

Forecasting in Regional Labour Market Monitoring

Citation for published version (APA):

Kriechel, B. (2007). Forecasting in Regional Labour Market Monitoring. In C. Larsen, W. Mathejczyk, & A. Schmid (Eds.), *Monitoring of Regional Labour Markets in European States* (pp. 135-140). Muenchen and Mering: Rainer Hampp Verlag.

Document status and date:

Published: 01/01/2007

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

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Monitoring of Regional Labour Markets in European States

Concepts – Experiences – Perspectives

Bibliographische Informationen

Verlag

Erscheinungsjahr

Auflage

ISBN-Nummer

Urheberrechtliche Hinweise

Foreword of the Editors

Regions have become increasingly important in the European context for the competitiveness of businesses and labour. In this context functional regional labour markets and efficient regional labour market policies constitute a key competitiveness factor. The basic prerequisites for these are adequate information and in-depth knowledge for regional actors in the labour market. One instrument that generates and disseminates such information and knowledge is regional labour market monitoring.

During the conference “Monitoring of Regional Labour Markets in Europe”, which took place in March 2006 in Frankfurt am Main, ideas and approaches of regional labour market monitoring from various European states are presented. Most of the presentations, supplemented by a number of further contributions, are gathered in this volume for publication. We expressly thank the authors for their contributions.

The conference and this book together represent the beginning of the discourse and activities in the European network for regional labour market monitoring, which came into existence in March 2006. In this network there are currently about 80 institutions in 18 European countries, all connected to each other in a process of “mutual learning”. The focus of this learning is on systematic exchange of experiences in the area of regional labour market monitoring as well as on further trans-national development of ideas.

We would like hereby to thank the Hans-Böckler-Stiftung (Hans-Böckler-Foundation) and the Sparkassen- und Giroverband Hessen-Thüringen (Savings and Credit Union of Hessen-Thüringen), without whose support the European conference and the book that grew out of it would not have come into being.

Last but not least we give our special thanks to Minister President of Hessen Mr. Roland Koch, under whose patronage the conference “Monitoring of Regional Labour Markets in Europe” took place.

Christa Larsen

Waldemar Mathejczyk

Alfons Schmid

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This book gives an idea of the diversity of European approaches to monitoring of regional labour markets. It renders different concepts and instruments representing the region in which they are used at the moment. Moreover, those concepts and instruments represent approaches which are used in other European regions in similar ways but with different stress or modified methods.

In this publication, 27 authors from 12 European countries depict various aspects of Regional Labour Market Monitoring. Realistic examples from 15 regions will be given. However, this book does not claim to touch upon each existing approach, or to give a general overview. It was our aim to offer a first glimpse and to show how many possibilities for development are contained in the discussed approaches and methods. Additionally, we want to show which problems of the labour market should be solved and in which areas Regional Labour Market Monitoring can make a contribution to this target. A European discussion about Regional Labour Market Monitoring has started right now. This book wants to intensify and speed up this discussion. It addresses to political decision-makers and scientists as well as to practitioners from employment agencies and administration. The idea for this publication dates back to a two-day-conference in March 2006 when 80 experts from 15 countries met in Frankfurt. The articles at hand were written by participants of the conference and members of the network founded on this occasion.

In *chapter 1*, the editors of the book *Alfons Schmid, Christa Larsen, and Waldemar Mathejczyk* give an introduction to the matter from a scientific point of view, in which they summarize their judgement of the status quo. On the background of conversations with numerous protagonists in this field, they found a rough division: There are complex nationwide systems, which are often connected with national labour administration, and there are particular approaches developed in certain regions. Besides, there are approaches which are set apart because they have a specific geographical context or a specific target group.

In *chapter 2*, the reader will find various examples of complex information systems for nationwide monitoring.

At first, a practical example from a Scandinavian country is presented. *Thomas Behrens* describes the current Regional Labour Market Monitoring system in Sweden, where the National Labour Market Administration has a long tradition in regularly observing statistical indicators. As he is labour market analyst at the County Labour Board, his practical perspective points out that monitoring means not only regularly conducted observation of statistical and financial indicators but also includes other types of systematic information gathering such as regular surveys and forecasting of labour market developments.

