Climate Change Beliefs and Labor Market Decisions

Experimental Evidence from Bangladesh

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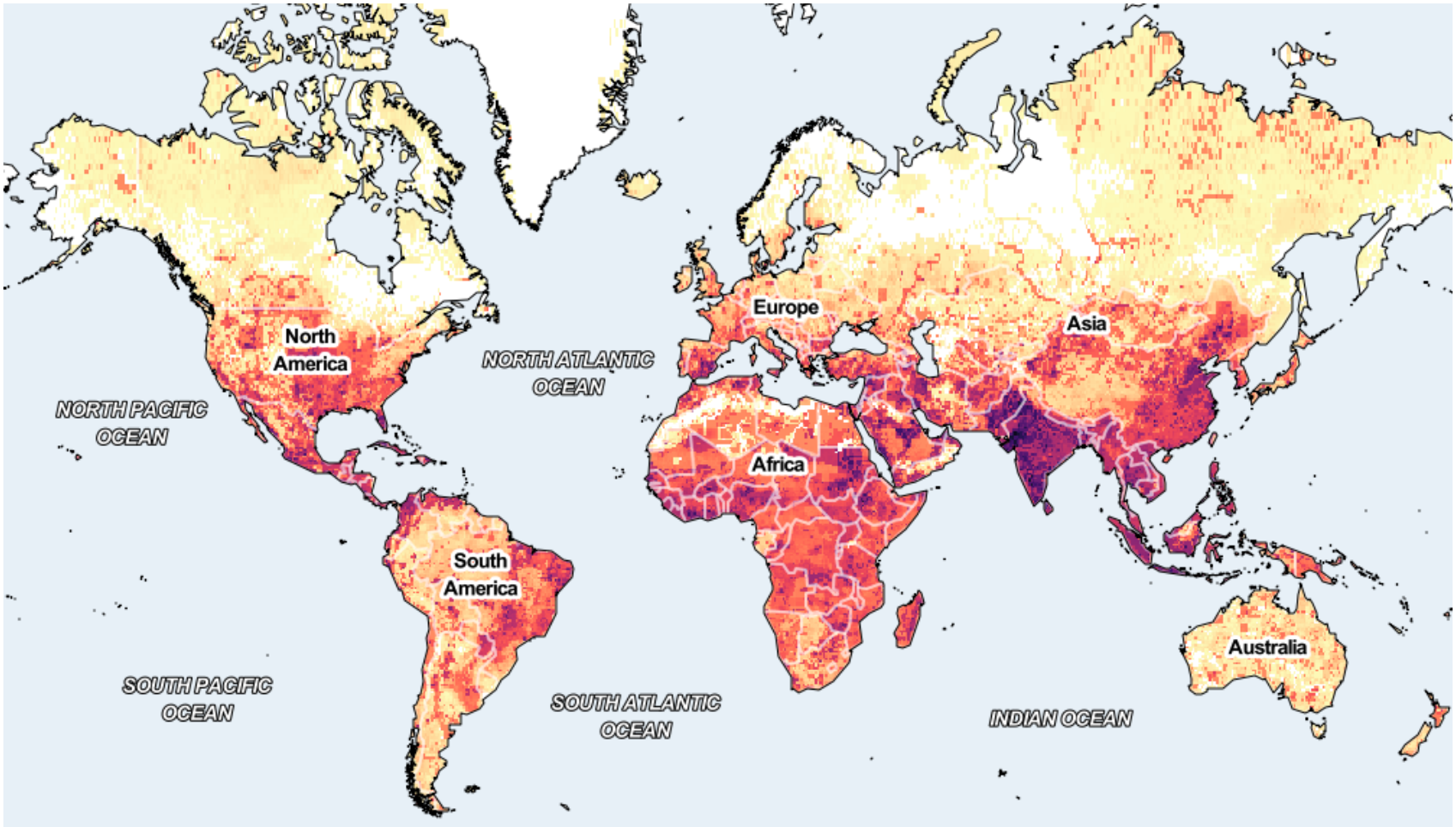
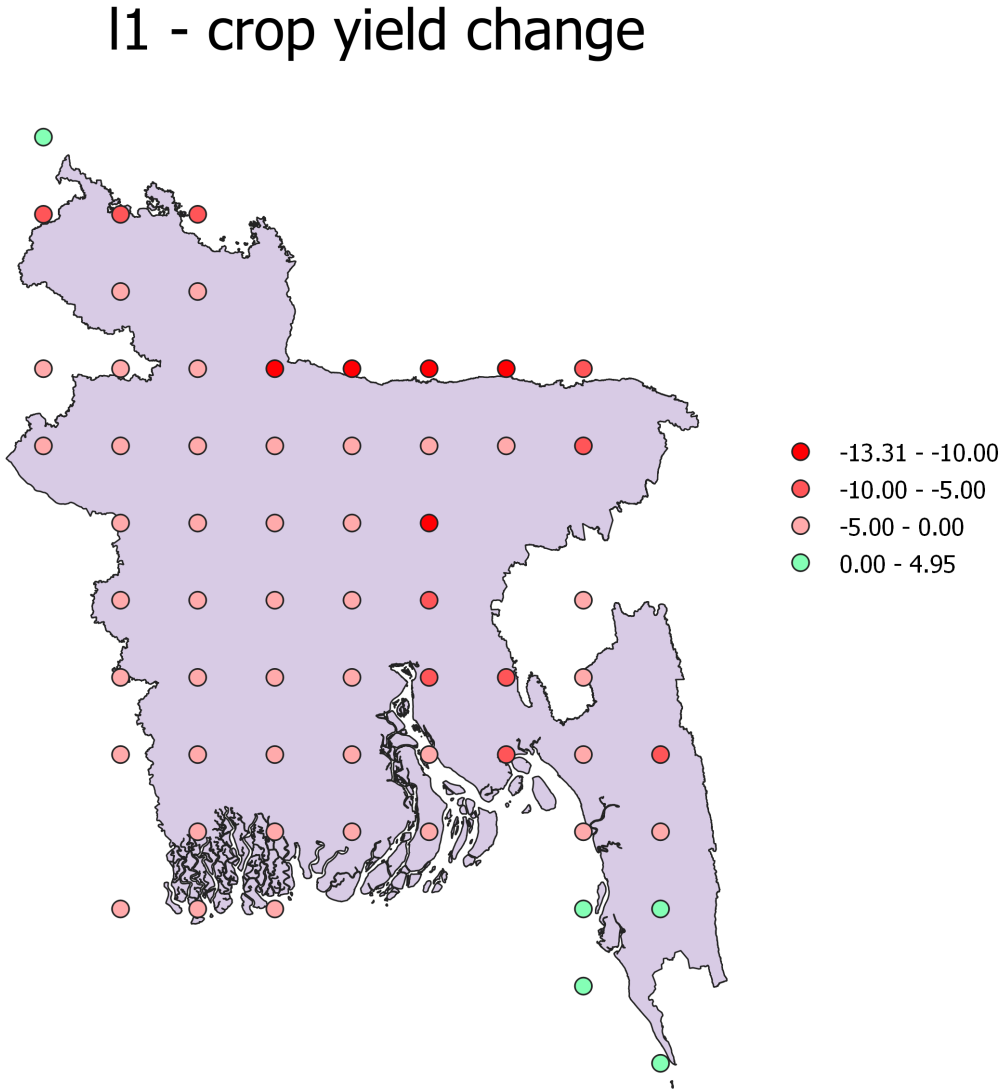
Climate change is one of the key challenges of our times

