

The causal effects of an industrial policy

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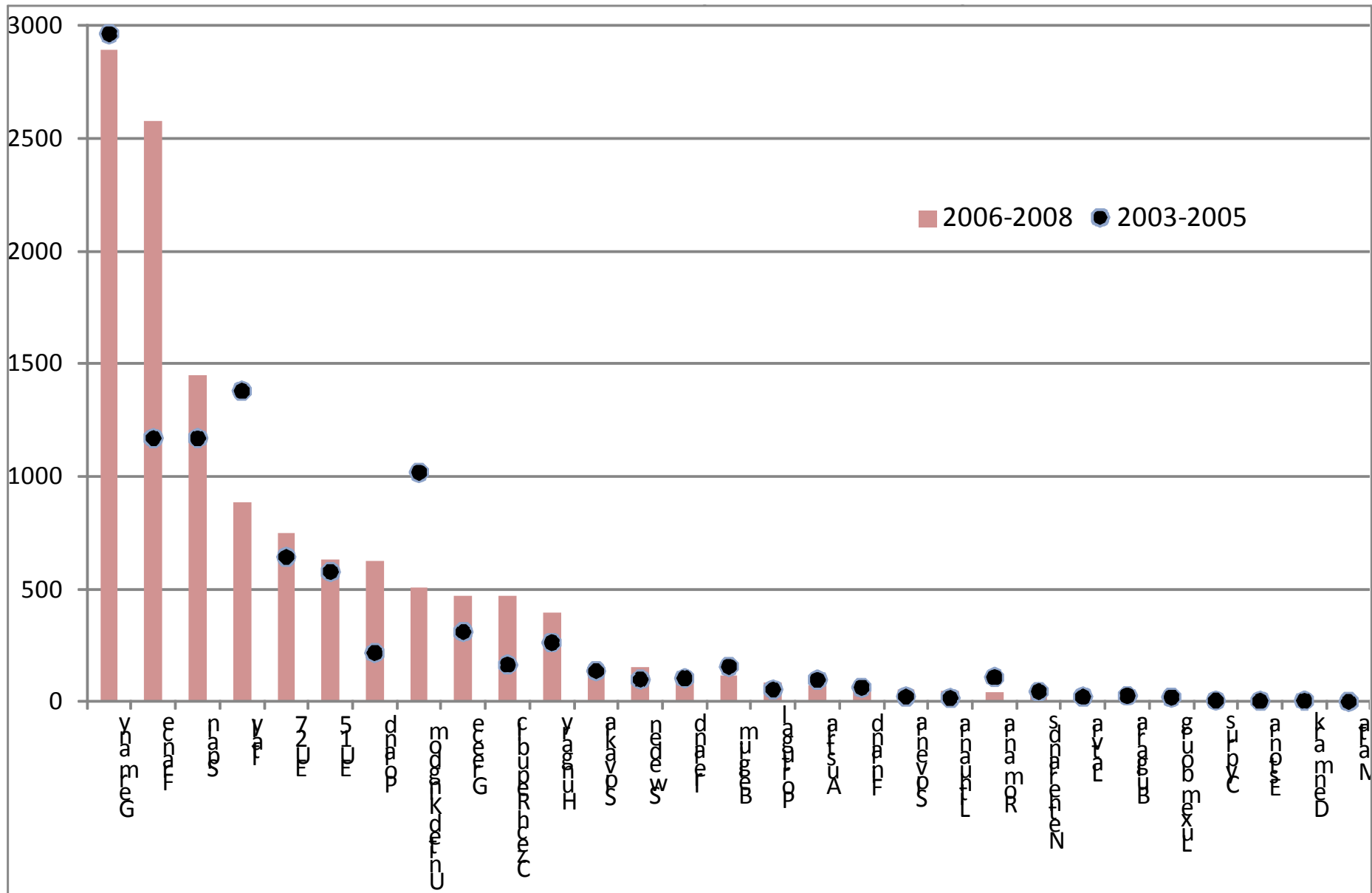
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Motivation

- Fiscal measures after the crisis have led to renewed interest in the effectiveness of industrial policies
- In Europe the manufacturing sector and regional state aid represent important areas for government support

State Aid for regional development in EU countries,



...However...

