Spending Less After (Seemingly) Bad News

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Abstract

We show that household consumption displays excess sensitivity to salient macro-economic news, even when the news is not real. When the announced local unemployment rate reaches a 12-month maximum, local consumers in that area reduce discretionary spending by 2% relative to consumers in areas with the same macro-economic fundamentals. The consumption of low-income households displays greater excess sensitivity to salience. The decrease in spending is not reversed in subsequent months; instead, negative news persistently reduces future spending for two to four months. Announcements of 12-month unemployment maximums also lead consumers to reduce their credit card repayments by 3.6%. Households in treated areas act as if they are more financially constrained than those in untreated areas with the same fundamentals.

Keywords: Household consumption, consumer sentiment, excess sensitivity of consumption.

I Introduction

During the Great Financial Crisis of 2008-2009, the growth rate of U.S. consumption experienced the steepest and most persistent decline since World War II. The consumption drop was especially pronounced for non-durables and services (see De Nardi, French, and Benson, 2012). The year-over-year growth rate of non-durable consumption declined from 6.6% in the second quarter of 2008 to -6.1% in the first quarter of 2009. The decline in consumption growth was preceded by a dramatic drop in the Michigan consumer confidence index. A consumption growth crash of this size presents a quantitative challenge to standard intertemporal models in which the stand-in household has a strong motive to smooth consumption.

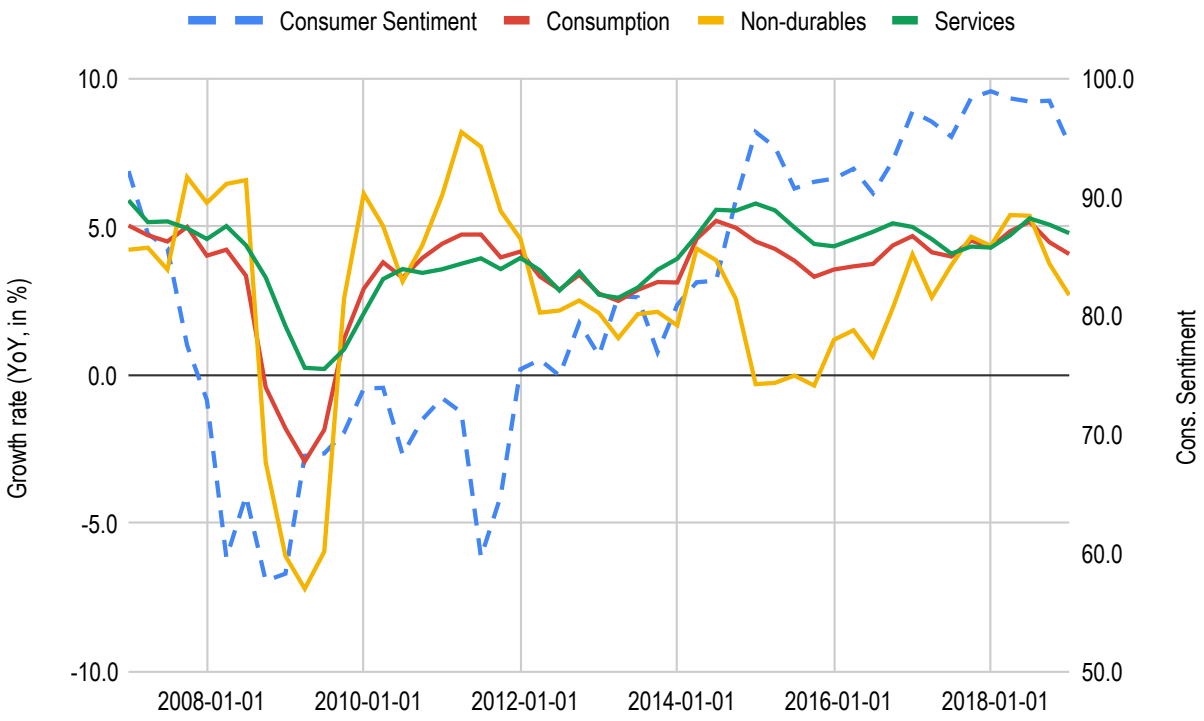
Among the leading candidate explanations for this consumption drop are binding financial constraints (Mian, Rao, and Sufi, 2013), wealth effects and downward revisions of expected future income growth (De Nardi, French, and Benson, 2012), and increased uncertainty (Pistaferri, 2016). We find that consumers respond to the salience of adverse macro announcements about their region by cutting back on discretionary spending even when the news is uninformative about local macro-economic fundamentals. Consumers in treated areas, especially the poorer ones with lower educational attainment, act as if they are more financially constrained than those in untreated areas, even though they are not. Seemingly 'bad news' contributes significantly to sharp consumption drops.[1]

The steady release of salient bad news may have played a causal role in the precipitous decline of U.S. aggregate consumption at the onset of the Great Financial Crisis as well as during the slow subsequent recovery. The excess sensitivity of household consumption to salient news can amplify the effect of large macro-economic shocks that tend to induce more salient announcements.

The U.S. counties which experienced the largest build-up in household debt before the Great

[1]On March 18, 2020, during the onset of the COVID-19 crisis, the U.S. Department of Labor sent guidance to state labor agencies asking for a delay in the release of unemployment claims data (*Wall Street Journal*, March 19, 2020, "Trump Administration Asks States to Keep Quiet About Jobless Figures").

Figure 1. U.S. Aggregate Consumption Growth During the Great Recession



University of Michigan: Consumer Sentiment, Index 1966:Q1=100, Quarterly, Not Seasonally Adjusted. Personal Consumption Expenditures; Personal Consumption Expenditures: Nondurable Goods; Personal Consumption Expenditures: Services. All consumption measures in Percent Change from Year Ago, Quarterly, Seasonally Adjusted Annual Rate.

Recession also experienced the largest declines in house prices during the crisis. These counties were also more likely to witness large declines in consumer spending and non-tradeable employment (Mian, Rao, and Sufi, 2013; Mian and Sufi, 2014). This evidence has been cited in support of the financial constraints explanation. These counties were also exposed to a steady stream of salient, bad economic news during the crisis that had a causal effect on consumption. Our estimates imply that a salience-induced decline in consumer sentiment contributed significantly to the cross-sectional correlation between declines in regional consumption, employment, and house price declines during the Great Financial Crisis.

The empirically observed behavior of household consumption is at odds with the predictions of standard neo-classical models of intertemporal optimization. Consumption growth responds to predictable income shocks, in violation of the permanent income hypothesis (Flavin, 1981; Blinder, Deaton, Hall, and Hubbard, 1985; Parker, 1999; Parker, Souleles, Johnson, and McClelland, 2013); consumption growth also responds to idiosyncratic, insurable income shocks, in contrast to the predictions of the workhorse complete markets model (Cochrane, 1991; Attanasio, 1999).[2] We document a new form of deviation from standard models: the excess sensitivity of consumption to salient macro news. A rational household with standard, expected utility that is optimizing intertemporally would not change its consumption in response to salient news. Our findings cannot be attributed to binding household liquidity or solvency constraints, because the actual household income process is unaffected by the salience of the announcements.

We use local unemployment announcements at the CBSA (Core Based Statistical Area) level as a natural experiment to measure the response of consumption to salient news in high-frequency household spending data. Unemployment announcements that reach a new local maximum are particularly salient to households living in that area. These are more likely to receive media coverage. We confirm that internet searches by locals for the term "unemployment" rise around

[2]There is a large literature which measures the response of household consumption growth to idiosyncratic income shocks to gauge how far from the complete markets benchmark the economy operates (Kaplan and Violante, 2010).

these announcements. We then compare the spending of households in areas that reach a new local maximum to the spending of similar households living in areas with the same macro fundamentals that do not reach a new maximum.

We show that an announcement of a 12-month maximum in the local unemployment rate leads to a 2% drop in discretionary spending in the two weeks after the announcement. Announcement of near maximums have no effect on spending, while false maximums (announced maximums that are later revised to be non-maximums) have the same impact on consumers as actual maximums. Together these results provide evidence of a behavioral response by consumers to salient economic news.

An increase in the unemployment rate represents an increase in the uncertainty faced by households. Households face a higher probability of job loss. An unemployment spell can be thought of as the realization of household-specific income disaster with potentially long-lasting effects on earnings (see Guvenen, Karahan, Ozkan, and Song, 2017). Standard consumer theory predicts that consumers respond to an increase in uncertainty by immediately reducing spending and saving more instead (Kimball, 1990). As a result of precautionary savings, a perceived increase in uncertainty in a CBSA would lead to a local reduction in consumption. In addition, households may rationally revise their expectations of future earnings downwards and reduce consumption accordingly, in line with the permanent income hypothesis, when a higher unemployment rate is announced. Our empirical design allows us to rule out these alternative, rational explanations of our findings: Consumers are not responding to the actual unemployment rate, but to the announced rate, and then only when the announcement is salient.

