

Adaptation data needs for climate impacts on labour

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Introduction

- Labour accounts for a significant share of the total valued added, as much as 50% in some sectors
- Our work improves the exposure-response functions on the impact of warming on global and regional labour
- Compute future climate impacts under warming scenarios
- However, it is critical to incorporate adaptation
- Major unknown is not the biophysical relationship but the socioeconomic and environmental context

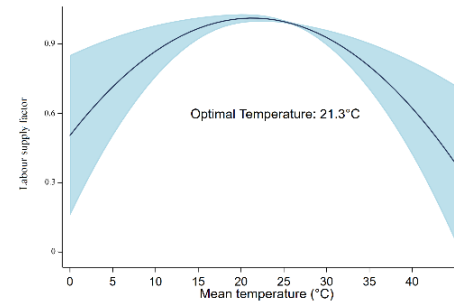
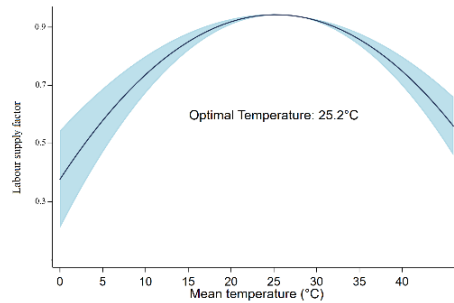


Labour supply response functions

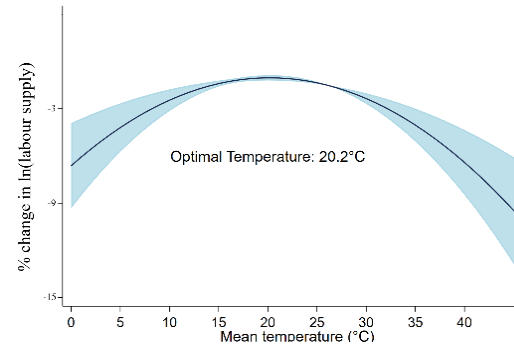
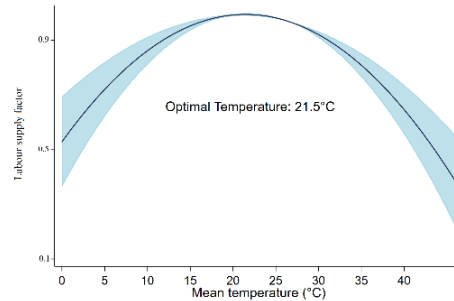
Indoor/outdoor in the shade

Outdoor in the sun

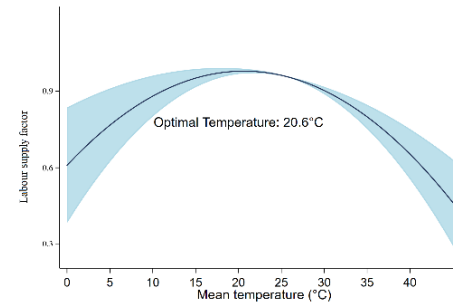
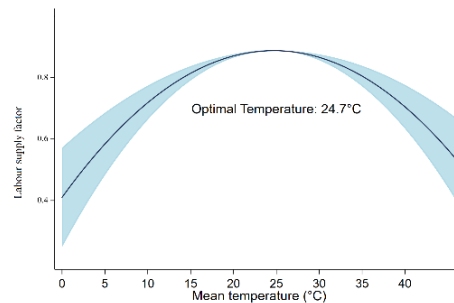
Africa