- Econometric evaluations of these policies that have a credible identification strategy are not widespread although they are growing:
 - Difficulty in accessing the necessary microdata
 - Difficulty to implementing credible identification strategies in the absence of ex ante randomization and problems of self-selection
 - Rodrik (2007)
 - Governments tend to support firms that are in trouble. This leads “naive” estimators to underestimate the true {positive} effect of the policy

On the other hand

- Governments could support firms for projects that firms would have carried out without support. This could lead one to overestimate the {positive} effect of the policy

Our contribution

- Econometric evaluation of the causal impact of an important regional/industrial policy in the UK
- **Regional Selective Assistance (RSA)** – program gives eligible firms grants for capital investment “to safeguard or create jobs” in disadvantaged areas -
- Estimate impact on employment; investment; productivity and entry/exit.
- The analysis is done at different levels of aggregation: plants, firms and local areas. This allows us to investigate both the heterogeneity of the impact of the policy and the direct and indirect impacts of the policy.

The tools

- An **extremely rich panel data for non-treated and treated businesses**
 - register of all applications to the program linked to Census Bureau data on population of plants for over 20 years.
- A **quasi-experiment**: location; definition of and extent of support in “disadvantaged areas” must comply with EU State Aid rules and be revised every 7 years.
 - Two “exogenous” changes in eligibility and aid ceilings for UK areas

Regional Selective Assistance: RSA

- Provides investment grants to firms in “eligible” areas. The grants cover 10-35% of capital expenditure.
- Aim: create and safeguard employment in disadvantaged areas, by encouraging firms to locate and/or expand in these areas.
 - Government commitment to upgrade skills and technology when appraising projects
- Mainly manufacturing sector
- Businesses of all sizes can apply, whether or not they are UK-owned
- Firms need to present a complete application form with business plans, accounts and reasons for wanting the grant, and justify additionality.

RSA eligibility criteria

- **LOCATION:** the project must take place in an assisted area
This is fundamental to eligibility under the RSA scheme
- **JOBS:** Must directly create or safeguard (high quality) jobs within the business and must not simply offset job losses elsewhere
- **INVESTMENT:** Must involve an element of capital investment
- **VIABILITY:** Must, along with the underlying business, be financially viable
- **NEED FOR THE GRANT:** Must need RSA to enable the project to proceed and must be funded mainly by the private sector

Geographical variation of support

Location determines not only eligibility but also size of grants.

- Different types of assisted areas:
 - Development Area or Tier 1: grant can cover max 30-35% net grant equivalent (NGE) of project.
 - Intermediate Area or Tier 2: grants can cover max 10 - 30% NGE of project
- During the sample period, map changes in 1993 and 2000
- Map of assisted areas changed because of EU legislation.

Changes in area eligibility

- RSA could distort competition and trade between European Union (EU) member states
- EU state aid legislation allows assistance only in deprived areas (high unemployment and low standard of living relative to EU average).
- EU decides:
 - Formulae and rules which determine eligibility at fixed 7 years interval
 - The maximum upper threshold of support (NGE) allowed in each Assisted Area
- Changes in eligibility depend:
 - Changes in criteria and weights
 - Changes in EU average standard of living (e.g. new countries join)

