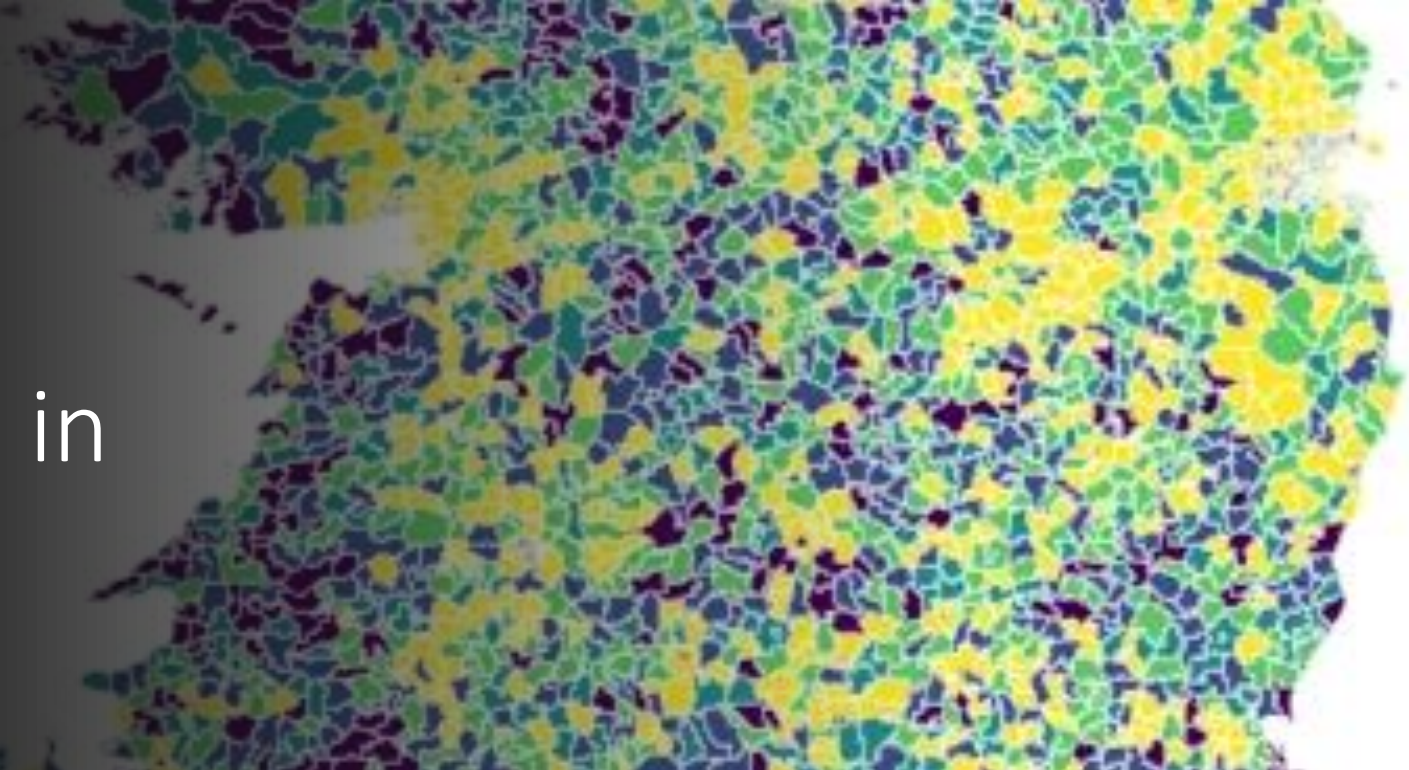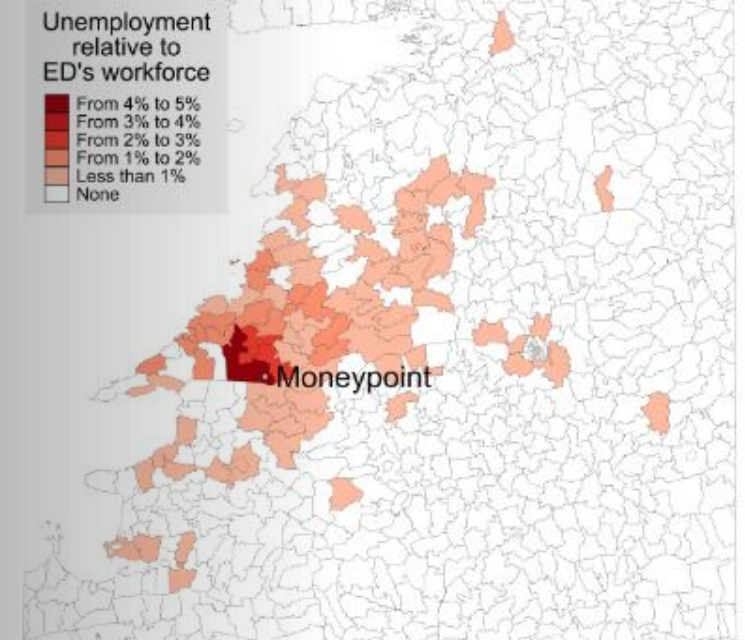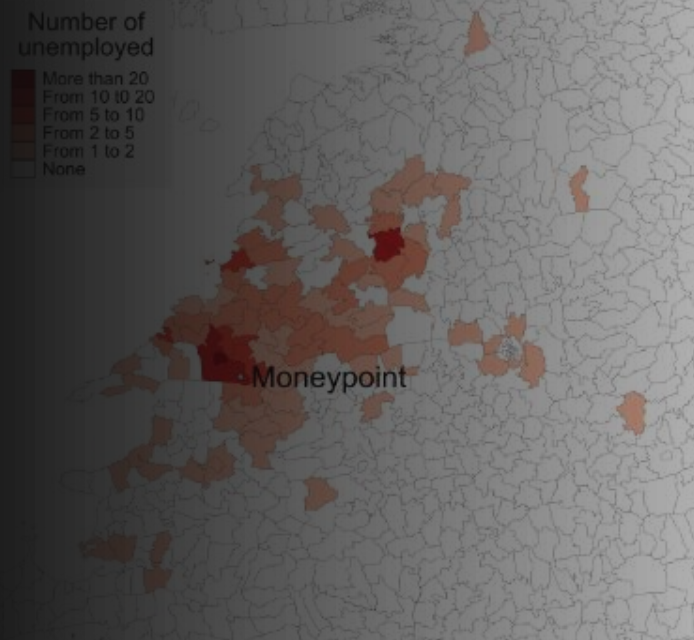# Regional income and power station closure in Ireland: how should policy respond

