The Prospects of Irish Regions

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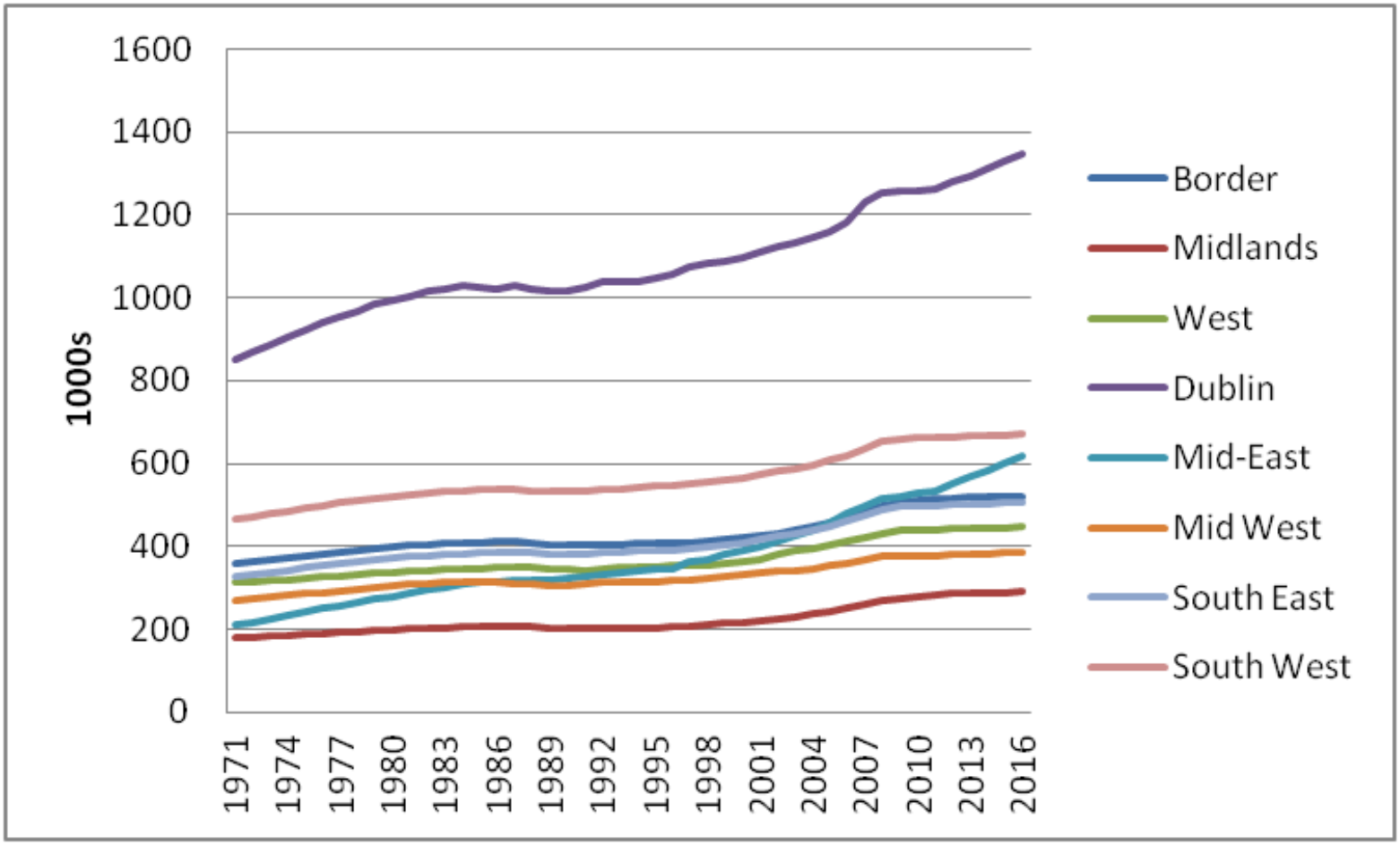
Introduction

- What has been happening to our regions and where are they going.
- Where would like them to go?
- We can say a lot about past trends but a lot less about where they are going.
- Of course where the regions are going will in part be determined by policy – what are the right levers, what is possible, what is feasible?

Outline

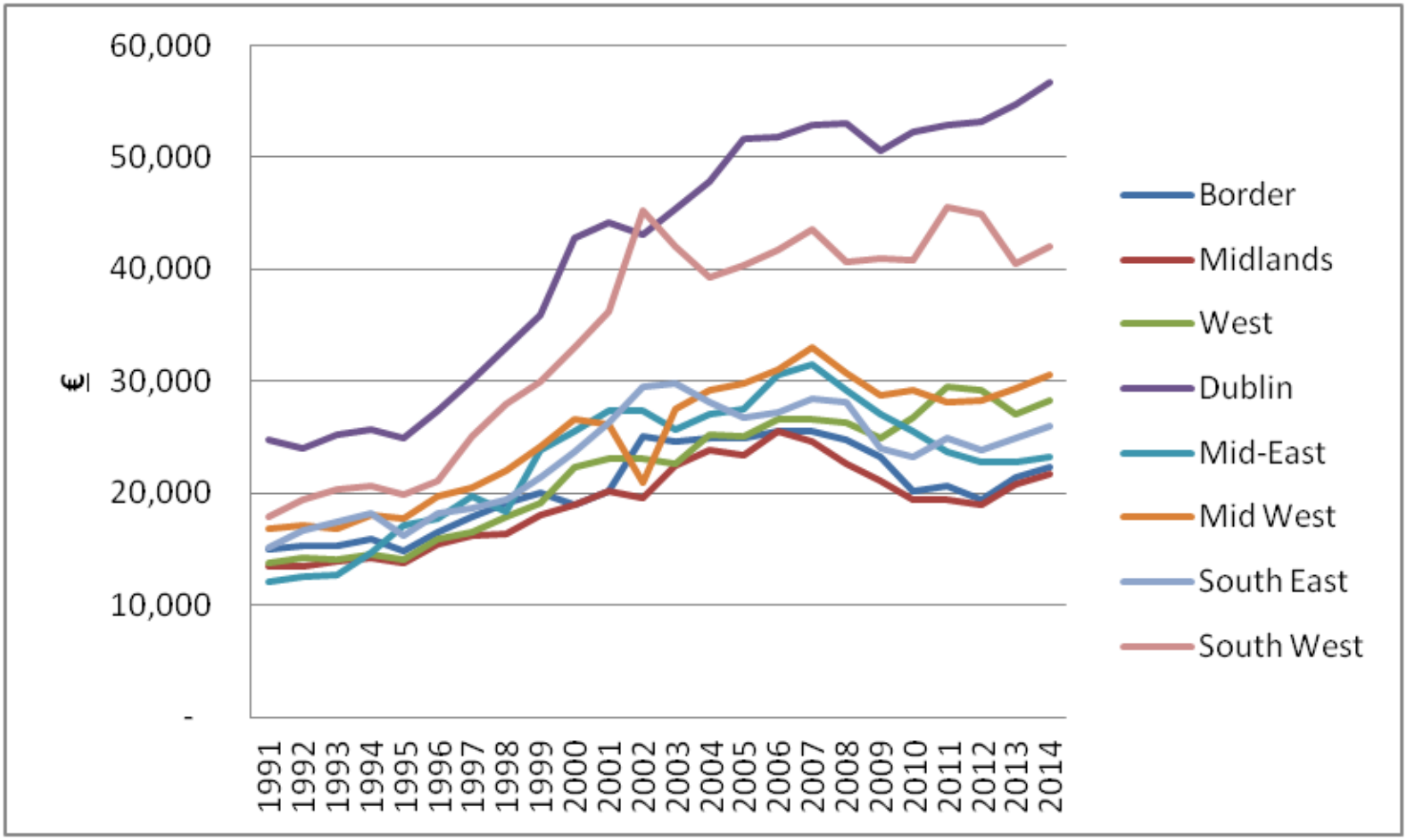
- Past trends
- Modelling infrastructure
- Population and employment projections
- Drivers of growth

