

Introduction to the Special Issue: Advances in Regional Forecasting

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Economic forecasting is a well-recognized field of study in economists. However, the ability of economists to make forecast has often been questioned. Recently, Lahiry (2011) summarizes this idea, saying that ‘There is skepticism not only by laymen but by most academic economists regarding the true capability of macroeconomic forecasters. The conventional wisdom is that economic forecasters are mere charlatans.’ Despite such negative opinions residing in part of the professional and academic domains of economics, businesses and policymakers need predictions, especially when the world economy is experiencing the *Great Recession*. In this sense, Kennedy (2003, p. 364) asserted that ‘even if forecasts are poor, there are none better, and perhaps a poor forecast is better than none at all.’

The accuracy of economic forecasting depends on many factors, such as the quality of the data, the adequacy of the chosen method, and computational limitations. When it comes to predictions for (small) geographical/georeferenced entities, the scarcity of disaggregated data has limited the development of methods and the consequent interest in this particular empirical exercise for a long time.

In contrast, forecasts at the regional/local level are a necessary complement to forecasts at the national level, allowing, for example, policymakers to allocate public expenditure between regions more efficiently. This idea reinforces the need for econometric techniques for obtaining local predictions, and in particular those where the information on each spatial unit is considered together with the one on its neighbouring units, as the latter ones are most likely to influence the former’s socioeconomic outcomes with their policies due to spatial proximity (e.g., think of interregional commuting) (see, e.g., Baltagi et al., 2012, 2014). Moreover, emerging empirical evidence suggests that, depending on the data set-up available (e.g., in terms of the cross-sectional and time dimensions) different methodological approaches may be desirable (Mayor and Patuelli, 2012, 2014).

The aim of this special issue is to provide an outlet for some recent advances in regional forecasting, showing, at the same time, future research directions. Both methodological and applied contributions have been selected, varying methodologically from traditional, time-series-based panel econometrics to spatial econometrics. The special issue contains nine

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articles which look at regional economic forecasting task from different but complementary perspectives.

In the first article, Bernard Fingleton offers an investigation, based on simulation results, of issues related to short-run forecasting when the data-generating process (DGP) is a dynamic spatial panel process. He presents results on the appropriateness of several forecasting approaches (including intentionally misspecified ones) and discusses ideal modelling strategies.

Subsequently, Daniel Griffith and Yongwan Chun focus on the reliability of forecasting task using space-time data with relatively small samples in terms of the time dimension. They propose to control for the heterogeneity of regional data by means of a generalized linear mixed model framework, where spatial autocorrelation is explicitly accounted for by using eigenvector spatial filtering. An empirical exercise on population data shows an improved behaviour of regional forecasts, and confirms the initial hypothesis that spatial autocorrelation collects the inertia in space-time data derived from the temporal dominance.

A broader view on regional forecasting is taken in the contribution by Robert Lehmann and Klaus Wohlrabe. The authors present a review of methodological advances from the last twenty years in forecasting total output (gross domestic product or gross value add) and employment (or unemployment rates) at the regional level. After this analysis of the literature, they propose a number of future research directions, regarding the treatment of the spatial effects using dynamic panel data, the performance of these methods with smaller geographical units, or the application of nonlinear methods.

The article by Torben Dall Schmidt and coauthors follows, where the issue of workforce ageing in relation to labour market forecasting is investigated. The authors combine, in an empirical exercise for the Baltic countries, population projections with forecasting models based on spatial econometric techniques. Within a system of equations for employment, unemployment and activity rates, they show that the use of population projections – as opposed to no-change scenarios – significantly influences the performance of the forecasting model.

Keeping the focus on labour market dynamics, Miquel Clar-Lopez and coauthors propose regional unemployment forecasting models based on Okun's law, that is, the empirical relationship between unemployment change and output growth. They test standard univariate autoregressive and varying-coefficient models. Based on an application to Spanish NUTS-II regions, they find that Okun-law based models improve the forecasting performance and that time-varying-coefficient models may represent a useful solution, but that forecasting Spanish regional unemployment remains, as previously shown in the literature, a challenge.

In a further contribution on regional labour markets, Ana Angulo and coauthors resort to dynamic spatial panel models in order to investigate the role played by regional specialization in forecasting employment growth and explaining forecasting errors. They choose to focus on the 2007–10 period of economic crisis in Spain, exploring the relationship between specialization and economic resilience, and finding a relevant role for the former.

The subsequent article, by Günter Haag and coauthors, presents a new forecasting method (the 'IAB-STASA model'), which is evaluated using German district data. The key point of the model is the combination of two main components: demographic development and migration, and labour market dynamics. The empirical application proposed includes the elaboration of future scenarios (based on three alternatives) with the aim of incorporating the spatial effects of the Great Recession and the performance of the German districts. As such, the model represents a novel and multidimensional contribution to the estimation of the complex labour market effects of exogenous shocks.

In their study, Eleni Kyriazakou and Theodore Panagiotidis analyse causal relationships (predictability) in UK regional real estate prices using Granger causality tests for the short

(first differences) and long run (levels). The traditional linear causality test is extended to nonlinear pairwise causality. The authors find that long-run causality among UK real estate prices is mainly linear, whereas short-run predictability is nonlinear. As it may be expected, London exerts the greatest influence over the remaining regions.

In the final contribution to the special issue, Annie Tubadji and coauthors take an econometric approach similar to Angulo et al. (see above), and test for the relevance of intangible investments and historic cultural persistence on the resilience of Greek regions to the economic crisis in terms of employment. The authors find that, while the inclusion of cultural variables in the forecasting model does not improve its performance, an ex-post analysis of forecasting errors links them to cultural factors. These findings are interpreted as a confirmation that culture drives the difference reactions to the economic shock examined.

In summary, the contributions collected in this special issue show how diversified and broad the possible approaches to regional forecasting are. At the same time, the need for adequate regional forecasts is underlined in applications to a diverse set of problems, and a case is made for further developing and testing the existing techniques.

References

- Baltagi, B.H., Bresson, G. and Pirotte, A. (2012) Forecasting with spatial panel data, *Computational Statistics and Data Analysis*, 56(11), 3381-3397.
- Baltagi, B.H., Fingleton, B. and Pirotte, A. (2014) Estimating and forecasting with a dynamic spatial panel data model, *Oxford Bulletin of Economics and Statistics*, 76(1), 112-138.
- Kennedy, P. (2003) *A guide to Econometrics*, Blackwell: Oxford.
- Lahiry, K. (2011) *Limits to economic forecasting*, in Higgins, M.L. (ed.) *Advances in economic forecasting*, Upjohn Institute Press: Kalamazoo, 25-49.
- Mayor, M. and Patuelli, R. (2014) Spatial panel data forecasting over different horizons, cross-sectional and temporal dimensions, *Revue d'Economie Régionale & Urbaine (Journal of Regional and Urban Economics)*, forthcoming.
- Mayor, M. and Patuelli, R. (2012) *Short-run regional forecasts: spatial models through varying cross-sectional and temporal dimensions*, in Fernández-Vazquez, E. and Rubiera-Morollón, F. (eds.) *Defining the spatial scale in modern regional analysis: new challenges from data at local level*, Springer: Berlin Heidelberg, 173-192.