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Inside the Shopping Brain

The difference between the door-buster price and the current one activates 'what if' neurons.

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If the holiday shopping season turns out to be as grim as many forecasters are warning, among the reasons will be a little brain region called the insula. Maxed-out consumers have been heeding the advice to take scissors to their credit cards, since paying with cash controls the eventual cost of a purchase (carrying a credit-card balance can double an item's original price) and limits impulse buys (most of us have less cash on hand than we do a credit limit, so if we have to count out greenbacks for Juicy Couture, we'll pass it up). But there's another, more fundamental reason why we buy less when we pay with cash. When you hand over a stack of 20s, you have less of something tangible: your billfold is lighter. That causes a brain region that registers negative feelings (bad smells, unfairness, social ostracism) to become more active than when you charge a purchase. Humans have evolved to pay attention to the messages the insula sends, with the result that it hurts to pay cash. There is no such feeling of loss when you pay with plastic, so the insula doesn't react. Credit cards anesthetize the otherwise painful act of paying.

With the United States entering the second year of a recession, and with stock markets moving more in one day than they did in two years in saner times, it's time to check in with behavioral economists, whose research on financial decision making starts from the observation that those decisions are often emotional rather than rational (cf. credit-card balances). The power of credit cards to numb consumers to the pain of parting with money is one of the more robust findings, and even scientists have been surprised at the magnitude of the effect. In one experiment, researchers at MIT had people submit sealed bids for a pair of

Boston Celtics tickets. Half of the participants were told they could pay with a credit card, half were told it was cash only. The average bid for people expecting to charge the tickets was twice as high as for cold, hard dollars, as neuroscientist Jonah Lehrer relates in his fascinating upcoming book, "How We Decide."

The brain has distinct circuits for registering that you want something and for recoiling at the price. When a price seems too high, as more and more bargain-crazed consumers are concluding about more and more products, the region that anticipates loss and registers disgust—the insula again—turns on, telling you to move away from the overpriced laptop. With consumers demanding bargains, that activity overwhelms the brain's pleasure-anticipating center, called the nuclear accumbens, which turns on when you see something desirable. The relative power of the insula and the nuclear accumbens determines whether you buy or not. That, in turn, reflects people's temperaments and habits—self-indulgence, compulsive shopping, self-denial and the like—as well as the messages they get from the environment. In normal times the power of the feel-good center can cause people to shop irrationally, buying not only what they need or want in a practical sense but also in an emotional one. When people feel blue, for instance, they tend to both overshop and—speaking of emotional, irrational behavior—overpay, by as much as 300 percent compared to when they are not depressed, as scientists led by behavioral economist Jennifer Lerner of Harvard reported this year. What she calls the "misery is not miserly" effect arises because sadness makes people think less of themselves; they try to buttress their self-image by acquiring stuff ("I deserve it") and are willing to pay more because making the self whole again is worth every penny. For some people that is still the case—luxury purchases have not dried up completely—but after consumers' years-long spending spree, buying stuff has lost much of its power to soothe.

Behavioral economists aren't surprised that Black Friday was a stellar day for retail sales while the rest of the weekend, to say nothing of last week, was much quieter. The explanation lies in the brain's talent for "what if" learning: that is, comparing what did occur to what might have occurred. In one experiment showing this, neuroeconomist Read Montague of the Baylor College of Medicine and colleagues gave people \$100 to play 20 historical stock-market indexes, such as Hong Kong's Hang Seng from Sept. 11, 1992, to

Dec. 30, 1994, when it rose 36 percent. For 20 rounds, each person chose to invest some or all of his \$100, and then saw what the market did over the next few weeks. As brain imaging showed, a specific region took notice when someone made a small bet on a soaring market, calculating what the player could have earned if he had invested more—what if. There are actually specialized neurons in the ventral caudate (near the center of the brain) that calculate the difference between the possible return and the actual return; when the latter falls short of the former, they drive the brain to make a different decision at the next opportunity. The result is that, in rising financial markets, people invest more and more so as not to miss out on gains, producing a bubble; in falling markets they bail. Presto, the huge swings of today's stock market. But back to shopping: these neurons also compare Black Friday prices to current ones, and say "no way." The difference between what you could have paid and what the store is now asking sends the medial prefrontal into overdrive and you out the door, empty-handed.