Climate pessimists, adaptation optimists: Evidence on climate beliefs from a representative sample of Bangladeshis

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- A representative sample of 5,814 rural Bangladeshis expect the effects of climate change to be more severe than the best estimates from climate and economic modelling.
- Respondents predict larger increases in heat, lower crop yields, and higher mortality than warranted by our models.
- Respondents are optimistic about adaptation – they believe that there are costly adaptation measures that they can take *in situ,* which will allow earnings to grow by 2050.
- Providing respondents with information about the best estimates from climate and economic modelling decreases their expectations about crop yields but does not change their beliefs about other climate outcomes.

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Introduction

Regardless of any future success in reducing carbon emissions, a non-trivial amount of climate change is already baked into the future – we will see at least 1.5 degrees of warming. In the absence of adaptive responses, this warming will cause significant damage, which will be concentrated among the world's poorest populations (Carleton et al., 2022).

Accurate beliefs about the future are fundamental to efficient action: if people do not know that climate change is coming or they misunderstand how damaging it will be, they will not act without help. However, despite the importance of understanding the accuracy of the beliefs held by people in the hardest-hit locations, we have very little information on how climate change is viewed by those on the front lines of the changing climate and how they plan to adapt.

To fill this gap, we present evidence from a survey of 5,814 rural Bangladeshis in which we gather quantitative beliefs about the extent of future physical changes from warming and likely economic damages by 2050 and compare them to the best estimates from climate and economic modelling.

What do respondents believe about climate change?

FIGURE 1: Respondents' beliefs about the conditions in their village in the year 2050 vs. researchers' predictions

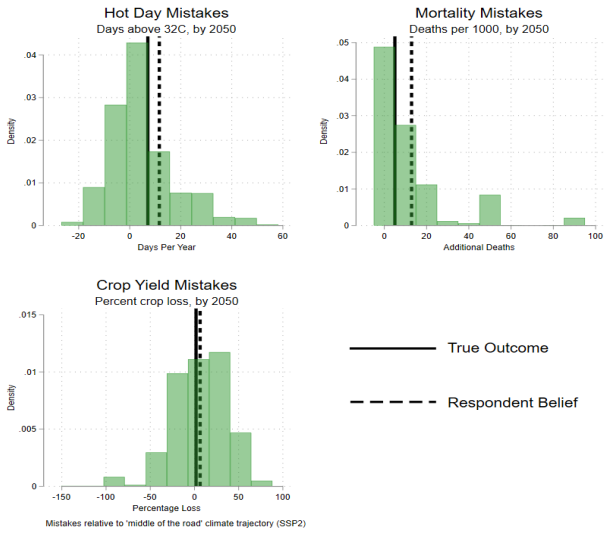

Figure 1 shows histograms of respondents' beliefs about the conditions in their village in the year 2050. The upper left panel shows a histogram of the number of days above 32 degrees Celsius that respondents predicted for their village relative to 2023 when the survey was conducted. The average prediction is an increase of 11.6 days, which is 4.5 more hot days per year than the "middle of

the road" shared socioeconomic pathway (SSP2). The upper right panel shows that respondents overpredict future mortality relative to researchers' predictions. The average prediction by respondents is that an additional ten days over 32 degrees Celsius will cause an increase in mortality of 12.9 deaths per thousand people, which is more than double the researchers' prediction of 5.0. Lastly, the lower left panel shows respondents' beliefs about crop yield losses by 2050 relative to estimates from Byers et al. (2018). The model predicts a 1.8% decrease in yields, while the average respondent predicts losses of 6.4%.

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FIGURE 2: Expected future earnings by 2050