Another example for a monitoring system that is generated in the National Labour Administration can be seen in Poland. The Labour Market Monitoring in the regions of Poland is carried out by a team of scientists. *Dr. Iwona Kukulak-Dolata* from the Łódź University team works on the monitoring system in Poland and describes origins and development during the recent years. As an example she presents the structure of the monitoring regarding the shortage and surplus occupations in Poland after 2005. The Polish monitoring system seems to be a variation which is based on one hand on the different statistics of national labour administration and methodically developed by scientists on the other hand.

The Regional Labour Market Monitoring is embedded into National Labour Administration in another example from an East European country. *Mirena Stavreva*, labour market analyst of the Labour Market Authority in Sofia, describes in her report the present situation as a preliminary stage for a Regional Labour Market Monitoring. In Bulgaria,

Regional Labour Market Monitoring is still in its infancy. Starting from a general statistics of unemployed, descriptive statements are possible. More complex statements like e.g. prognosis or early detection are not yet daily business.

In France, the different labour market regions were given more competence and responsibilities since the early 1990s which shows effects on different levels. In their exposition, *Bénédicte Delneste and Guy Sapin* describe new demands to their work as an effect of decentralisation of labour market politics. Their experiences as managers of an educational institute make clear that Regional Labour Market Monitoring in Burgundy means also that nationwide political programmes are implemented into the region.

Apart from those existing approaches, *Prof. Dr. Marco Ricceri* describes the preconditions for the implementation of nationwide programmes into regions from a political point of view. He underlines that an important industrialized country as Italy has a big delay in creating an effective monitoring system and all initiatives, both national and regional, are the first steps of the process. However, the reform of the labour market in Italy has been an issue of strong political confrontation that involves the governments, the parties and the unions. Meanwhile the regions are proceeding with own specific initiatives taking the possibility of the new federalism that has been introduced in Italy recently.

In *chapter 3*, various examples for particular approaches within European Regions are presented. This chapter consists of two parts.

The three contributions at the beginning have in common that they radiate a vast orientation to action, which means the described examples from the Netherlands and Germany attach great importance to the use of acquired information.

Andreas Mertens summarizes his experience as coordinator of the Prospect approach that has been carried out almost during the last seven years in different regions of North Rhine-Westphalia. The Prospect approach is a so called dialog-oriented labour market monitoring system that has been implemented by ministry of labour of North Rhine-Westphalia several years ago.

The Prospect system was originally invented by the Dutch company Activa and modified to the demands of North Rhine-Westphalia. *Peter de Bruin*, director from Activa Research, describes current activities and perspectives of this system in the Netherlands. He explains new approaches concerning rising demands on the part of municipalities and relates to actual projects.

In the following contribution *Dr. Christa Larsen and Dr. Marco Mevius* describe an approach they developed in the region Rhine-Main that implies a dialog-oriented component, too. In the form of a new computer program, technical development helps improving Regional Labour Market Monitoring.

The second part of this chapter contains reports about Regional Labour Market Monitoring systems that are related to specific topics. Two contributions have a geographical focus. The following contributions in this chapter are related to specific target groups in the labour market. Finally the reader will find the description of a project that linked Regional Labour Market Monitoring to the vocational und educational system.

Marc Bittner and Dr. Michaela Hudler-Seitzberger present their knowledge about the regional labour market at the border zone of Austria, Hungary, Slovakia and the Czech Republic as an example of cross border monitoring. Their research questions concern to the field of migration and commuters in the labour market. Their scientific work combines qualitative and quantitative methods.

Jonathan Schulz and Markus Weißkopf also provide an international approach. They are engaged in cross border monitoring, but their focus is mainly a statistical approach of labour market monitoring. Based on the structures of „Euregio Bodensee“ they can fall back on a close cooperation with neighbouring countries. Together with Austria and Switzerland they developed suitable advisory services among others.

Michael Gebel describes from a scientific perspective how older workers move increasingly into the focus of Regional Labour Market Monitoring. Demographic changes add new political problems to the labour market which can be solved with suitable monitoring instruments in the future.

Another problematic group in the labour market are young persons. *Dr. Yvette Grelet* relates to the situation of young persons in France and describes from the perspective of an applied science which concepts were developed in recent years and which instruments are used nowadays. As an example she mentions the School-Leavers Survey as an instrument for target-group-specific Regional Labour Market Monitoring.

