CHIMPANZEE POLITICS AND CLIMATE CHANGE

The animal kingdom can teach us important lessons about ourselves and increase cooperation to fight climate change

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Human beings share 98 percent of their genes with chimpanzees. Yet humans are the dominant species on the planet—founding civilizations, developing languages, learning science, and creating wonderful works of art. American author Jared Diamond argues that the 2 percent difference propels humanity's success, but also its potential for disaster—with civilizations caught up in internal superiority contests that risk destroying their environment and themselves.

Dutch primatologist and ethnologist Frans De Waal coined the term "chimpanzee politics" when he compared the schmoozing and scheming of chimpanzees involved in power struggles with that of human politicians. Have we really evolved enough to escape "chimpanzee politics" and confront the greatest risk our species has faced?

The answer may predict the future of the planet and may have lessons for the global effort to stop climate change, pandemics, and nuclear threats. In particular, humans have faced significant challenges achieving the degree of cooperation needed to fight climate change—in part because of the public good nature of climate change mitigation. Even if humans have not evolved enough, as seems likely, better economic and financial institutions could help overcome the limits of cooperation and confront climate change and other major challenges.

Correlated payoffs

The design of economic institutions and financial markets should take into account the kind of animal we are, which can help overcome some of the impediments to cooperation. Frans De Waal put it, "Are we a social animal or a selfish animal? Do we respond better when we're solitary or living in a group? …You should know as much as you can about the human species if you have a hand in

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designing human society." This is particularly relevant to cooperation in the face of climate change.

Cooperative behavior can be favored by natural selection if the survival benefits of actor and receiver are positively correlated. The two main ways in which this *correlation of payoffs* can come about are kinship (when partners share genes by common descent) and *reciprocity* (when current costs account for the expectation of future benefits).

A growing body of evidence shows that cooperation in animal societies most frequently involves kin (such as the case of two cheetah siblings forming hunting bonds, Figure 1a). Nonkin often cooperate when one or both partners seem likely to gain immediate benefits (for example, two chimpanzees grooming each other, Figure 1b, or remoras hitching a ride on sea turtles, Figure 1c).

In some cases, cooperation between animals can even appear altruistic. Although choosing not to help is typically in an individual's greatest short-term self-interest, it could mean failure to receive reciprocal help from others in the future. This motivates altruistic behavior when individuals interact repeatedly (a troop of baboons, Figure 1d).

Cognitive constraints limit the ability of many nonhuman species to implement and maintain reciprocally altruistic strategies. Our brains, by contrast, have evolved sufficiently to overcome such cognitive constraints and enter into complex economic and financial trades and elaborate cooperative outcomes. Reciprocal exchanges of resources between nonkin are widespread among humans and often involve considerable time delays between assistance given and received, and extensive opportunities for cheating. In economics, we simply call that "intertemporal trade" (not "altruism").

When it comes to the global fight against climate change, however, at least four factors hinder cooperation by our species. Since fighting climate change requires cooperation on a truly global scale (between countries at opposite poles of the planet and between current and future generations), the *presence of multiple nonkin* actors is a significant hurdle. The *long time lags between cooperative acts* also make it hard for individuals to imagine the potential for reciprocity. *Geographic inequality* lowers mutual benefits from cooperation. And finally, there are *evolutionary limits to our imagination*, such as our inability to understand the diversity of belief systems or comprehend the extent of the climate threat.

Overcoming chimpanzee politics

Good economic institutions and well-designed markets may help break free from the constraints that prevent human cooperation—including by identifying and maximizing correlated payoffs. In this view, the role of economic and financial institutions can be to imagine and design novel ways humans can enter into mutual obligations to cooperate and promote the greater good. Seven insights from evolutionary biology could inform the design of economic institutions and financial markets. The first four pertain to mitigation, the next two to adaptation, and the last to monitoring of key climate risks.

Good economic institutions and well-designed markets may help break free from the constraints that prevent human cooperation.

- **Greater global integration of economic and financial markets will lead to greater cooperative action on climate change.** Among wild chimpanzees, social bonds are a key predictor of cooperative resource sharing. A chimpanzee is much more likely to share food with a long-standing grooming partner than with others. Similarly, among humans, economic interdependence between two countries reduces the risk of warfare. As Montesquieu said in 1748, "The natural effect of commerce is to bring peace. Two nations that negotiate between themselves become reciprocally dependent." This is because trading alliances create financial incentives not only to keep peace with trading partners, but also to protect them from being attacked so as not to disrupt trade. From this perspective, greater global integration in trade could help avoid conflict and foster cooperation—including on climate change.
- **Smaller actors need to be held accountable and act on climate change.** As we learn from the animal kingdom, incentives to cheat are strong when the system of punishment for noncooperative behavior is weak. In the fight against climate change, there are few tools available to the international community to ensure countries stick to their international climate pledges. Work must continue to strengthen the international rule of law, but a parallel solution could be


FIGURE 1a


FIGURE 1b

Cooperation in animals: Cheetah brothers after a hunt in Maasai Mara, Kenya (Fig. 1a); Non-kin chimpanzees grooming in Kibale Forest, Uganda (Fig. 1b).

decentralization of the problem by encouraging subnational governments and corporations to make climate and environmental pledges too. Decentralization leverages the system of accountability inherent in smaller communities of stakeholders. Many private companies, for instance, have promised to go carbon-neutral in response to pressure from customers, shareholders, and other stakeholders, even when the countries where they operate have not.