Impacts are concentrated in low-income countries



Impacts are highly heterogenous across locations and occupations



Migration and occupation change can reduce the damages of climate change (Cruz Rossi Hansberg 2021)

Whether these changes will happen at the required speed remains unclear:

- Location and occupation tend to be sticky due to information, liquidity, and amenities (Bryan et al. 2014, Belot et al. 2021, Lagakos et al. 2021, McKenzie 2022);
- Predicted future migration flows tend to be limited (World Bank 2016).

Can climate-change information encourage people to move to safer locations and occupations?

Experiment design

We elicit beliefs about future climate change among a sample of 7,000 individuals in rural Bangladesh.

We provide (0.5°x0.5°) scientific forecasts on:

1. Future climate change
2. Damage function
3. Future climate change + damage function

We study impacts on (i) expectations, (ii) labor market plans, and (iii) policy demand.

Key findings

- The average person expects the climate to worsen, but also to be able to adapt to new climate:
    - People are pessimistic about physical changes and about the damage function.
    - Yet, they expect that, with adaptation, income in current occupation and location will keep increasing.
- Information provision decreases migration intentions, and leaves most other outcomes unchanged.

Contribution

We present (some of) the first evidence on:

- Climate change beliefs in a high-impact country.
- The impacts of climate change information on labor market plans (Andre et al 2021, Stantcheva et al 2022).

We explore the extent to which labor market decisions are forward looking (Jensen 2010, Wiswall Zafar 2021).

Roadmap

Design

Results

- Beliefs
- Treatment effects

Discussion

The sample

We plan to interview a sample of up to 7,000 households living in rural Bangladesh.

- We select high and low impact villages from a representative survey collected by BRAC.
- We randomly sample households in these villages.
- We interview head of the household, and ask some questions to the partner, if present.

Four key decisions

1. What scenario to present? *ssp2/rcp4.5 (using CMIP5 and CIMP6 data from Byers et al. 2018; extreme heat data as in Carleton et al. 2022)*

2. What time frame to use? *2050*

3. Which information to provide/beliefs to elicit?
   - Extreme heat, floods, yields, mortality, sea level rise, total economic impacts ▸ Link

   → *Changes*
   → *Damages*
   → *Impacts*

4. Which outcomes to measure? *Expectations, labor market plans (self + child), incentivised policy demand*.

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Experiment design

We provide *local* forecasts on:

1. Future climate change
2. Damage function
3. Future climate change + damage function
4. (3) + information about Dhaka
5. (3) - information about worst-case scenario