Stefano Ceolotto & Niall Farrell

Presentation outline

Presentation outline

- Paper

- Policy discussion
  - What does this mean for Just Transition Policy?

Production sectors at risk from climate policy: regional income and power station closure in Ireland

Stefano Ceolotto[a,b,*], Niall Farrell[c,d]

[a]Euro-Mediterranean Center on Climate Change, Venice, Italy

[b]Ca' Foscari University of Venice, Venice, Italy

[c]Economic and Social Research Institute, Dublin, Ireland

[d]Department of Economics, Trinity College Dublin, Ireland

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Paper

Production sectors at risk from climate policy: regional income and power station closure in Ireland

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Research Question

- What are the regional economic implications of power station closure?

- How does this affect the regional distribution of income?

- How does this affect (1) individuals and (2) regions?

Paper overview

We consider a case study power station closure:

Moneypoint coal power station in Co. Clare.

Steps of Analysis

1. We simulate the spatial distribution of income using a Spatial Microsimulation model

2. We simulate a counterfactual distribution of regional income

3. We compare impacts relative to local incomes

    - Draw some conclusions as to the impact relative to distribution of incomes.

1. We simulate the spatial distribution of income using a Spatial Microsimulation model

- We generate a baseline distribution of income at the small area level
  - Such data are not readily available.

- Combine spatial information from Census Small Area Population Statistics with micro-level information from EU Survey of Income and Living Conditions.

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Spatial Microsimulation

- Sample from EU SILC according to overlapping variables
  - Indicators of income and wealth
  - Tenure, Dwelling Type, Pension Beneficiary, Social Welfare Beneficiary, owner of durable items
  - Median gross income

