish characteristic (i.e., the number of restaurant dishes each day for which the dummy variable for that dish characteristic is equal to 1) as a green line; and (2) the number of restaurant dishes each day that do not have that dish characteristic (i.e., the number of restaurant dishes each day for which the dummy variable for that dish characteristic is equal to 1) as a red line, both on the same graph, with day on the x-axis. The vertical lines indicate the dates of each of the four major food safety and food price-related media and policy event in China in 2015: the China National Food Safety Law announcement on April 24, 2015; China National Food Safety Law implementation on October 1, 2015 (Guo, 2015); the Zombie meat discovery and announcement on June 1, 2015; and the expensive prawn announcement on October 5, 2015 (Li, 2015). We focus our analysis on the Zombie meat discovery and announcement on June 1, 2015. It is difficult to ascertain whether the Zombie meat event had a significant effect based on the time series plots of the raw data from our daily restaurant-dish-level panel data set.

Appendix C. Scatterplots Over Time for Variables in Daily Restaurant-Level Panel Data Set

Figure C-1. Total number of orders at that restaurant on that day

Figure C-2. Total number of people at that restaurant on that day

Figure C-3. Total price of all orders at that restaurant on that day

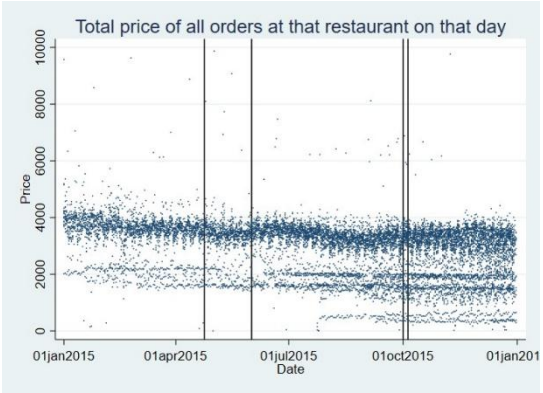


Figure C-4. Average price of all orders at that restaurant on that day

Figure C-5. Average price of all dishes ordered at that restaurant on that day with characteristic: Dessert

Figure C-6. Total number of dishes ordered at that restaurant on that day with characteristic: Dessert

Figure C-7. Average price of all dishes ordered at that restaurant on that day with characteristic: Beef

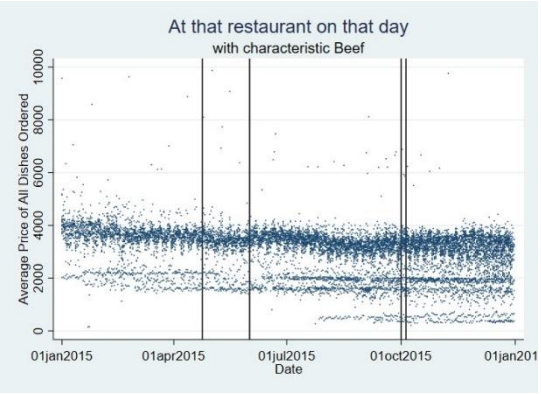


Figure C-8. Total number of dishes ordered at that restaurant on that day with characteristic: Beef

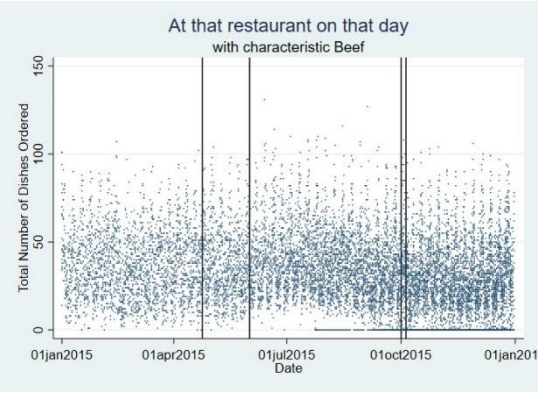


Figure C-9. Average price of all dishes ordered at that restaurant on that day with characteristic: Chicken

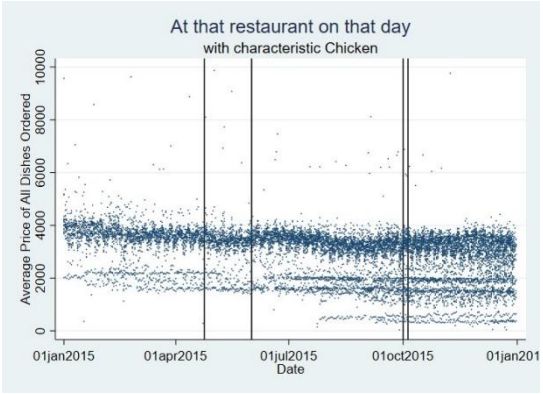


Figure C-10. Total number of dishes ordered at that restaurant on that day with characteristic: Chicken

Figure C-11. Average price of all dishes ordered at that restaurant on that day with characteristic: Duck

Figure C-12. Total number of dishes ordered at that restaurant on that day with characteristic: Duck

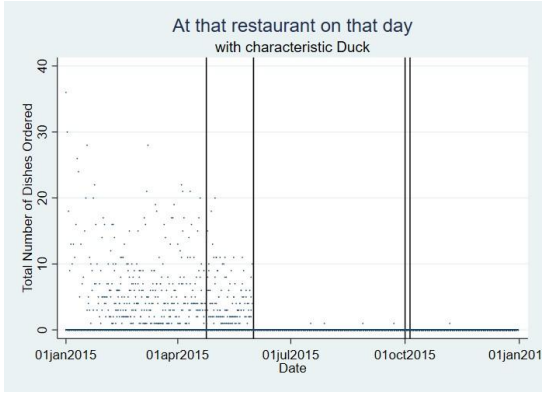


Figure C-13. Average price of all dishes ordered at that restaurant on that day with characteristic: Pork

Figure C-14. Total number of dishes ordered at that restaurant on that day with characteristic: Pork

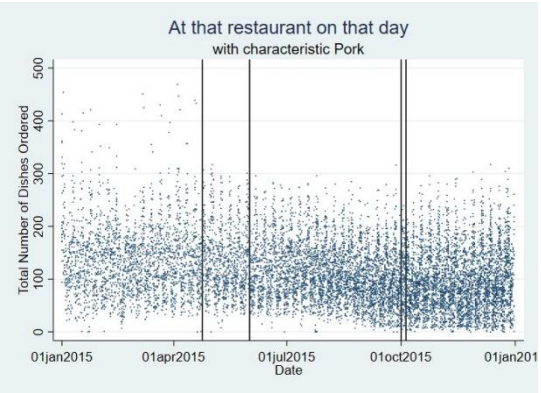


Figure C-15. Average price of all dishes ordered at that restaurant on that day with characteristic: Seafood

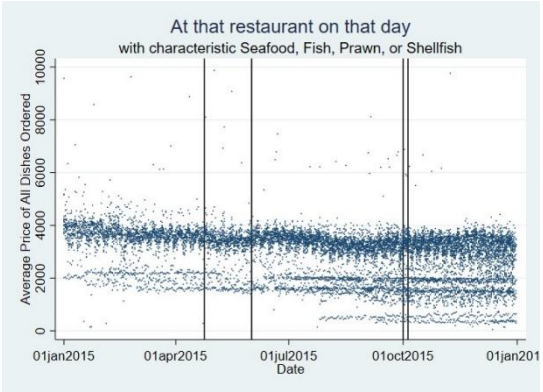


Figure C-16. Total number of dishes ordered at that restaurant on that day with characteristic: Seafood

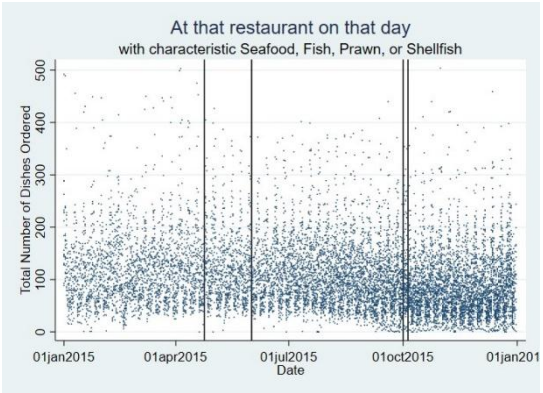


Figure C-17. Average price of all dishes ordered at that restaurant on that day with characteristic: Tofu

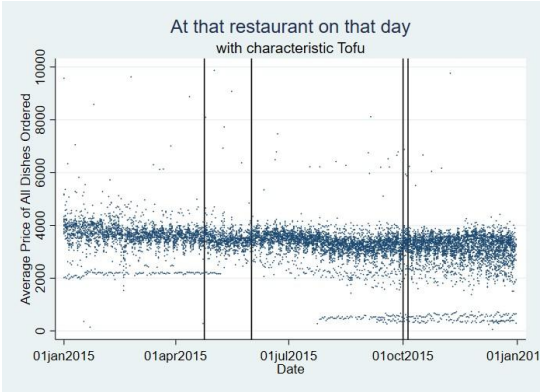


Figure C-18. Total number of dishes ordered at that restaurant on that day with characteristic: Tofu

Figure C-19. Average price of all dishes ordered at that restaurant on that day with characteristic: Mushroom

Figure C-20. Total number of dishes ordered at that restaurant on that day with characteristic: Mushroom

Figure C-21. Average price of all dishes ordered at that restaurant on that day with characteristic: Vegetable Excluding Mushroom