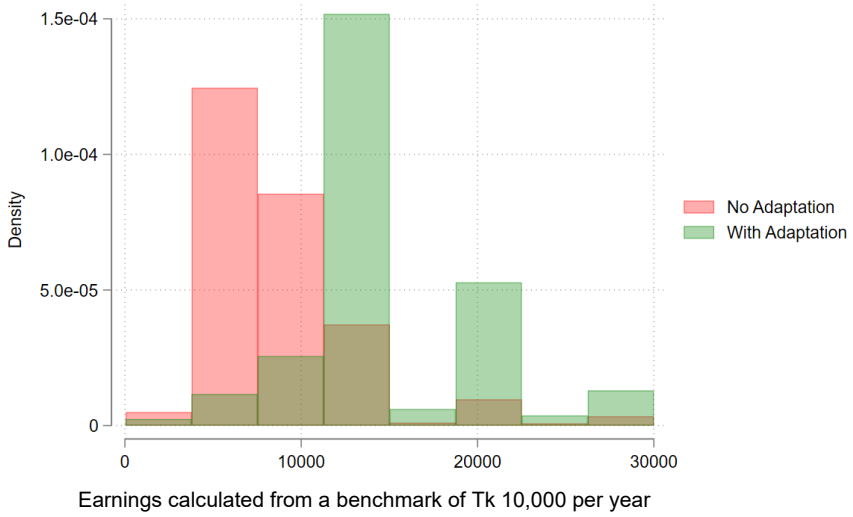
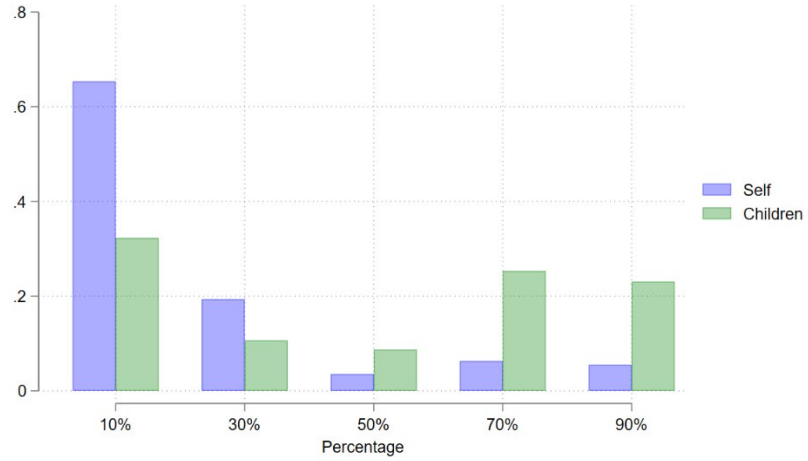


Figure 2 shows the distribution of expected future earnings reported by control respondents with a baseline of Tk 10,000 per year. We can see from the red histogram that most respondents expect that in a world with no adaptation to climate change, future earnings will be lower than they are today. The green bars show the distribution of 2050 earnings with adaptation minus the cost of that adaptation. So, when adaptation investments are made, respondents believe that they will not only pay for themselves entirely but will generate a surplus. The modal respondent expects an increase in earnings of 20% after investments in climate adaptation are made.

It is also important to note that heads of household largely plan to adapt to climate change *in situ* as seen in Figure 3. Perhaps surprisingly, given respondents have pessimistic beliefs about local changes to the climate, very few expect to migrate themselves by 2050. Household heads report that their children are more likely to migrate than they are. Nevertheless, the median household head only predicts a 50% likelihood that their child will migrate to a new location by 2050.

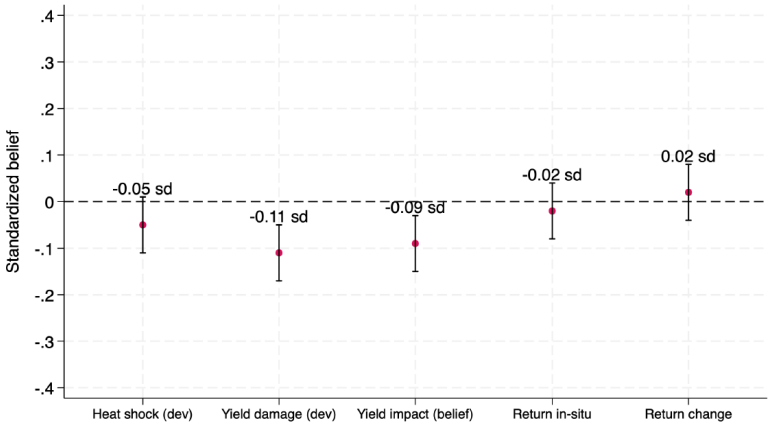
FIGURE 3: Likelihood of migration by 2050



Treatment effects

To test whether beliefs about the climate can be updated, we deliver several different information treatments to our sample, informing some people about model predictions for physical damages and economic damages. Overall, our results suggest that beliefs can be changed, but not in the direction that one would hope. We see that our information treatments reduce the prediction of crop yield falls, moving further away from the model prediction, as seen in Figure 4. In a setting where there is a large amount of climate pessimism, this treatment effect seems to move respondents further away from the truth.

FIGURE 3: Treatment effects on beliefs



Conclusion

Taken together, these findings suggest that rural Bangladeshis are not underinformed about climate change or its negative effects. If anything, they expect greater changes and greater damages than climate scientists and

economists predict. Thus, the policy focus should not be on providing long-term information to people about how the climate will change. A more appropriate focus is on assisting people in making investments in adaptation that will allow them to weather the changes they already know are coming.

References

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