▸ Balance

Roadmap

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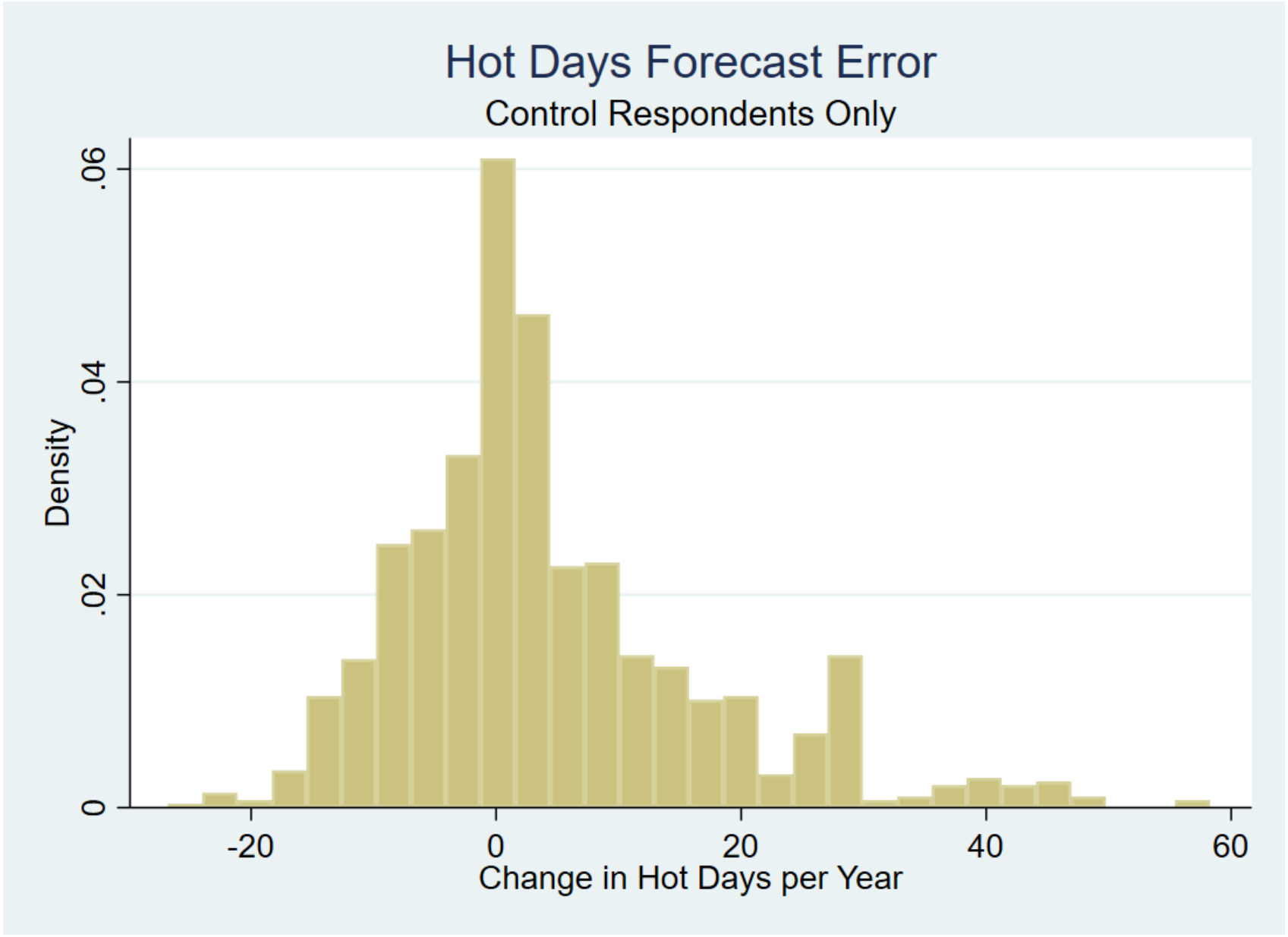
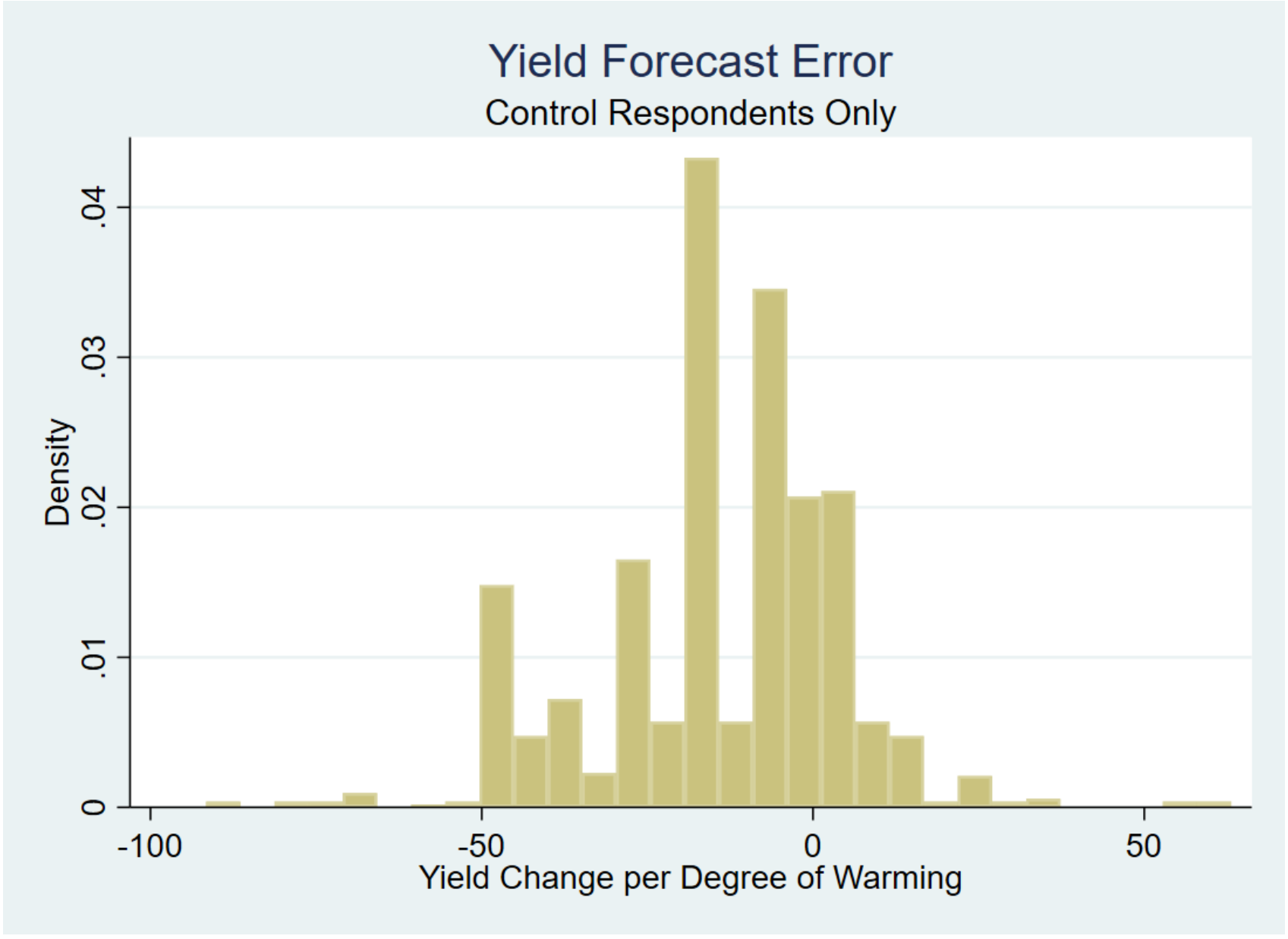
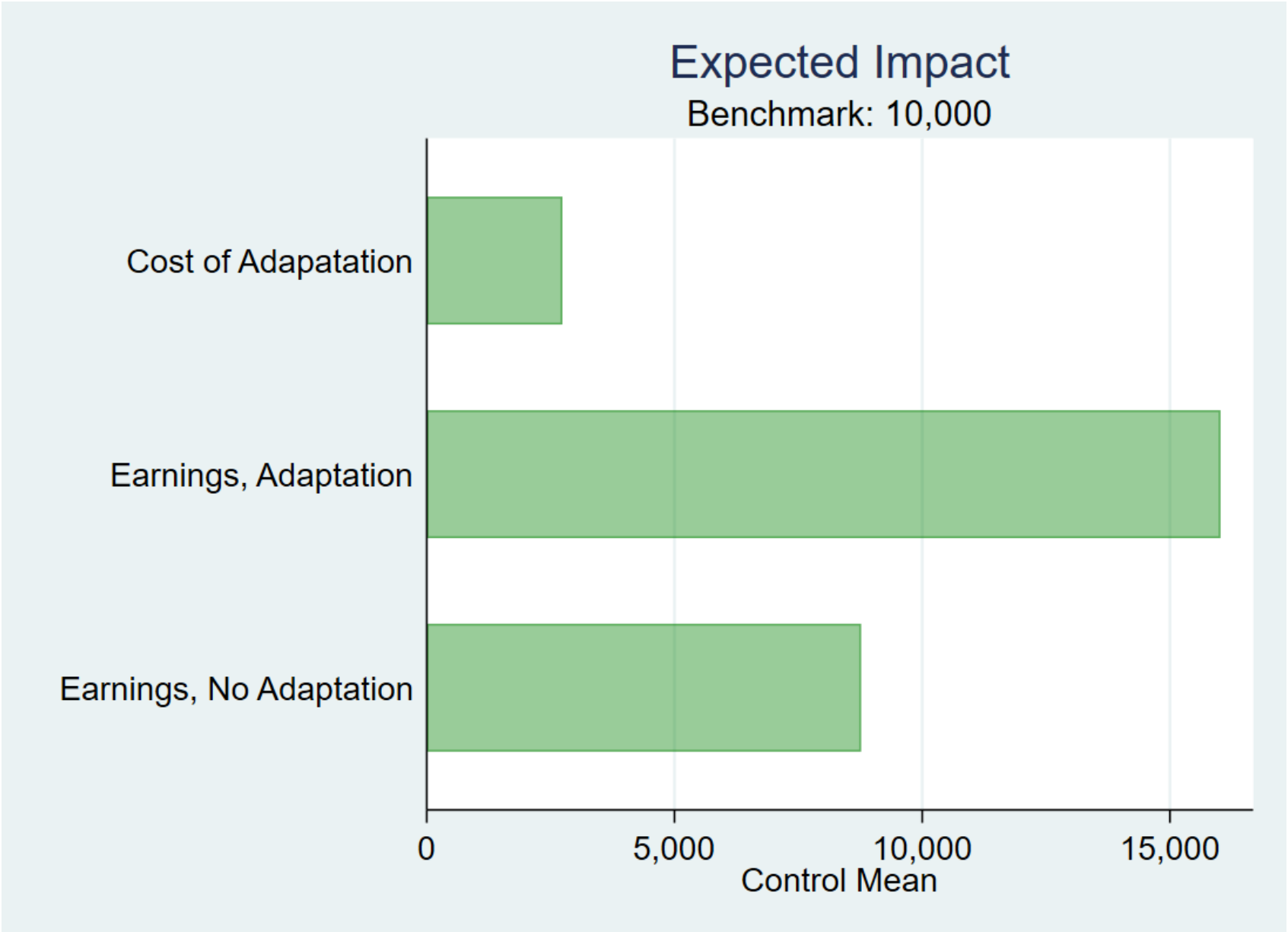
1. Respondents are change pessimists