Population 1971 to 2016



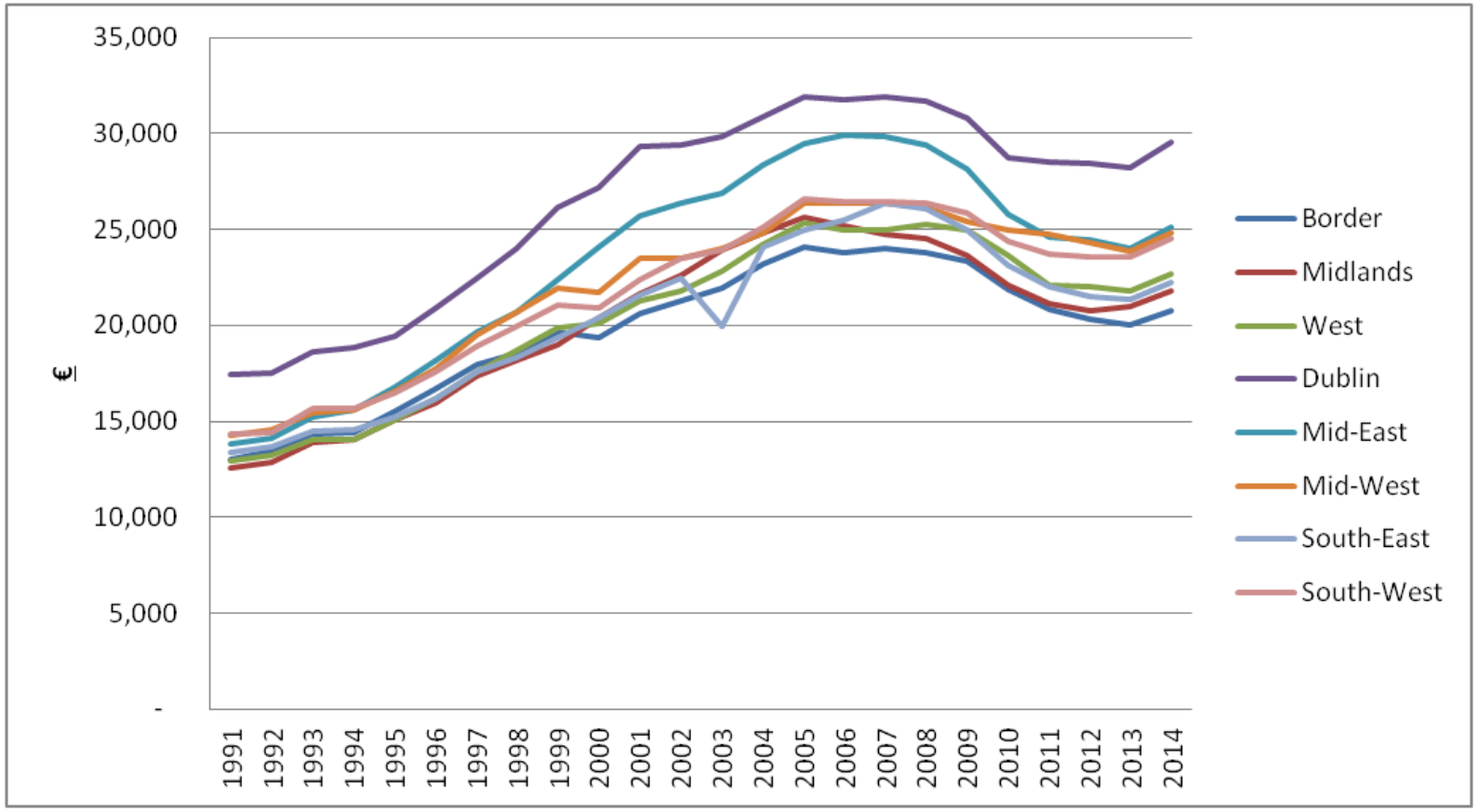
Source: Own calculations using CSO Census Data

Real Gross Value Added Per Capita 1991 to 2014



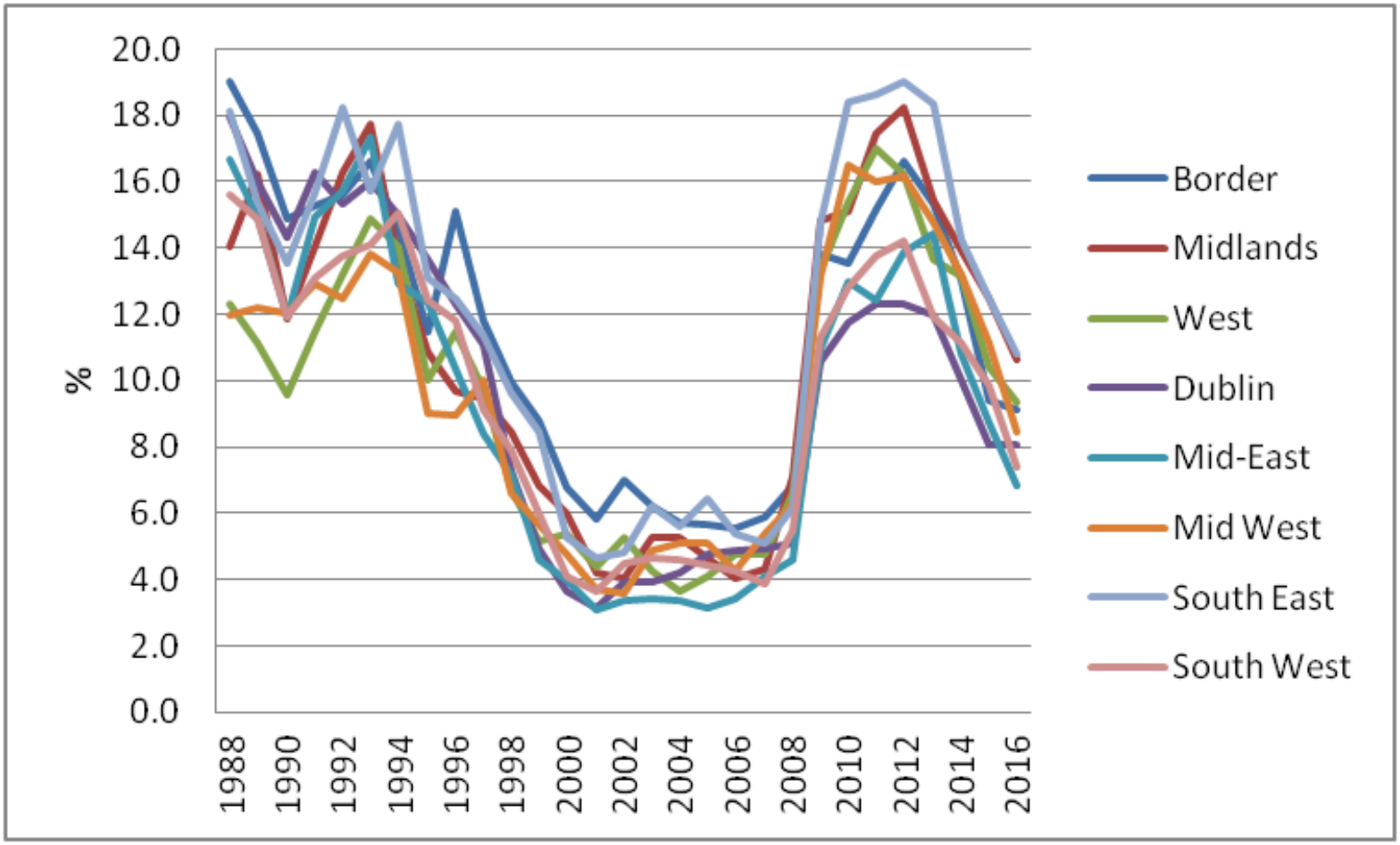
Source: Own calculations using CSO Regional GVA Data