- Allows us to estimate distribution of income, poverty rates, etc. at small area level
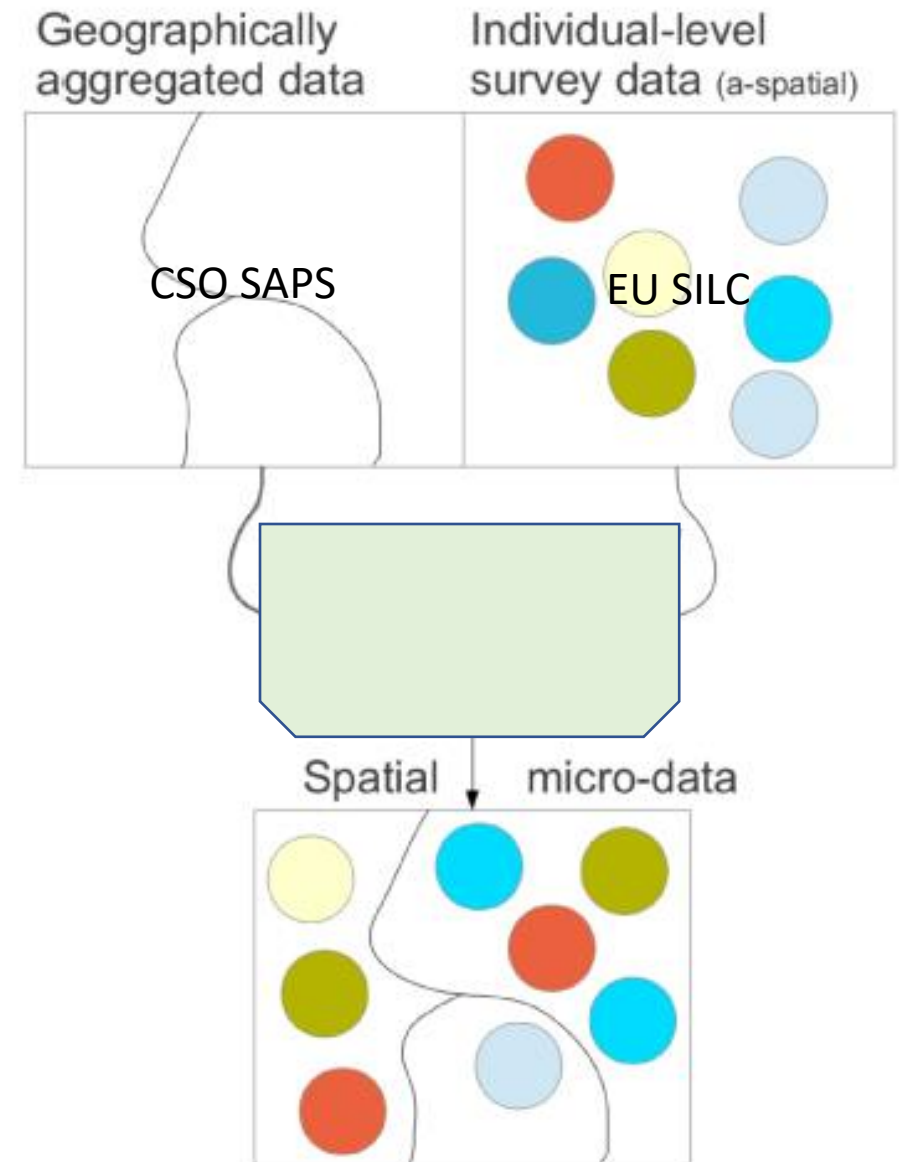
Spatial Microsimulation

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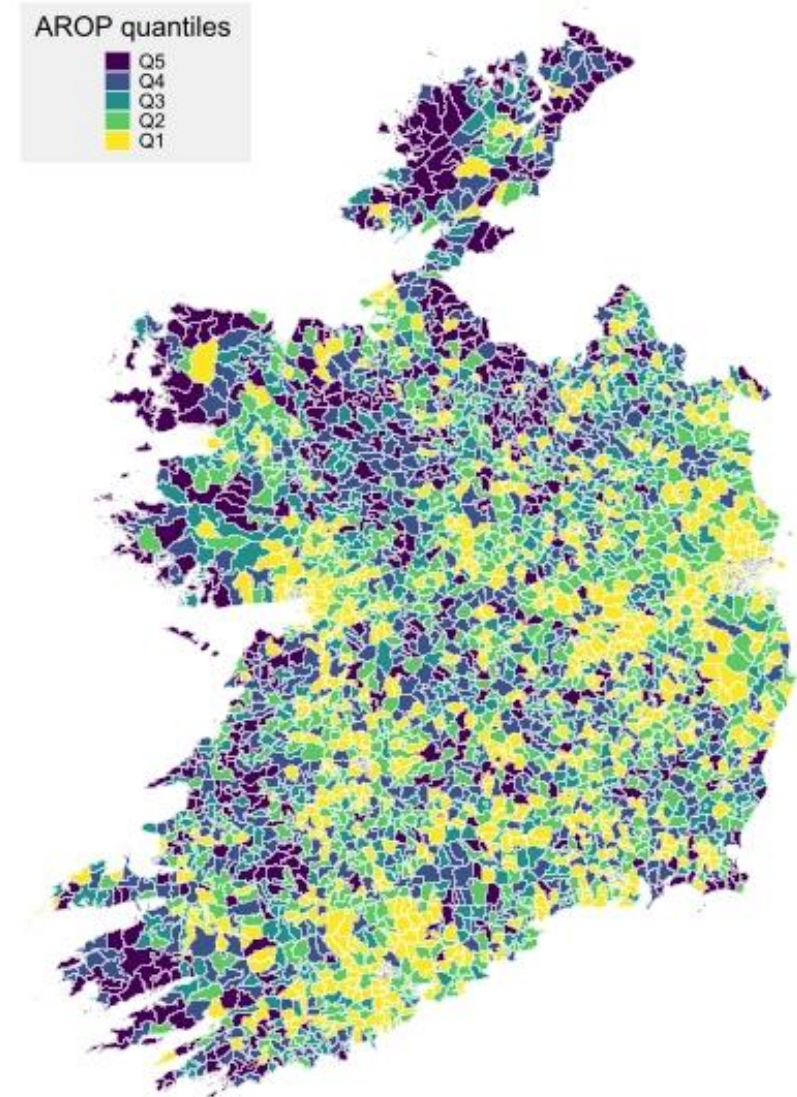
2. We simulate a counterfactual distribution of regional income