Asia



Americas

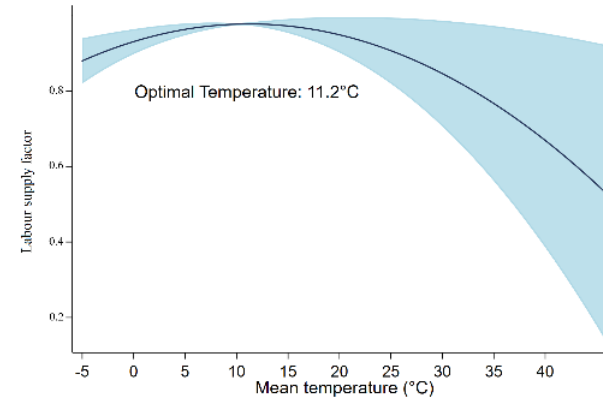
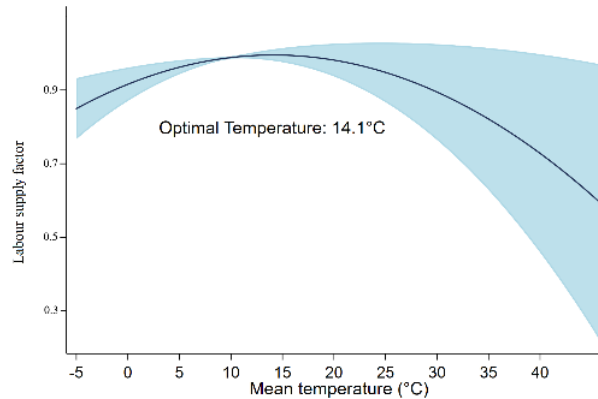


Labour supply response functions

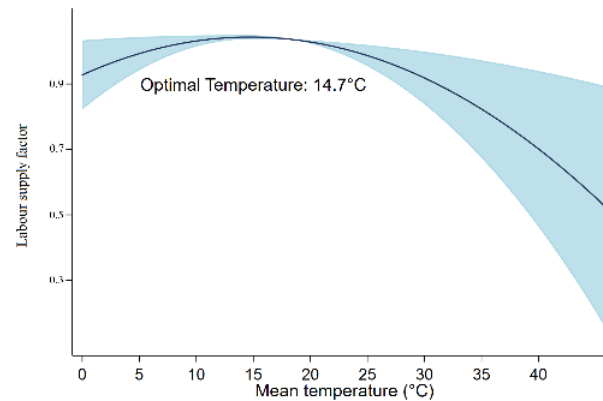
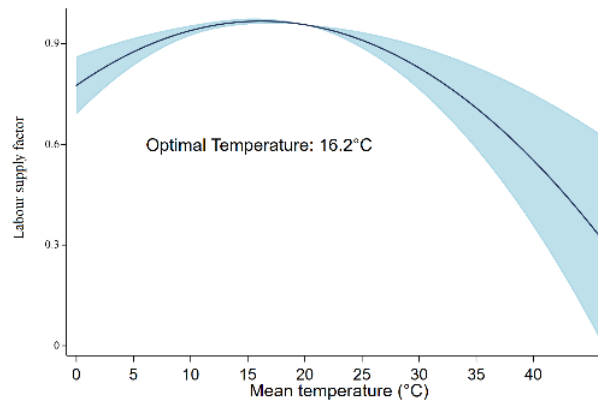
Indoor/outdoor in the shade