Real Total Income Per Capita



Source: Own calculations using CSO County Income Data

Unemployment Rate (ILO) 1998 to 2016

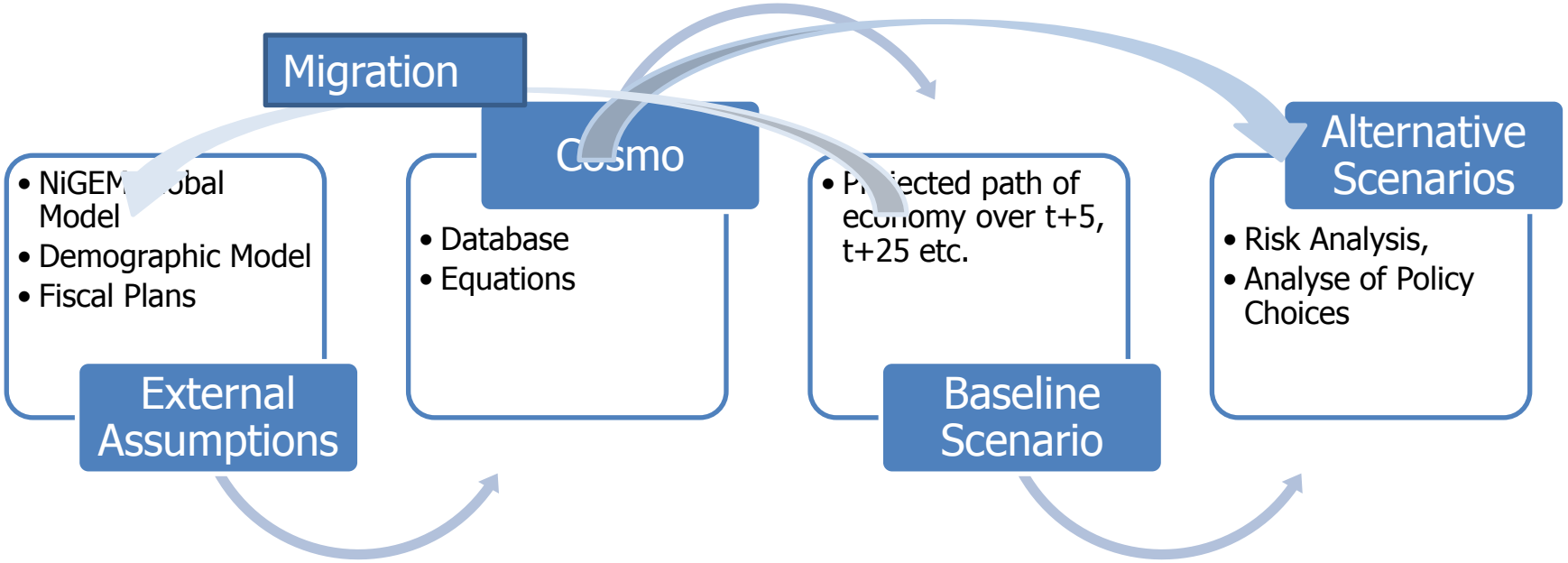


Source: CSO Quarterly National Household Survey

Modelling Regional Development

- How can we interpret the past trends and how can we project likely future trends and analyse the effect of policy on these?
- To do that we need theory and models.
- To date the modelling infrastructure to provide such inputs is underdeveloped.
- In particular there is a lack of appropriate economic modelling tools (exception is SMILE see Hynes et al 2009).
- At the national level economic models are regularly used to provide projections and policy analysis – much of this has been based on the ESRI HERMES model (Bergin et al, 2013).
- A new compact macroeconometric model (COSMO) has been developed at the ESRI (Bergin et al 2016).

COSMO – Modelling Process



- Cosmo has 170 equations including detailed modelling of the relationship between banking/finance and the real economy (e.g. Housing)
- Satellite models can be run in conjunction e.g. a regional satellite model.

Key Issues in Developing Models

- What type of model? I-O, CGE, DSGE, Microsimulation, Econometric....
- One could build bottom-up, top-down or mixed models – the latter can be constructed as a regional satellite model to a national model (COSMO) which ensures consistency with national projections and can help to add additional insights on the impact of policies.
- What is the appropriate spatial scale – region, county, ED?
- What is the appropriate time horizon? 5 years is too short for planning purposes. Many variables change only slowly (the population grew by 3.7% between 2011 and 2016).
- There are big data gaps – sectoral disaggregation, lack of specific variables, short time coverage.....

Population Models

- There has been some modelling work done on population e.g. CSO Regional Population Forecasts and the ESRI has an Irish County Population Projection Model (see Layte ed., 2009).
- The (national) regional and county level population projections are developed using the cohort component approach.
- County population projections have also been downscaled to the ED level (Murphy, Crawford and Morgenroth, 2014).
- The downscaling is achieved using an econometric model which reflects some local factors (population, density, accessibility) to attribute the population change shares to individual EDs.
- A similar approach was also used to project employment (jobs) in Eds using outputs from the ESRI HERMES model.