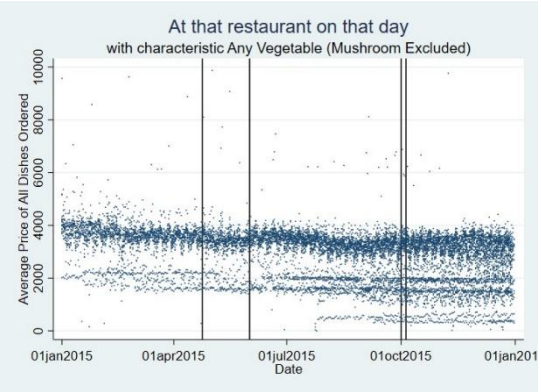


Figure B-22. Total number of dishes ordered at that restaurant on that day with characteristic: Vegetable Excluding Mushroom

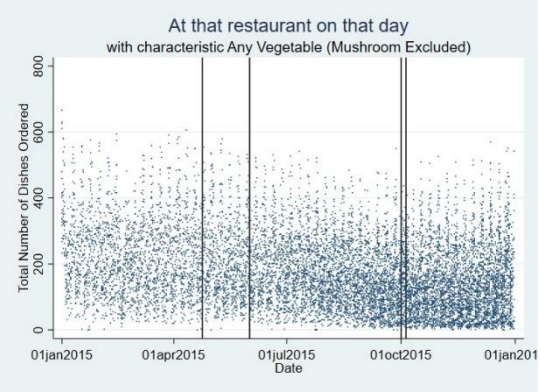


Figure C-23. Average price of all dishes ordered at that restaurant on that day with characteristic: Rice

Figure C-24. Total number of dishes ordered at that restaurant on that day with characteristic: Rice

Figure C-25. Average price of all dishes ordered at that restaurant on that day with characteristic: Boiling, including Hotpot

Figure C-26. Total number of dishes ordered at that restaurant on that day with characteristic: Boiling, including Hotpot

Figure C-27. Average price of all dishes ordered at that restaurant on that day with characteristic: Salty

Figure C-28. Total number of dishes ordered at that restaurant on that day with characteristic: Salty

Figure C-29. Average price of all dishes ordered at that restaurant on that day with characteristic: Sour

Figure C-30. Total number of dishes ordered at that restaurant on that day with characteristic: Sour

Figure C-31. Average price of all dishes ordered at that restaurant on that day with characteristic: Spicy

Figure C-32. Total number of dishes ordered at that restaurant on that day with characteristic: Spicy

Figure C-33. Average price of all dishes ordered at that restaurant on that day with characteristic: Sweet

Figure C-34. Total number of dishes ordered at that restaurant on that day with characteristic: Sweet

Figure C-35. Average price of all dishes ordered at that restaurant on that day with characteristic: Umami

Figure C-36. Total number of dishes ordered at that restaurant on that day with characteristic: Umami

Notes: To summarize our daily restaurant-level panel data, Appendix C presents scatterplots over time for the variables in our daily restaurant-level panel data set. For each variable in our daily restaurant-level panel data set, we make a scatterplot with day on the x-axis on the value of the variable on the y-axis. Each data point on the scatterplot is a restaurant-day. The vertical lines indicate the dates of each of the four major food safety and food price-related media and policy event in China in 2015: the China National Food Safety Law announcement on April 24, 2015; China National Food Safety Law implementation on October 1, 2015 (Guo, 2015); the Zombie meat discovery and announcement on June 1, 2015; and the expensive prawn announcement on October 5, 2015 (Li, 2015). We focus our analysis on the Zombie meat discovery and announcement on June 1, 2015. It is difficult to ascertain whether the Zombie meat event had a significant effect based on the scatterplots of the raw data from our daily restaurant-level panel data set.

Appendix D. Residual Plots for Daily Restaurant-Level Variables

Figure D-1. Total number of orders at that restaurant on that day

Figure D-2. Total number of people at that restaurant on that day

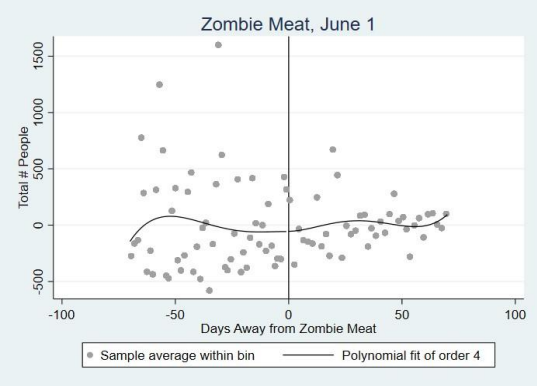


Figure D-3. Total price of all orders at that restaurant on that day

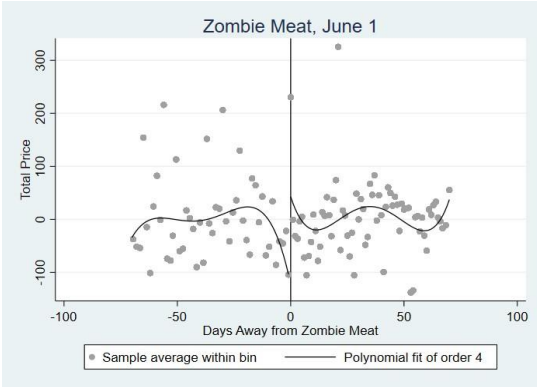


Figure D-4. Average price of all orders at that restaurant on that day

Figure D-5. Average price of all dishes ordered at that restaurant on that day with characteristic: Dessert

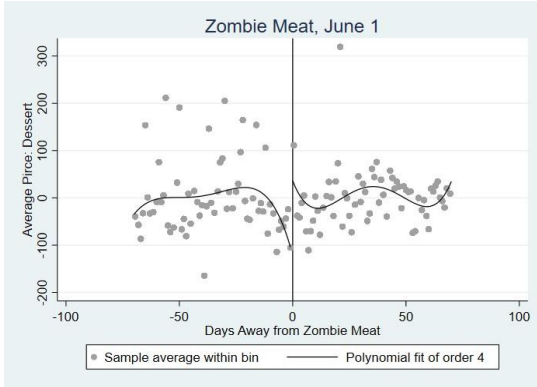


Figure D-6. Total number of dishes ordered at that restaurant on that day with characteristic: Dessert

Figure D-7. Average price of all dishes ordered at that restaurant on that day with characteristic: Beef

Figure D-8. Total number of dishes ordered at that restaurant on that day with characteristic: Beef

Figure D-9. Average price of all dishes ordered at that restaurant on that day with characteristic: Chicken

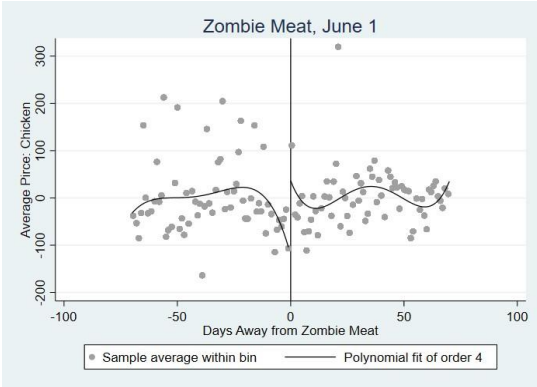


Figure D-10. Total number of dishes ordered at that restaurant on that day with characteristic: Chicken

Figure D-11. Average price of all dishes ordered at that restaurant on that day with characteristic: Pork

Figure D-12. Total number of dishes ordered at that restaurant on that day with characteristic: Pork

Figure D-13. Average price of all dishes ordered at that restaurant on that day with characteristic: Vegetable Excluding Mushroom

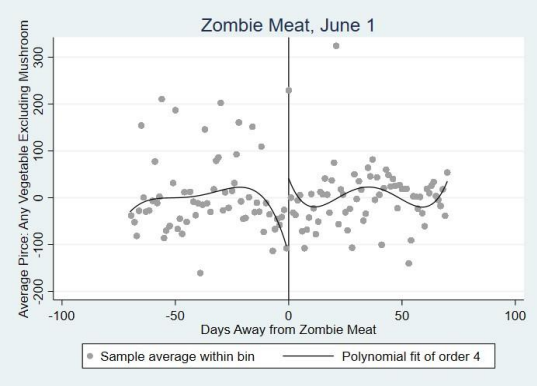


Figure D-14. Total number of dishes ordered at that restaurant on that day with characteristic: Vegetable Excluding Mushroom

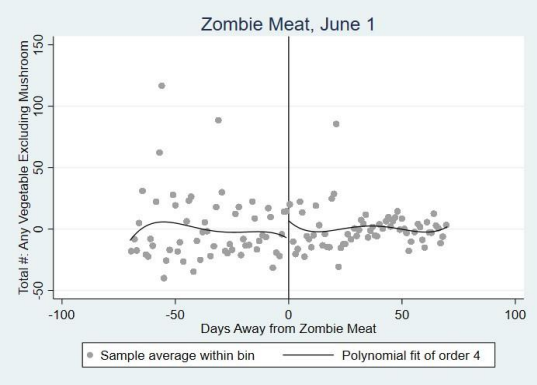


Figure D-15. Average price of all dishes ordered at that restaurant on that day with characteristic: Seafood

Figure D-16. Total number of dishes ordered at that restaurant on that day with characteristic: Seafood

Figure D-17. Average price of all dishes ordered at that restaurant on that day with characteristic: Tofu

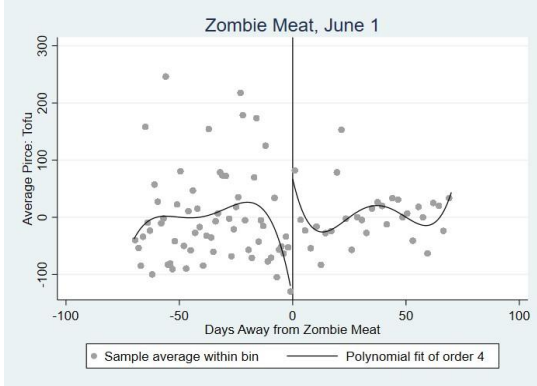


Figure D-18. Total number of dishes ordered at that restaurant on that day with characteristic: Tofu

