

Interrogating carbon inequalities

An interview with Lucas Chancel

My first question is about the scholarly foundations of your work, the methodological as well as theoretical strands that have been influential.

It all started with some frustration when I was an undergraduate studying economics. I thought that some of the models that were presented to me sounded really abstract. So if I wanted to do modeling, then better do some thermodynamics. And so I felt – and this is also discussed in the work of economic historian Philip Mirowski – that economists were somehow fascinated by physicists, but that didn't allow them so much to look at what was actually happening in the real social world and how to integrate climate into the economic system. It was kind of a paradox that you had an economic science that was borrowing from physics but was actually forgetting about actual physics itself. I was quite lucky that, as I became interested in the nexus between emissions and inequality, economics was changing. There was this big renewal, looking more at the data itself – that's the work of Atkinson and Piketty, and in another domain, the work of Duflo and Banerjee, with this push towards more empirical work.

In terms of ecological economics, the work of Jim Boyce and his 1994 article on pollution as power dynamics have been very influential. Pollution exists because there are losers and there are winners from

pollution. If there is no winner, then it's a trivial issue. It's easily stopped. But if there is no loser, then we cannot talk about pollution. Losers can be humans. They can also be non-humans. But for pollution to be qualified as pollution, there must be a loser. So it is a power relation. Basically, it is an inequality issue. Boyce has been influential in the ecological economics sphere as well as others. Juan Martínez, for instance, or Bina Agarwal, they've also been influential. And I've learned a lot from these studies.

What is your thinking about the relationship between economic inequalities and environmental ecological problems? Do you think that socioeconomic inequalities, which come out of a particular way capitalism works, are constitutive for the ecological crisis, or is it rather that they are sort of exacerbating it? Could you imagine a much more equal society where you had the same kinds of ecological problems? Or could we have a climate-neutral world that is extremely unequal?

I think that pollution is a power relation. And so if pollution exists, it is largely because some people are benefiting from pollution, and those who are losing from it are not able to organize themselves enough, don't have enough power to impose a ban or a stop on pollution. So there's an inequality dimension at the core of it. Now, what's also very clear is that environmental problems are exacerbating inequalities that already exist in societies even without considering any environmental harm. So there are socioeconomic inequalities which make it possible for pollution to happen. And pollution is further exacerbating this.

Lucas Chancel is an Associate Professor of Economics at Sciences Po, Paris. He is also Co-Director of the World Inequality Lab at the Paris School of Economics. In 2020, he published *Unsustainable inequalities: social justice and the environment* (Harvard UP). He is the world leading scholar on carbon inequalities and regularly contributes to the World Inequality Report. lucas.chancel@sciencespo.fr

Does a transition to a more ecological world automatically lead to a strong reduction of inequality? I don't think so. I think it's possible to perceive a plausible scenario in which you have a world of reduced material consumption but still with high political or economic inequalities. You have less pollution, but you still have very high inequalities, which sometimes goes against the kind of narrative that we hear in some public discourse suggest that protecting the environment necessarily goes with reducing inequality. In fact, if we look at what's happening in China right now, we see huge political inequalities, but potentially there's a plausible scenario in which they will crack

their CO₂ emissions. More generally, a deterministic perspective on history is not something I feel at ease with. I actually see a huge diversity of inequality and energy trajectories of countries over the past 200 years. It will also be the case in the future.

That makes a lot of sense. Let's turn to emission inequalities. With your paper with Thomas Piketty and your other work, you've helped to establish this research field. Could you explain to readers without much prior knowledge how calculations of unequal carbon footprints are actually done?

If the question is how much CO₂ is associated with individual consumption and the objective is to try to see how CO₂ emissions are distributed across consumers in society, the best approach is basically to ask everybody exactly how much they consume. And then at the level of each product, we reconstruct the CO₂ emissions of each product, and we finally come up with per capita CO₂ emissions of all these consumers. These studies can be done through household surveys. There are quite a few studies on that from the mid-2000s onwards, which make it possible to identify some regularities. The regularities will be that there is on average an increase of overall CO₂ emissions embedded in consumption according to income or consumption level. But this increase is not proportional to income or consumption. There is an elasticity parameter between the two dimensions, which is lower than one but higher than zero. In many countries we observe that it's often around 0.6, 0.7 when you look at how CO₂ emissions increase with income. With input-output models, again starting in the mid-2000s, we can link emissions emitted in different sectors and in different countries to this final consumption. That's the general idea of input-output modeling, which is based on the work of Wassily Leontief. In the 1970s he developed a great multi-sector, multi-country approach to accounting with input-output models. And then he extended this to environmental issues.

If we combine surveys, input-output models, and some regularities we observe in terms of income elasticities of emissions, then we can start to understand the global level. And that's the basis of the 2015 paper with Piketty. What this work shows with historical data is a compression of between-country inequalities of emissions. And at the same time, there is increasing within-country inequalities. What does this mean? In 1990, the main challenge for establishing greater global climate equity was to address relationships between countries. So you needed conferences of parties under the UNFCCC convention. Countries got together, they discussed the unequal responsibilities of the Global North and the Global South. Now

the complexity is that we need to have this discussion within countries.