The announcement also affects financing behavior. We find that a 12-month maximum announcement leads to a 3.6% decrease in credit card repayments. While consumers appear to be drawing down their existing credit lines, we find that they are also less likely to initiate new loans. Salient negative unemployment announcements lead consumers to behave as if the financing

environment has quickly become more challenging. Consumers also reduce their cash withdrawals, which is another mechanism for maintaining higher balances in their bank accounts. The consumers in the treated areas act as if they are more financially constrained than those in the control areas.

Our findings shed new light on previous studies which have found that the marginal propensity to consume out of wealth was larger for poorer households/areas, using regional consumption data (see Mian, Rao, and Sufi, 2013, for a recent example). Using household-level spending data we find that the consumption response to the salience of macro news varies across households. The resulting decline in household consumption is significantly larger for households with lower income and education. The heterogeneity in excess sensitivity that we describe, however, is a behavioral response that cannot be attributed to binding liquidity or solvency constraints or to news about fundamentals.

Households in the areas that are subject to unemployment maximum announcements reduce their spending significantly and persistently. We find no evidence that the consumption drop is subsequently reversed. On the contrary, we show that a single 12-month maximum unemployment announcement lowers future household discretionary spending at a horizon of two to four months. For areas that achieve a 12-month maximum every month over a five month period, the drop in current spending is close to 5%. Between 2007 and 2018, 119 of the 373 CBSAs experienced such a sequence of 5 consecutive 12-month maximum unemployment announcements, mostly in 2009 during the Great Recession.

Our results have important implications for inference in studies with aggregated data. MPCs estimated using aggregate data may partly measure the consumption response to salient, adverse economic news, rather than the response to the household's own wealth or income shocks. The heterogeneity that we uncover in the response to salient news is consistent with the heterogeneity in the MPC documented in these other studies (see Hurst and Stafford, 2004; Campbell and Cocco, 2007; Attanasio, Leicester, and Wakefield, 2011; Kaplan, Mitman, and Violante, 2016; DeFusco,

Johnson, and Mondragon, 2020; Guren, McKay, Nakamura, and Steinsson, 2018, for recent evidence on the MPC out of housing wealth).

Our work also has broader implications for understanding business cycles. Since the work of Keynes, macro-economists have recognized the importance of sentiment as a driver of business cycles. Recent work on business cycle theory imputes a role to confidence shocks of the type we document (see, e.g., Angeletos and La'O, 2010, 2013; Benhabib, Wang, and Wen, 2015; Heathcote and Perri, 2018).

To the best of our knowledge, our paper is one of the first to provide causal evidence of a quantitatively important sentiment effect in consumption growth. In the time series, measures of consumer confidence and consumption growth are strongly correlated contemporaneously. Further, there is some empirical evidence that measures of consumer confidence predict future consumption growth (Carroll, Fuhrer, and Wilcox, 1994; Ludvigson, 2004). One explanation is that consumer confidence simply reflects the households' expectations of future fundamentals; another explanation is that changes in consumer confidence lead to changes in consumption growth. Ludvigson (2004) concludes that these measure have little incremental forecasting power for consumer spending beyond traditional macro and financial indicators, but Carroll, Fuhrer, and Wilcox (1994) argue that there is a pure sentiment effect in consumption, i.e., that declines in sentiment causally lead to declines in consumption growth. Our work shows a causal effect from sentiment to consumption.

Our findings are consistent with inattention: if consumers were always attentive, salience would not have any effect on their actual spending. There is a wealth of empirical evidence to suggest that investors and consumers do not pay attention to all information relevant to their optimization problem (see DellaVigna, 2009, for an overview). For example, investors do not constantly monitor their portfolios (Brunnermeier and Nagel, 2008). There is a large and growing literature on the economics of limited attention (DellaVigna, 2009). Households can rationally choose to be inattentive to some information when they are subject to constraints on information

processing (Sims, 2003; Van Nieuwerburgh and Veldkamp, 2009; Gabaix and Laibson, 2001). It is not straightforward, however, to reconcile the response to the salience of macro announcements with rational inattention.

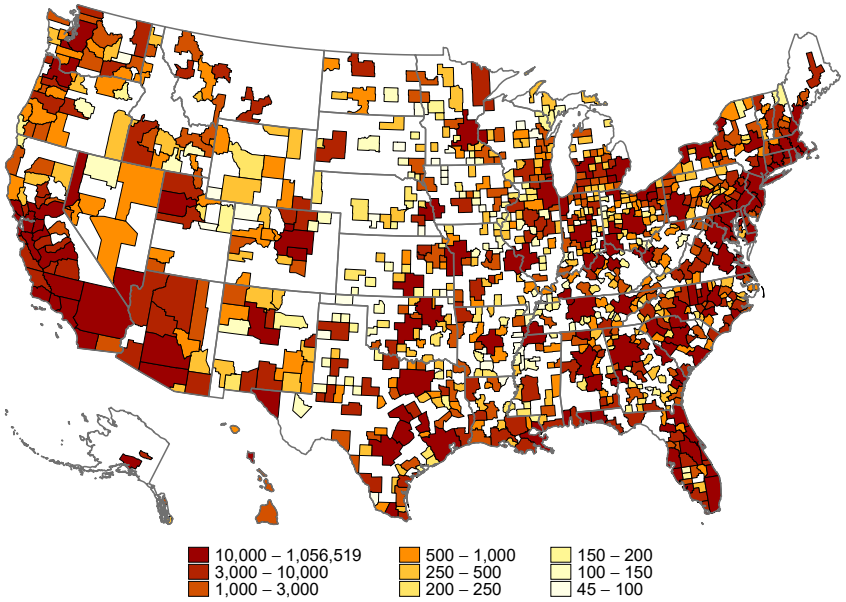
Instead, our results seem consistent with selective inattention. The large response to salient adverse news, especially by low-income households, is consistent with reference-dependent utility models (Kőszegi and Rabin, 2006, 2007, 2009; Pagel, 2017). In this class of models, utility is directly affected by the revision of expectations relative to a benchmark. Receiving news causes disutility in expectation, and this effect is larger for low-income households. These households choose when they pay attention. As shown by Pagel (2017), consumers with reference-dependent utility are less attentive in response to negative, aggregate shocks. Furthermore, low-income households are less attentive than high-income households, because of the concavity of utility. Our results seem consistent with the key predictions of this class of reference-dependent utility models: We find much stronger evidence of salience sensitivity for low-income households. Recent work by Bordalo, Gennaioli, and Shleifer (2012, 2013) attributes a central role to salience in their approach to consumer choice. Our evidence lends support to this novel approach.

II Data

We study data on the spending of U.S. consumers drawn from information on credit card and bank account transactions compiled by an online account aggregator. The data cover 9,664,860 unique consumers drawn from all 50 U.S. states and the District of Columbia over the period Jan. 1, 2012- Dec. 18, 2018. Figure 2 depicts the number of consumers in the sample across CBSAs.

We observe transaction data from 24,827,483 bank accounts and 13,720,261 credit card accounts; consumers hold a mean of 3.99 bank and credit card accounts. The aggregator classifies transactions into different spending categories. Our main interest is in studying discretionary

Figure 2. Population of Sample Consumers Across CBSAs



spending. Table I lists the spending categories that we include in discretionary spending.

As we discuss in more detail below, we analyze the impact of unemployment announcements on consumer spending, and we treat the three days around the announcement as the announcement window. We measure spending in two week periods before and after announcement windows. In Table II, Panel A we present summary statistics for different spending categories. The data is aggregated per consumer at the two-week-period level. The mean discretionary spending per period is \$329.1, of which roughly one-third is restaurant expenses. Transactions for jewelry and travel (which are likely luxury items for many consumers) are observed in a given period with frequencies of 0.3% and 3.3%, respectively. Average credit card repayments are \$1,129.1. We observe that a new loan is initiated by a consumer with a frequency of 0.5%. We also observe cash withdrawals: the average cash withdrawal per period is \$405.3, and the average number of cash withdrawals is 2.4. Table II, Panel B provides some demographic information about the consumers in the data. The median monthly salary per consumer that we observe is \$2,857. Consumers reside in zip codes

with a median home value of $231,300 and a median educational attainment between some college and an associate's degree.