Cohort Component Model

- Cohort component models are based on the fundamental balancing equation of population growth ($g_{i,t}$):

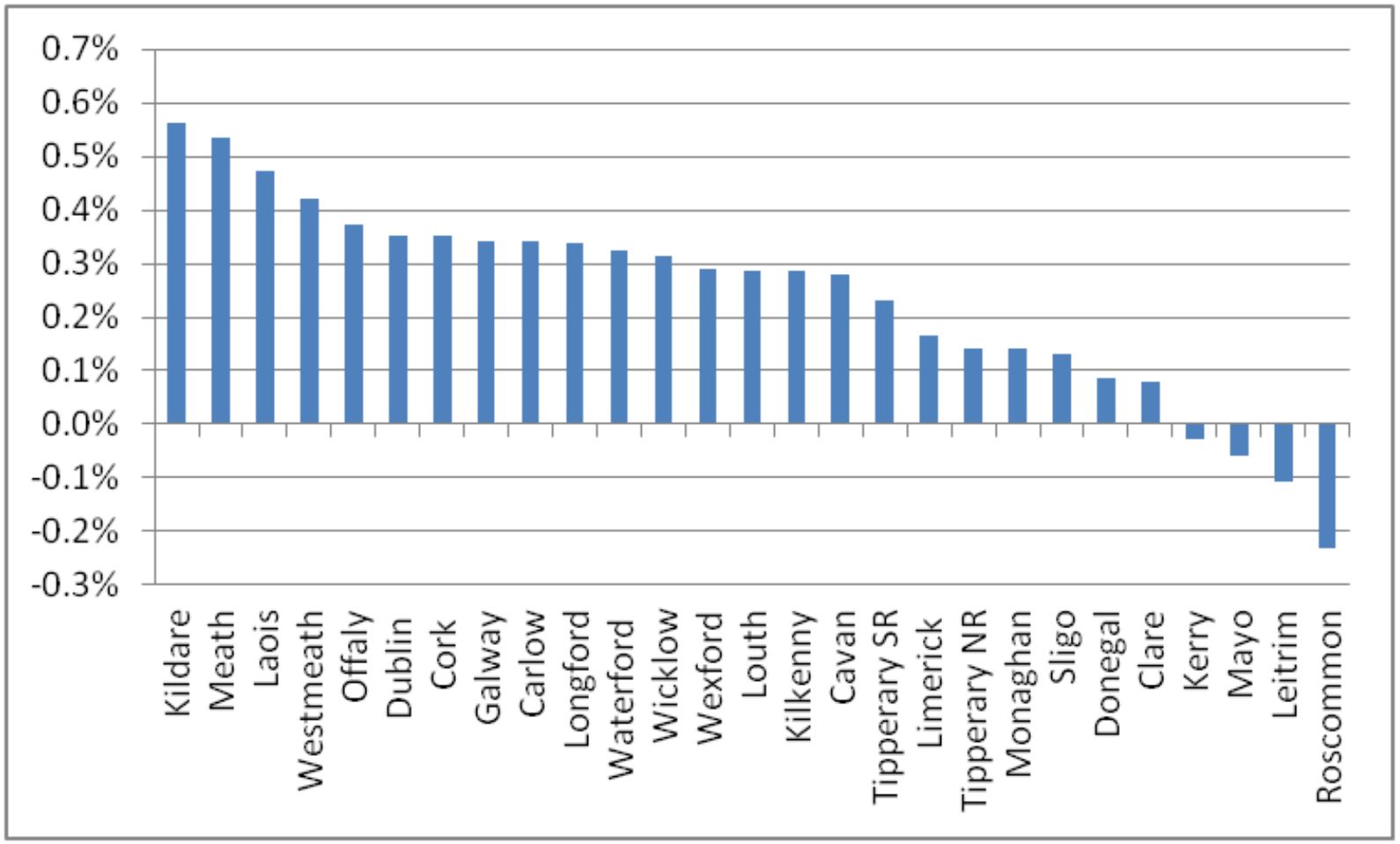
$$g_{r,t} = (B_{r,t} - D_{r,t}) + (I^{N}_{r,t} - E^{N}_{r,t}) + (I^{I}_{r,t} - E^{I}_{r,t})$$

- The population at a future time ($t+i$) is then given as:

$$P_{r,t+i} = P_{r,t} + g_{r,t}$$

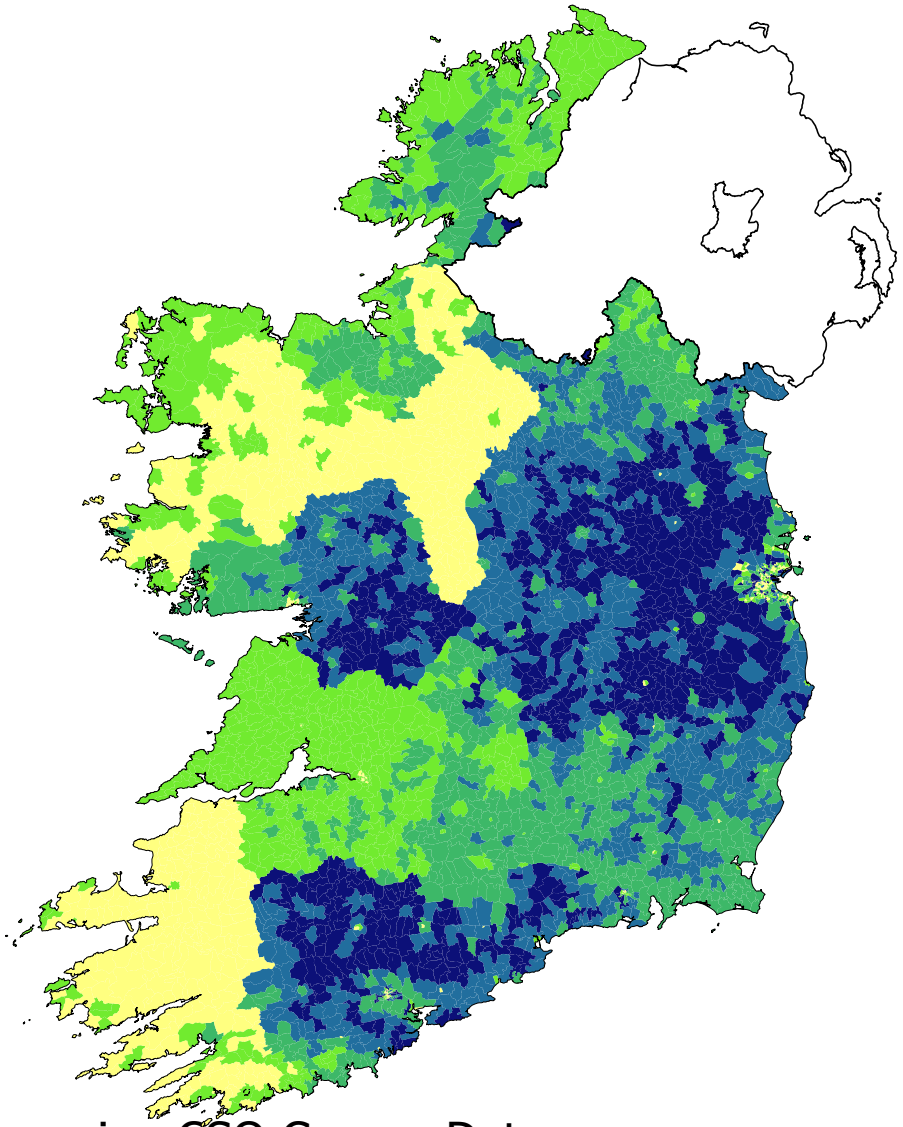
- This requires assumptions/estimates on mortality, fertility, international migration and internal migration.
- The influences of individual behaviour and policy is usually not modelled but simply assumed.
- No interaction with economic conditions (e.g. Income or unemployment), the housing market, development capacity etc.