- We have a baseline dataset.
    - population of individuals, living in each electoral district.
    - Profile of income for each.

- Steps

a) Calculate the number of individuals who lose their job at Moneypoint

b) Assign each individual a place of residence, conditional on this place of work

c) Simulate a counterfactual income for each individual affected by job loss

AROP quantiles
- Q5
- Q4
- Q3
- Q2
- Q1
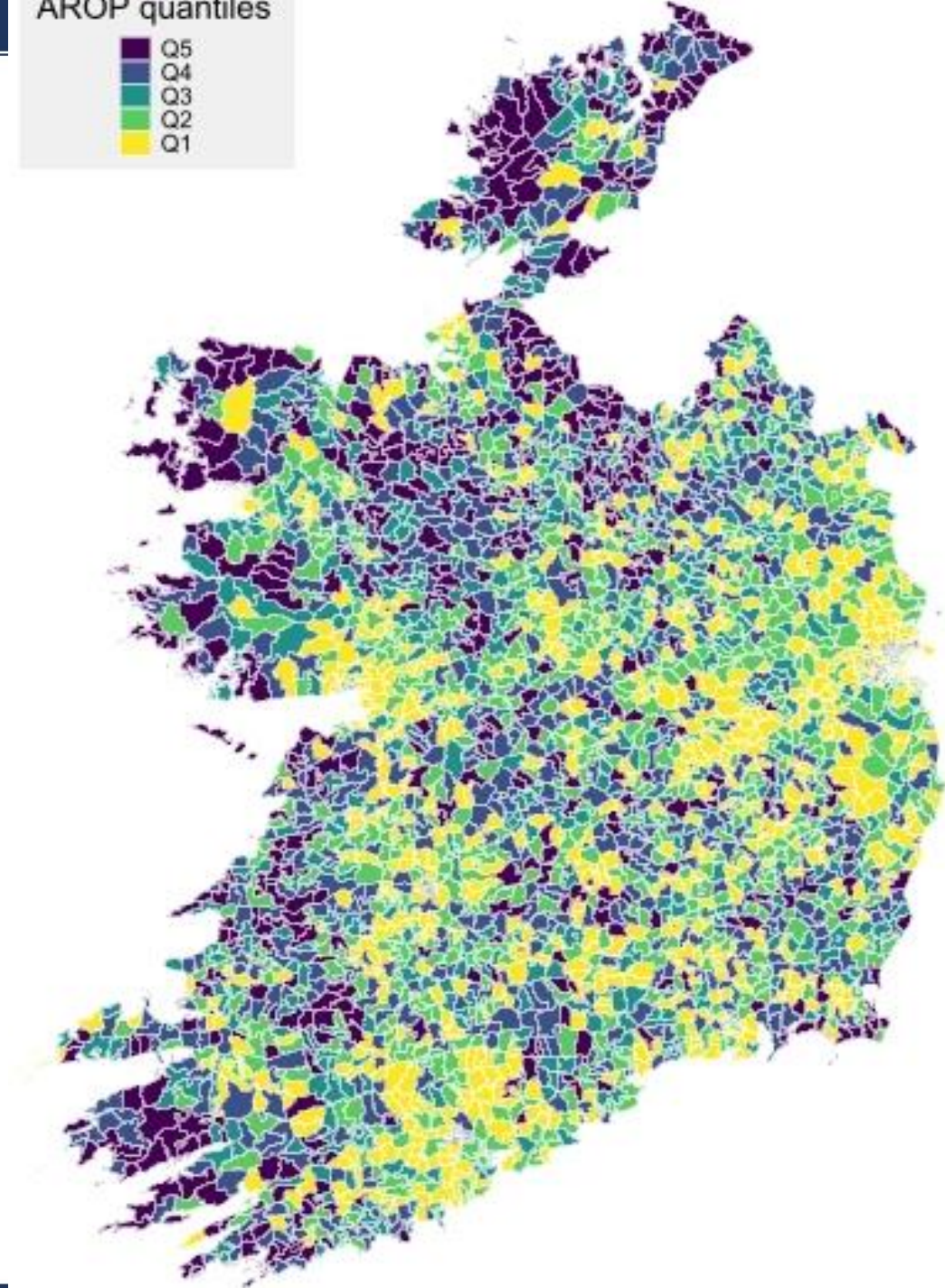
2. We simulate a counterfactual distribution of regional income