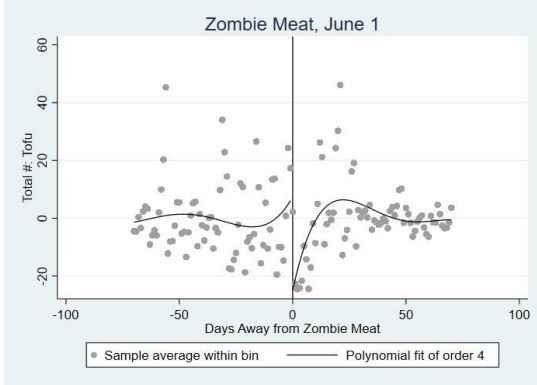


Figure D-19. Average price of all dishes ordered at that restaurant on that day with characteristic: Mushroom

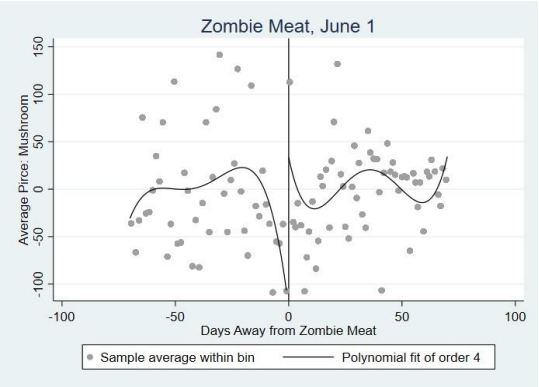


Figure D-20. Total number of dishes ordered at that restaurant on that day with characteristic: Mushroom

Figure D-21. Average price of all dishes ordered at that restaurant on that day with characteristic: Rice

Figure D-22. Total number of dishes ordered at that restaurant on that day with characteristic: Rice

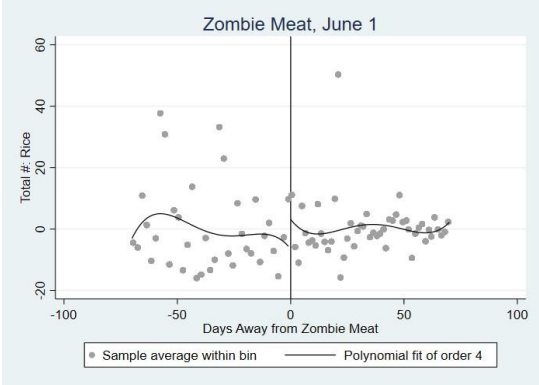


Figure D-23. Average price of all dishes ordered at that restaurant on that day with characteristic: Boiling, including Hotpot

Figure D-24. Total number of dishes ordered at that restaurant on that day with characteristic: Boiling, including Hotpot

Figure D-25. Average price of all dishes ordered at that restaurant on that day with characteristic: Salty

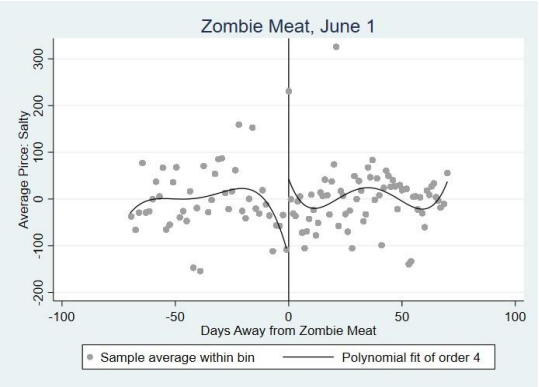


Figure D-26. Total number of dishes ordered at that restaurant on that day with characteristic: Salty

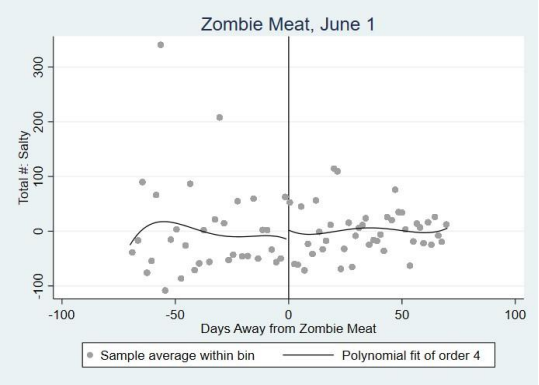


Figure D-27. Average price of all dishes ordered at that restaurant on that day with characteristic: Sour

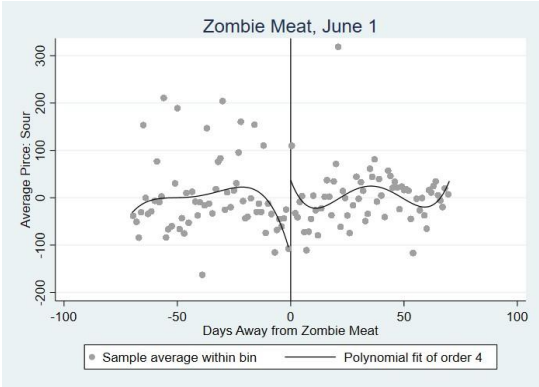


Figure D-28. Total number of dishes ordered at that restaurant on that day with characteristic: Sour

Figure D-29. Average price of all dishes ordered at that restaurant on that day with characteristic: Spicy

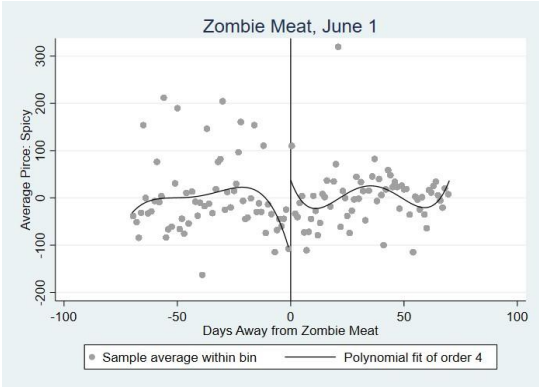


Figure D-30. Total number of dishes ordered at that restaurant on that day with characteristic: Spicy

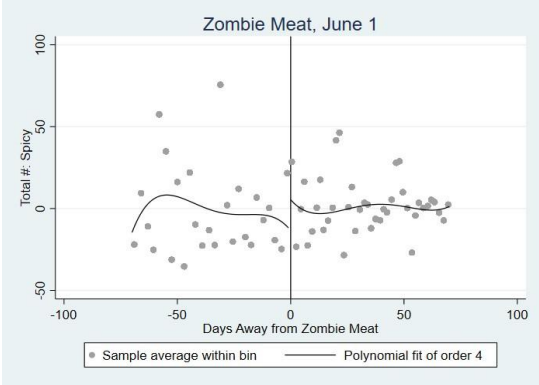


Figure D-31. Average price of all dishes ordered at that restaurant on that day with characteristic: Sweet

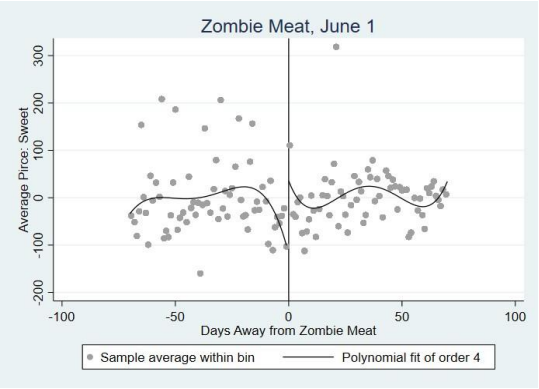


Figure D-32. Total number of dishes ordered at that restaurant on that day with characteristic: Sweet

Figure D-33. Average price of all dishes ordered at that restaurant on that day with characteristic: Umami

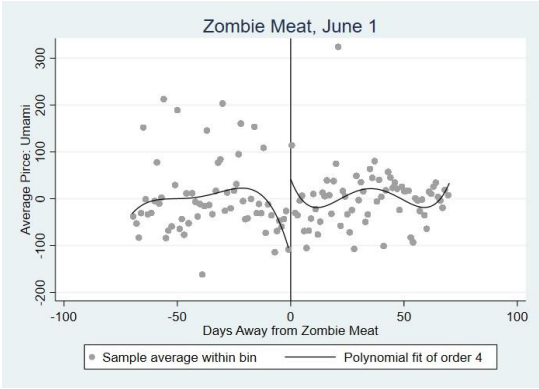
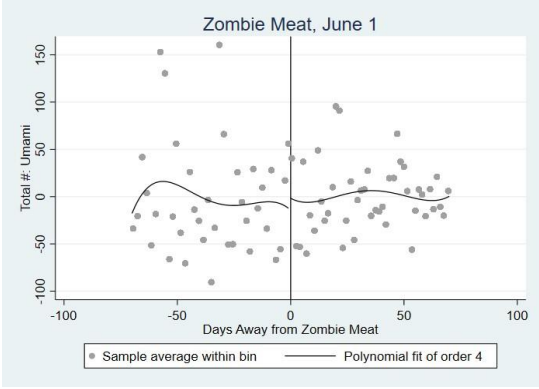


Figure D-34. Total number of dishes ordered at that restaurant on that day with characteristic: Umami



Notes: Appendix D presents residual plots that plot residuals from a first-stage regression of each of the variables in our daily restaurant-level panel data set, using data within a window of 10 weeks before to 10 weeks after the Zombie meat event. The first-stage regressions are regressions of each of the variables in our daily restaurant-level panel data set on weather and seasonality covariates, and restaurant fixed effects. The results of our local linear regression discontinuity regressions with robust confidence intervals of residuals from first-stage regressions of each of the variables in our daily restaurant-level panel data set are presented in Table 1. Residual plots for the average price of all dishes ordered at that restaurant on that day with pork, chicken, and beef are also presented in Figure 1.