Annual Average Population Growth 2011-2021



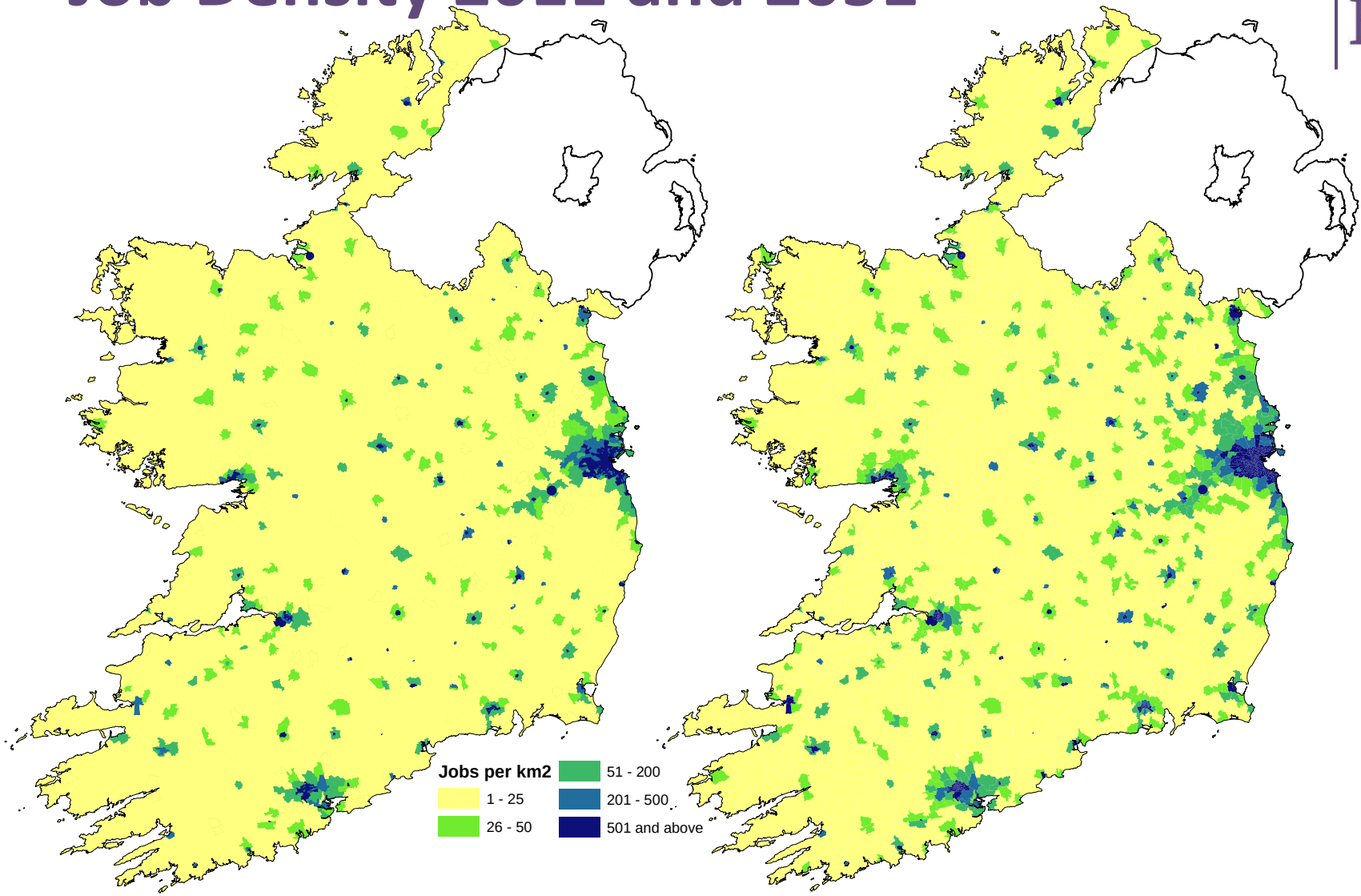
Source: Own calculations using CSO Census Data

Population Growth 2011 to 2051



Source: Own calculations using CSO Census Data

Job Density 2011 and 2051

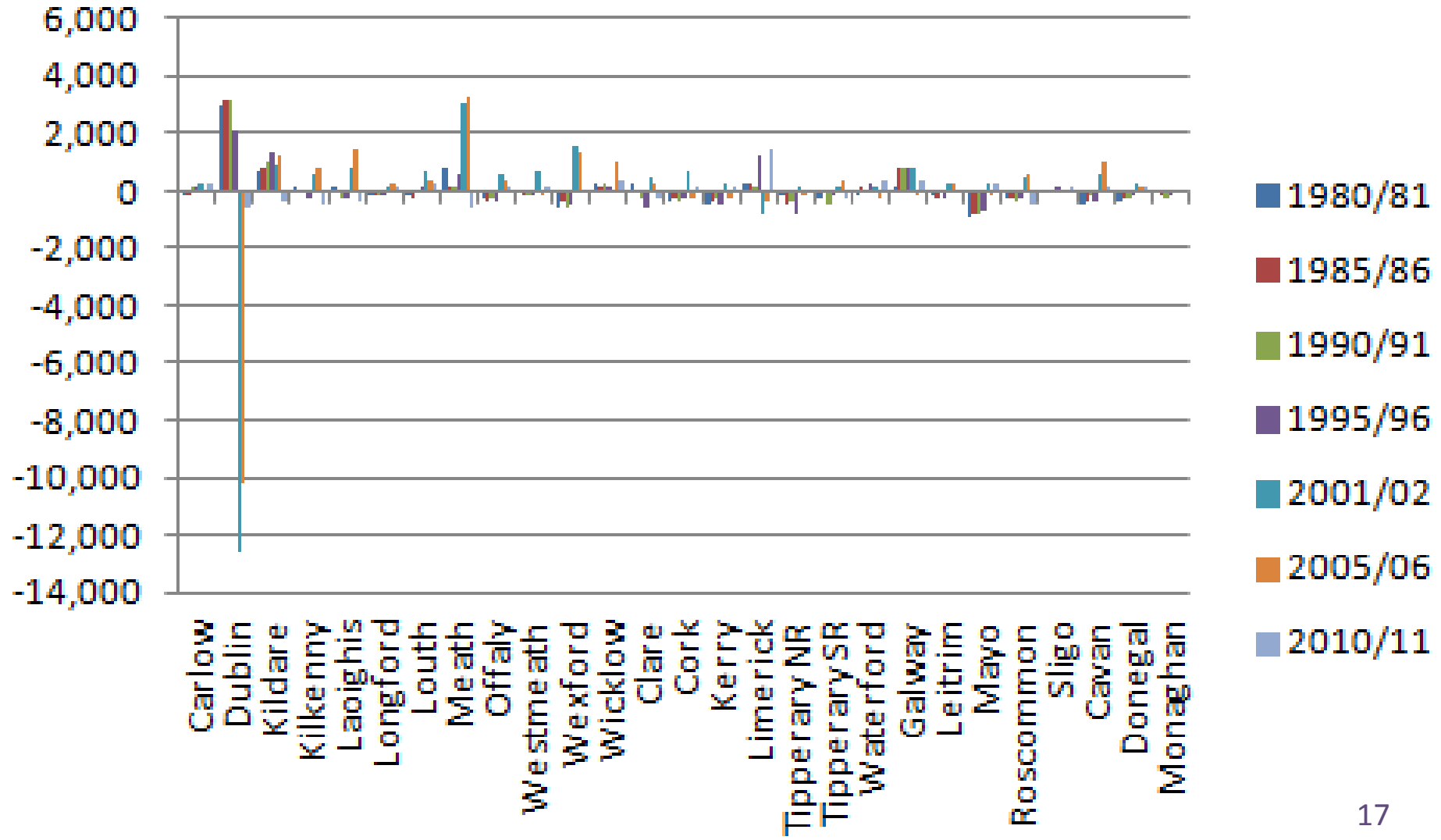


Source: Own calculations using CSO Census Data

Issues and Model Improvements

- The models are done on a business as usual basis.
- They predict continued shift of population and activity east and continued sprawl – is this what we want?
- These projections have some weaknesses.
- Internal migration patterns have been quite unstable – current assumptions are subjective and likely to be wrong.
- A model of the underlying drivers of internal migration patterns is needed – house price differentials, employment opportunities, wages....
- They don’t properly model the regional economies and their dependencies.
- This is difficult but can be done!

