INTRODUCTION

I'll talk today about sea level rise as part of a broader agenda on climate adaptation, especially in lower-income countries.

Sea level rise threatens one billion people living in low-elevation coastal zones. I'll zoom in on Jakarta, the second-most populous city in the world – and soon to be number one. 32 million people. Here, sea level rise has already started.

Jakarta will be 35% below sea level by 2050. Because its geology makes it prone to land subsidence – land sinking. That adds to sea level rise, and accelerates it. So the government has proposed a sea wall at up to $40 billion in cost. New York has similar plans at up to $120 billion.

I'm interested in how this government intervention at the coast can complicate and crowd out adaptation in other forms.

This issue is that intervention creates coastal moral hazard. If a time-inconsistent government ends up bailing out coastal development, then new development keeps happening at the coast. Instead of moving inland where it's safer. Now the government is stuck defending the coast again and again at high social cost. Coastal lock-in.

I'll quantify the distortion with a dynamic spatial model of coastal development and defense, combined with granular data for Jakarta.

I'll show you that moral hazard is severe. I'll show you that coastal lock-in. If the government cannot commit, it gives into its time inconsistency. It keeps bailing out coastal development. So there's 5 times as much coastal development relative to the first best, even in the long run.

Moral hazard keeps us in the wrong, risky, socially costly place.

And it rationalizes high prices, even if everyone knows that the coast is risky. Because government protection is like a subsidy.

So adaptation is complicated. Policy needs to navigate moral hazard.

We need long-run policy and full commitment. If the government resists bailing out the coast, then new development starts moving inland. Gradual, managed retreat -- the first best.

But full, long-run commitment is not very practical, so I have other recommendations too.

First, partial commitment: temporary, phased-in, staggered. All easier than full commitment. I'll show it still helps.

Second, moving the political capital, which is already happening. This reduces coastal demand instead of directly regulating supply. I'll show it also helps.

My main contribution is to highlight these frictions to adaptation under endogenous government action. A first wave of adaptation papers quantify how adaptation reduces climate damages. Desmet et al. (2021) makes this point for coastal flooding – they say that cities move inland.

I'm adding to a second wave of adaptation papers that show why adaptation may not be so smooth – I say that cities won't move inland so easily. Because of moral hazard and time inconsistency that goes back to Kydland-Prescott.

CONCLUSION

To conclude, moral hazard can impede climate adaptation, in Jakarta and closer to home.

More broadly, I think there's a huge demand for environmental research, especially as it relates to lower-income countries. How will they deal with damages, and how can government policy help? That's what I'm trying to tackle with this paper, and with others to come.