Appendix E. Residual Plots for Price Conditional on Dish Characteristics with Restaurant Dish Fixed Effects

Figure E-1. Dish Price: Dessert

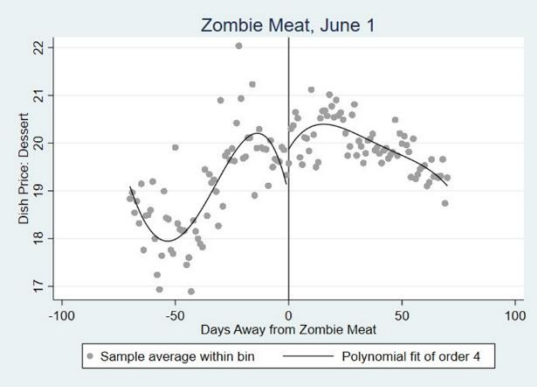


Figure E-3. Dish Price: Chicken

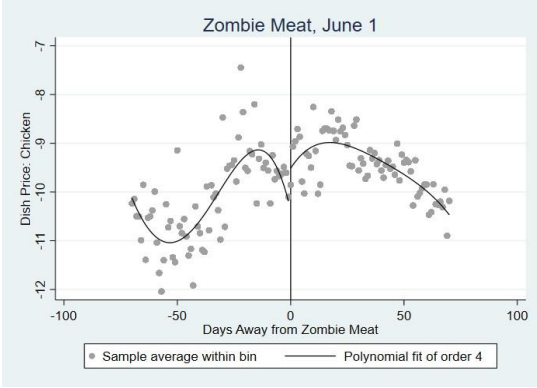


Figure E-5. Dish Price: Tofu

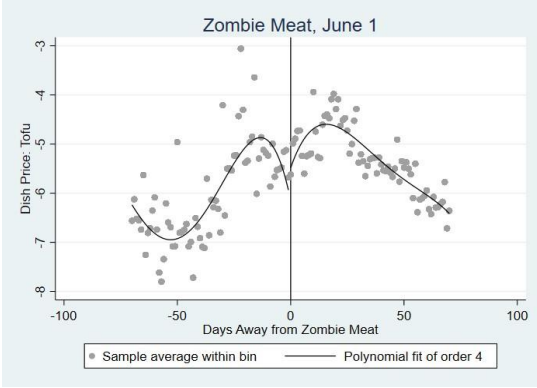


Figure E-2. Dish Price: Beef

Figure E-4. Dish Price: Pork

Figure E-6. Dish Price: Seafood

Figure E-7. Dish Price: Mushroom

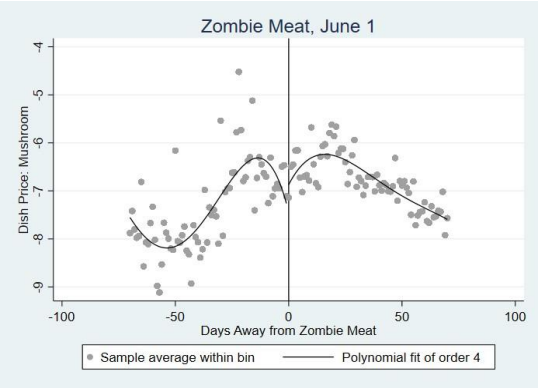


Figure E-8. Dish Price: Vegetable Excluding Mushroom

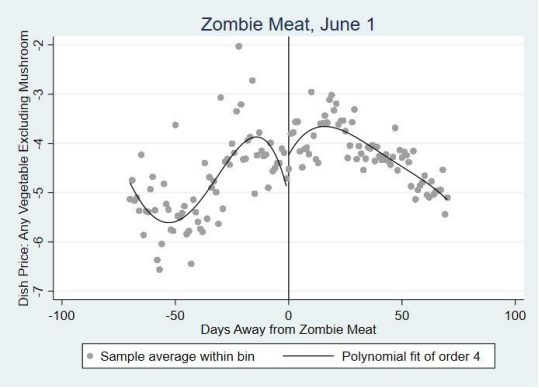


Figure E-9. Dish Price: Rice

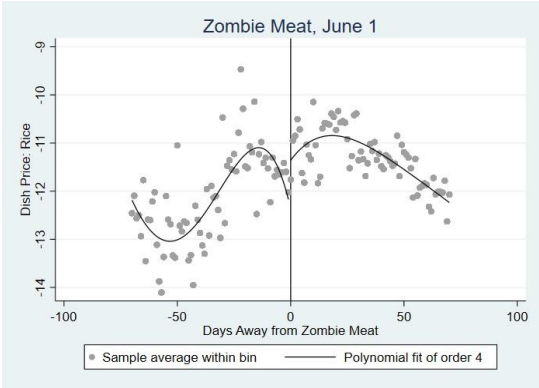


Figure E-10. Dish Price: Boiling, including Hotpot

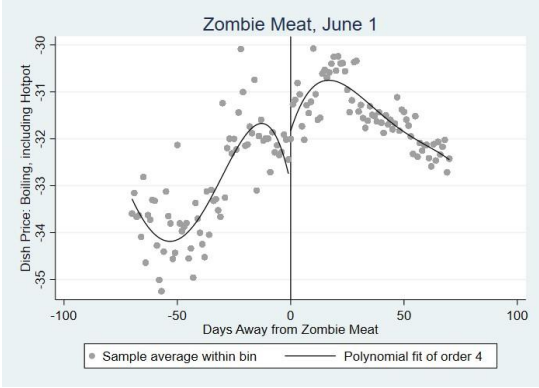


Figure E-11. Dish Price: Spicy

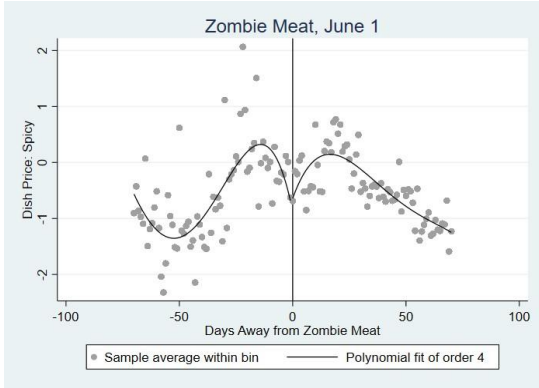


Figure E-12. Dish Price: Sweet

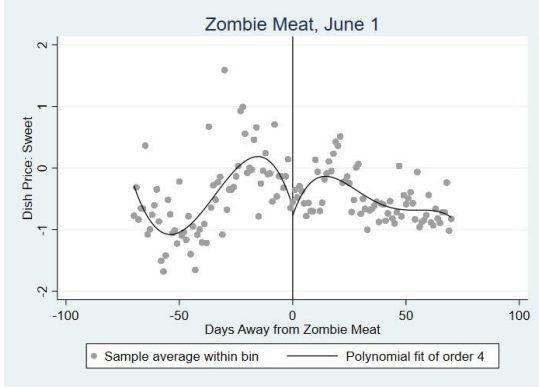


Figure E-15. Dish Price: Salty

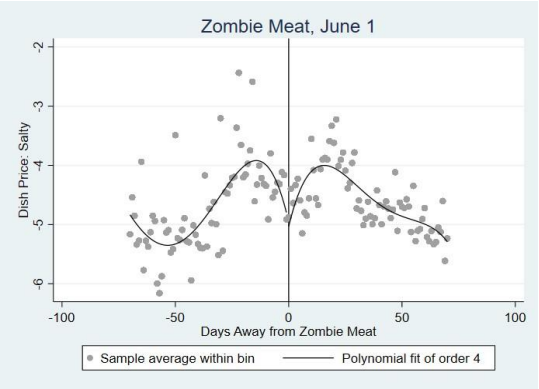


Figure E-16. Dish Price: Sour

Figure E-17. Dish Price: Umami

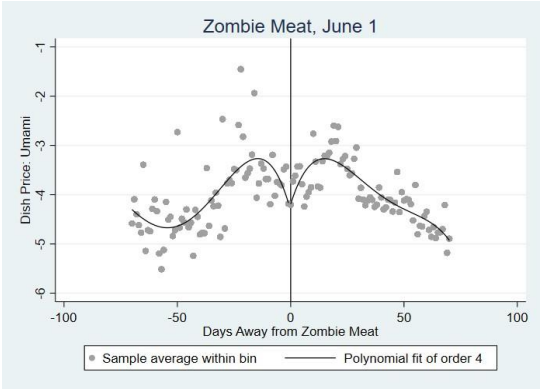
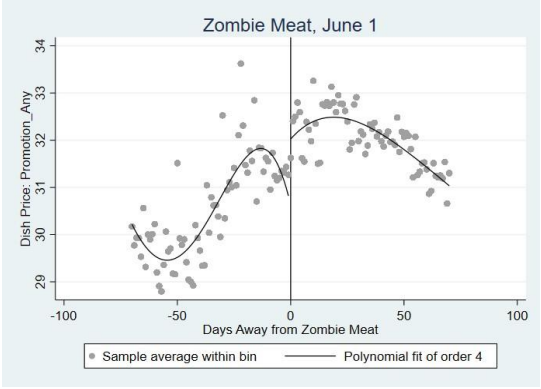


Figure E-18. Dish Price: Promotion--Any



Notes: To further analyze the effects of the Zombie meat event on dish prices and whether the price effects are a result of the restaurant raising the price of individual dishes, Appendix E presents residual plots that plot residuals from a first-stage regression of dish price conditional on each of the dish characteristics in our daily restaurant-dish-level panel data set, using data within a window of 10 weeks before to 10 weeks after the Zombie meat event. The first-stage regressions are regressions of dish price conditional on each of the dish characteristics in our daily restaurant-dish-level panel data set on weather and seasonality covariates, promotion dummies, and restaurant-dish fixed effects. The results of our local linear regression discontinuity regressions with robust confidence intervals of residuals from first-stage regressions of the dish characteristics and the dish price conditional on each of the dish characteristics using our daily restaurant-dish-level panel data set are presented in Table 2.