Helena Úlovcová and Zorka Husová finally describe the conditions of Regional Labour Market Monitoring in another East European country. They explain approaches in the Czech Republic and link Regional Labour Market Monitoring to the key factor of vocational training system. Like in Bulgaria, Regional Labour Market Monitoring there is on a stage capable of developments.

In *chapter 4*, developments of Regional Labour Market Monitoring approaches are to be touched. In general developments are possible in various ways, but the three contributions in this chapter discuss chosen aspects of fundamental importance.

Prof. Dr. Alfons Schmid discusses aspects of the theoretical background of Regional Labour Market Monitoring. He defines information and knowledge as basic elements for a successful labour market monitoring. He argues that Regional Labour Market Monitoring can develop towards a European concept.

The contribution of *Prof. Dr. Ronald W. McQuaid* treats about processes of standardisation in Regional Labour Market Monitoring based on his Experiences in Scotland. He outlines relevant issues regarding standardisation of labour market monitoring for regional and local bodies. His contribution makes clear that in the field of standardisation still a lot can be done.

Dr. Ben Kriechel allows some access to the current state of affairs concerning quantitative methods. By means of his daily work, he describes a forecasting model as it is performed at his institution. Starting with the general use of labour market monitoring in the Netherlands, he describes the regional model, which is especially useful for the early identification of mismatches and skills-need.

Networks that are closely related to labour market affairs are presented in *chapter 5*. Special attention will be given to European network co-operations and the benefits of networks for the actors.

Dr. Monika Stricker, Antje Utecht, and Tanja Kreetz explain how inter-organisational learning processes can take place in a Europe-wide acting vocational training organisation by exchanging different approaches and cultures in a network of different actors working in complementary fields of human resources development.

Two networks, both regarding the topic “Early Identification of Qualification Needs” are presented by *Bernd Dworschak and Alena Zukersteinova*. “FreQueNz” and “Skillsnet” were set up as a response to the demand of experts, policy makers and social partners.

The objective of these networks was to bring together researchers and other stakeholders from across the world to present and discuss outcomes and methods of research and analysis.

Waldemar Mathejczyk describes the current state of activities in the European network in the field of Regional Labour Market Monitoring. This network was established in March 2006 and wants to continue in 2007 and 2008: The contribution is a “critical snap-shot”.

Chapter 6 completes the book and casts a glance into future. *Alfons Schmid, Christa Larsen, and Waldemar Mathejczyk* deal with perspectives of Regional Labour Market Monitoring in European States on one hand, on the other they describe perspectives of the European Network for the Furthering Regional Labour Market Monitoring. It becomes clear that Regional Labour Market Monitoring will gain importance as an instrument of labour market policy as well as a field of research and will advise in the close future. It is mentioned, too, that in this context the recently founded network might provide an important contribution.

Forecasting in Regional Labour Market Monitoring

Ben Kriechel

1 Introduction

Forecasting future labour market situations is a natural element of labour market monitoring. Commonly, labour market monitoring systems do not contain explicit forecast. Rather, they contain current and historic information on key labour market variables. These are, however, used to evaluate the current situation and to anticipate future labour market situations. Users of historic data make implicit forecasts of the labour market variables by looking at trends. More complex labour market forecasts are in a sense an extension of these implicit forecasts yielding more consistent and efficient results given all the information available.

Regional Labour Market Monitoring is a tool that regional actors, normally regional branches of the government, provide to increase the transparency on the labour market. Transparency is created both for their own staff, that needs the monitoring to develop and pursue labour market policies, but also for actors on the labour market. The actors are not only the workers – as the supplier of the labour – and the companies demanding labour, but also the institutions that facilitate and aid the various processes on the labour market. Within the Netherlands at least five main regional actors can be identified: labour unions representing the worker, trade unions for the employers, schools and educational institutions, the labour office, in the Netherlands called “Centrum voor werk en inkomen (CWI)”, and the regional branches of the government.