III Empirical Specification

Our aim is to analyze the impact of local unemployment announcements on consumer spending. Our focus is on announcements that are 12- or 6-month maximums, as these announcements are likely to be particularly salient for consumers.[3] For each unemployment announcement, we treat the three-day period around the announcement date as the announcement period. We label the two-week window that follows an announcement period as $Post = 1$ and the two-week window that precedes an announcement period as $Post = 0$, and we measure each consumer's spending separately in each of these windows each month. Unemployment announcements that are very high, that are new maximums relative to announcements in previous periods, are likely to attract particular attention from consumers for behavioral reasons. We therefore study the impact of an X-month maximum (for X=12 or 6) on consumer spending by estimating the following regression for consumer i in month t who lives in CBSA $c(i)$:

$$spending_{i,t,Post} = \beta \left(\text{X-Month Maximum}_{c(i),t}\right) * Post + \nu Post + \xi_{i,t} + \epsilon_{i,t}, \tag{1}$$

where $\left(\text{X-Month Maximum}_{c(i),t}\right)$ is an indicator for whether an X-Month maximum unemployment rate was announced in CBSA $c(i)$ in month t, $\xi_{i,t}$ are fixed effects at the consumer-year-month level and $\epsilon_{i,t}$ are errors. The main coefficient of interest is β; it describes the impact of an X-month maximum on the change in a consumer's spending in the post-announcement period relative to her spending in the pre-announcement period. We are essentially conducting event studies around

[3]Exploiting state-level variation in Germany, Garz (2018) finds that economic news releases that hit salient milestones have a large effect on the local index of economic perceptions, a measure of consumer confidence, but Garz does not examine the impact of salient news on consumer spending.

the local unemployment announcement date for each consumer every month, and we contrast the change in spending for consumers who experience an X-month maximum with the change exhibited by those who do not. Spending is typically measured in logs of dollar expenditures. We note that the level of the X-month maximum is subsumed in the fixed effects. We double cluster all standard errors at the CBSA and time period levels.

We also consider whether unemployment announcement effects may differ across heterogeneous groups of consumers with varying characteristics. To analyze this question, we estimate

$$spending_{i,t,Post} = \alpha' \left(\text{X-Month Maximum}_{c(i),t}\right) * Post * Characteristic$$

$$+\beta' \left(\text{X-Month Maximum}_{c(i),t}\right) * Post + \eta' Post * Characteristic$$

$$+\kappa' \left(\text{X-Month Maximum}_{c(i),t}\right) * Characteristic + \nu' Post + \xi'_{i,t} + \epsilon'_{i,t}. \quad (2)$$

In specification (2) the variable of interest is α', which measures the impact of a consumer-level $Characteristic$ on the spending response to an X-month maximum.

We assess the persistence of the effect of local unemployment announcements by regressing the current level of spending on historical announcements. For these tests we make use only of spending in the pre-period ($Post = 0$) for a given month and consider how it is affected by announcements in the previous months. Using the pre-period consumption allows us to avoid any confounding effects of contemporaneous announcements and provides roughly a two-week lapse from the most recent announcement, which enables us to study medium-term effects. For lags of up to S months, we

estimate

$$spending_{i,t,Post=0} = \sum_{s=1}^{S} \delta_s \left(\text{X-Month Maximum}_{c(i),t-s}\right) + \gamma_i + \zeta_t + controls + u_{i,t}, \qquad (3)$$

where γ_i and ζ_t are fixed effects at the consumer and year-month levels, respectively, and $u_{i,t}$ is an error term; in these tests we are not contrasting spending before and after a specific announcement, so we employ consumer and year-month effects separately.

IV Results

A Consumer Search Interest and Local Unemployment Announcements

The empirical specification we propose in Section III considers the impact of a local unemployment announcement on consumer spending. As a preliminary matter, we provide evidence that consumers are aware of these announcements and devote attention to them.

The local unemployment announcements we study are the Metropolitan Area Employment and Unemployment monthly news releases published by the Bureau of Labor Statistics (BLS). These are distinct from the national-level monthly Employment Situation summaries that are also published by the BLS. The Employment Situation summaries for a given month tend to be released within roughly a week of the close of that month, while the Metropolitan Area Employment and Unemployment releases are usually published about 1 month after the month-end. The release dates for the national and local unemployment announcements therefore do not generally coincide. We assess consumer interest in local unemployment announcements by measuring the Google Trends scores associated with the search term "unemployment" on various days over the period January 1, 2004- December 18, 2018. Daily scores are provided by Google in windows of up to 270 days,

and a given day's score is relative to other scores in the same window. We define Trends Interest to be the log of one plus the trend score on a given day, and we consider the impact of a local unemployment announcement release on this measure.

Specifically, we regress Trends Interest on an indicator for whether a day is a local unemployment release date along with fixed effects for the month-year, day of the week and window. We find, as shown in the first column of Panel A of Table III, that release dates are associated with higher trends (coefficient=0.028 and t-statistic=3.19). The t-statistics are double clustered at the month-year and window levels. This results indicates that consumer interest in searching Google for "unemployment" is approximately 2.8% higher on local unemployment announcement release dates. The result in the second column of Panel A shows that interest is even higher, approximately 3.7% (t-statistic=4.10) above the general level of interest, in the period consisting of the release date and the subsequent three days. As shown in the third column of Panel A, interest is still elevated in the week of the release date (coefficient=0.019 and t-statistic=4.03), though the level is lower than in the first three days after the announcement.

The results in Panel A of Table III establish that local unemployment release dates are associated in general with higher consumer search interest in unemployment. The mechanism in Section III, however, focuses on the behavioral impact of 12- and 6-month maximum unemployment rate announcements. We study the effect of these maximums on consumers by collecting Google Trends scores for "unemployment" at the local-level and relating them to local unemployment announcements. This analysis requires information on the local unemployment rate released at the time (not the revised rate), and these vintage data are provided for the period beginning May 2007 on the St. Louis ALFRED website.[4] We regress Trends Interest on an indicator for whether the last released local unemployment rate was a 12-month maximum along with fixed effects for the day-month-year and CBSA.

[4]The data source is https://alfred.stlouisfed.org.

We find that Trends Interest in unemployment is significantly higher in CBSAs for which the last local unemployment rate announced was a 12-month maximum (coefficient=0.078, t-statistic=3.71), as displayed in the first column of Panel B of Table III. The t-statistic is double clustered at the CBSA and month-year levels. The coefficient indicates the consumer interest in unemployment is approximately 7.8% higher in these CBSAs. The inclusion of day-month-year fixed effects removes the influence any national changes in unemployment rates; we are describing a strong surge in local searches about unemployment after a local 12-month maximum. For a point of contrast, we define near 12-month-maximums to be rates that are within 0.2 percentage points of a maximum but that are not maximums. We show in the second column of Panel B that near 12-month maximums do not have a significant effect on Trends interest (coefficient=0.014, t-statistic=0.86). The behavioral impact of a maximum is quite marked.

It is achieving the maximum that garners consumer attention, rather than simply the fact that a maximum is typically a high unemployment rate. We show this by including unemployment rate fixed effects in our previous specification and present the results in the third and fourth columns of Panel B. We find that the 12-month-maximum continues to have a strong effect on Trends Interest even in this specification (coefficient=0.050, t-statistic=2.38), while the near 12-month-maximum again does not (coefficient=-0.003, t-statistic=-0.17). That is, when comparing two identical unemployment rates, one of which is a 12-month-maximum and one of which is not, the former leads to approximately 5.0% higher consumer search interest. The results displayed in Panel C of Table III exhibit a similar pattern of findings for 6-month-maximums, with somewhat smaller coefficients.

Overall, the results in Table III provide clear evidence that consumers' search interest in unemployment increases just after local unemployment release dates and that interest is particularly high after a local 12- or 6-month maximum has been announced.

B Discretionary Spending and Local Unemployment Announcements

Local unemployment announcements attract the attention of consumers. Do they have an impact on actual spending? We consider this question by measuring discretionary spending for each consumer in the two-week periods before and following local unemployment announcement periods and assessing the impact of maximum announcements on the observed change in spending. We estimate equation (1): in this specification we regress the log of discretionary spending on an indicator for a 12-month maximum announcement interacted with a post-announcement indicator, and we include fixed effects at the consumer-month-year level. The inclusion of these fixed effects allows us to isolate the change in spending for a given consumer around a specific announcement. We measure unemployment rate announcements using the vintage data that specifies the actual rate announced at the time.

We find, as displayed in the first column of Table IV, that a 12-month maximum announcement leads to a 2.0% drop in discretionary spending (the t-statistic, which is double clustered at the CBSA and time-period levels, is -4.00). This is a quick, sizable response to a maximum announcement. Within the space of two weeks, consumers undertake a meaningful reduction in their discretionary spending.[5]

Consumers are not simply responding to high unemployment rate announcements. The interaction of a near 12-month maximum rate announcement with the post-period indicator is insignificant (coefficient=0.002 and t-statistic=0.40), and its inclusion has little impact on the estimated change associated with actual announced 12-month maximums (coefficient=-0.020 and t-statistic=-4.00), as shown in the second column of Table IV. Twelve-month maximums apparently have a salience for consumers that clearly distinguishes them from near maximums.