Hot Days Forecast Error
Control Respondents Only
Density
0
.02
.04
.06
-20
0
20
40
60
Change in Hot Days per Year

2. Respondents are damage pessimists


Yield Forecast Error
Control Respondents Only
Density
0
.01
.02
.03
.04
-100
-50
0
50
Yield Change per Degree of Warming

3. Yet, respondents expect future income growth (given adaptation)



▸ Migration intentions and climate worry

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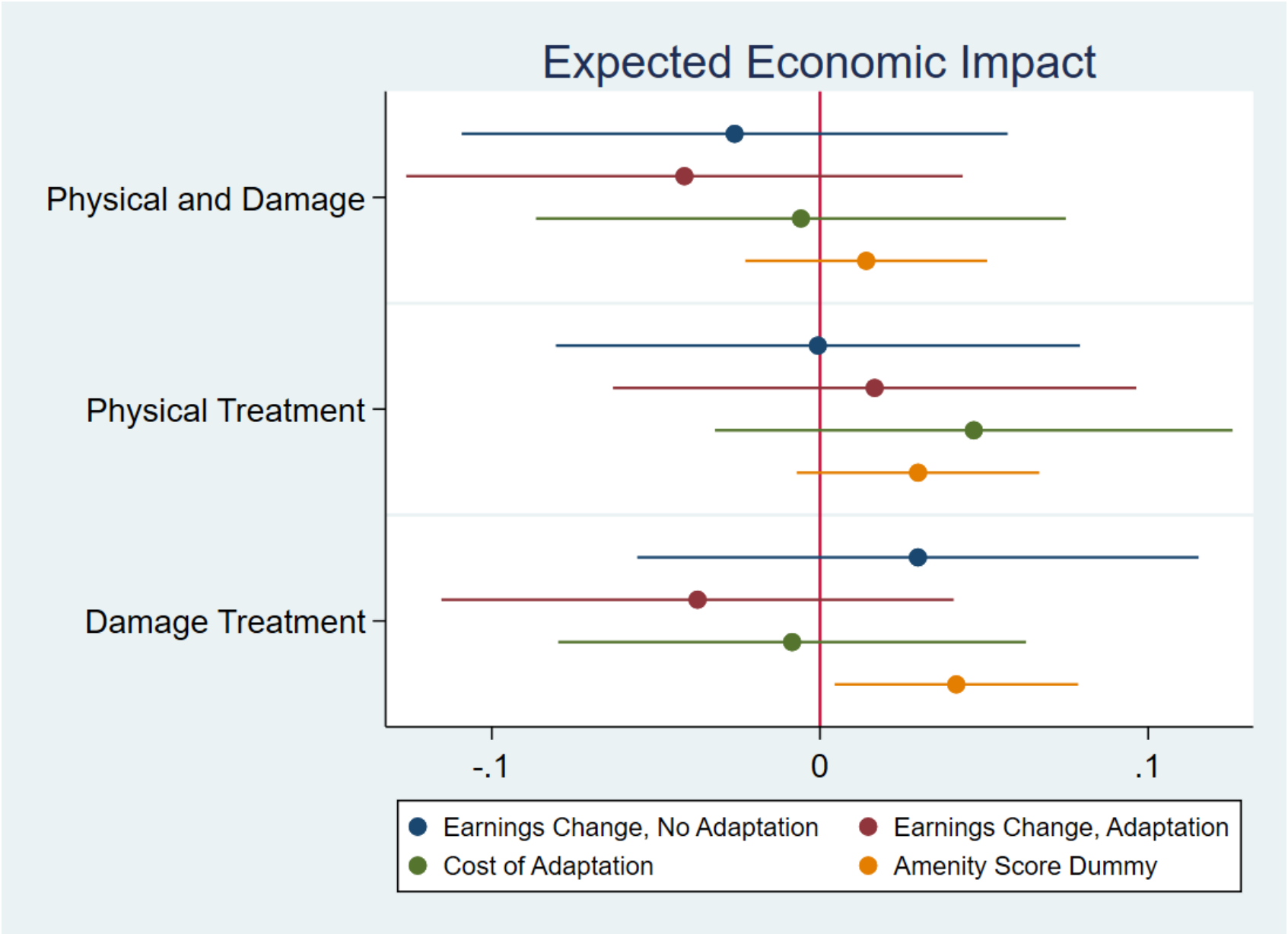
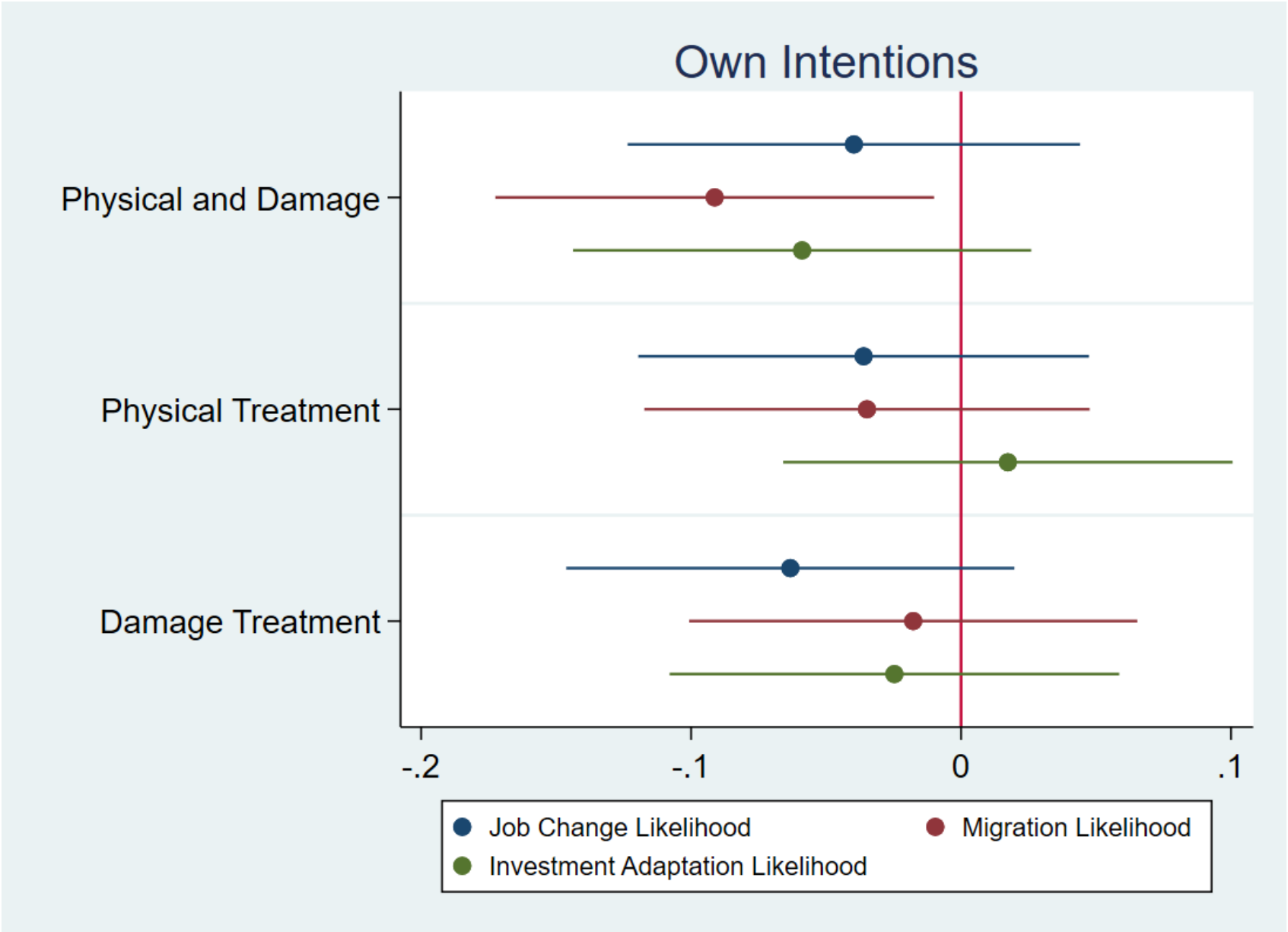
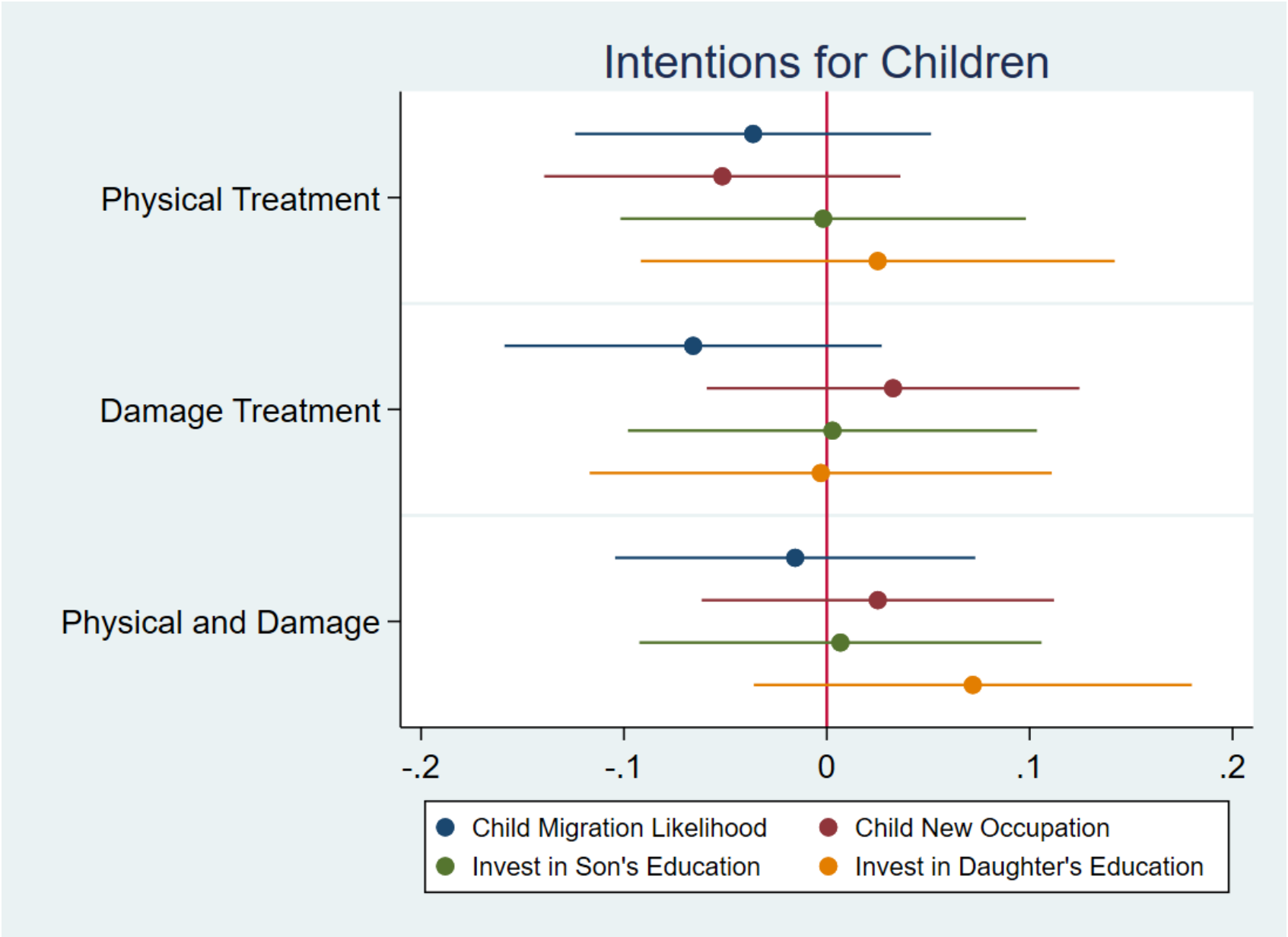
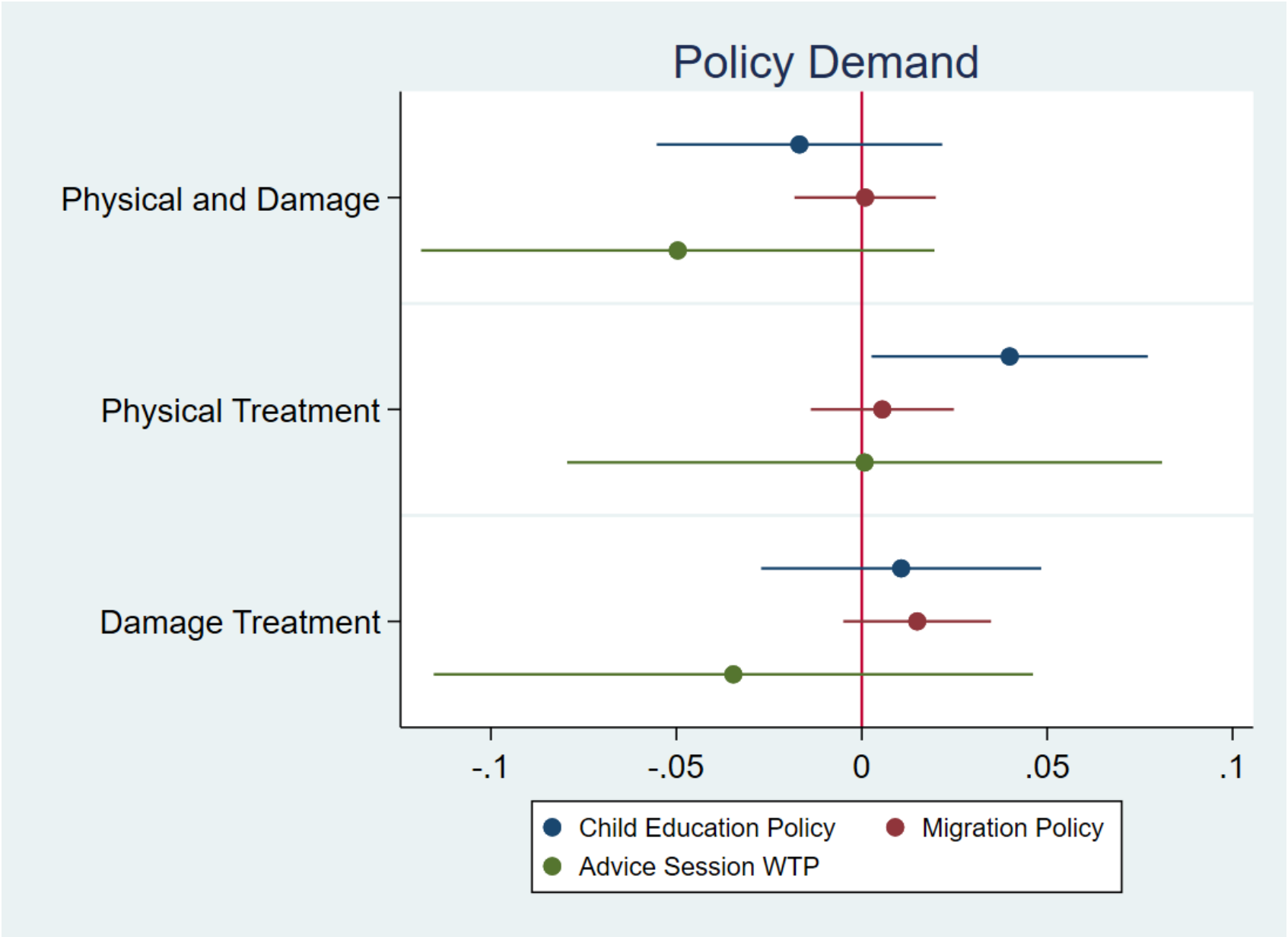