- **Give weight to future generations in every cost-benefit exercise.** Nonhuman animals discount future rewards much more than human beings do. But humans who lack understanding of issues also tend to heavily discount the future. In particular, the long lag between a climate mitigation decision and the impacts of that decision may hinder optimal investment in climate change mitigation: it makes the impacts less salient. One way to offset this lack of understanding is to place weight explicitly on the utility for future generations in every cost-benefit analysis underpinning government, corporate, or private actions. Several countries, such as Bhutan, do this already as part of their policy frameworks. This approach could be adopted for a broader set of issues—including by encouraging greater representation of younger people in political life and by building policy institutions that focus on long-term issues, such as intergenerational inequality (that lasts beyond the electoral cycle).
- **Innovation cooperation may be easier to achieve than cooperation on other climate-related issues.** The experience of COVID-19 demonstrates that global innovation can be scaled up significantly when needed—including through unprecedented collaboration across multiple actors from around the world. Before COVID-19, the fastest vaccine development took four years (for mumps). Yet by the end of 2020 several COVID-19 vaccines had proved highly effective, reflecting massive research and development. However, it is taking far longer for the world to cooperate to produce and distribute vaccines equitably. And although the case for higher carbon taxes to fight climate change is persuasive, it has proved politically difficult to implement in many countries. At the same time, the recent shift toward renewable energy is largely because of rapid technological advances that have driven down the cost of renewable energy. If our species' ability to cooperate and tackle climate change has evolved slower than our capacity to harm the planet, then we may need to make it easier for self-regarding humans to make climate-friendly choices by accelerating clean energy innovation. This would increase the private benefit of switching to cleaner energy absent strong public action.
- **A centralized global market to hedge climate risks is needed to maximize risk sharing and promote cross-country cooperation.** Despite our best efforts to mitigate climate change, it is very likely there will be residual risk requiring adaptation measures. One way to adapt is to share risk to limit the harm to individual actors. Food sharing between chimpanzees works well when there is idiosyncratic risk (there may be enough food for the whole group regardless of

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FIGURE 1c


FIGURE 1d

Two remoras hitching a ride on a sea turtle, Honduras (Fig. 1c); Baboon sharing stolen maize in Kakamega Forest (Fig. 1d).

which chimpanzee has been successful in the hunt on any given day). Similarly, insurance markets among humans work well in hedging idiosyncratic risks such as car accidents, health shocks, and mortality. However, when a risk is correlated among actors (such as property in danger from natural disasters), it can appear to be "aggregate risk" and can be insured only by a global market. From this perspective, a successful market to share climate risks would benefit from a single global platform, which maximizes coincidence of needs. It is important for the centralized global platform to bring together entities from different parts of the world that will experience the impact of climate change differently or at different times (in a less correlated way).

- **Action on climate risk sharing is needed now—before the uncertainty about cross-country distribution of climate change impact is resolved.** Vampire bats need to feed often to survive; if one misses a feeding three nights in a row, it could starve to death. To cope with this risk, they have developed a system of trade, with well-fed bats regurgitating blood directly into the mouths of hungry and unrelated peers. Moreover, the bats keep track of who has helped them in the past and share primarily with those bats. It is the uncertainty about whether a bat may go hungry tomorrow that incentivizes it to share with other bats today. Similarly, for markets to play a greater role in hedging the biggest climate change risks, they must act before uncertainty about the cross-country impact of climate change is resolved. After the risk has materialized, the problem becomes burden sharing not risk sharing. That is, if it becomes clearer that relatively poor countries (for example, those in the tropics) will suffer most from climate change in the future there may be few incentives for richer countries to enter into risk-sharing agreements with them.
- **Invest in information and imagination.** Markets are not likely to take action to share risks if people have limited information about what the risks are. In India, for example, a large proportion of the population lives in areas where average annual pollution levels as measured by PM2.5—particles smaller than approximately 2.5 microns—are several times higher than the level considered safe by the World Health Organization. Yet most of these people are not aware of these risks, as India has too few continuous air monitoring stations. Similarly, if socioeconomic feedback loops are better understood (for instance, the potential impact of climate refugees coming to high-income countries), the problem of climate change leading to flooding of low-lying areas in the tropics may be seen as more of a global problem. Therefore, greater environmental disclosures in better information and imagination to study feedback loops that may occur far in the future can help make the problem of global climate change more compelling to key actors and spur action today. After all, it might be our ability to imagine and our urge to connect with others that truly separates us from other species. FD

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