[5]The coefficient on the post-announcement-period indicator of 0.029 (t-statistic=6.98) reflects the fact that the announcements are often released near the beginning of the subsequent month and consumers spend about 2.9% more at the beginning of the month than they do at the end of the prior month. Our central coefficient of interest, the interaction of the post-period indicator with the 12-month maximum indicator, captures the differential discretionary spending shift of consumers who experience a local unemployment maximum.

It may be argued that perhaps consumers' responses to local unemployment rate 12-month maximum announcements are a reaction to underlying economic changes and not to the releases themselves. It may be, for example, that local economic conditions materially deteriorate in advance of a 12-month maximum announcement. Consumers who notice this negative economic trend may engage in an immediate shift in their current spending patterns that is unrelated to any BLS news release.

To evaluate this argument, we analyze false 12-month maximums. These are local unemployment announcements that are 12-month maximums at the time of announcement but that are subsequently revised and that, after revision, are revealed to have actually not been a maximum. We find, as presented in the third column of Table IV, that false 12-month maximums reduce discretionary spending (coefficient=-0.022 and t-statistic=-3.23) in the same manner as actual 12-month maximums. This is true despite the fact that we have shown that there is no response to announced near maximums, and these false maximums typically are, in reality, near maximums. Consumers appear quite clearly to be responding to the announced unemployment rates.

The results in columns four through six of Table IV show similar results for 6-month maximum announcements, with slightly smaller magnitudes. Table IV establishes that announcements of local unemployment maximums lead to a rapid and material reduction in consumer discretionary spending, even if the release is subsequently revised and revealed to have been not an actual maximum.

C Spending Categories

The analysis in Table IV describes the impact of local unemployment announcements on discretionary spending as a whole. In this section, we consider the effects of these announcements on some of the specific categories of discretionary spending in order to provide a richer illustration

of the phenomenon. De Nardi, French, and Benson (2012) emphasize that non-durables and services declined most dramatically during the Great Recession. We therefore begin by considering restaurant spending, a largely service expense that may be regarded by some consumers as a luxury. Specifically, we estimate equation (1) with the log of restaurant spending serving as the dependent variable. As displayed in the first column of Panel A of Table V, we find a coefficient of -0.015 (t-statistic=-2.41) on the interaction between the 12-month maximum indicator and the post-announcement period indicator. Consumers who experience a local unemployment maximum spend approximately 1.5% less in restaurants in the subsequent two weeks.

This reduction in restaurant spending follows 12-month maximums, but not near 12-month maximums, as is detailed in the second column of Panel A of Table V. In the third column of Panel A we show that false 12-month maximums lead to a 1.7% (t-statistic=-3.31) reduction in restaurant spending. Results in the fourth through sixth columns of Panel A demonstrate that similar findings hold for 6-month maximums.

In Panel B of Table V we present analogous results for the impact of local unemployment maximums on whether or not a consumer purchases jewelry. (Given the infrequency of jewelry purchases, we consider a binary dependent variable measuring whether the consumer spent anything on jewelry in the period.) Consumers are less likely to purchase jewelry after 12-month unemployment maximum announcements, and near-maximum announcements have no impact. Even false 12-month maximums lead to a reduced probability of jewelry purchases; similar results hold for 6-month maximum announcements. Although jewelry is a durable good, it is clearly a luxury item, and local unemployment announcements lead to a rapid decrease in the likelihood of jewelry spending.

As a third category we consider whether a consumer spends on travel. Travel is a service and is often a luxury. We show in the first and fourth columns of Panel C of Table V that consumers are less likely to spend on travel after local 12- or 6-month maximum unemployment announcements.

Although there is evidence of a reduction in the likelihood of travel spending after a near 12-month maximum (as shown in the second column of Panel C), we do not find a significant effect after near 6-month maximums (fifth column of Panel C). False 12- and 6-month maximums both lead to a reduction the probability of travel spending (third and sixth columns of Panel C).

The results in Table V establish that local unemployment maximum announcements lead to a decrease in spending for restaurants, jewelry and travel, none of which is a necessity, and all of which likely have a flavor of luxury spending for many consumers.

D Financing

We have shown in Tables IV and IV that unemployment maximums reduce spending. We now consider the impact of these releases on consumers' financing strategies.

Consumers whose future expectations have been dimmed by the announcement of a local unemployment maximum may choose to preserve some financial slack to enable themselves to respond to worsening conditions. This can be regarded as a form of precautionary saving (Kimball, 1990). One strategy for creating this slack is to reduce debt repayments and therefore effectively to preserve more cash on hand. We investigate whether consumers react in this way by regressing the log of credit card repayments on the interaction between an indicator for a 12-month maximum announcement and a post-announcement period indicator and the standard controls, as described in equation (1). We find that consumers reduce their credit card repayments by 3.6% (t-statistic=-2.41); this result is detailed in the first column of Panel A of Table VI.

Credit card repayments are typically made at a lag to the actual purchases as it is standard for issuers to offer a "grace period" of three weeks or longer during which interest does not accrue if the balance is eventually fully paid (Ausubel 1991). Our finding that consumers reduce their credit card repayments therefore likely does not reflect decreased spending (like that documented in Tables IV and IV), as the balance due on a credit card typically reflects expenditures from an earlier

period. In other words, consumers face a credit card balance that was largely accumulated before the local unemployment announcement. Their reduced repayments therefore describe a financing response to the unemployment release rather than a consumption response. It is noteworthy that the financing response of 3.6% is large compared to the roughly 2% consumption response described in the previous tables.

A rational precautionary savings strategy should likely respond similarly to high unemployment announcements whether they are 12-month maximums or near maximums but, as we demonstrate in the second column of Panel A of Table VI, we find no impact of near maximums on credit card repayments (coefficient=0.005 and t-statistic=0.48). Further, we show in the third column of Panel A that false 12-month maximums have a comparable negative effect (coefficient=-0.032 and t-statistic=-1.96) on repayments to that of actual maximums. The results in columns four thorough six of Panel A show a broadly similar set of findings for six-month maximum announcements.

Taken together, these results clearly demonstrate that maximum announcements have a salience for consumers that leads to a substantial change in financing behavior that may be difficult to completely rationalize. Beyond the striking differences in the consumer responses to (false) maximums and near maximums, it is the case that credit card interest rates are very high. Consumers who react to a 12-month maximum by repaying less and therefore borrowing more on their credit cards are acquiring financial slack at a rather high cost.

Do consumers also respond to unemployment maximums by seeking new financing? In the first column of Panel B of Table VI we show that this is not the case: in fact, a 12-month maximum announcement leads to a reduced probability of initiating a loan (coefficient=-0.001 and t-statistic=-1.94). Near maximums have no impact on the likelihood of starting a new loan (coefficient=0.000 and t-statistic=0.01), while false maximums do reduce the probability of loan initiation (coefficient=-0.001 and t-statistic=-2.34), as shown in columns two and three, respectively,

of Panel B. In columns four through six of Panel B we show that similar results hold for 6-month maximums.

The results in Table VI show that unemployment maximum announcements lead consumers to draw down more of their current lines of credit by repaying less of their credit card debt but also reduce the probability that they obtain new financing, perhaps because they are less likely to seek a new loan. It may be that consumers view unemployment maximums as harbingers of worsening economic conditions in which it is prudent to maintain cash by borrowing against existing credit commitments but in which one is unlikely to be granted additional debt. An announced unemployment maximum (whether actual or false) leads consumers to act as if they are more financially constrained, while near maximums have no such effect.

E Cash Withdrawals

Consumers also respond to unemployment 12-month maximums by withdrawing 1.6% less (t-statistic=-4.33) cash from their bank accounts; we show this in the first column of Panel B of Table VII. Smaller cash withdrawals may reflect lower current spending (as in Table IV) or a plan to spend less in the future. The reduction in the cash withdrawn is driven by maximums and not near maximums (second column of Panel B), and false maximums have a similar impact to that of maximums (third column of Panel B). Analogous results are found for 6-month maximums (columns four through six of Panel B), although false 6-month maximums do not have a significant effect. In Panel C of Table VII we present regressions in which the dependent variable is the log of the number of cash withdrawals and describe results that are similar though somewhat weaker than those for the amount of withdrawals.

The findings in Tables VI and VII show that consumers respond to local unemployment maximum announcements by maintaining higher balances in their bank accounts. They do so by both reducing credit card repayments and by withdrawing less cash. Both of these policies

increase a consumer's short-term financial flexibility, though the credit card repayment strategy comes potentially at a considerable price.

F Consumer Heterogeneity

We demonstrated in Table IV that consumers reduce their discretionary spending in response to announcements of local unemployment maximums. In this section we analyze the heterogeneous responses of different groups of consumers.