Appendix F. Supplementary Regression Discontinuity Results Tables

Table F1a. The Effects of Zombie Meat Event on Daily Weather Controls

	Dependent variable is daily weather measurement for:		
	Maximum Temperature	Average Temperature	Precipitation
10 weeks before and after event	-0.631	1.413*	1.490
	(2.176)	(0.475)	(1.093)
5 weeks before and after event	-4.268	-0.437	3.904
	(8.374)	(3.641)	(2.250)

Notes: Each cell in this table reports estimates from one of 6 separate daily restaurant-level local linear regression discontinuity regressions. The unit of observation is a restaurant-day. Each of the regressions using a window of 10 weeks before to 10 weeks after the Zombie meat event has 3,976 observations. Each of the regressions using a window of 5 weeks before to 5 weeks after the Zombie meat event has 1,923 observations. Maximum temperature and average temperature are in degrees Celsius. Precipitation is in millimeters. Bootstrapped standard errors are in parentheses. Significance code: * indicates significant at a 5% level after applying the Bonferroni correction to adjust for multiple hypothesis testing.

Table F1b. The Effects of Zombie Meat Event on Daily Promotions Control Variable

	Dependent variable is daily dummy for: Promotions, Any
10 weeks before and after event	-0.0042
	(0.0029)
5 weeks before and after event	0.0023
	(0.0040)

Notes: Each cell in this table reports estimates from one of 2 separate daily restaurant-dish-level local linear regression discontinuity regressions. The unit of observation is a restaurant dish-day. Each of the regressions using a window of 10 weeks before to 10 weeks after the Zombie meat event has 392,952 observations. Each of the regressions using a window of 5 weeks before to 5 weeks after the Zombie meat event has 190,278 observations. Bootstrapped standard errors are in parentheses. Significance code: * indicates significant at a 5% level.

Appendix G. Supplementary Restaurant Food Demand Results Tables

Table G1a. Daily Restaurant Dish Demand (Fixed Effects)

Dependent variable is Total Number of Orders of a Dish a Restaurant on a Day	All cities	Beijing	Shanghai	Tianjin	Zhengzhou
Price	-0.0004	-0.0008	0.0290	0.0027	-0.0018
	(0.0014)	(0.0014)	(0.0162)	(0.0184)	(0.0036)
Vegetable Excluding Mushroom	5.1053***	5.0474***	12.3197***	-23.0871***	0.9169
	(0.3368)	(0.3644)	(1.1515)	(3.6167)	(0.7833)
Mushroom	-7.1020***	-6.3114***	-15.0795***	-21.1521***	-2.6736**
	(0.3976)	(0.4246)	(1.7131)	(3.9133)	(0.9335)
Tofu	23.6827***	22.6469***	37.7511***		9.4606***
	(0.5514)	(0.5742)	(2.1383)		(1.7351)
Seafood	0.6427	0.9933	30.4185***	-12.0868***	14.6120***
	(0.6235)	(0.6704)	(4.3175)	(2.5722)	(2.5720)
Pork	-1.5404**	-0.9576	-19.4499***	41.8017***	-2.7707*
	(0.4928)	(0.5325)	(1.8209)	(4.8704)	(1.1745)
Chicken	-16.0197***	-15.8727***	-30.7551***	-8.4494**	-0.8720
	(0.6262)	(0.6917)	(3.0857)	(3.1916)	(1.4586)
Beef	-3.8749***	-3.4770***	-6.1852**	-10.1699*	-1.2344
	(0.5568)	(0.5939)	(2.2664)	(4.5484)	(1.2450)
Price * Vegetable Excluding Mushroom	-0.1912***	-0.1872***	-0.4444***	0.8282***	-0.0472*
	(0.0098)	(0.0106)	(0.0343)	(0.1357)	(0.0231)
Price * Mushroom	0.0787***	0.0592***	0.2513***	0.9543***	0.0015
	(0.0072)	(0.0076)	(0.0326)	(0.2313)	(0.0168)
Price * Tofu	-0.6210***	-0.5947***	-0.9914***		-0.2143***
	(0.0194)	(0.0203)	(0.0740)		(0.0616)
Price * Seafood	0.0844***	0.0696***	-0.2583***	0.4243***	-0.1776***
	(0.0100)	(0.0107)	(0.0648)	(0.0649)	(0.0388)
Price * Pork	0.1090***	0.0932***	0.5564***	-1.2245***	0.0605*
	(0.0126)	(0.0136)	(0.0461)	(0.1939)	(0.0293)
Price * Chicken	0.5355***	0.5287***	0.9527***	0.2534*	0.0924**
	(0.0157)	(0.0173)	(0.0728)	(0.1187)	(0.0336)
Price * Beef	0.0718***	0.0633***	0.1183*	0.1283	0.0236
	(0.0112)	(0.0119)	(0.0460)	(0.1203)	(0.0253)

Post Zombie Meat Event	-0.3965	-0.4931*	-0.8942	1.1521	-0.0011
	(0.2143)	(0.2341)	(0.8541)	(1.5000)	(0.5470)
Post Zombie Meat Event * Price	-0.0032	-0.0026	-0.0190	0.0072	0.0073
	(0.0022)	(0.0023)	(0.0201)	(0.0243)	(0.0052)
Post Zombie Meat Event * Vegetable Excluding Mushroom	1.5198**	1.4020**	-3.1142*	16.1008**	0.9492
	(0.4638)	(0.5065)	(1.5178)	(5.7103)	(1.1295)
Post Zombie Meat Event * Mushroom	-0.0241	-0.0827	2.5632	6.8181	1.1255
	(0.5613)	(0.6051)	(2.2129)	(7.6522)	(1.3693)
Post Zombie Meat Event * Tofu	-3.8766***	-2.2853**	-16.8587***		4.9000*
	(0.7796)	(0.8161)	(3.0739)		(2.3830)
Post Zombie Meat Event * Seafood	4.8252***	5.3536***	-27.3905***	11.1658**	-1.5959
	(0.8816)	(0.9905)	(4.7261)	(3.6266)	(3.5975)
Post Zombie Meat Event * Pork	-6.6846***	-5.9312***	3.7548	-63.4589***	0.1132
	(0.6797)	(0.7474)	(2.3062)	(6.7832)	(1.6457)
Post Zombie Meat Event * Chicken	0.2929	0.2483	10.1537**	8.3621	-1.9640
	(0.8475)	(0.9644)	(3.5315)	(4.3458)	(2.0914)
Post Zombie Meat Event * Beef	2.3381**	2.0322*	4.1164	16.2023**	0.1278
	(0.7589)	(0.8199)	(2.9465)	(6.0415)	(1.7607)
Post Zombie Meat Event * Price * Vegetable Excluding Mushroom	-0.0553***	-0.0457**	0.0861	-0.6881***	-0.0370
	(0.0134)	(0.0146)	(0.0449)	(0.1996)	(0.0329)
Post Zombie Meat Event * Price * Mushroom	-0.0048	-0.0092	-0.0325	-0.5278	-0.0181
	(0.0101)	(0.0108)	(0.0418)	(0.3538)	(0.0242)
Post Zombie Meat Event * Price * Tofu	0.1121***	0.0653*	0.4803***		-0.1656*
	(0.0273)	(0.0287)	(0.1042)		(0.0830)
Post Zombie Meat Event * Price * Seafood	-0.0739***	-0.0845***	0.3828***	-0.3157***	0.0067
	(0.0141)	(0.0157)	(0.0725)	(0.0887)	(0.0541)
Post Zombie Meat Event * Price * Pork	0.1476***	0.1299***	-0.1032	2.0893***	0.0016
	(0.0171)	(0.0187)	(0.0584)	(0.2438)	(0.0412)
Post Zombie Meat Event * Price * Chicken	-0.0240	-0.0249	-0.3182***	-0.3527*	0.0416
	(0.0212)	(0.0240)	(0.0839)	(0.1593)	(0.0487)
Post Zombie Meat Event * Price * Beef	-0.0339*	-0.0318	-0.0602	-0.3586*	-0.0239
	(0.0154)	(0.0166)	(0.0595)	(0.1658)	(0.0356)
Average Temperature	-0.0052	0.0100	-0.1814	-0.0473	-0.0232
	(0.0268)	(0.0282)	(0.1300)	(0.1936)	(0.0715)
Maximum Temperature	0.0690***	0.0804***	0.1518	0.2872	0.0766
	(0.0208)	(0.0226)	(0.0987)	(0.1526)	(0.0501)
Precipitation	-0.0029	0.0507***	-0.0186**	0.1573	0.0235*

	(0.0043)	(0.0120)	(0.0064)	(0.0826)	(0.0097)
Tuesday	0.4155**	0.4186**	-0.1555	0.5247	-1.2091***
	(0.1310)	(0.1434)	(0.4946)	(0.9274)	(0.3227)
Wednesday	0.7787***	0.8370***	0.7138	1.4904	-1.3769***
	(0.1313)	(0.1423)	(0.4918)	(0.9177)	(0.3245)
Thursday	2.6835***	2.7675***	2.7993***	5.2891***	-0.5202
	(0.1314)	(0.1428)	(0.4826)	(0.9213)	(0.3252)
Friday	6.8552***	7.0815***	6.2450***	13.7951***	2.0671***
	(0.1310)	(0.1426)	(0.4922)	(0.9331)	(0.3101)
Saturday	5.8344***	5.8832***	5.1294***	11.2872***	1.6314***
	(0.1298)	(0.1419)	(0.5043)	(0.9317)	(0.3112)
Sunday	0.1379	0.2118	-0.3928	1.4748	-0.9929**
	(0.1289)	(0.1395)	(0.4901)	(0.8953)	(0.3132)
Restaurant Fixed Effect	Y	Y	Y	Y	Y
Month Fixed Effect	Y	Y	Y	Y	Y
# Observations	190,278	154,693	20,289	5,402	7,438
p-value (Pr > F)	0.0000	0.0000	0.0000	0.000	0.0000

Notes: We use observations from the 5 weeks before to 5 weeks after the Zombie meat event. Price is in Yuan. Maximum temperature and average temperature are in degrees Celsius. Precipitation is in millimeters. Standard errors are in parentheses. Significance codes: * 5% level, ** 1% level, and *** 0.1% level. The results for Beijing are also summarized in Table 3.