a) Calculate the number of individuals who lose their job
   - Media reports suggest 194 individuals worked there in 2019

2. We simulate a counterfactual distribution of income

b) Assign each individual a place of work/residence

- We use the Place Of Work, School or College - Census of Anonymised Records (POWSCAR) data to do this

- Conditional on working in ED A, we can calculate the probability of residing in ED B.

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2. We simulate a counterfactual distribution of income

We multiply the probabilities derived by Moneypoint's workforce:

$$Employment\ change\ ED\ x = Pr(WF_x|MP) \times Moneypoint\ workforce. \qquad (4)$$

3. Simulate a counterfactual income for that individual

From the EU-SILC we estimate household income according to the following equation:

$$Y_i = \alpha + \beta X_i + \mathbf{R}_i' \delta + \varepsilon_i, \tag{5}$$

where Y_i is household income, X_i is a dummy variable which takes value 1 if any household member works in the target industry, and $\mathbf{R}_i$ is vector of NUTS2 region of residence.

We take the average of the fitted values for the households with at least one member working in the target industry ($E(\hat{Y}_i|X_i = 1)$). This represents the predicted household income for Moneypoint workers.

3. Simulate a counterfactual income for that individual

- Similarly, we estimate the expected income for an unemployed household.

- This is the counterfactual income after shutdown

- We take the difference, multiplied by number of households in each ED
  - This is expected change in regional income, post Moneypoint closure

$$\Delta Y_x = \left[E(\hat{Y}_i | X_i = 1) - E(\hat{Y}_i | U_i = 1) \right] \times HH_x.$$