Outdoor in the sun

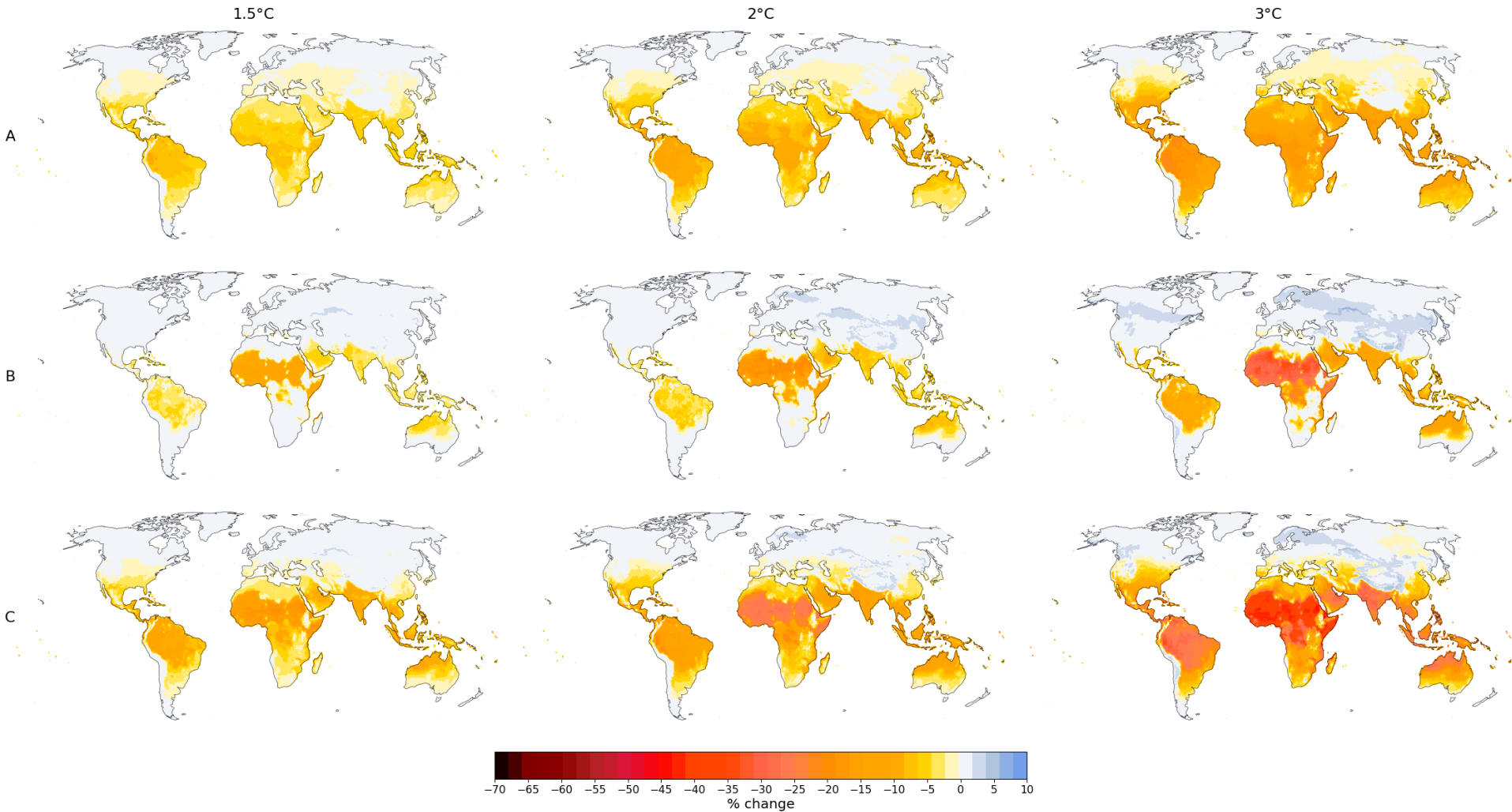
Europe



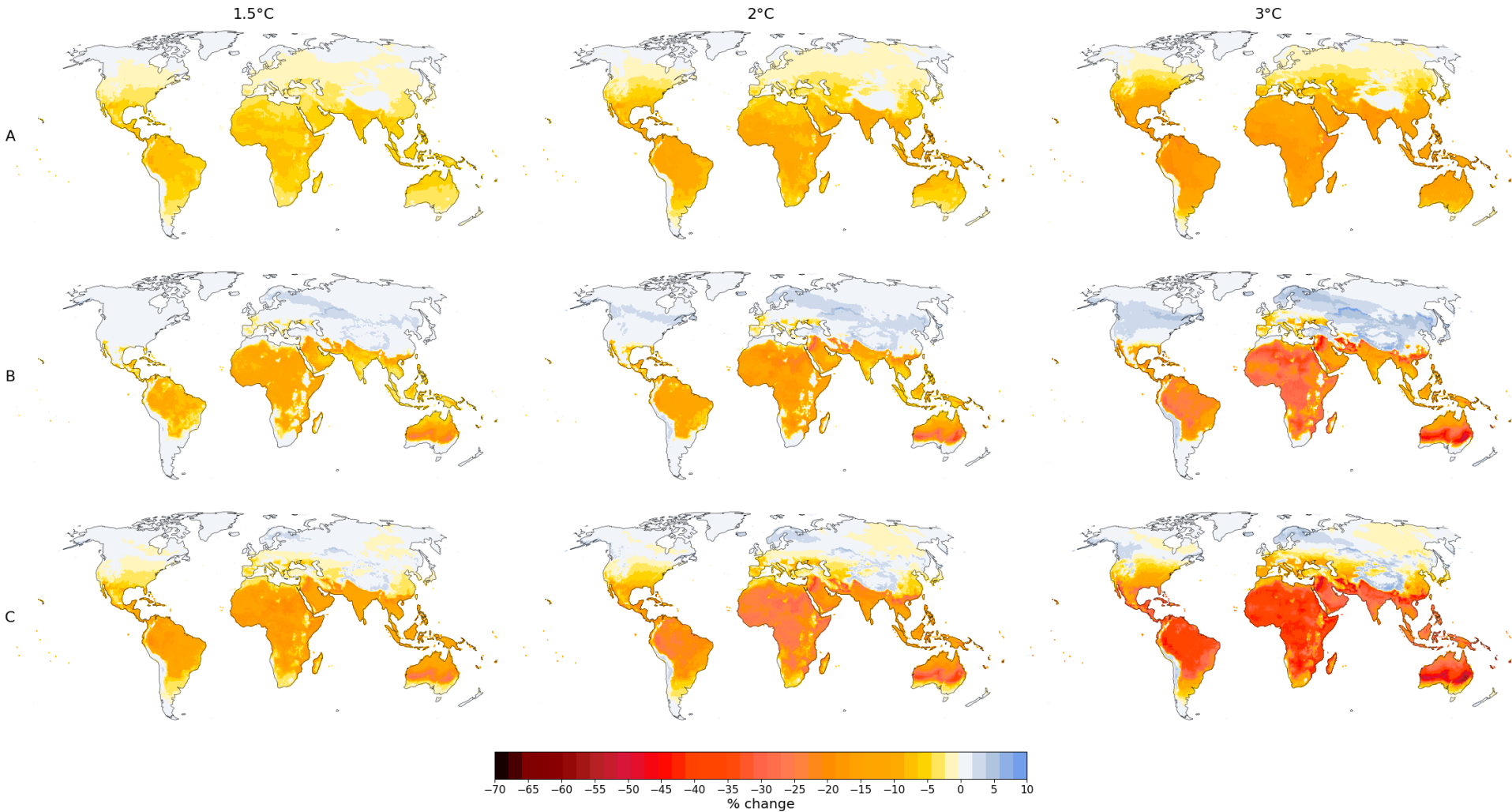
Global



Future impacts: indoor/outdoor in the shade



Future impacts: outdoor in the sun



Some thoughts...

- PESETA III assumes adjustment in work shifts from the day-time to night-time
- Replaces T_{Max} with T_{Min} for projections
- One option is to change the slopes of the ERFs
- The issue is how much should we change them?
- Another option is to use higher resolution climate data
 - Hourly/weekly
- To make realistic assumptions about changing work hours



Research needs

- Detailed sectoral breakdown is required so ERFs for each sector can be compared based on exposure level of industries
- We need to contextualize the role of adaptation → indoor vs. outdoor work and rural vs. urban
- Technical adaptation → air conditioning
- Behavioral changes → shift in work patterns
- Infrastructure and regulatory interventions → green roofs