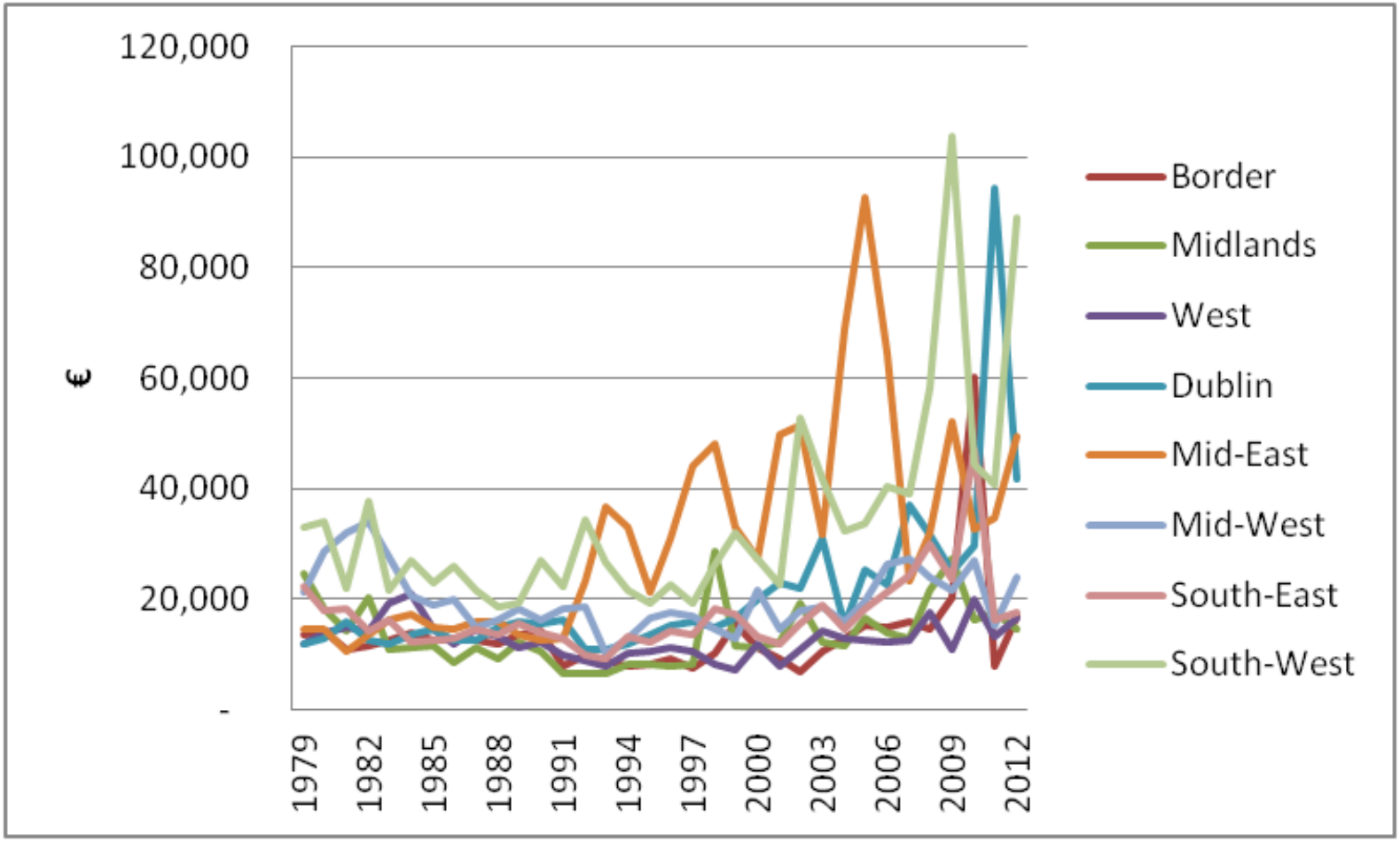
Internal Migration



What Determines Regional Development Prospects?

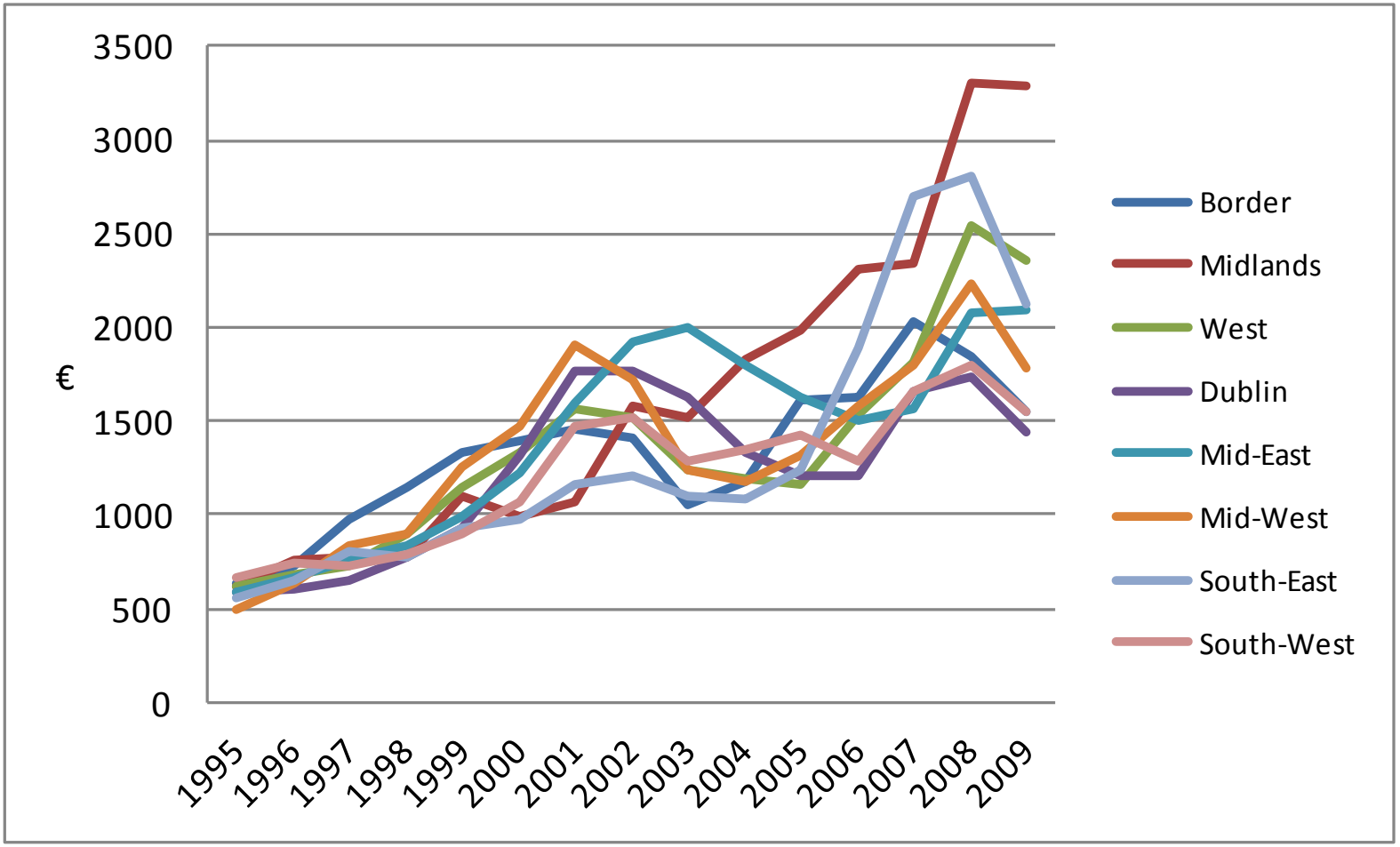
- There is an extensive literature on the determinants of growth – the key lesson is that 'capital' accumulation in the widest sense matters:
- Population/Labour Force;
- Private capital;
- Infrastructure;
- Human Capital;
- Knowledge capital (R&D, innovation).
- Social capital (community, rule of law, institutions, leadership...)
- The literature also shows that spatial factors matter:
- Density;
- Agglomeration;
- Amenities.
- How markets function also matters:
- Competition (or lack thereof)