Expected Economic Impact
Physical and Damage
Physical Treatment
Damage Treatment
-.1
0
.1
Earnings Change, No Adaptation
Earnings Change, Adaptation
Cost of Adaptation
Amenity Score Dummy



▸ Control mean



▸ Control mean



▸ Control mean

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1. Moderate-scenario forecasts are unlikely to meaningfully affect migration and occupation decisions.
    - Heterogeneity by impacts, expectations, age, trust in science?

2. Is this optimal? Do individuals overestimate their capacity to adapt? Do they take into account relevant externalities?

3. If not, should we try instead to provide info on more extreme scenarios? or to highlight the costs of adaptation?

Thank you!

Balance

Back

Balance Test

	Treatment Arm						
	Physical	Damage	Both	No Extremes	Dhaka	Control	Imbalance
Age	41.06	40.91	39.95	41.02	41.08	40.88	0.28
	(13.60)	(13.66)	(12.65)	(13.27)	(12.61)	(13.22)	
Share Male	0.55	0.54	0.52	0.54	0.55	0.57	0.24
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	
Trust in Science	1.64	1.69	1.62	1.63	1.68	1.64	0.58
	(0.91)	(0.97)	(0.92)	(0.90)	(0.95)	(0.90)	
Log Income	8.79	8.82	8.81	8.96	8.83	8.83	0.29
	(1.16)	(1.12)	(1.16)	(1.07)	(0.96)	(1.05)	
Family Members	4.63	4.66	4.65	4.72	4.63	4.69	0.89
	(1.61)	(1.76)	(1.70)	(1.70)	(1.82)	(1.74)	
Born in Village	0.62	0.62	0.62	0.61	0.61	0.65	0.64
	(0.48)	(0.49)	(0.49)	(0.49)	(0.49)	(0.48)	

Migration intentions and climate change worry

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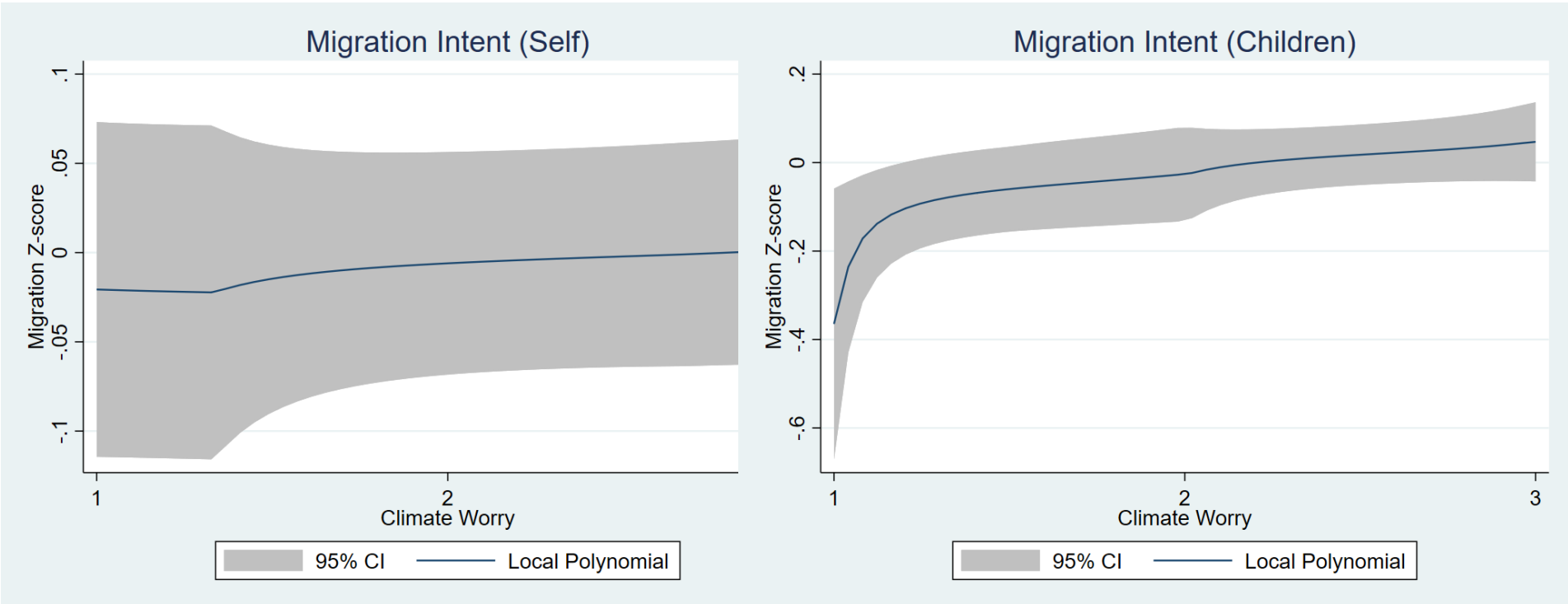