I'm particularly intrigued by your new work on ownership-related inequalities in emissions. Can you tell our readers about this new work?

In my recent research, I have started to become critical of the consumer perspective. The carbon footprint concept itself is actually largely pushed forward in the public domain and also in the research domain by British Petroleum (BP). In fact, in the early 2000s they ran an ad campaign that promoted this concept of a personal carbon footprint. And we immediately see why. The idea is to say, okay, you as a consumer are responsible for these emissions. So I think there's an interest in looking at how consumption is associated with emissions, what inequalities there are. But let's also be careful not to get carried away by this single approach. There are other ways to think about carbon inequalities and there are other ways to think about responsibilities for climate change. Maybe some of us might also be owners or partial owners or managers of firms. And probably as owners, managers, partial owners, we might have some traction, some agency in relation to these emissions that consumers do not have. In the paper with my coauthor Yannic Rehm, we take some time to discuss this notion of emission responsibility, which is quite tricky. It's challenging. What we're arguing is that we should not only rely on consumption-based emissions because that means forgetting about economic structures. We're completely forgetting about power dynamics and about capitalism itself. But at the same time, can we say that these ownership emissions really represent the pure responsibility of individuals? Well, maybe not entirely either. But at least having this broader perspective, not just of the consumer but also of the owner, I think is closer to the reality of what responsibility is, which probably lies somewhere between the two, but definitely not just with the consumer. This whole reflection on responsibility is a task with which sociology can really help.

In the abovementioned paper, you state that the top 1% share of total emissions in a given country, following a consumption-based approach, stands at 2.5% in France, 2% in Germany, and 6.2% in the United States. However, if you calculate footprints on an ownership basis, the percentages are 21.5% for France, 22.3% for Germany, and 26.9% for the US. So the inequalities seem quite extreme. The shares of the 1% of total emissions of the respective countries approach a quarter of the country's total "ownership" of emis-

sions. Moreover, emission intensities rise with wealth, which contrasts with consumption. How do you make sense of this?

What's clear is that as soon as we adopt the ownership perspective, we end up with very stark levels of concentration which might be more closely related to emission responsibilities. We also see that emission intensities rise because of the different asset composition per wealth group. The top 0.1% is going to own fewer life insurance products and more shares and more directly owned businesses. And what we also find is that these categories of assets have a higher carbon intensity than deposits, than life insurance, for instance, which is going to be owned more in the middle and the upper middle.

Why is all this important? Because we might end up in a world in which some regions are basically doing the job of the transition. But if these regions actually have a lot of financial firepower, they still own capital. And in fact, very wealthy individuals in these regions own stuff in the rest of the world that is not playing the game, that is still very polluting.

You also work on inequalities that occur when climate change actually materializes, as we observe more and more around the globe. You describe these in the 2023 Global Climate Inequalities Report and also in your book *Unsustainable Inequalities*. What mechanisms are behind these inequalities?

We see that, depending on where different socioeconomic groups live, exposure inequalities are relatively high, but they are not completely systematic. Poor people, for instance, are being more exposed to floods because they live in areas that are more prone to flooding, or they already live in areas that are much drier and hotter. So an extra decimal point of a degree will do more harm in these places. But again, this is not entirely systematic. We've seen this in Europe with floods recently that affected not just poor people but also the middle classes, the upper middle class, or perhaps even rich individuals.

Now, when it comes to how resilient you are, this is basically another way of saying that when you're poor, you have much fewer resources to adapt. Poor people have fewer resources to protect themselves, perhaps to escape from hazards and recover. These inequalities exist also in rich countries. They exist everywhere.

What about ways of addressing these inequalities?

One way is through private responses. Individuals privately try to solve the issue and those who have more

wealth in general have more power to do so. But you can also think about some private insurances that come in and help poor people to slowly build up some more diversified assets. But I think the other answer is really the socialization story, the story that some do not have wealth or do not have capital, but we can produce new forms of capital: public infrastructure, public services, public information systems that are owned and shared by a political community. This is, I think, the most efficient way to break the cycle of climate impacts, and wealth inequality. Social services and public wealth are a great way to break this vicious cycle that we're just describing here. If we're thinking about public ownership of low-carbon infrastructures and assets, then societies can choose the rules of access to this capital. This also means that there is less potential for further wealth concentration in the future, because if we think about all the investments that need to be made, both on the mitigation side and on the adaptation side, someone will get some rent out of this further down the line. If the transition succeeds, these investments will be extremely economically viable compared with the amount of losses that will be occurring if we do not make these investments. So the question we need to ask ourselves is who will own them? Is it Elon Musk or is it some political, public democratic body?

How do you engage politically with the Just Transition agenda?

It can actually be useful to have one object, and to show that you can move step by step. The other strategy would be to take a much broader, much more critical approach to address more systemic issues. The difficulty here is that, from an analytical perspective, it's much more satisfactory, but it is much harder to show that some progress is possible down the line. So you need to negotiate with these two strategies: progress is actually being made and we need to show what it is, and overall, the system remains profoundly unsustainable and unjust. Both perspectives are needed in my view.

Thank you for these great insights, Lucas.

Note

The interview was conducted by Leon Wansleben on May 7, 2025, and transcribed by Tobias Burgwinkel and Leon Wansleben.