F.1 Income Effects

There are conflicting arguments suggesting that high income consumers may be either more or less responsive to announcements of unemployment maximums. On one hand, the consumption of people with higher incomes is likely to be more sensitive to stock market movements, so their consumption may also be more sensitive to unemployment releases which are another form of economic news. It is also probably the case that high income consumers are more frequently exposed to information about the announced local unemployment rate. By contrast, one may argue that unemployment developments are more relevant to lower income consumers, and that they have a higher marginal propensity to consume (Mian, Rao, and Sufi, 2013), so they should respond more to unemployment information. It is also true that for lower income consumers discretionary spending is a smaller fraction of their overall expenditures, so their discretionary component may be more sensitive to negative news.

We test these competing hypotheses by regressing the log of discretionary spending on a triple interaction between an indicator for a local 12-month unemployment maximum, a post-announcement indicator and a consumer-level income characteristic along with the previous set of explanatory variables and controls. This specification, detailed in (2), includes a control for the double interaction between the indicators for a local maximum and the post-period (and the

other relevant double interactions): we are interested in the coefficient on the triple interaction which describes the differential response of consumers with the specified characteristic to the announcement of a local unemployment maximum.

The first characteristic we study is an indicator for consumers with high salaries. We calculate the median average salary for all consumers and describe a consumer as having a high salary if her average salary is above this median. (This characteristic, and all those described below, are time invariant at the consumer-level.) We find, as described in the first column of Panel A of Table VIII, a positive and significant triple interaction for the high salary characteristic (coefficient=0.009 and t-statistic=3.26). This is evidence that high salary consumers respond less to local unemployment maximums. The larger magnitude of the coefficient on the double interaction between a local maximum and the post period (coefficient=-0.022 and t-statistic=-3.80) indicates that high salary consumers do reduce their consumption after a maximum is announced, but they do not reduce it by as much as low salary consumers do. Similar results are shown for 6-month maximums in the fourth column of Panel A.

As a second measure of consumer wealth, we define an indicator for whether the consumer has security trading expenses (expressed as a fraction of total expenditures) that are above median. We find that consumers with high security trading expenses are also less responsive to local 12- and 6-unemployment maximums, as detailed in the second and fifth columns of Panel A. Our third proxy for consumer wealth is an indicator for whether the consumer resides in a zip code with a median house value in the 2010 census that is above the median in the sample. We find that consumers residing in high value neighborhoods do not respond differently after 12-month maximums but display a significantly smaller response after 6-month maximums (columns three and six of Panel A).

The results in Panel A provide clear evidence that high income consumers reduce their discretionary spending after local unemployment maximums less aggressively than do low income

consumers. This may be driven by the salience of unemployment news for low income consumers or their higher marginal propensity to consume (especially for discretionary spending).

F.2 Expenditures as a Fraction of All Spending

We provide additional evidence on how a consumer's response to unemployment news is affected by the fraction of her spending that is fixed versus discretionary by considering high utility expenditure consumers who are defined to be those for whom utility expenses as a fraction of total expenditures are above the overall median. We demonstrate in the first column of Panel B of Table VIII that high utility expenditure consumers respond more strongly to local 12-month unemployment maximums (triple interaction coefficient=-0.008 and t-statistic=-3.61). Consumers with high telephone spending and high gas spending (in both cases relative to overall expenditures) also cut their discretionary spending more after 12-month maximums, as shown in columns two and three of Panel B. The results displayed in columns four though six of Panel B confirm the same pattern for 6-month maximums. These results are directly consistent with a mechanism under which a consumer having a larger fixed component of expenditures must reduce her discretionary spending more quickly after negative news, but they are not in tension with the different argument that unemployment news is more salient for low income consumers

F.3 Behavioral and Risk Characteristics

We have shown that consumers respond to maximum unemployment announcements, even those that are subsequently revised, but not to near maximums, and we have argued that this set of responses may be difficult to rationalize. If that is the case, we may expect consumers more subject to behavioral biases to respond more forcefully to these announcements. We test this hypothesis by defining high education consumers to be those who reside in zip codes that had an average weighted level of education in the 2010 census that is above the median in our sample. These consumers

may be less influenced by behavioral biases (so their response may be muted) but they may also be more likely to learn of local unemployment releases (which would suggest a greater response). We show in the first column of Panel C of Table VIII that high education consumers respond less to 12-month unemployment maximum announcements than lower education consumers. This is consistent with the argument that high education consumers are less influenced by the behavioral considerations but it may also reflect the fact that high education consumers are likely to be high income consumers, and we show above that the latter group responds less to these announcements.

As a second proxy for behavioral biases, we define high-service-charge consumers to be those with above-median bank service charges as a fraction of their total expenditures. A consumer who spends a large amount on these fees, relatively to her income, may make other less-than-optimal financial decisions as well. In the second column of Panel C we show that high-service-charge consumers do indeed react more strongly to unemployment maximum announcements.

Our third characteristic is a measure of risk aversion. We label as high-insurance consumers those who spend an above-median fraction of their total expenditures on insurance. These consumers may be particularly concerned about any negative news and may therefore respond more vigorously to a 12-month unemployment maximum. We show in the third column of Panel C that this is indeed the case: consumers who spend relatively more on insurance reduce their discretionary spending more after a local unemployment maximum announcement (triple interaction coefficient=-0.006 and t-statistic=-2.23). The results for 6-month maximums are analogous, as detailed in columns four through six of Panel C.

The results in Table VIII demonstrate that while high income and high education consumers do respond to local unemployment maximum announcements they do so in a more restrained manner than their lower income and education peers. From a macroeconomic perspective, it is therefore the case that negative news about unemployment should have a larger impact on discretionary spending in lower income regions and neighborhoods. Policy makers who are

interested in mitigating these effects should therefore concentrate their attention on less favored areas.

G Persistence

The results in Tables IV-VIII use an event study methodology to demonstrate the quick response of consumers' discretionary spending to local unemployment announcements. We now consider the question of the persistence of these responses. Does an unemployment maximum depress spending for a couple of weeks only to lead to a subsequent reversal? Or, by contrast, do these announcements have lingering effects that have a negative impact on the spending in future periods?

Addressing these questions requires that we examine medium-term effects of announcements, so we can no longer only study shifts in spending in a short window around a release date. Instead, we regress the log of the current level of discretionary spending on a series of lagged indicators for 12-month maximum announcements along with consumer and year-month fixed effects, as described in equation (3). We measure current spending in the two week pre-period before an announcement. This allows us to avoid any impact of a contemporaneous release and provides a lapse of roughly two weeks from the previous announcement, which should enable us to identify the medium-term announcement impact. We include a fixed effect for the previous unemployment rate that was announced as we are focusing on the impact of maximum announcements rather than on the effect of a high level of unemployment.

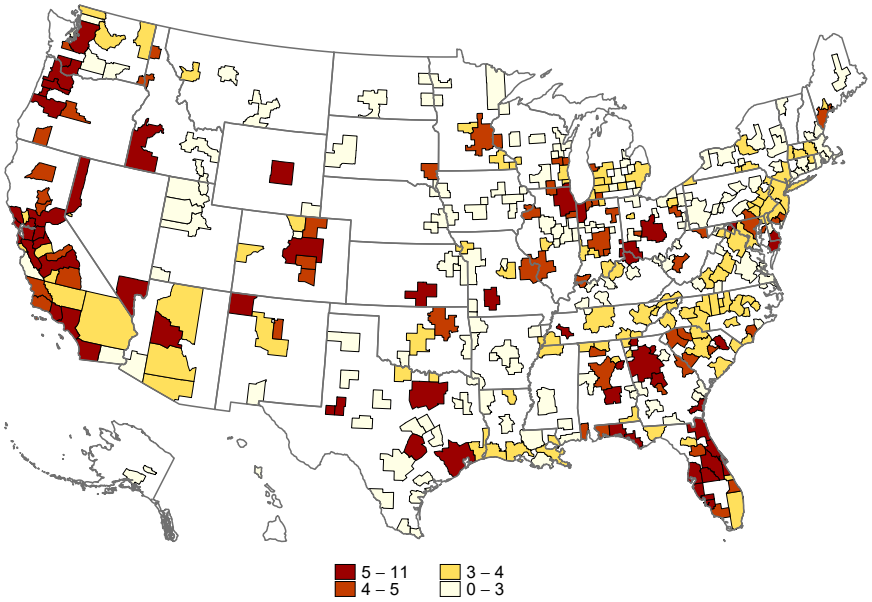
We find that the lagged 12-month maximum announcement has an insignificant effect on current spending (coefficient=-0.7% and t-statistic=-1.21), as presented in the first column of Panel A of Table IX. In columns two through sixth of Panel A of Table IX we show that lagged maximum announcements from two months earlier and, in some specifications, four months earlier have a negative impact on current discretionary spending, with magnitudes ranging from -1.1% to -1.5%.

There is no evidence of a positive response at any horizon. The results for 6-month maximums are presented in Panel B of Table IX. They are similar though somewhat weaker than the findings for 12-month maximums.