All these actors are in need of timely, reliable, and – if possible – forward looking information on the regional labour market. For the current situation traditional labour market forecasting provides an adequate picture: the historical development and composition of the labour force are just as well readily available as the percentage of unemployed and the number of unfilled vacancies. However, when forward looking indicators are needed, one has to rely on more or less sophisticated models of forecasting.

In this chapter I will discuss the general use of labour market monitoring in the Netherlands (section 2), to then discuss the regional labour market forecast in section 3. Here I will describe the regional model of the ‘Research Centre for Education and the Labour Market’ (ROA), which is especially useful for the early identification of mismatches and skills need. Section 4 discusses the labour market information system as it was developed by ROA to facilitate the use of the information generated from and by making the forecasts. Section 5 summarizes the main points and concludes.

2 Regional Labour Market Monitoring in the Netherlands

While many issues of labour market policy are dealt with on the national level in the Netherlands, there remains a large degree of responsibility for provinces and municipalities. They are an important actor and facilitator in the regional labour market context. Although municipalities have some influence on the regional labour market policies, it is only within the bigger cities that they have sufficient size to actively engage in labour market projects that warrant extensive labour market monitoring.

The size of the region, be it a municipality or a province, often explains the degree and emphasis placed on labour market monitoring systems. Smaller municipalities will find a survey of employed within establishments or businesses of their municipalities sufficient, while larger municipalities will use more complex data and instruments.

All provinces have labour market monitoring systems of some sort. They differ in set-up, contents, and availability. They are usually the result of an evolving process in which information created within the organisation are combined with information that are incidentally or structurally generated outside of the organisation. All provinces and municipalities share the responsibility to contribute to the so called 'LISA database' (LISA) in which the number of employed workers is counted per establishment. In addition information of the gender, full-time or part-time status of the employee, and the sector is recorded. Many municipalities, and all provinces use the current and historical LISA counts for their labour market monitoring.

Structural information that is often added to the LISA employment database is information that the labour offices (CWI) provide. This includes a (regional) count of the short-term and long-term unemployed, vacancies, but also a forecasts provided by the labour office.

Detailed regional labour market forecasts are only incidentally used. They are usually not at the core of a region's labour market monitoring system. While most policies actually rely on the implicit extrapolation of trends which are identified using the current labour market data plus their historical context, most provinces rely on intermittent, i.e. sporadic but in some cases regular, updates of especially medium-term prognosis.

3 Regional Labour Market Forecasts

Detailed labour market forecasts that can be used for e.g. early identification of skills need are usually not structurally included in the labour market monitoring of the regional actors. However, recently more and more interest is showing in detailed forecasts that allow to pro-actively address possible future mismatches in demand and supply of skills within a region.

While general employment trends seem easy to extrapolate, given sufficient information on both the historical development in a region and the national economic development as a whole, there are several reasons for the importance of a consistent and regular update of forecasts. A sophisticated forecasting model that incorporates the general employment trends, demographics of the workforce, and the changing structure and composition of occupation and the education within the workforce is especially important in the context of early identification of skills needs.

For the Netherlands, ROA provides biannual forecasts for more than hundred different occupation and educational degrees. Borghans et al. (2006) describe the most recent national forecast. The basic methodology of this national model is described in Cörvers, de Grip and Heijke (2002).

For several years these forecasts have also been used to develop a regional model of occupational and education labour market forecasts. For the provinces of Limburg, Gelderland and Overijssel several rounds of forecasts have been made. Borghans et al. (2005) contains the most recent study for the province Overijssel. The model builds on the forecasts of the national model, introducing regional elements in several steps of the forecast methodology. Cörvers and Hensen (2005) describe the philosophy and methodology underlying the regional forecasting model used by ROA, while Kriechel (2005) focuses on the success factors in the implementation and use of regional forecasts.

3.1 Methodology of ROA's Regional Forecasting Model

The model is build to provide medium term, 5 year, forecasts on a detailed occupation and educational level. It allows for changes in the occupational structure over time (e.g. skill upgrading), as well as substitution processes. The regional forecasting model is based on the national methodology. The same components as in the national model are used for demand, expansion and replacement demand, and for supply, the short term unemployed and school leavers. Whenever possible, data and estimates are done on the regional level. The model is developed to make efficient use of the regional information available, and by using national input whenever necessary. Different from the national model, the regional model puts a stronger emphasis on the lower and intermediate education level. Those groups are the most regionally oriented, especially among school leavers.