Table G1b. Daily Restaurant Dish Demand (Fixed Effects)

Dependent variable is Total Number of Orders of a Dish a Restaurant on a Day					
	All cities	Beijing	Shanghai	Tianjin	Zhengzhou
Price	-0.0014	-0.0017	0.0463**	0.0090	-0.0052
	(0.0014)	(0.0014)	(0.0179)	(0.0184)	(0.0037)
Vegetable Excluding Mushroom	4.8972***	4.7684***	12.4629***	-23.7638***	0.4416
	(0.3373)	(0.3652)	(1.1530)	(3.5995)	(0.7825)
Mushroom	-7.2332***	-6.4368***	-14.4475***	-21.6579***	-3.0314**
	(0.3976)	(0.4245)	(1.7351)	(3.8929)	(0.9296)
Tofu	24.4119***	23.5091***	37.1421***		9.0193***
	(0.5570)	(0.5805)	(2.1546)		(1.7259)
Seafood	0.5323	0.8800	31.0558***	-12.5959***	14.1819***
	(0.6233)	(0.6700)	(4.3259)	(2.5603)	(2.5571)
Pork	-1.8216***	-1.2645*	-18.8777***	41.2962***	-3.1089**
	(0.4935)	(0.5329)	(1.8379)	(4.8443)	(1.1686)
Chicken	-16.1832***	-16.0572***	-30.1348***	-8.7533**	-1.2857
	(0.6261)	(0.6914)	(3.0972)	(3.1744)	(1.4512)
Beef	-4.0193***	-3.6367***	-5.5861*	-10.6904*	-1.4980
	(0.5566)	(0.5936)	(2.2812)	(4.5243)	(1.2380)
Price * Vegetable Excluding Mushroom	-0.1906***	-0.1855***	-0.4466***	0.8315***	-0.0408
	(0.0098)	(0.0106)	(0.0343)	(0.1350)	(0.0230)
Price * Mushroom	0.0777***	0.0574***	0.2340***	0.9479***	0.0042
	(0.0072)	(0.0076)	(0.0335)	(0.2300)	(0.0167)
Price * Tofu	-0.6497***	-0.6283***	-0.9706***		-0.2095***
	(0.0197)	(0.0205)	(0.0746)		(0.0613)
Price * Seafood	0.0831***	0.0677***	-0.2756***	0.4180***	-0.1744***
	(0.0100)	(0.0107)	(0.0652)	(0.0645)	(0.0386)
Price * Pork	0.1126***	0.0966***	0.5399***	-1.2250***	0.0633*
	(0.0126)	(0.0136)	(0.0466)	(0.1928)	(0.0291)
Price * Chicken	0.5344***	0.5272***	0.9357***	0.2398*	0.0958**
	(0.0157)	(0.0173)	(0.0732)	(0.1181)	(0.0334)
Price * Beef	0.0713***	0.0625***	0.1014*	0.1223	0.0253
	(0.0112)	(0.0119)	(0.0466)	(0.1196)	(0.0251)
Any Type of Promotion	-1.8685***	-2.1688***	1.8307*	-6.6469***	-4.0846***
	(0.2065)	(0.2205)	(0.8026)	(1.4844)	(0.6791)
Post Zombie Meat Event	-0.2149	-0.3494	0.0973	1.5831	0.1683
	(0.2183)	(0.2382)	(0.9233)	(1.5034)	(0.5544)

Post Zombie Meat Event * Price	-0.0066**	-0.0057*	-0.0448*	-0.0100	0.0057
	(0.0022)	(0.0023)	(0.0221)	(0.0243)	(0.0052)
Post Zombie Meat Event * Vegetable Excluding Mushroom	1.4034**	1.3164**	-3.3683*	15.6313**	0.7411
	(0.4645)	(0.5074)	(1.5203)	(5.6829)	(1.1289)
Post Zombie Meat Event * Mushroom	-0.0963	-0.1275	1.6061	4.1021	0.9031
	(0.5612)	(0.6048)	(2.2383)	(7.6258)	(1.3643)
Post Zombie Meat Event * Tofu	-3.7366***	-2.1011*	-16.2381***		4.5095
	(0.7858)	(0.8241)	(3.0850)		(2.3719)
Post Zombie Meat Event * Seafood	4.6060***	5.1406***	-28.2637***	10.6934**	-1.5789
	(0.8816)	(0.9903)	(4.7358)	(3.6111)	(3.5764)
Post Zombie Meat Event * Pork	-6.8669***	-6.0779***	2.9023	-64.0432***	-0.0122
	(0.6807)	(0.7482)	(2.3255)	(6.7480)	(1.6376)
Post Zombie Meat Event * Chicken	0.0896	0.0802	9.3669**	7.6780	-2.1320
	(0.8478)	(0.9644)	(3.5429)	(4.3244)	(2.0810)
Post Zombie Meat Event * Beef	2.3835**	2.0688*	3.2119	24.5364***	0.0226
	(0.7586)	(0.8194)	(2.9634)	(6.1260)	(1.7510)
Post Zombie Meat Event * Any Type of Promotion	-0.9989***	-0.8080*	-2.9590**	-3.3647	-0.3536
	(0.2881)	(0.3138)	(1.0492)	(2.1312)	(0.8939)
Post Zombie Meat Event * Price * Vegetable Excluding Mushroom	-0.0541***	-0.0447**	0.0900*	-0.6718***	-0.0336
	(0.0134)	(0.0146)	(0.0449)	(0.1985)	(0.0328)
Post Zombie Meat Event * Price * Mushroom	-0.0031	-0.0076	-0.0074	-0.2738	-0.0159
	(0.0101)	(0.0108)	(0.0427)	(0.3538)	(0.0241)
Post Zombie Meat Event * Price * Tofu	0.1053***	0.0579*	0.4568***		-0.1564
	(0.0275)	(0.0290)	(0.1046)		(0.0825)
Post Zombie Meat Event * Price * Seafood	-0.0701***	-0.0805***	0.4071***	-0.2985***	0.0055
	(0.0141)	(0.0157)	(0.0730)	(0.0882)	(0.0538)
Post Zombie Meat Event * Price * Pork	0.1514***	0.1333***	-0.0793	2.1070***	0.0024
	(0.0171)	(0.0187)	(0.0590)	(0.2424)	(0.0410)
Post Zombie Meat Event * Price * Chicken	-0.0203	-0.0214	-0.2972***	-0.3280*	0.0427
	(0.0212)	(0.0240)	(0.0842)	(0.1584)	(0.0484)
Post Zombie Meat Event * Price * Beef	-0.0343*	-0.0316	-0.0353	-0.5242**	-0.0233
	(0.0154)	(0.0166)	(0.0602)	(0.1669)	(0.0354)
Average Temperature	-0.0038	0.0113	-0.1824	-0.0346	-0.0144
	(0.0267)	(0.0282)	(0.1300)	(0.1925)	(0.0711)
Maximum Temperature	0.0683**	0.0796***	0.1531	0.2828	0.0730
	(0.0208)	(0.0226)	(0.0987)	(0.1518)	(0.0497)
Precipitation	-0.0033	0.0504***	-0.0187**	0.1559	0.0217*

	(0.0043)	(0.0120)	(0.0064)	(0.0821)	(0.0096)
Tuesday	0.4236**	0.4241**	-0.1485	0.6191	-1.1336***
	(0.1309)	(0.1433)	(0.4946)	(0.9222)	(0.3209)
Wednesday	0.7866***	0.8443***	0.7160	1.5320	-1.3959***
	(0.1312)	(0.1422)	(0.4917)	(0.9126)	(0.3225)
Thursday	2.6951***	2.7787***	2.7964***	5.4032***	-0.5001
	(0.1314)	(0.1426)	(0.4826)	(0.9164)	(0.3232)
Friday	6.8731***	7.0998***	6.2487***	13.9661***	2.0487***
	(0.1309)	(0.1425)	(0.4921)	(0.9282)	(0.3082)
Saturday	5.8478***	5.8971***	5.1351***	11.3919***	1.6220***
	(0.1297)	(0.1418)	(0.5043)	(0.9265)	(0.3093)
Sunday	0.1405	0.2126	-0.3803	1.5782	-0.9913**
	(0.1288)	(0.1394)	(0.4900)	(0.8903)	(0.3112)
Restaurant Fixed Effect	Y	Y	Y	Y	Y
Month Fixed Effect	Y	Y	Y	Y	Y
# Observations	190,278	154,693	20,289	5,402	7,438
p-value (Pr > F)	0.0000	0.0000	0.000	0.0000	0.0000

Notes: We use observations from the 5 weeks before to 5 weeks after the Zombie meat event. Price is in Yuan. Maximum temperature and average temperature are in degrees Celsius. Precipitation is in millimeters. Standard errors are in parentheses. Significance codes: * 5% level, ** 1% level, and *** 0.1% level. The results for Beijing are also summarized in Table 3.