(a) Self

(b) Children

Physical + Damage

- Number of 32C days
- Likelihood of flooding
- Acres affected by sea level rise
- Groundwater salinity
- Total yield change

  degrees X damage
- Total mortality change

  days X damage
- Historical cost of 2007 flooding
- Examples of salinity damages

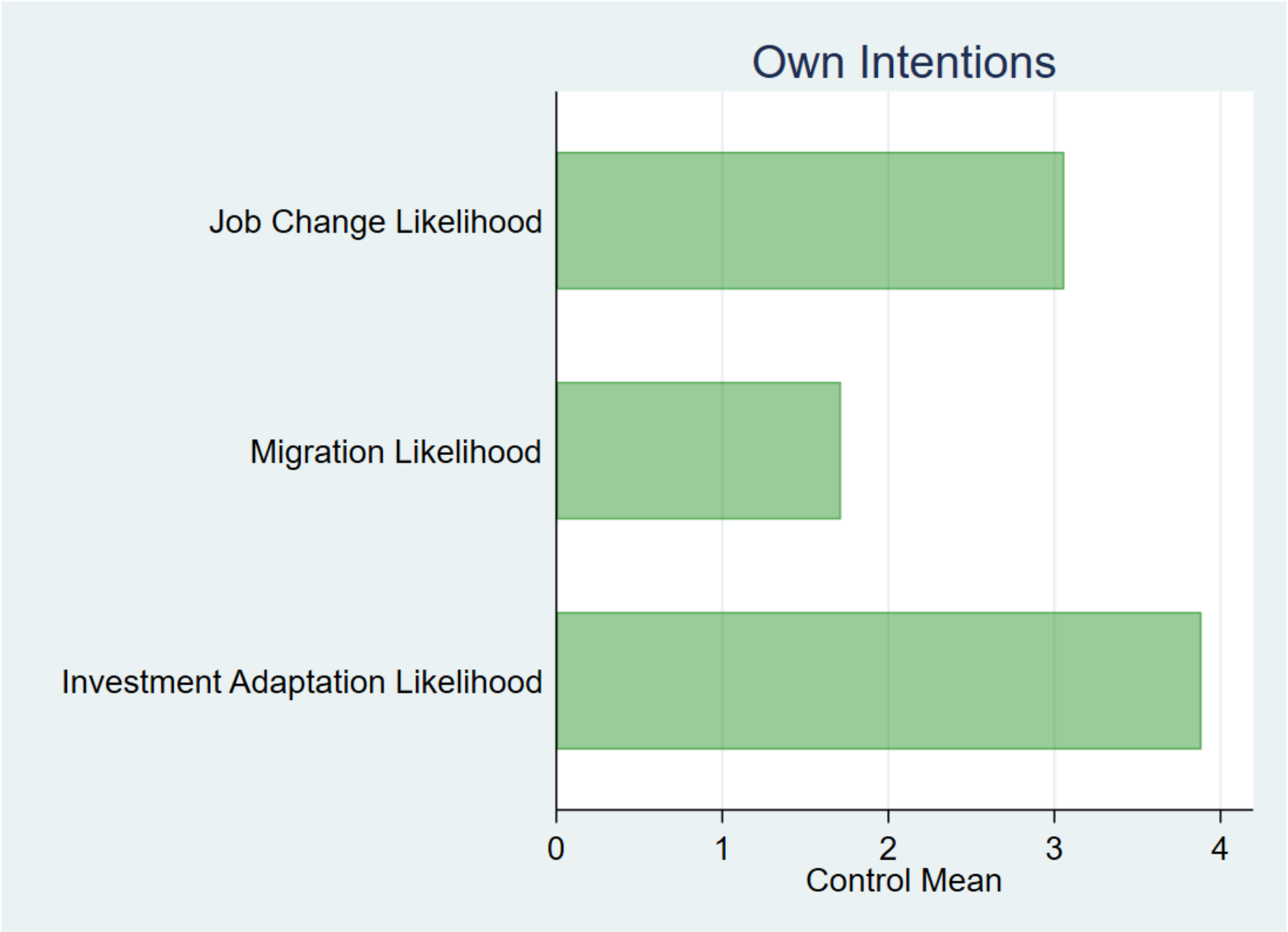
Physical Only

- Number of 32C days
- Likelihood of flooding
- Acres affected by sea level rise
- Groundwater salinity