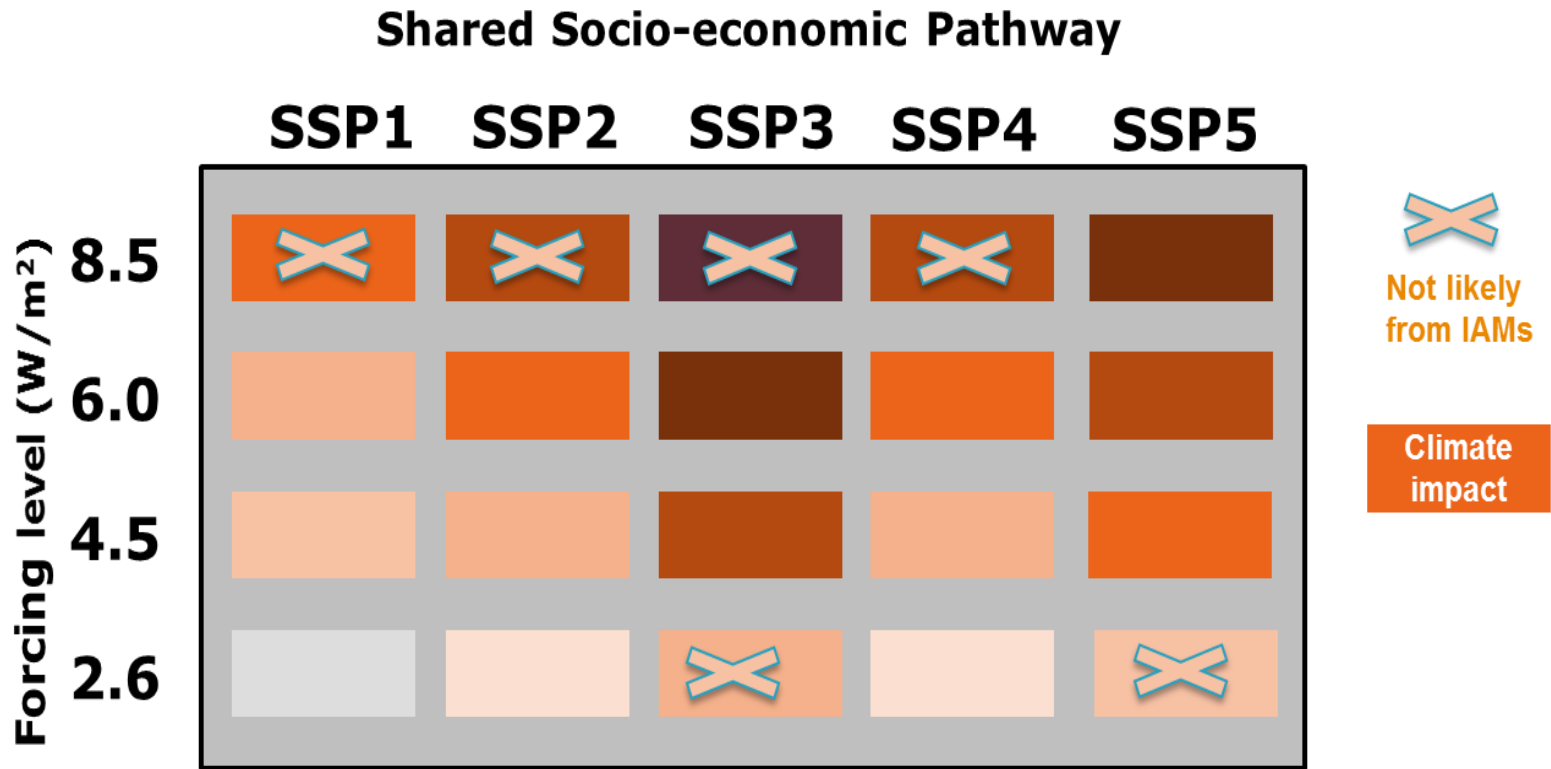


Data needs

- Adaptation in the health sector – focus on air conditioning → overlap between heat related mortality and labour sector
- Residential and commercial
- Air condition usage data: ~30 countries from micro surveys
 - Georeferenced
 - Better coverage of residential AC data
- Sectoral workforce breakdown: historical breakdown at the sub-national level from the micro surveys
- Data for the future will have to be extrapolated
 - One issue is that the future sectoral workforce will be impacted by warming (e.g., switching due to excessive warming)



RCP – SSP combination



Moving forward

- A set of case studies using longitudinal micro survey data from representative countries from different regions
- These multi-wave surveys provide information on labour supply and wage/income at the weekly/monthly level
- Combine with data being proposed by Giacomo
- Using detailed sectoral breakdown, ERFs can be compared based on exposure (to the elements) level of industries
- Will also allow us to contextualize the role of adaptation
- We could also look at the entire distribution by segmenting the data into quintiles/percentiles



Thank you!

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