There are two main points to be drawn from these regressions. First, a series of worsening unemployment announcements over time can have a large cumulative effect. For example, suppose that unemployment rates increase in a given CBSA over a five month period such that a 12-month maximum was achieved in each of these months. Accounting for the -2.0% announcement effect documented in column one of Table IV and the significant coefficients in column six of Panel A of Table IX, consumers in this CBSA would be predicted to reduce their discretionary spending after the fifth announcement by 4.8 percent. That is a substantial decrease in discretionary consumption spending.

Figure 3 illustrates that sequences of five months or longer of continual 12-month unemployment announcement maximums were widespread across the U.S. in 2009. A five-month sequence of continual 12-month maximums of this form was achieved in 119 of the 373 CBSAs at some point in the ALFRED 2007-2018 data. Five-month maximum sequences were observed in 21 unique CBSAs in 2008, 111 unique CBSAs in 2009, 5 unique CBSAs in 2010 and 1 CBSA in 2015. These events are concentrated in the Southwest and Florida, which were the areas hit hardest by house price declines. This is not surprising, given that house prices are also likely affected by these salient announcements. This may contribute to an upward bias in the estimates of the MPC out of housing wealth in the literature. Second, there is clearly no evidence of later reversals. Consumers respond to unemployment announcements both quickly and in a long-lasting manner.

Figure 3. Longest Monthly Sequences of Continual 12-Month Unemployment Announcement Maximums in 2009



V Conclusion

We find that consumers reduce their discretionary spending by 2% after the announcement of a 12-month local unemployment maximum. Near maximum announcements have no effect on spending, but false maximums that were later revised downward have the same impact as actual maximums. These results suggest that consumers have a strong behavioral response to salient negative macroeconomic news. Announcements of 12-month unemployment maximums also lead consumers to reduce their credit card repayments by 3.6% and to withdraw 1.6% less cash from their bank accounts. The reductions in discretionary spending are strongest for lower income consumers. The decrease in spending is not reversed in subsequent months and, in fact, unemployment maximum announcements persistently reduce future spending at a horizon of two to four months.

The powerful effects of unemployment announcements that we document indicate that

government-provided economic news can have a substantial impact on the economy. A series of negative reports will depress consumption which would clearly have a broad impact on local businesses. This, in turn, raises the spectre of negative feedback effects in which dark unemployment announcements in the current period reduce future discretionary spending which may, in turn, lead to weaker future employment conditions. Anticipating these consequences, policy-makers may choose to accompany the release of negative economic news with other measures or announcements meant to buttress consumer confidence.

Table I
Discretionary Spending Categories

Spending Categories	Vendor Examples
Automotive Expenses	Autozone, Honda, Pep Boys
Cable/Satellite Services	Comcast, DirecTV, Time Warner Cable
Charitable Giving	Compassion International, Feed The Children, Greenpeace
Child/Dependent Expenses	Children's Place, Gymboree, Toys "R" Us
Clothing/Shoes	Kohl's Corporation, Macy's, Nordstrom
Dues and Subscriptions	Consumer Reports, The New York Times, The Wall Street Journal
Electronics	Apple Inc., Best Buy Co., Fry's Electronics
Entertainment	Redbox, Regal Cinemas, StubHub
Gifts	Godiva Chocolatier Inc, Hallmark, ProFlowers
Hobbies	Camping World, Inc., Guitar Center, Hobby Lobby
Home Improvement	Bed Bath & Beyond, Home Depot, Williams And Sonoma
Home Maintenance	Merry Maids, Stanley Steemer International, Inc., Terminix International Company
Online Services	Google Play, Skype, TransUnion
Personal Care	Bath & Body Works, Great Clips, Ulta Salon, Cosmetics & Fragrance
Pets/Pet Care	Petco's, PetSmart, Wag.com
Restaurants/Dining	McDonald's Corporation, Starbucks, Subway
Travel	Delta Air Lines, Hilton Hotels, Southwest Airlines

Table II
Summary Statistics

Panel A provides summary statistics for the main spending categories analyzed in this paper. For every local unemployment announcement, we define the announcement period to run from one day before the announcement to one day after. Spending is measured separately over the subsequent and prior two week periods surrounding each announcement period, and the spending presented below is aggregated at the two-week-period level. *Spending on Jewelry?*, *Spending on Travel?*, and *Initiated a New Loan?* are binary indicators measured over all periods for which discretionary spending data is available. Panel B provides summary statistics for characteristics at the consumer level. *Salary* is measured in every month for which a positive value is available. *Median Home Value* and *Educational Attainment* are census variables measured at the zip code level. *Educational Attainment* is on a scale from one to seven, where one denotes less than 9th grade as the highest level of attainment and seven denotes a graduate or professional degree.

Panel A: Spending by Consumers per Two-Week Periods

	observations	mean	std dev	p10	p50	p90
Discretionary Spending	575995762	329.1	361.3	25.7	192	883.8
Restaurants/Dining expenses	470350912	116.2	107.9	13.9	79.8	287.8
Spending on Jewelry?	575995761	0.003	0.053	0	0	0
Spending on Travel?	575995756	0.033	0.179	0	0	0
Credit Card Repayments	330388229	1129.1	1498.4	50	472	3475.4
Initiated a New Loan?	575995762	0.005	0.072	0	0	0
Cash Withdrawal Amount	252502949	405.3	488.2	40	200	1100
Number of Cash Withdrawals	252521938	2.4	1.7	1	2	5

Panel B: Consumer Characteristics

	observations	mean	std dev	p10	p50	p90
Salary	4900502	4181.21	13908.55	680.5	2856.57	7913.45
Median Home Value	9584888	314155.9	251072	91700	231300	647200
Educational Attainment	9641257	4.51	0.68	3.73	4.42	5.49

Table III
Local Unemployment Announcements and Google Trends Interest

Panel A reports results from regressing Google Trends Interest (defined as the log of one plus the Google Trends score) on dates related to the release dates of the Bureau of Labor Statistics Metropolitan Area Employment and Unemployment reports. Dates are defined over the period Jan. 1, 2004- Dec. 18, 2018. Reported t-statistics in parentheses in Panel A are heteroskedasticity-robust and clustered at the month-year and window levels. Panel B reports results from regressing Google Trends Interest on indicators for whether the last reported unemployment rate for the CBSA was a twelve-month maximum or near a twelve-month maximum (defined as within 0.2 percentage points of a twelve-month maximum but not a twelve-month maximum). Panel C reports analogous results for six-month and near six-month maximums. Panel B and C data are sourced from the ALFRED vintage database provided by the Federal Reserve Bank of St. Louis and cover the period May 30, 2007- Dec. 18, 2018. Panel B and C t-statistics are clustered jointly at the month-year and CBSA levels. The symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Daily National Data

	Trends Interest (1)	Trends Interest (2)	Trends Interest (3)
Release Date	0.028***		
	(3.19)		
Within 3 Days of Release Date		0.037***	
		(4.10)	
Release Week			0.019***
			(4.03)
Month-year FE	Yes	Yes	Yes
Day of week FE	Yes	Yes	Yes
Window FE	Yes	Yes	Yes
N	5,456	5,456	5,456
adj. R^2	0.80	0.80	0.80

Panel B: Daily CBSA-level Data

	Trends Interest (1)	Trends Interest (2)	Trends Interest (3)	Trends Interest (4)
Twelve-Month Maximum	0.078***		0.050**	
	(3.71)		(2.38)	
Near Twelve-Month Maximum		0.014		-0.003
		(0.86)		(-0.17)
Day-Month-year FE	Yes	Yes	Yes	Yes
CBSA FE	Yes	Yes	Yes	Yes
Unemployment Rate FE	No	No	Yes	Yes
N	722,797	722,797	722,797	722,797
adj. R^2	0.34	0.34	0.34	0.34

Panel C: Daily CBSA-level Data

	Trends Interest (1)	Trends Interest (2)	Trends Interest (3)	Trends Interest (4)
Six-Month Maximum	0.055***		0.028**	
	(3.94)		(2.01)	
Near Six-Month Maximum		0.009		0.003
		(0.84)		(0.27)
Day-Month-year FE	Yes	Yes	Yes	Yes
CBSA FE	Yes	Yes	Yes	Yes
Unemployment Rate FE	No	No	Yes	Yes
N	756,649	756,649	756,649	756,649
adj. R^2	0.35	0.35	0.36	0.36