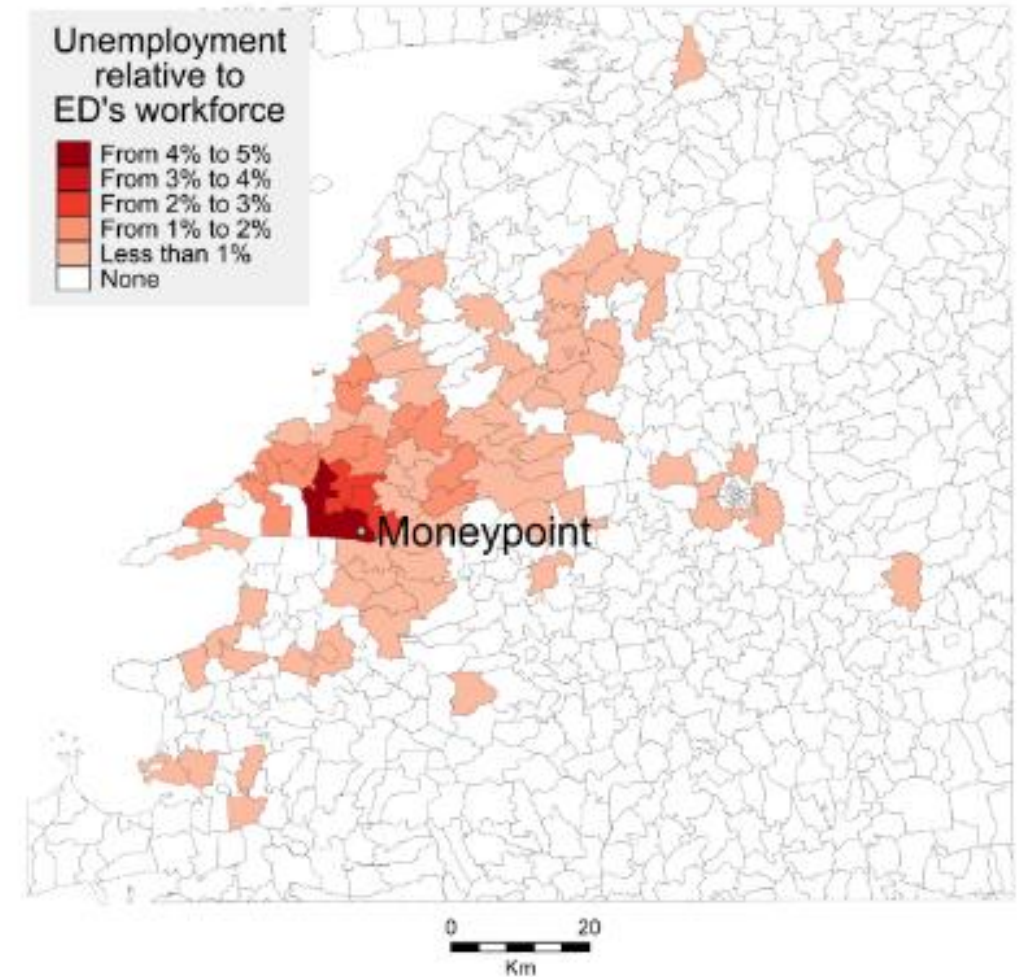ESRI ECONOMIC & SOCIAL RESEARCH INSTITUTE

Results
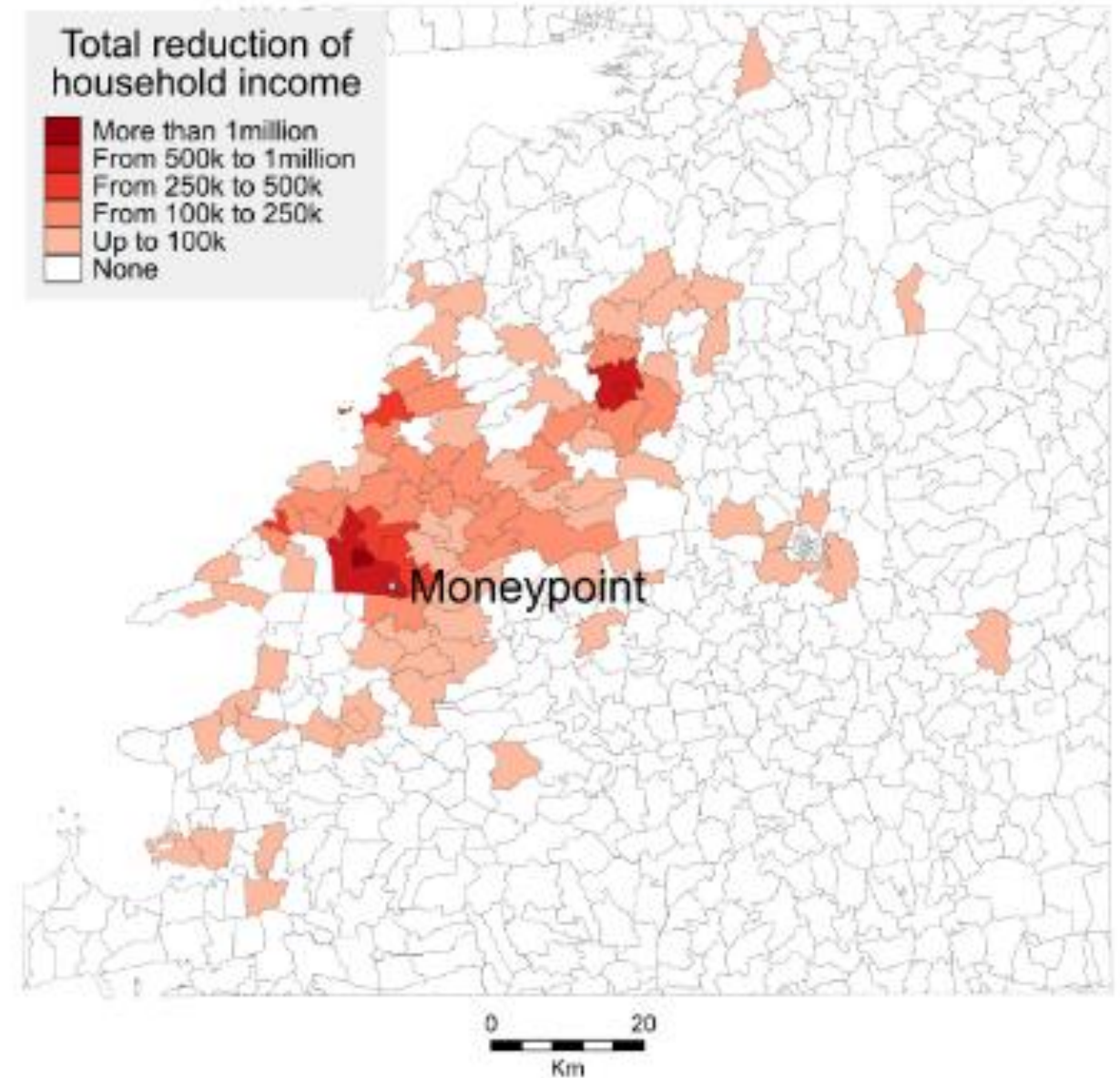