Figure 1 gives a simplified representation of the main ingredients of the model. Dark grey boxes represent the use of national data or matrices, while white boxes show the use of regional data only. The light grey box of the school leavers represents a combination of the two. School leaver forecasts are based on the counts of students by the ministry of education¹, they are not on a regional level, but we use the current labour force's educational composition to predict the precise composition of the inflow of new graduates on the regional labour markets.

The replacement demand, on the right side of the figure, represents the outflow or turnover of workers within an occupation or education that needs to be replaced. While not all outflows will be replaced, because the composition of the occupational or educational structure on the labour market is changing, we estimate the replacement demand that is to be filled. The estimation procedure is based on the age-gender structure of an occupation or educational group.² This demographic structure of an occupation is combined with an historic estimate of turnover for the specific age-gender cohort of the occupation, and a regional prediction of the changes (Δ) in participation rates by age-gender cohort.

In the regional context the age-structure within the occupations is not sufficiently filled. In order to use the available information on the labour force, namely the age structure on the one hand and the occupational (educational) composition on the other hand, we use a RAS procedure with the national composition of age-gender within occupations (educational levels) to estimate this composition on the regional level.³

¹ Ministerie van Onderwijs Cultuur en Wetenschappen (2004): Referentieraming. Zoetermeer.

² We use the count of people within a region, i.e. absolute numbers (denoted by the symbol # in Figure 1) in the age gender-cohort and occupation.

³ The RAS procedure combines the row and column totals of a matrix and information of its structure to extrapolate the complete matrix. See e.g. van Eijs and Borghans (1996).