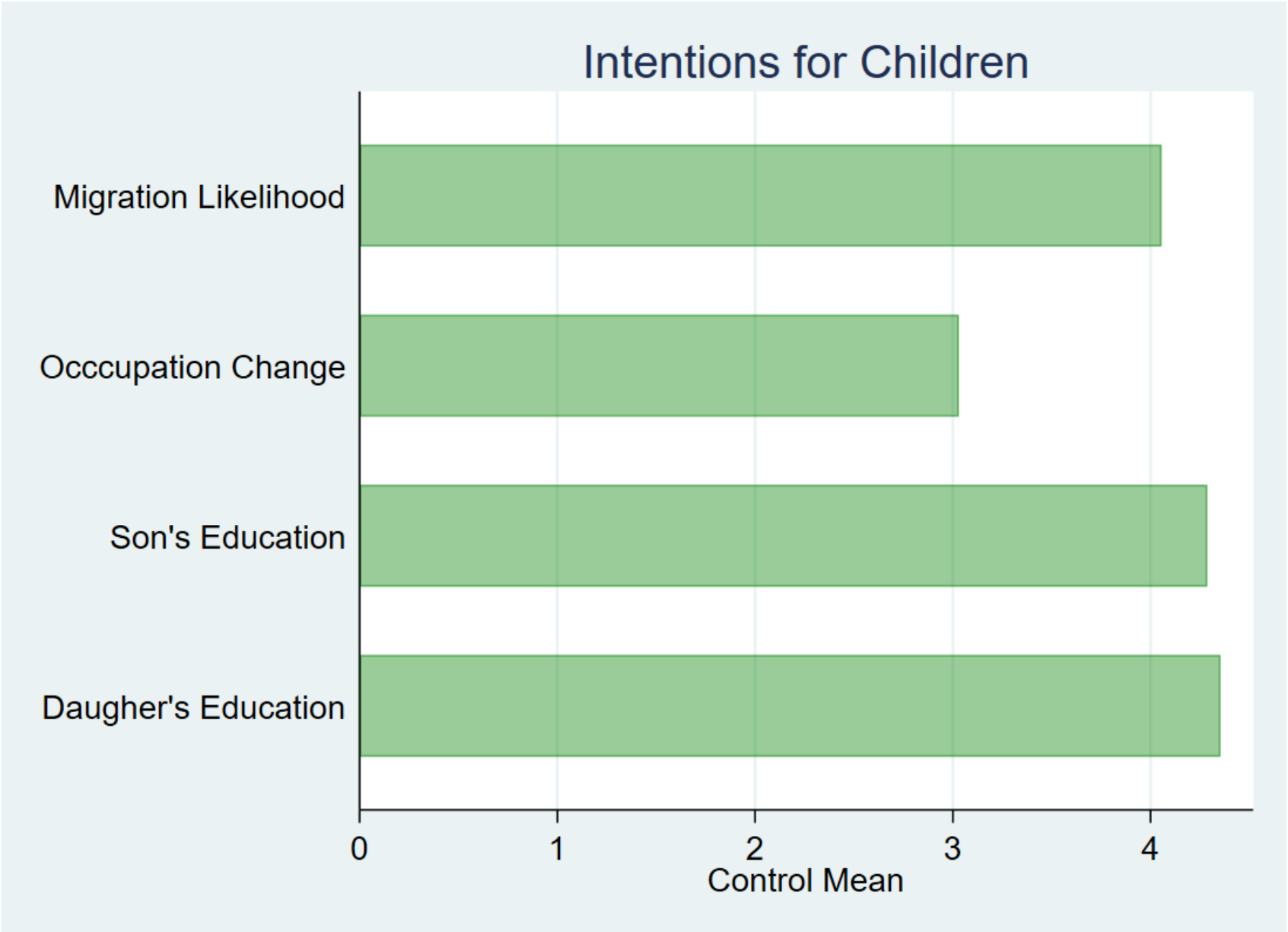
Damage Only

- Yield change per degree
- Mortality change per hot day
- Historical cost of 2007 flooding
- Examples of salinity damages

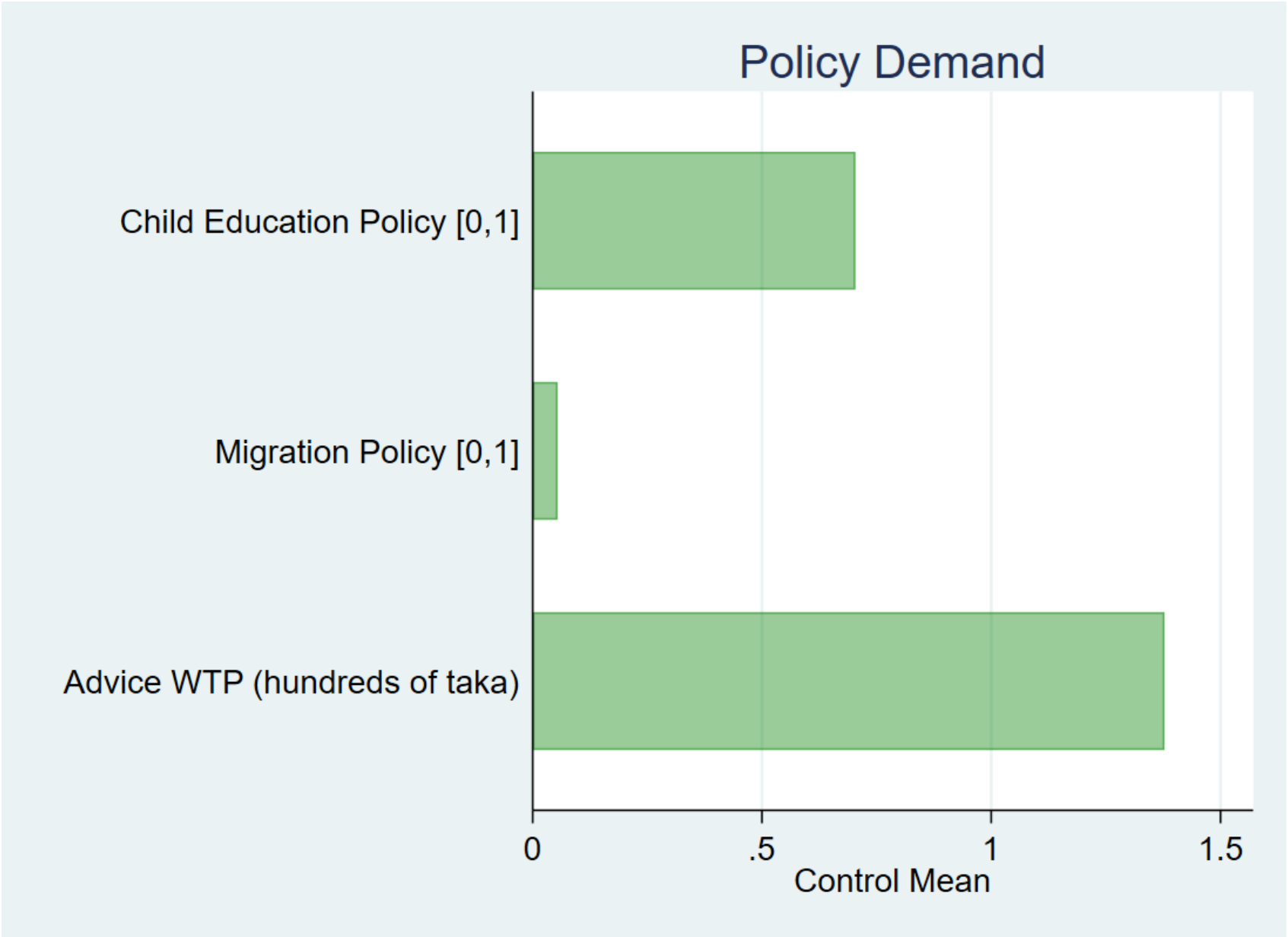
Back


Own Intentions
Job Change Likelihood
Migration Likelihood
Investment Adaptation Likelihood
0
1
2
3
4
Control Mean

Back


Intentions for Children
Migration Likelihood
Occcupation Change
Son's Education
Daugher's Education
0
1
2
3
4
Control Mean

Back


Policy Demand
Child Education Policy [0,1]
Migration Policy [0,1]
Advice WTP (hundreds of taka)
0
.5
1
1.5
Control Mean

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