Table G2. First-Stage F-statistics for Price in IV Fixed Effects Daily Restaurant Demand Regression

Endogenous Variable	Angrist-Pischke First-Stage F-statistic	Sanderson-Windmeijer First-Stage F-Statistic
Price	9.7913e+7	1.0990e+9
Price * Vegetable Excluding Mushroom	3.6291e+7	7.4517e+7
Price * Mushroom	1.3660e+11	1.7270e+10
Price * Tofu	1.2189e+7	2.6938e+7
Price * Seafood	2.1662e+7	5.5931e+7
Price * Pork	2.6463e+6	4.2284e+7
Price * Chicken	1.0672e+7	2.3893e+7
Price * Beef	1.2560e+8	2.8190e+8
Post Zombie Meat Event * Price	3.0083e+7	1.6000e+8
Post Zombie Meat Event * Price * Vegetable Excluding Mushroom	3.0581e+7	1.2137e+7
Post Zombie Meat Event * Price * Mushroom	1.3340e+11	1.3760e+9
Post Zombie Meat Event * Price * Tofu	1.1513e+7	2.5033e+7
Post Zombie Meat Event * Price * Seafood	1.7060e+7	4.3091e+7
Post Zombie Meat Event * Price * Pork	1.3929e+6	5.2698e+6
Post Zombie Meat Event * Price * Chicken	9.4666e+6	2.1259e+7
Post Zombie Meat Event * Price * Beef	1.1420e+8	2.2690e+8

Notes: Table reports first-stage F-statistics for each of the endogenous price and price interaction variables in the IV fixed effects model of daily restaurant demand for all cities in Table 8a. We instrument for price and the price interactions using the average price of that dish in that city during the first quarter of 2015 (from January 1 to March 31) and its interactions.

Table G3a. Daily Restaurant Dish Demand (IV Fixed Effects)

Dependent variable is Total Number of Orders of a Dish a Restaurant on a Day					
	All cities	Beijing	Shanghai	Tianjin	Zhengzhou
Price	0.0015	0.0010	0.0442*	0.0011	-0.0010
	(0.0017)	(0.0017)	(0.0181)	(0.0188)	(0.0038)
Vegetable Excluding Mushroom	5.5271***	5.4545***	12.5377***	-22.0480***	1.3493
	(0.3473)	(0.3771)	(1.1958)	(3.7979)	(0.8219)
Mushroom	-7.1847***	-6.3558***	-15.1001***	-21.4208***	-2.0908*
	(0.4067)	(0.4358)	(1.7829)	(3.9960)	(0.9523)
Tofu	25.4227***	25.6228***	32.1043***		2.3129
	(0.7766)	(0.8111)	(3.2118)		(2.2797)
Seafood	1.4983*	2.1363**	31.9480***	-12.5413***	14.7292***
	(0.6579)	(0.7150)	(4.4938)	(2.6290)	(2.5922)
Pork	-1.6160**	-1.0215	-19.1274***	41.0762***	-2.8732*
	(0.5114)	(0.5565)	(1.8828)	(4.9838)	(1.1967)
Chicken	-17.4320***	-17.5620***	-31.5095***	-8.5808**	-0.7198
	(0.6615)	(0.7399)	(3.2400)	(3.2636)	(1.4709)
Beef	-3.8613***	-3.4159***	-6.2835**	-10.0748*	-1.1640
	(0.5732)	(0.6134)	(2.3861)	(4.6759)	(1.2554)
Price * Vegetable Excluding Mushroom	-0.1980***	-0.1953***	-0.4373***	0.7938***	-0.0577*
	(0.0101)	(0.0110)	(0.0358)	(0.1405)	(0.0242)
Price * Mushroom	0.0782***	0.0583***	0.2376***	0.9566***	-0.0050
	(0.0074)	(0.0078)	(0.0344)	(0.2362)	(0.0173)
Price * Tofu	-0.6873***	-0.6993***	-0.8364***		0.0260
	(0.0258)	(0.0270)	(0.1040)		(0.0840)
Price * Seafood	0.0719***	0.0532***	-0.2922***	0.4343***	-0.1781***
	(0.0105)	(0.0114)	(0.0676)	(0.0664)	(0.0391)
Price * Pork	0.1100***	0.0955***	0.5296***	-1.1961***	0.0656*
	(0.0131)	(0.0142)	(0.0479)	(0.1988)	(0.0300)
Price * Chicken	0.5672***	0.5673***	0.9565***	0.2521*	0.0910**
	(0.0166)	(0.0185)	(0.0766)	(0.1213)	(0.0339)
Price * Beef	0.0690***	0.0599***	0.1050*	0.1247	0.0229
	(0.0115)	(0.0123)	(0.0486)	(0.1232)	(0.0255)
Post Zombie Meat Event * Price	0.0211***	0.0209***	0.0056	0.3807***	0.0081
	(0.0034)	(0.0036)	(0.0250)	(0.0473)	(0.0054)
Post Zombie Meat Event * Vegetable Excluding Mushroom	0.8590	0.7203	-1.1302	16.9818**	0.7689
	(0.4952)	(0.5399)	(1.6342)	(5.9420)	(1.1732)

Post Zombie Meat Event * Mushroom	0.8415	0.6957	1.6219	0.4954	0.6191
	(0.5889)	(0.6311)	(2.3607)	(18.1930)	(1.3988)
Post Zombie Meat Event * Tofu	-3.7849***	-3.8931***	-5.7322		2.6313
	(1.0773)	(1.1278)	(4.2559)		(3.3802)
Post Zombie Meat Event * Seafood	6.9310***	7.2645***	-8.3226	12.5478***	-1.5110
	(0.9533)	(1.0470)	(5.9483)	(3.7944)	(3.6259)
Post Zombie Meat Event * Pork	-4.8844***	-4.2652***	-0.1213	-59.9448***	0.0859
	(0.7331)	(0.8009)	(2.5014)	(6.9858)	(1.6799)
Post Zombie Meat Event * Chicken	3.1165**	1.3975	20.2097***	17.3113***	-1.9222
	(0.9473)	(1.0543)	(4.4897)	(4.8750)	(2.1093)
Post Zombie Meat Event * Beef	0.6704	0.6337	-0.8733		0.1960
	(0.8082)	(0.8633)	(3.1999)		(1.7756)
Post Zombie Meat Event * Price * Vegetable Excluding Mushroom	-0.0477***	-0.0398*	0.0131	-0.9382***	-0.0314
	(0.0144)	(0.0157)	(0.0486)	(0.2079)	(0.0342)
Post Zombie Meat Event * Price * Mushroom	-0.0329**	-0.0312**	-0.0408	-0.2043	-0.0095
	(0.0108)	(0.0116)	(0.0462)	(0.7656)	(0.0252)
Post Zombie Meat Event * Price * Tofu	0.0922*	0.0986**	0.1345		-0.0988
	(0.0358)	(0.0375)	(0.1378)		(0.1224)
Post Zombie Meat Event* Price * Seafood	-0.1321***	-0.1365***	0.0885	-0.5851***	0.0056
	(0.0152)	(0.0167)	(0.0899)	(0.1017)	(0.0545)
Post Zombie Meat Event * Price * Pork	0.0881***	0.0742***	-0.0169	1.8415***	0.0007
	(0.0187)	(0.0204)	(0.0639)	(0.2521)	(0.0423)
Post Zombie Meat Event * Price * Chicken	-0.1294***	-0.0795**	-0.6013***	-0.9011***	0.0414
	(0.0236)	(0.0262)	(0.1075)	(0.1774)	(0.0490)
Post Zombie Meat Event * Price * Beef	-0.0362*	-0.0346*	-0.0007	-0.3789***	-0.0244
	(0.0163)	(0.0175)	(0.0648)	(0.0886)	(0.0359)
Average Temperature	-0.0012	0.0191	-0.2260	-0.0928	-0.0326
	(0.0280)	(0.0295)	(0.1394)	(0.2126)	(0.0749)
Maximum Temperature	0.0700**	0.0782***	0.1904	0.3524*	0.0700
	(0.0218)	(0.0236)	(0.1069)	(0.1678)	(0.0526)
Precipitation	-0.0085	0.0483***	-0.0261***	0.1630	0.0238*
	(0.0047)	(0.0125)	(0.0071)	(0.0868)	(0.0100)
Tuesday	0.4072**	0.4022**	-0.2774	0.7508	-1.1649***
	(0.1383)	(0.1500)	(0.5520)	(1.0066)	(0.3367)
Wednesday	0.7705***	0.8425***	0.2207	1.6982	-1.3048***
	(0.1388)	(0.1490)	(0.5496)	(0.9967)	(0.3385)
Thursday	2.7450***	2.8318***	2.2378***	5.8856***	-0.3826

	(0.1391)	(0.1496)	(0.5388)	(1.0027)	(0.3409)
Friday	7.0182***	7.2035***	5.9900***	14.9473***	2.0472***
	(0.1387)	(0.1494)	(0.5534)	(1.0138)	(0.3234)
Saturday	5.9660***	5.9773***	4.8232***	12.2490***	1.6906***
	(0.1373)	(0.1488)	(0.5616)	(1.0193)	(0.3252)
Sunday	0.0494	0.1586	-0.7966	1.4145	-0.9226**
	(0.1364)	(0.1463)	(0.5455)	(0.9750)	(0.3277)
IV for Price and Price Interactions	Y	Y	Y	Y	Y
Post Zombie Meat Event Dummy	Y	Y	Y	Y	Y
Restaurant Fixed Effect	Y	Y	Y	Y	Y
Month Fixed Effect	Y	Y	Y	Y	Y
First-Stage Regression for Price					
Coefficient on Average price for that dish in that city during Quarter 1	1.0002***	1.0002***	1.0001***	1.0000***	1.0000***
	(0.0001)	(0.0001)	(0.0002)	(2.40e-16)	(6.66e-6)
# Observations	173,404	144,662	17,079	4,748	6,915
p-value (Pr > F)	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: We use observations from the 5 weeks before to 5 weeks after the Zombie meat event. We instrument for price and the price interactions using the average Quarter 1 price of that dish in that city and its interactions. Price is in Yuan. Maximum temperature and average temperature are in degrees Celsius. Precipitation is in millimeters. Standard errors are in parentheses. Significance codes: * 5% level, ** 1% level, and *** 0.1% level. The results for Beijing are also summarized in Table 3.

