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TITLE: Evaluating the Economic Cost of Coastal Flooding

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ABSTRACT:

Sea-level rise and ensuing permanent coastal inundation will cause spatial shifts in population and economic activity over the next 200 years.Using a highly spatially disaggregated, dynamic model of the world economy that accounts for the dynamics of migration, trade, and innovation, this paper estimates the consequences of probabilistic projections of local sea-level changes under different emissions scenarios.Under an intermediate greenhouse gas concentration trajectory, permanent flooding is projected to reduce global real GDP by an average of 0.19% in present value terms, with welfare declining by 0.24% as people move to places with less attractive amenities.By the year 2200 a projected 1.46% of world population will be displaced.Losses in many coastal localities are more than an order of magnitude larger, with some low-lying urban areas particularly hard hit.When ignoring the dynamic economic adaptation of investment and migration to flooding, the loss in real GDP in 2200 increases from 0.11% to 4.5%.This shows the importance of including dynamic adaptation in future loss models.

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