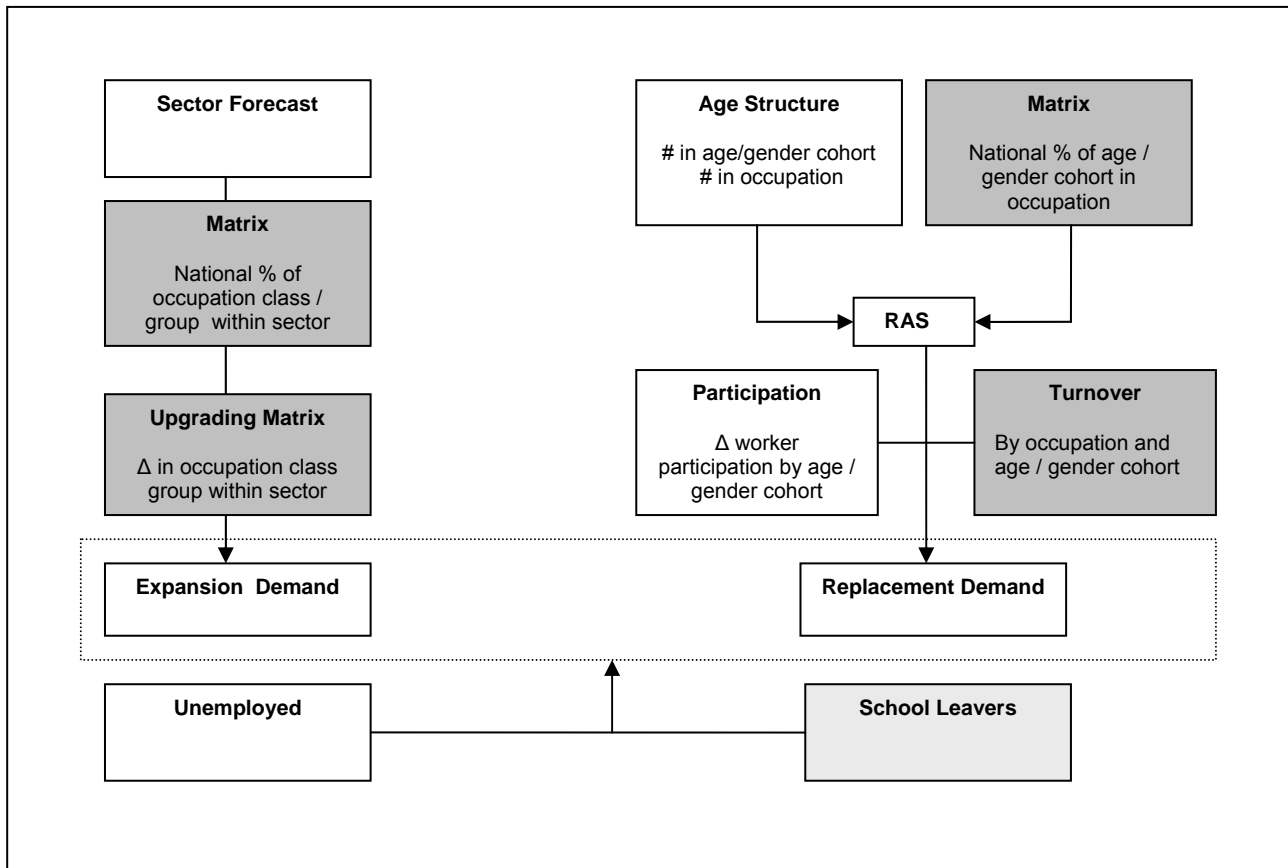


Figure 1: Regional Forecasting Model

Expansionary demand is estimated using the regional sector forecast. They are based on changes of employment (Δ sector employment) over time. These forecasts are combined with the occupational composition of sectors. It is mostly done using a national matrix, again for a lack of sufficient observations on a regional level. Additionally, we correct for shifts in the occupational (or educational) structure of the workforce and the substitution across occupations (Δ in occupation class). This correction is based on the national correction and estimates.

Both replacement and expansionary demand constitute the labour demand. The demand is confronted with the predicted supply: the unemployed and the predicted school leavers by education.

Besides the information on the different components of supply and demand on the labour market, several indicators are calculated. These indicators are intended to condensate information on supply and demand into one index, while they also allow to rank the degree of forecasted skill-mismatch by occupation. They are thus an efficient way to combine different aspects of the forecast, while keeping the comparability across occupations, but also by allowing comparisons to higher level of aggregation.

One of the challenges in the regional context is the availability of sufficient data for disaggregate data. Kriechel, Cörvers and Heijke (2005) give a detailed discussion of this problem of 'cell-size' within the current model of regional forecasts in the Netherlands.

In the future there are several ways in which the problem can be tackled. One is methodological: to reduce the level of detail on the occupational or educational class. In other words, the problem is in itself not solved, but in order to avoid the use of national data for regional forecasts, a less detailed skills forecast is made. Another possibility would be to make use different, administrative data that has become more readily available lately. Both of these avenues are being pursued to examine the possibilities for more efficient, detailed, and reliable forecasts.

4 Labour Market Information Systems

The labour market information system was developed within ROA as a response to more flexible approach to the generated data on the current situation on the labour market, but also on using the different levels of detail on occupation and educational degrees. It is a database of the forecast results, including their components in expansion, replacement demand, versus the inflow onto the labour market, as well as the indicators of mismatch.

Users can access the database to generate custom made reports on occupations they are interested in. One can, for example, compare various forecasts for several occupations, generating custom made tables. Other users are more interested in one specific occupation or educational degree, and will use the detailed information on the several aspects of the forecasts, the information on the demographic structure (age and gender ratios) within the occupation or educational degree.

The database is an addition to the traditional report that is published for the dissemination of the forecasts. Within the report the forecast itself is presented and interpreted. In addition one or two labour market aspects are examined in more detail. Topics range from the role of foreign workers on the labour market, the interregional and intraregional commuting patterns to issues as scenario analysis with different sector forecasts.

5 Conclusion

Labour market forecasts are an implicit tool in all labour market monitoring. It is natural to all actors to work with the available data in such a way that they anticipate future trends and react to them. ROA's regional forecasting model is an extension to such implicit extrapolations of historic data. Build on the methodology of the national forecasting model it uses the historic information on the regional level. By combining the regional information and additional national trends that cannot be easily estimated given the lack of regional data, a precise and detailed forecast of the regional labour market can be made. These forecasts allow – among other things – to evaluate future skill-mismatches on the regional level.

While not all regional actors will necessarily need such detailed forecasts they do significantly enhance the transparency of the regional labour market. Actors can be more precise in diagnosing future problems which can subsequently be tackled.

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