Real Investment Per Worker (Industry)



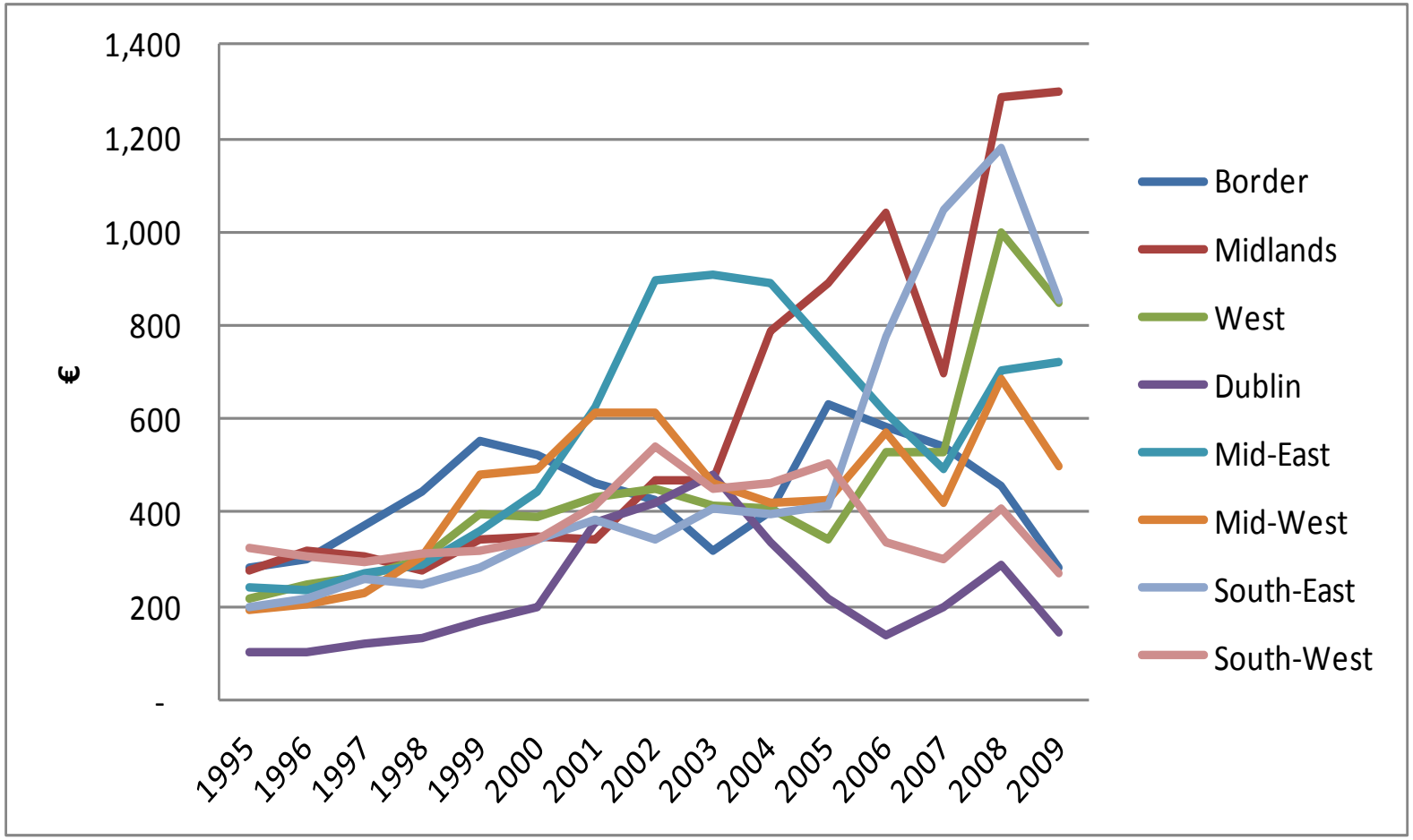
Source: Own calculations using CSO Census of Industrial Production