Table G3b. Daily Restaurant Dish Demand (IV Fixed Effects)

Dependent Variable is Total number of orders of that dish at that restaurant on that day					
	All cities	Beijing	Shanghai	Tianjin	Zhengzhou
Price	-0.0001	-0.0004	0.0523**	0.0081	-0.0046
	(0.0017)	(0.0017)	(0.0202)	(0.0189)	(0.0039)
Vegetable Excluding Mushroom	5.2482***	5.0861***	12.6118***	-22.6331***	0.8471
	(0.3477)	(0.3777)	(1.1982)	(3.7887)	(0.8214)
Mushroom	-7.3819***	-6.5391***	-14.8137***	-21.8496***	-2.4789**
	(0.4064)	(0.4353)	(1.8111)	(3.9848)	(0.9488)
Tofu	24.7593***	24.8998***	32.3758***		2.0407
	(0.7747)	(0.8087)	(3.2210)		(2.2662)
Seafood	0.9374	1.4307*	32.2335***	-12.9727***	14.2765***
	(0.6568)	(0.7134)	(4.5046)	(2.6229)	(2.5774)
Pork	-2.1980***	-1.6599**	-18.8796***	40.6502***	-3.2315**
	(0.5117)	(0.5564)	(1.9033)	(4.9692)	(1.1910)
Chicken	-17.8163***	-17.9832***	-31.2288***	-8.8141**	-1.1551
	(0.6599)	(0.7376)	(3.2548)	(3.2538)	(1.4638)
Beef	-4.1248***	-3.6955***	-6.0073*	-10.5095*	-1.4413
	(0.5726)	(0.6126)	(2.4056)	(4.6624)	(1.2486)
Price * Vegetable Excluding Mushroom	-0.1981***	-0.1940***	-0.4390***	0.7955***	-0.0509*
	(0.0101)	(0.0109)	(0.0358)	(0.1400)	(0.0241)
Price * Mushroom	0.0767***	0.0558***	0.2295***	0.9495***	-0.0020
	(0.0074)	(0.0078)	(0.0356)	(0.2354)	(0.0172)
Price * Tofu	-0.6754***	-0.6865***	-0.8439***		0.0234
	(0.0258)	(0.0269)	(0.1042)		(0.0835)
Price * Seafood	0.0763***	0.0592***	-0.3003***	0.4273***	-0.1747***
	(0.0105)	(0.0113)	(0.0682)	(0.0662)	(0.0389)
Price * Pork	0.1185***	0.1043***	0.5225***	-1.1977***	0.0683*
	(0.0131)	(0.0142)	(0.0486)	(0.1982)	(0.0298)
Price * Chicken	0.5690***	0.5690***	0.9485***	0.2381*	0.0946**
	(0.0165)	(0.0184)	(0.0771)	(0.1210)	(0.0337)
Price * Beef	0.0694***	0.0598***	0.0970*	0.1178	0.0249
	(0.0115)	(0.0123)	(0.0494)	(0.1228)	(0.0253)
Any Type of Promotion	-2.8375***	-3.1321***	0.7946	-6.2850***	-3.9677***
	(0.2185)	(0.2337)	(0.8868)	(1.5635)	(0.6877)
Post Zombie Meat Event	0.1520	0.0461	0.3820	-1.8930	0.2140
	(0.2344)	(0.2533)	(1.0579)	(1.7346)	(0.5793)

Post Zombie Meat Event * Price	0.0123***	0.0112**	-0.0182	0.3483***	0.0067
	(0.0034)	(0.0037)	(0.0282)	(0.0476)	(0.0054)
Post Zombie Meat Event * Vegetable Excluding Mushroom	1.6038**	1.4222**	-1.0370	16.5025**	0.5156
	(0.4943)	(0.5393)	(1.6381)	(5.9319)	(1.1739)
Post Zombie Meat Event * Mushroom	0.6434	0.4940	0.8718	-0.0933	0.3759
	(0.5890)	(0.6308)	(2.4012)	(18.1381)	(1.3946)
Post Zombie Meat Event * Tofu	-3.8580***	-3.9554***	-6.3597		2.2276
	(1.0761)	(1.1261)	(4.2711)		(3.3610)
Post Zombie Meat Event * Seafood	6.3373***	6.7021***	-9.1077	11.9421**	-1.5320
	(0.9530)	(1.0464)	(5.9645)	(3.7942)	(3.6051)
Post Zombie Meat Event * Pork	-7.6103***	-6.8714***	-1.0230	-60.5749***	-0.0768
	(0.7258)	(0.7932)	(2.5299)	(6.9703)	(1.6722)
Post Zombie Meat Event * Chicken	2.7908**	1.0783	19.5180***	16.5042***	-2.1188
	(0.9473)	(1.0538)	(4.5083)	(4.8680)	(2.0995)
Post Zombie Meat Event * Beef	0.4974	0.4429	-1.6220		0.0835
	(0.8078)	(0.8627)	(3.2293)		(1.7661)
Post Zombie Meat Event * Any Type of Promotion	-1.0769***	-1.0167**	-2.0606	-0.8565	-0.3437
	(0.3134)	(0.3375)	(1.2088)	(2.4715)	(0.9082)
Post Zombie Meat Event * Price * Vegetable Excluding Mushroom	-0.0753***	-0.0655***	0.0090	-0.9131***	-0.0276
	(0.0143)	(0.0156)	(0.0487)	(0.2074)	(0.0340)
Post Zombie Meat Event * Price * Mushroom	-0.0251*	-0.0225	-0.0175	-0.1726	-0.0077
	(0.0108)	(0.0116)	(0.0480)	(0.7632)	(0.0251)
Post Zombie Meat Event * Price * Tofu	0.0909*	0.0978**	0.1516		-0.0914
	(0.0358)	(0.0374)	(0.1382)		(0.1216)
Post Zombie Meat Event * Price * Seafood	-0.1191***	-0.1233***	0.1123	-0.5527***	0.0042
	(0.0152)	(0.0166)	(0.0908)	(0.1017)	(0.0542)
Post Zombie Meat Event * Price * Pork	0.1610***	0.1442***	0.0106	1.8697***	0.0012
	(0.0185)	(0.0201)	(0.0649)	(0.2514)	(0.0420)
Post Zombie Meat Event * Price * Chicken	-0.1198***	-0.0694**	-0.5797***	-0.8616***	0.0422
	(0.0236)	(0.0262)	(0.1082)	(0.1770)	(0.0488)
Post Zombie Meat Event * Price * Beef	-0.0290	-0.0262	0.0227	-0.3581***	-0.0242
	(0.0163)	(0.0175)	(0.0661)	(0.0885)	(0.0357)
Average Temperature	0.0002	0.0201	-0.2261	-0.0784	-0.0220
	(0.0280)	(0.0294)	(0.1394)	(0.2120)	(0.0745)
Maximum Temperature	0.0695**	0.0778***	0.1910	0.3450*	0.0655
	(0.0218)	(0.0236)	(0.1069)	(0.1673)	(0.0523)
Precipitation	-0.0089	0.0479***	-0.0262***	0.1622	0.0218*
	(0.0047)	(0.0124)	(0.0071)	(0.0866)	(0.0099)

Tuesday	0.4179**	0.4104**	-0.2721	0.8002	-1.0904**
	(0.1381)	(0.1497)	(0.5520)	(1.0034)	(0.3347)
Wednesday	0.7842***	0.8566***	0.2207	1.7435	-1.3275***
	(0.1386)	(0.1487)	(0.5496)	(0.9937)	(0.3364)
Thursday	2.7629***	2.8505***	2.2360***	5.9563***	-0.3626
	(0.1389)	(0.1493)	(0.5387)	(0.9998)	(0.3388)
Friday	7.0445***	7.2331***	5.9938***	15.0423***	2.0237***
	(0.1385)	(0.1492)	(0.5534)	(1.0110)	(0.3214)
Saturday	5.9866***	6.0001***	4.8266***	12.2948***	1.6793***
	(0.1371)	(0.1486)	(0.5616)	(1.0162)	(0.3232)
Sunday	0.0528	0.1621	-0.7910	1.4855	-0.9216**
	(0.1362)	(0.1460)	(0.5454)	(0.9720)	(0.3256)
IV for Price and Price Interactions	Y	Y	Y	Y	Y
Restaurant Fixed Effect	Y	Y	Y	Y	Y
Month Fixed Effect	Y	Y	Y	Y	Y
First-Stage Regression for Price					
Coefficient on Average price for that dish in that city during Quarter 1	1.0001***	1.0001***	1.0001***		1.0001***
	(4.34e-5)	(0.0000)	(0.0000)		(0.0000)
# Observations	173,404	144,662	17,079	4,748	6,915
p-value (Pr > F)	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: We use observations from the 5 weeks before to 5 weeks after the Zombie meat event. We instrument for price and the price interactions using the average Quarter 1 price of that dish in that city and its interactions. For the IV fixed effects daily demand regression for Tianjin, price was reclassified by STATA as exogenous. Price is in Yuan. Maximum temperature and average temperature are in degrees Celsius. Precipitation is in millimeters. Standard errors are in parentheses. Significance codes: * 5% level, ** 1% level, and *** 0.1% level. The results for Beijing are also summarized in Table 3.