Table IV
Local Unemployment Announcements and Discretionary Spending

This table reports results from regressing the log of discretionary spending on an interaction between an indicator for whether the last reported unemployment rate for the CBSA was a maximum at twelve- or six-month horizons and an indicator for whether discretionary spending is measured over the two week period following the local unemployment announcement period (labeled "Post") and controls. The announcement period runs from one day before the announcement to one day after. Spending is measured separately over the subsequent and prior two week periods (for values of one and zero for Post, respectively). Dates are defined over the period Jan. 1, 2012- Dec. 18, 2018. The controls include near maximums (defined as within 0.2 percentage points of a maximum but not a maximum) interacted with Post, the Post variable, and fixed effects at the consumer-year-month level. False maximums are maximums as of the initial announcement date that were later revised and revealed not to have been maximums. Reported t-statistics in parentheses are heteroskedasticity-robust and double clustered at the CBSA- and period-levels. The symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	12-Month Maximum			**6-Month Maximum**		
	Discret. Spending (1)	Discret. Spending (2)	Discret. Spending (3)	Discret. Spending (4)	Discret. Spending (5)	Discret. Spending (6)
X-Month Maximum * Post	-0.020***	-0.020***		-0.017***	-0.018***	
	(-4.00)	(-4.00)		(-2.99)	(-2.92)	
Near X-Month Maximum * Post		0.002			-0.004	
		(0.40)			(-0.80)	
False X-Month Maximum * Post			-0.022***			-0.012**
			(-3.23)			(-2.44)
Post	0.029***	0.029***	0.029***	0.030***	0.031***	0.029***
	(6.98)	(6.89)	(6.90)	(6.84)	(6.64)	(6.78)
Consumer-month-year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	507,096,536	507,096,536	507,096,536	509,508,796	509,508,796	509,508,796
adj. R^2	0.51	0.51	0.51	0.51	0.51	0.51

Table V
Local Unemployment Announcements and Spending Categories

Panel A reports results from regressing the log of the amount of restaurant spending on an interaction between an indicator for whether the last reported unemployment rate for the CBSA was a maximum at twelve- or six-month horizons and an indicator for whether restaurant spending is measured over the two week period following the local unemployment announcement period (labeled "Post") and controls. Panel B reports the results of analogous regressions in which the dependent variable is an indicator variable for positive spending on jewelry, and Panel C reports the results of analogous regressions in which the dependent variable is an indicator variable for positive spending on travel. The announcement period runs from one day before the announcement to one day after. Spending is measured separately over the subsequent and prior two week periods (for values of one and zero for Post, respectively). Dates are defined over the period Jan. 1, 2012- Dec. 18, 2018. The controls include the Post variable, near maximums (defined as within 0.2 percentage points of a maximum but not a maximum) interacted with Post, and fixed effects at the consumer-year-month level. False maximums are maximums as of the initial announcement date that were later revised and revealed not to have been maximums. Reported t-statistics in parentheses are heteroskedasticity-robust and double clustered at the CBSA- and period-levels. The symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Restaurant Spending

	12-Month Maximum			**6-Month Maximum**		
	(1)	(2)	(3)	(4)	(5)	(6)
X-Month Maximum * Post	-0.015**	-0.015**		-0.013**	-0.013**	
	(-2.41)	(-2.40)		(-2.47)	(-2.44)	
Near X-Month Maximum * Post		-0.003			-0.004	
		(-0.58)			(-0.99)	
False X-Month Maximum * Post			-0.017***			-0.012***
			(-3.31)			(-3.23)
Controls and FE	Yes	Yes	Yes	Yes	Yes	Yes
N	402,233,108	402,233,108	402,233,108	404,122,642	404,122,642	404,122,642
adj. R^2	0.54	0.54	0.54	0.54	0.54	0.54

Panel B: Spending on Jewelry?

	12-Month Maximum			**6-Month Maximum**		
	(1)	(2)	(3)	(4)	(5)	(6)
X-Month Maximum * Post	-0.0002**	-0.0002**		-0.0002**	-0.0002**	
	(-2.57)	(-2.51)		(-2.20)	(-2.08)	
Near X-Month Maximum * Post		0.000			-0.000	
		(0.06)			(-0.49)	
False X-Month Maximum * Post			-0.0002***			-0.0002**
			(-3.35)			(-2.22)
Controls and FE	Yes	Yes	Yes	Yes	Yes	Yes
N	507,096,536	507,096,536	507,096,536	509,508,796	509,508,796	509,508,796
adj. R^2	0.13	0.13	0.13	0.13	0.13	0.13

Panel C: Spending on Travel?

	12-Month Maximum			**6-Month Maximum**		
	(1)	(2)	(3)	(4)	(5)	(6)
X-Month Maximum * Post	-0.001***	-0.001***		-0.001***	-0.001***	
	(-2.73)	(-2.78)		(-3.92)	(-3.88)	
Near X-Month Maximum * Post		-0.001*			-0.000	
		(-1.89)			(-1.16)	
False X-Month Maximum * Post			-0.001***			-0.001***
			(-2.89)			(-3.04)
Controls and FE	Yes	Yes	Yes	Yes	Yes	Yes
N	507,096,524	507,096,524	507,096,524	509,508,784	509,508,784	509,508,784
adj. R^2	0.21	0.21	0.21	0.21	0.21	0.21

Table VI
Local Unemployment Announcements and Financing Transactions

Panel A reports results from regressing the log of credit card repayments on an interaction between an indicator for whether the last reported unemployment rate for the CBSA was a maximum at twelve- or six-month horizons and an indicator for whether credit card repayments are measured over the two week period following the local unemployment announcement period (labeled "Post") and controls. Panel B reports the results of analogous regressions in which the dependent variable is an indicator for whether the consumer initiated a new loan during the period. The announcement period runs from one day before the announcement to one day after. Spending is measured separately over the subsequent and prior two week periods (for values of one and zero for Post, respectively). Dates are defined over the period Jan. 1, 2012- Dec. 18, 2018. The controls include the Post variable, near maximums (defined as within 0.2 percentage points of a maximum but not a maximum) interacted with Post, and fixed effects at the consumer-year-month level. False maximums are maximums as of the initial announcement date that were later revised and revealed not to have been maximums. Reported t-statistics in parentheses are heteroskedasticity-robust and double clustered at the CBSA- and period-levels. The symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Credit Card Repayments

	12-Month Maximum			**6-Month Maximum**		
	(1)	(2)	(3)	(4)	(5)	(6)
X-Month Maximum * Post	-0.036**	-0.035**		-0.034***	-0.034***	
	(-2.41)	(-2.39)		(-3.39)	(-3.37)	
Near X-Month Maximum * Post		0.005			-0.003	
		(0.48)			(-0.54)	
False X-Month Maximum * Post			-0.032*			-0.017**
			(-1.96)			(-2.02)
Controls and FE	Yes	Yes	Yes	Yes	Yes	Yes
N	218,976,110	218,976,110	218,976,110	220,121,552	220,121,552	220,121,552
adj. R^2	0.40	0.40	0.40	0.40	0.40	0.40

Panel B: Initiated a New Loan?

	12-Month Maximum			**6-Month Maximum**		
	(1)	(2)	(3)	(4)	(5)	(6)
X-Month Maximum * Post	-0.001*	-0.001*		-0.001**	-0.001**	
	(-1.94)	(-1.91)		(-2.48)	(-2.47)	
Near X-Month Maximum * Post		0.000			-0.000	
		(0.01)			(-0.75)	
False X-Month Maximum * Post			-0.001**			-0.001***
			(-2.34)			(-2.81)
Controls and FE	Yes	Yes	Yes	Yes	Yes	Yes
N	507,096,536	507,096,536	507,096,536	509,508,796	509,508,796	509,508,796
adj. R^2	0.00	0.00	0.00	0.00	0.00	0.00

Table VII
Local Unemployment Announcements and Cash Withdrawals

Panel A reports results from regressing the log of the amount of cash withdrawn on an interaction between an indicator for whether the last reported unemployment rate for the CBSA was a maximum at twelve- or six-month horizons and an indicator for whether cash withdrawals are measured over the two week period following the local unemployment announcement period (labeled "Post") and controls. Panel B reports the results of analogous regressions in which the dependent variable is the log of the number of cash withdrawals. The announcement period runs from one day before the announcement to one day after. Spending is measured separately over the subsequent and prior two week periods (for values of one and zero for Post, respectively). Dates are defined over the period Jan. 1, 2012- Dec. 18, 2018. The controls include the Post variable, near maximums (defined as within 0.2 percentage points of a maximum but not a maximum) interacted with Post, and fixed effects at the consumer-year-month level. False maximums are maximums as of the initial announcement date that were later revised and revealed not to have been maximums. Reported t-statistics in parentheses are heteroskedasticity-robust and double clustered at the CBSA- and period-levels. The symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Cash Withdrawal Amounts

	12-Month Maximum			**6-Month Maximum**		
	(1)	(2)	(3)	(4)	(5)	(6)
X-Month Maximum * Post	-0.016***	-0.016***		-0.012**	-0.012**	
	(-4.33)	(-4.35)		(-2.15)	(-2.14)	
Near X-Month Maximum * Post		0.007			0.001	
		(0.59)			(0.17)	
False X-Month Maximum * Post			-0.017***			-0.001
			(-2.68)			(-0.14)
Controls and FE	Yes	Yes	Yes	Yes	Yes	Yes
N	175,592,646	175,592,646	175,592,646	176,458,346	176,458,346	176,458,346
adj. R^2	0.52	0.52	0.52	0.52	0.52	0.52