• Total number unemployed
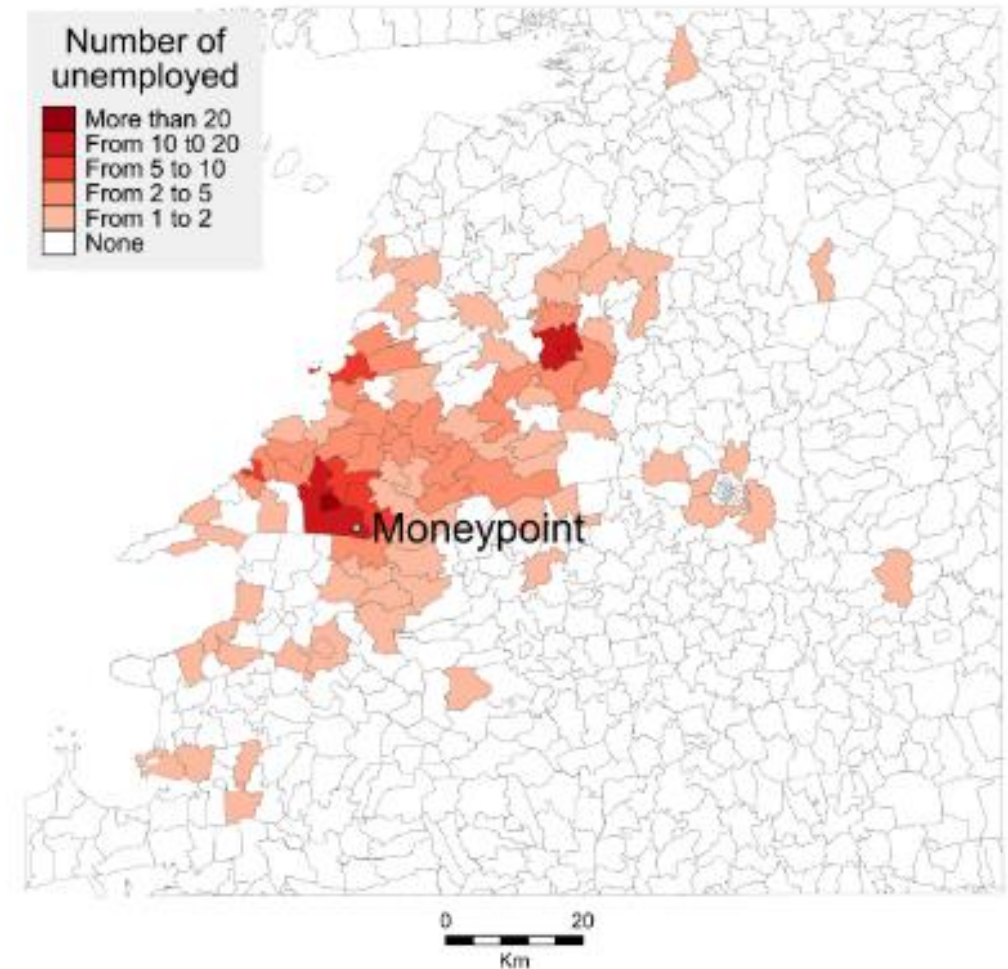
(a) Total number of unemployed