The eligibility criteria for assisted areas

The 1993 rules

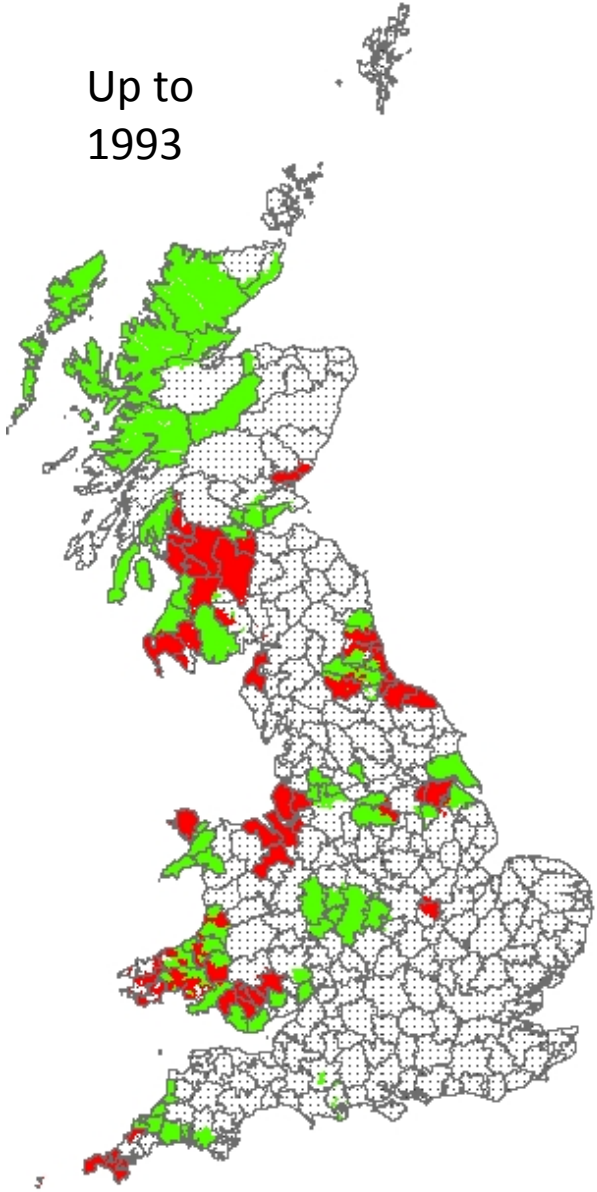
- GDP per capita relative to EU average
- Current unemployment
- Structural unemployment
- Long-term unemployment
- Occupational structure
- Activity rate
- New business growth
- Population density
- Peripherality

The 2000 rules

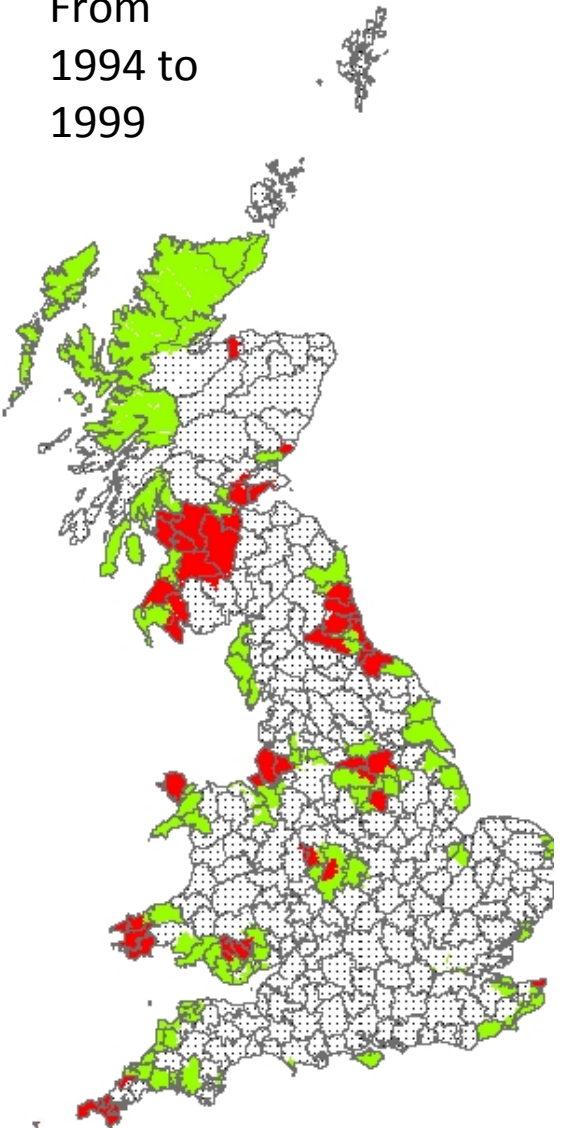
- GDP per capita relative to EU average
- Residential unemployment rates
- Workforce unemployment rates
- Residential employment rates
- Manufacturing share of employment
- Peripherality