Panel B: Number of Cash Withdrawals

	12-Month Maximum			**6-Month Maximum**		
	(1)	(2)	(3)	(4)	(5)	(6)
X-Month Maximum * Post	-0.010**	-0.010**		-0.010***	-0.010***	
	(-2.02)	(-2.10)		(-3.94)	(-3.78)	
Near X-Month Maximum * Post		-0.005			-0.002	
		(-0.61)			(-0.54)	
False X-Month Maximum * Post			-0.007			-0.005
			(-0.91)			(-1.05)
Controls and FE	Yes	Yes	Yes	Yes	Yes	Yes
N	175,609,966	175,609,966	175,609,966	176,475,670	176,475,670	176,475,670
adj. R^2	0.47	0.47	0.47	0.47	0.47	0.47

Table VIII
Local Unemployment Announcements, Discretionary Spending and Consumer Heterogeneity

This table reports results from regressing the log of discretionary spending on an interaction between an indicator for whether the last reported unemployment rate for the CBSA was a maximum at twelve- or six-month horizons, an indicator for whether discretionary spending is measured over the two week period following the local unemployment announcement period (labeled "Post") and a time-invariant consumer characteristic and controls. The characteristics in Panel A are an indicator for an above-median salary, an indicator for residing in a census zip code with an above-median median home value, and an indicator for above-median security trading expenses. The characteristics in Panel B are an indicator for above-median utilities expenses, above-median telephone expenses, and above-median gas/fuel expenses, where all of these variables are expressed as a fraction of total expenditures. The characteristics in Panel C are an indicator for residing in a census zip code with an above-median weighted average education level, an indicator for above-median debit service charges and an indicator for above-median insurance expenses, where the latter two variables are expressed as a fraction of total expenditures. Dates are defined over the period Jan. 1, 2012- Dec. 18, 2018, and the controls include all the explanatory variables included in specification (1) in Table IV. Reported t-statistics in parentheses are heteroskedasticity-robust and double clustered at the CBSA- and period-levels. The symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Income

	12-Month Maximum			**6-Month Maximum**		
Dependent Variable	Discret. Spending	Discret. Spending	Discret. Spending	Discret. Spending	Discret. Spending	Discret. Spending
Characteristic	High Salary	Trades Securities	High Home Value	High Salary	Trades Securities	High Home Value
	(1)	(2)	(3)	(4)	(5)	(6)
X-Month Maximum * Post * Characteristic	0.009***	0.006**	0.006	0.012***	0.006***	0.012***
	(3.26)	(2.53)	(1.32)	(4.38)	(2.84)	(2.68)
X-Month Maximum * Post	-0.022***	-0.022***	-0.023***	-0.024***	-0.019***	-0.024***
	(-3.80)	(-4.20)	(-3.74)	(-3.96)	(-3.41)	(-4.48)
Controls and FE	Yes	Yes	Yes	Yes	Yes	Yes
N	331,025,026	504,379,164	503,200,458	332,439,358	506,777,410	505,588,110
adj. R^2	0.51	0.51	0.51	0.51	0.51	0.51

Panel B: Expenditures as a fraction of all spending

	12-Month Maximum			**6-Month Maximum**		
Dependent Variable	Discret. Spending	Discret. Spending	Discret. Spending	Discret. Spending	Discret. Spending	Discret. Spending
Characteristic	Util. Expend.	Tel. Expend.	Gas Expen.	Util. Expend.	Tel. Expend.	Gas Expen.
	(1)	(2)	(3)	(4)	(5)	(6)
X-Month Maximum * Post * Characteristic	-0.008***	-0.007**	-0.005**	-0.012***	-0.011***	-0.012***
	(-3.61)	(-2.46)	(-2.05)	(-4.97)	(-4.16)	(-3.79)
X-Month Maximum * Post	-0.016***	-0.016***	-0.018***	-0.011*	-0.012**	-0.012*
	(-2.98)	(-3.30)	(-3.71)	(-1.87)	(-2.03)	(-1.92)
Controls and FE	Yes	Yes	Yes	Yes	Yes	Yes
N	421,702,556	483,744,468	497,174,380	423,653,444	486,039,394	499,562,114
adj. R^2	0.49	0.5	0.51	0.49	0.5	0.51

Panel C: Personal Characteristics

	12-Month Maximum			**6-Month Maximum**		
Dependent Variable	Discret. Spending	Discret. Spending	Discret. Spending	Discret. Spending	Discret. Spending	Discret. Spending
Characteristic	High Educ.	High Svc. Chg.	Insur. Expen.	High Educ.	High Svc. Chg.	Insur. Expen.
	(1)	(2)	(3)	(4)	(5)	(6)
X-Month Maximum * Post * Characteristic	0.007***	-0.004*	-0.006**	0.008**	-0.007***	-0.007**
	(2.68)	(-1.96)	(-2.23)	(2.54)	(-3.44)	(-2.09)
X-Month Maximum * Post	-0.023***	-0.018***	-0.016***	-0.022***	-0.014**	-0.014**
	(-4.29)	(-3.54)	(-3.61)	(-3.88)	(-2.30)	(-2.16)
Controls and FE	Yes	Yes	Yes	Yes	Yes	Yes
N	506,041,618	495,709,256	507,096,536	508,446,732	498,079,022	509,508,796
adj. R^2	0.51	0.51	0.51	0.51	0.51	0.51

Table IX
Local Unemployment Announcements and Discretionary Spending: Persistence

Panel A reports results from regressing the log of discretionary spending in the two weeks prior to a local unemployment announcement on indicators for whether the lagged reported unemployment rates for the CBSA at various specified horizons were at maximums at twelve-month horizons when announced. Controls include fixed effects for each consumer, the year-month and the last unemployment rate that was announced. Panel B reports the results from analogous regressions using 6-month maximums. Reported t-statistics in parentheses are heteroskedasticity-robust and double clustered at the CBSA- and period-levels. The symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Twelve-Month Maximum

Dependent Variable	Discret. Spending (1)	Discret. Spending (2)	Discret. Spending (3)	Discret. Spending (4)	Discret. Spending (5)	Discret. Spending (6)
12-Month Maximum$_{t-1}$	-0.007	-0.007	-0.007	-0.007	-0.007	-0.007
	(-1.21)	(-1.06)	(-0.97)	(-1.03)	(-1.01)	(-0.98)
12-Month Maximum$_{t-2}$		-0.011**	-0.011***	-0.012***	-0.013***	-0.013***
		(-2.51)	(-2.67)	(-3.36)	(-3.49)	(-3.45)
12-Month Maximum$_{t-3}$			-0.008	-0.007	-0.007	-0.008
			(-1.62)	(-1.42)	(-1.36)	(-1.54)
12-Month Maximum$_{t-4}$				-0.013	-0.013*	-0.015*
				(-1.62)	(-1.68)	(-1.84)
12-Month Maximum$_{t-5}$					-0.004	-0.003
					(-0.56)	(-0.51)
12-Month Maximum$_{t-6}$						-0.009
						(-1.33)
Month, Consumer, Unemp. Rate FE	Yes	Yes	Yes	Yes	Yes	Yes
N	261,649,502	240,364,925	221,206,479	203,522,632	187,229,807	172,260,292
adj. R^2	0.41	0.42	0.42	0.42	0.43	0.43

Panel B: Six-Month Maximum

Dependent Variable	Discret. Spending (1)	Discret. Spending (2)	Discret. Spending (3)	Discret. Spending (4)	Discret. Spending (5)	Discret. Spending (6)
6-Month Maximum$_{t-1}$	-0.003	-0.002	-0.003	-0.003	-0.002	-0.000
	(-0.97)	(-0.59)	(-0.92)	(-0.90)	(-0.52)	(-0.04)
6-Month Maximum$_{t-2}$		-0.005**	-0.004**	-0.005**	-0.006**	-0.005*
		(-2.22)	(-2.08)	(-2.23)	(-2.40)	(-1.99)
6-Month Maximum$_{t-3}$			-0.004	-0.003	-0.002	-0.002
			(-1.39)	(-1.00)	(-0.91)	(-0.93)
6-Month Maximum$_{t-4}$				-0.005	-0.004	-0.005
				(-1.54)	(-1.31)	(-1.56)
6-Month Maximum$_{t-5}$					-0.005**	-0.004**
					(-2.60)	(-2.37)
6-Month Maximum$_{t-6}$						-0.002
						(-0.61)
Month, Consumer, Unemp. Rate FE	Yes	Yes	Yes	Yes	Yes	Yes
N	262,640,384	241,157,741	221,786,411	203,875,813	187,416,723	172,422,097
adj. R^2	0.41	0.42	0.42	0.42	0.43	0.43

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