Neurocomputational evidence that conflicting motives govern our sense of fairness

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The perception that resources are unfairly distributed is at the root of

many social conflicts. Researchers at the University of Zurich have investigated the motives influencing our perception of justice in resource distribution. They found that although people feel an aversion to inequality, they are also reluctant to harm others and to upend existing social hierarchies.

Is it fair to create economic equality if it means some people experience a drop in social status and are significantly worse off than before? Distributive justice is the subject of much political and social debate. Research shows that two conflicting motives play a particularly important role in the assessment of distributive justice: inequality aversion and the reluctance to harm others.

Brain activity measured during redistribution experiment

To understand how these motives interact with each other, a team including neuroeconomists Jie Hu and Christian Ruff at the University of Zurich used functional magnetic resonance tomography (fMRT) to study the brain activity of test participants during a redistribution task.

The participants were presented with a scenario in which two people had unequal amounts of money, and they could choose various options to reduce the inequality. The researchers observed which of the options were chosen for different initial distributions, and monitored whether the regions of the brain showing activity corresponded with the motive which, according to theoretical models, should guide the selection.

Reduce inequality but maintain hierarchy

The participants were generally more willing to make others financially worse off if this reduced inequality—in particular if the initial inequality was substantial. However, there seemed to be a limit: a redistribution

that made the initially advantaged person worse off than the other was not chosen, even if this would lead to more equality overall.

"Apparently, this kind of status reversal is perceived as a particularly severe case of harm," says Jie Hu, lead author of the study.

Inequality and harm activate different brain regions

Brain activity measurements during the redistribution tasks showed that inequality considerations were related to activity in the brain's striatum area. In contrast, considerations about the harm of a given distribution were linked to activity in the dorsomedial prefrontal cortex. In participants who were particularly reluctant to harm others with their decisions, the fluctuations in activity in the two brain regions were more closely coordinated.

"It may be that the regions activated by harm considerations influence or weaken inequality-related activity in the striatum," explains co-author Christian Ruff, "but this needs to be confirmed in further studies."

Understanding how different motives influence our preferences and behavior is central to the discussion on redistribution. Jie Hu gives an example of the relevance of such studies: "One implication could be that higher taxation of the super-rich may be more easily accepted in a very unequal society than in an egalitarian one, because in the former case it doesn't affect the status hierarchy."

The study is published in the journal *Proceedings of the National Academy of Sciences*.

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