Real Per Capita Public Capital Expenditure by Region



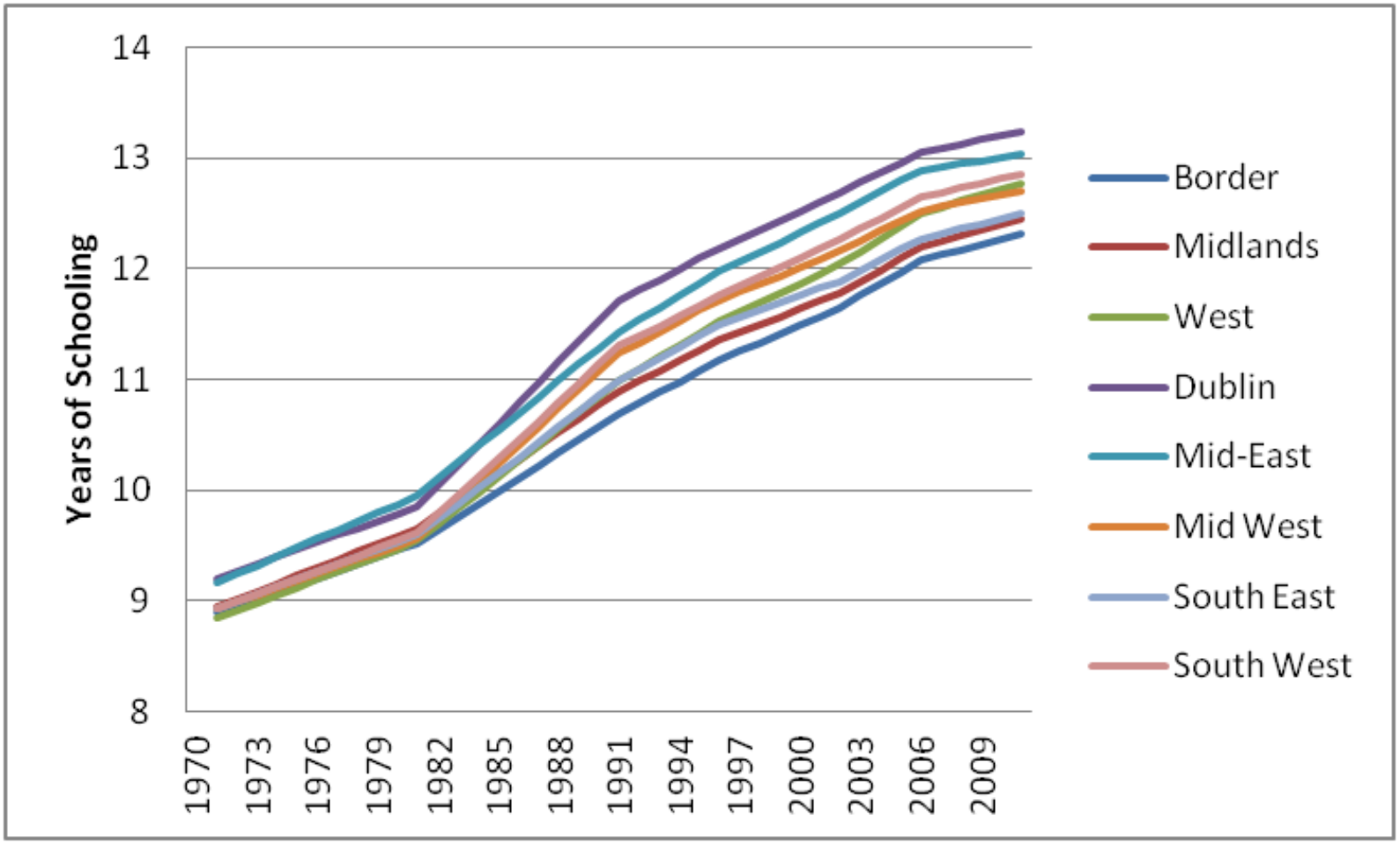
Source: Own calculations based on Morgenroth (2010).

Real Per Capita Public Capital Expenditure on Roads by Region



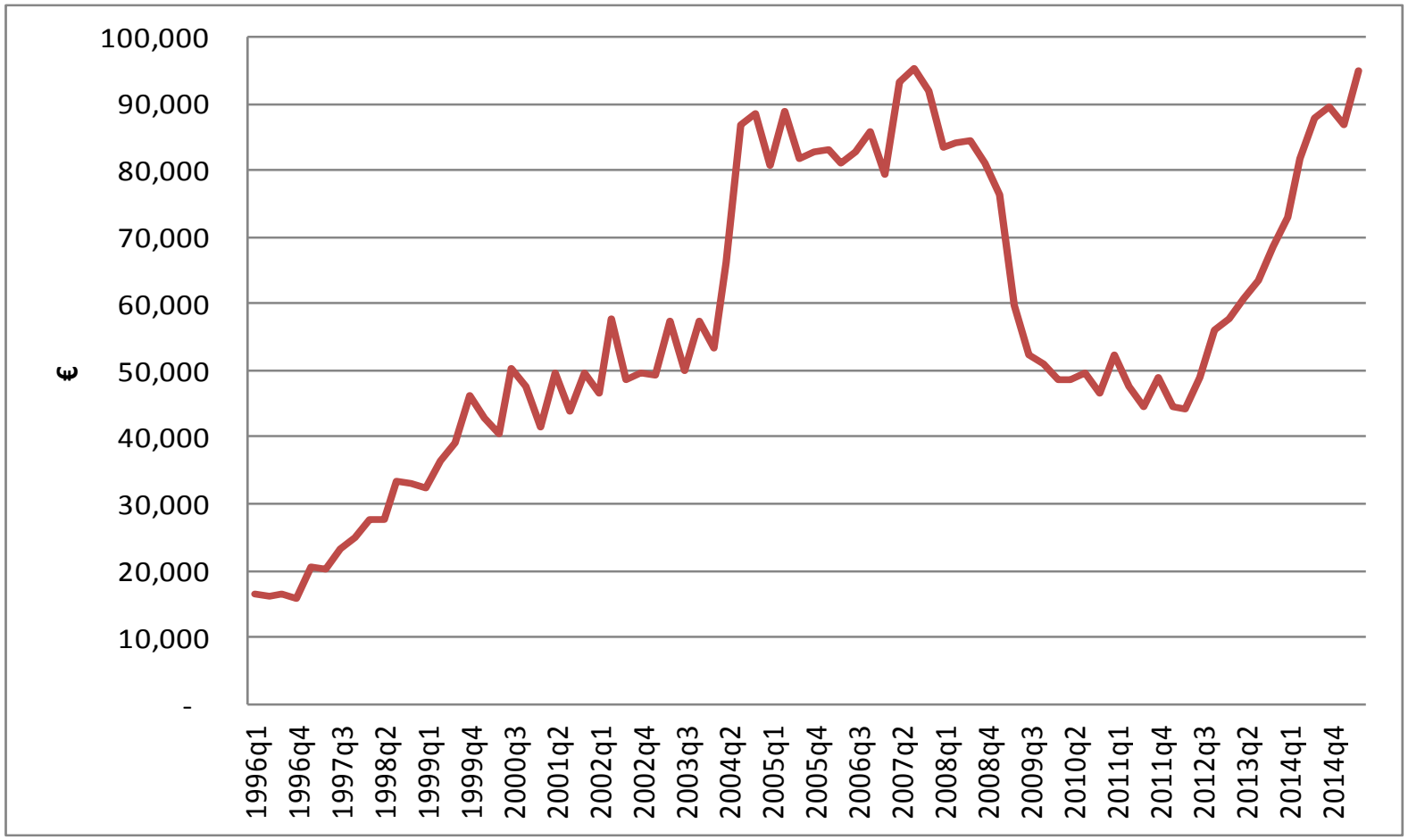
Source: Own calculations based on Morgenroth (2010).

Human Capital: Years of Schooling



Source: Own calculations using CSO Census Data

House Price Dispersion Across Counties – Standard Deviation of House Prices



Source: Own calculations using data from the ESRI/PTSB house price index and Daft.ie.

Implications

- The regional development patterns don't just follow the national business cycle – some regions are faring systematically better.
- The existing projections suggests a continued shift of the population and activity east and continued sprawl.
- Scale has something to do with this but so do the underlying drivers of growth.
- However, it is difficult to give an authoritative assessment of the likely economic prospects of the regions at this point given the lack of appropriate modelling tools.
- Ongoing work aims at building a regional satellite model to COSMO in order to enhance the modelling capacity and to provide consistent projections.