The eligibility map changes

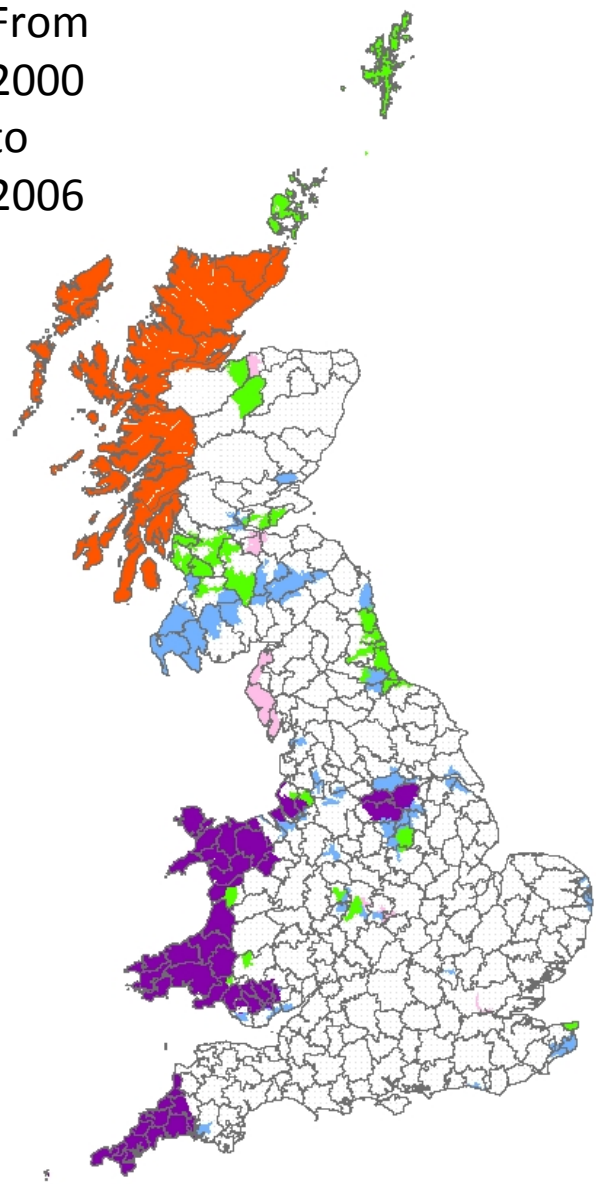
Up to
1993



From
1994 to
1999



From
2000
to
2006



Data

SAMIS database: from 1972 information on RSA applicants, name, address (postcode), how much they receive and when.

IDBR: list of all plants; firms and groups in the UK; name, address, industry, ownership, entry and exit dates.

ARD: the UK “census of production” is a survey of a stratified sample of businesses (reporting units) with info on employment, investment, output, material usage, etc. The information is recorded at the **firm** level; equivalent to **plant** level for 80% of firms in the manufacturing sample.

ONS and other UK and EU official historical data to gather information on unemployment, social structure, activity level and peripherality at the ward level.

EU official documents to gather information on eligibility rules and maps.

We use matched data from these sources for the manufacturing sector for the period 1985 to 2004.

Information from the data

- Plant level: employment; single vs multiplant; location; industrial activity; entry and exit; whether program participants
- Firm level: employment; single vs multiplant; location of all plants; investment; output and inputs to production; ownership; industrial activity
- Area level: number of plants active in the area; number of entrants and of exitors and their employment; unemployment and other “eligibility criteria” and “eligibility” indicators over time

The results

- Positive average treatment effect on the treated for employment and investment.
- No average treatment effect on the treated for Multi Factor Productivity.
- Government tends to finance “losers”.
- Additionality of the program only for small firms. Subsidies to larger plants appear ineffective in raising employment (and to a lesser extent investment).
- Analysis at the local area level shows a positive effect on employment and a decrease of unemployment in supported areas.
- Neighbourhood effects: we find that, on average, neighbourhood effects are positive and stronger for areas that are also treated, suggesting complementarity in the policy instruments.

Conclusions

- Evaluate a major industrial policy (RSA) using “natural experiment” of EU driven changes in eligibility for UK areas
- Correcting for endogeneity we find:
 - positive effect on employment and investment (badly underestimated by OLS)
 - no effect on Multi Factor Productivity
 - evidence suggesting a negative effect on aggregate productivity growth as the program supports less efficient firms
 - evidence suggesting that there is no impact from multi-plant firms: gaming the system?
 - Positive regional effects on employment
 - Positive spillover effects