

Paying taxes, according to the brain, can bring satisfaction

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Want to light up the pleasure center in your brain? Just pay your taxes, and then give a little extra voluntarily to your local food bank. University of Oregon scientists have found that doing those deeds can give you the same sort of satisfaction you derive from feeding your own hunger pangs.

A three-member team – a cognitive psychologist and two economists – published its results in the June 15 issue of the journal *Science*. The scientists gave 19 women participants \$100 and then scanned their brains with functional magnetic resonance imaging (fMRI) as they watched their money go to the food bank through mandatory taxation, and as they made choices about whether to give more money voluntarily or keep it for themselves.

The participants lay on their backs in the fMRI scanner for an hour-long session and viewed the financial transfers on a computer screen. The scanner used a super-cooled magnet, carefully tuned radio waves and powerful computers to calculate what parts of the brain were active as subjects saw their money go to the food bank and made yes or no decisions on additional giving.

Researchers found that two evolutionarily ancient regions deep in the brain – the caudate nucleus and the nucleus accumbens – fired when subjects saw the charity get the money. The activation was even larger when people gave the money voluntarily, instead of just paying it as taxes. These brain regions are the same ones that fire when basic needs

such as food and pleasures (sweets or social contact) are satisfied.

“The surprising element for us was that in a situation in which your money is simply given to others – where you do not have a free choice – you still get reward-center activity,” said Ulrich Mayr, a professor of psychology. “I don’t think that most economists would have suspected that. It reinforces the idea that there is true altruism – where it’s all about how well the common good is doing. I’ve heard people claim that they don’t mind paying taxes, if it’s for a good cause – and here we showed that you can actually see this going on inside the brain, and even measure it.

The study gives economists a novel look inside the brain during taxation, said co-author William T. Harbaugh, a UO professor of economics and member of the National Bureau of Economic Research in Cambridge, Mass. “To economists, the surprising thing about this paper is that we actually see people getting rewards as they give up money,” he said. “Neural firing in this fundamental, primitive part of the brain is larger when your money goes to a non-profit charity to help other people.” “On top of that,” Harbaugh added, “people experience more brain activation when they give voluntarily – even though everything here is anonymous. That’s a very surprising result – and, to me, an optimistic one.”

However, this latter finding, which offers confirmation to the economic theory of “warm-glow” giving, doesn’t necessarily mean that taxes should be lowered and charity relied on more heavily, Harbaugh said. In a voluntary environment, he added, lots of people free-ride and donations fall.

The study, Mayr said, reflects the balancing act that every society must face. “What this shows to someone who designs tax policy is that taxes aren’t all bad,” he said. “Paying taxes can make citizens happy. People

are, to varying degrees, pure altruists. On top of that they like that warm glow they get from charitable giving. Until now we couldn't trace that in the brain."

Neural activation from mandatory taxation, the researchers said, helps predict who will give. "We could call the people whose brains light up more when money goes to charity than to themselves altruists," Mayr said. "The others are egoists. Based on what we saw in the experiments, we can use this classification to predict how much people are willing to give when the choice is theirs."

There remain a lot of unanswered questions, Harbaugh said. "We show that people liked paying a tax that went to a food bank. But suppose the tax had been unfair. What then" Or suppose that people voted to make other people pay the tax, too" That would help other people even more, so would the voter get a bigger neural reward?"

Harbaugh, Mayr and co-author Dan Burghart, an economics graduate student, say they are not worried about the possibility that governments could use their method to monitor tax evasion, or charities could use it to figure out whom to ask for money. "To do this, we needed a \$3 million scanner, some liquid helium and a few weeks of computer time," Harbaugh said.

"If a participant moved her head," Burghart added, "we had to start all over. It will be a while before this is built into cell phones."

Source: University of Oregon

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