Results

- Unemployed relative to ED workforce

- Mostly <1% of workforce, up to 5%

(b) Unemployment relative to ED's workforce

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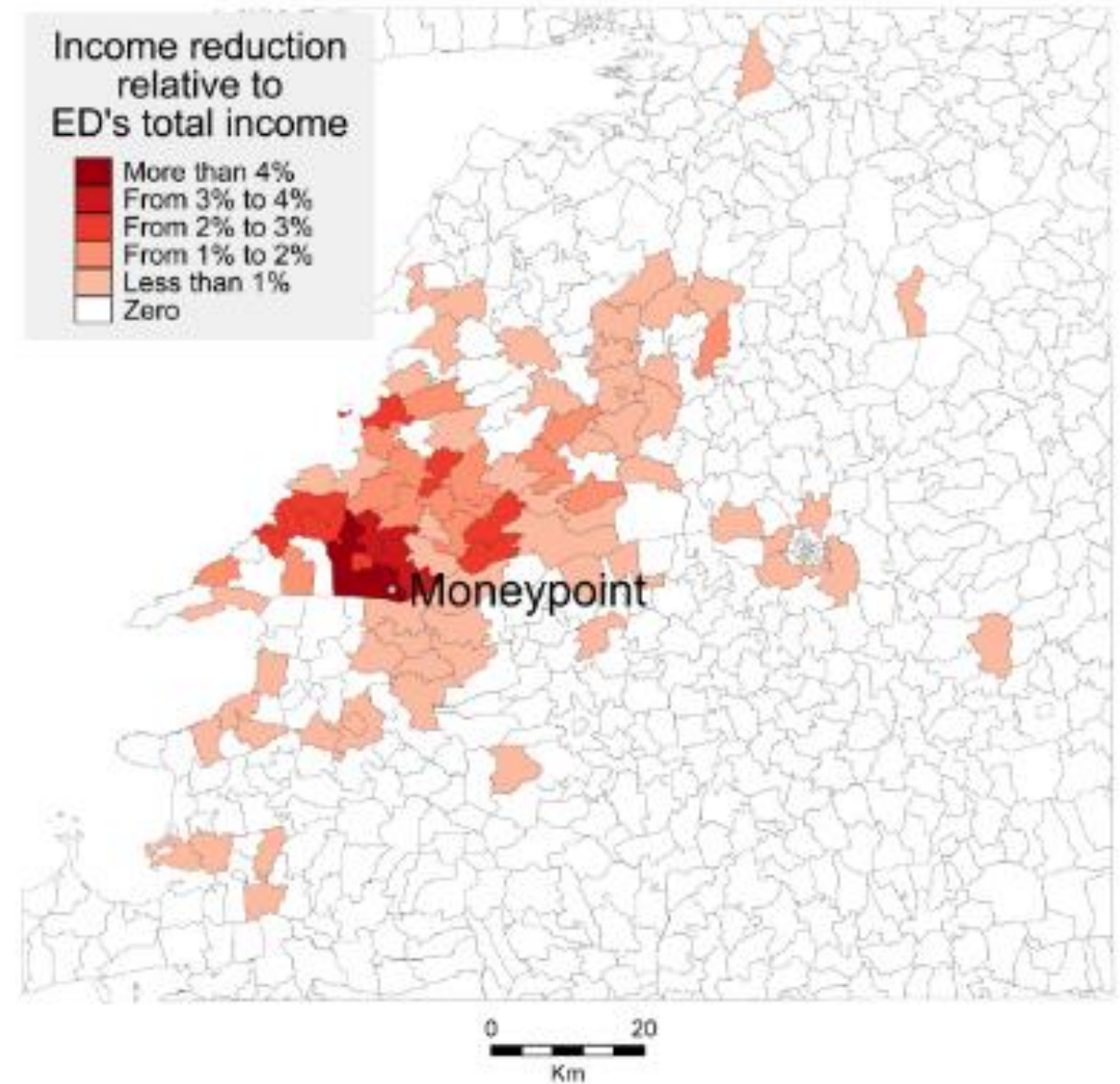ECONOMIC & SOCIAL
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Results

- Total reduction in household income

(a) Total reduction

Results

- Proportional reduction in household income

- Once again, mostly less than 2%, up to 5% or so

(b) As a percentage of ED's total household gross income

Results

- Effects are small relative to regional income

Table 2: Macro effects

	Total employment reduction	Percentage employment reduction (%)	Total income reduction (€)	Percentage income reduction (%)
Ireland	194	0.0000	9,881,966	0.0077
Co. Clare	171	0.0025	8,698,914	0.3161
Co. Galway	1	0.0000	34,796	0.0008
Co. Kerry	12	0.0002	626,322	0.0192
Limerick City and County	9	0.0001	452,344	0.0100
Co. Mayo	1	0.0000	34,796	0.0012
Co. South Dublin	1	0.0000	34,796	0.0005

Policy Conclusions

- Job losses have a large impact on those who lose their job
  - Well-discussed social and economic implications

- For the analysed case study, impacts are small relative to regional income
  - Relatively small second-round indirect and induced effects likely.

Are there lessons for Just Transition Policy?

- 3 priority areas for investment for Just Transition Fund:
  - Generating employment through diversification of the local economy
  - Restoration of degraded peatlands and regeneration of industrial heritage assets
  - Smart and sustainable local mobility
    - Providing former peat communities with smart and sustainable mobility options to enable them to benefit directly from the green transition
      - Decarbonise local bus routes
      - Supports for local bus companies to decarbonise
      - Public charge points.

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Are there lessons for just transition policy?

- Economic/Social motivation:
  - Ensure 'nobody left behind'

- What does successfully tackling this problem involve?
  - Compensating one-for-one for any losses?
  - Transforming certain regions with new enterprises?
  - Ensuring individuals affected are not disadvantaged with regard to future opportunity?
  - Something else?

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Thank you!

niall.farrell@esri.ie

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