Skills anticipation in Denmark

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Table of contents

Summary

Overview of the Danish approach

Description

Aims

Legal framework

Governance

The role of stakeholders

Target groups

Funding and resources

Methods and tools

Skills assessment

Skills forecasts

Skills foresight

Other skills anticipation practices

Dissemination and use

Use of skills anticipation in policy

Target groups’ uses of skills anticipation outputs

Bibliography
Denmark conducts skills anticipation activities based on collaboration and dialogue amongst ministries, public authorities and stakeholders. The main skills anticipation activities include:

- Skills forecasting (e.g. statistical forecasting of education status and the demand and supply of labour in the public sector);
- Skills assessments (e.g. quantitative sectoral assessments on imbalances in the labour market);
- Skills foresights (e.g. sectoral assessments on future needs in the labour market);
- Employer surveys.

The methodologies and time perspectives of these activities vary from study to study.

Skills anticipation in Denmark comprises a range of methods and tools, including: quantitative forecasting; sector studies; qualitative methods; employer surveys and surveys of workers and graduates. Quantitative skills forecasting is well established and macro-econometric models are used to produce economic forecasts and policy assessments. However, skills anticipation methodologies differ between exercises and studies, which limit the availability of longitudinal data.

The overall aim of skills anticipation activities is to provide individuals with better opportunities to obtain employment and employability over time. The skills anticipation outputs are targeted at young people transitioning from school to employment, jobseekers, training providers and employers, and increasingly also people in employment with a view to having a better understanding of labour market dynamics as a basis for upskilling.

Social partners, key to the development of Danish skills anticipation activities, are involved in funding and direct research collaboration, mostly undertaken at trade and regional levels. There is a sense of cooperation amongst these partners with a shared aim of ensuring not only that young people and jobseekers base their decisions on empirical evidence, but that the education and training system is effective. Skills needs analysis is performed during the development of occupational standards and sectoral and regional analyses. Currently there is a growing interest from trade unions to analyse the impact of Industry 4.0 amid concerns that the current mechanisms are insufficient for identifying relevant skills needs in a timely manner. The governance of skills anticipation activities is a highly developed and decentralised operation.

Responsibility for the day-to-day implementation of employment policies in Denmark is largely decentralised to the municipal level. The eight Regional Employment Offices undertake skills analysis and disseminate trends at a regional level. Three Labour Market Offices work to ensure continuity in skills anticipation activities and support policy implementation at the local level.
Data are readily available, with tools to inform the wider public of career opportunities, the availability of training courses and content. Developed in 2006 as a part of a national monitoring strategy (*national overvågningsstrategi*) to support systematic monitoring of the labour market, the Danish Labour Market Balance provides data on job opportunities for approximately 850 occupations by region covering the entire labour market. The online interface of the Labour Market Balance (1) provides public employment service staff with quantitative data for prioritising employment measures, and frontline caseworkers with a tool to support jobseekers in finding employment. The current regional Labour Market Balance is the most used tool providing data and intelligence from skills anticipation activities.

There is concern now that activities are insufficient to capture structural skills changes and skills needs in the labour market, related to the so-called Fourth Industrial Revolution (Industry 4.0), sectoral convergence and digital disruption.


**Overview of the Danish approach**
### Skills anticipation in Denmark

#### Key actors

**Governance**
- Ministry of Education (Agency for Labour Market and Recruitment)
- Ministry of Employment
- Ministry of Finance

**Stakeholders**
- National Advisory Council for IVET
- National Council for Adult Education and Continuing Training
- Trade unions, employers and trade committees
- Regional and municipal authorities
- Regional growth fora
- Local schools, businesses and training committees

**Target groups**
- Young people in transition
- Jobseekers
- Education and training providers
- Employers

#### Types of skills anticipation

**Quantitative forecasting**
- Education statistics and quantitative forecasts (Ministry of Education)
- Long-term forecasting of the education levels (Denmark Rational Economic Agent Model - DREAM)
- Quantitative forecasts on the demand and supply of skills in the public sector (Ministry of Finance)
- Forecasting of education status in each cohort (Ministry of Education)

**Skills assessments**
- Sector skills assessments
- Ad-hoc exercises

**Foresight**
- Periodic sector skills assessments

**Other**
- National employer survey
- Ad-hoc analyses

#### Dissemination

**Channels**
- Labour Market Balance (online tool)
- PES
- Educational institutions

**Use**
- Use of forecasting for guidance e.g. young people in transition and jobseekers
- Use for policy making in education and employment

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**Description**

Danish skills anticipation activities are based on the involvement of social partners in funding and direct
research collaboration, which is undertaken mostly at trade and local levels by research and consultancy companies. Skills needs analysis is performed during the development of occupational standards and sectoral and regional analyses.

Skills anticipation comprises a range of methods and tools, including: quantitative forecasting; sector studies; qualitative methods; employer surveys; and surveys of workers and graduates. While there is no single national instrument for skills governance, quantitative skills forecasting is well established. Macro-econometric models implemented in the 1970s are used to produce economic forecasts and policy assessments. The Danish employment forecasts and future labour market demands are categorised by sector and are combined with information about labour demand by educational level and sector. Potential imbalances in the labour market can be predicted by comparing future outflows from the education system with employment forecasts. Qualitative skills forecasting is also undertaken in order to assess future skills needs in the labour market; this is supported by administrative data.

Alongside the forecasting instruments, there is a clear policy framework where goals, objectives and working methods are defined for the education system, the forecasting infrastructure, the labour market and all stakeholders involved. This is coupled with a well-developed tradition of social dialogue between stakeholders, but mainly in relation to low and middle-level skills. Their involvement in skills anticipation is not institutionalised at the higher skills levels. The government has tried to improve the match between graduate demand and supply through a centrally defined dimensioning model, which is based on historical data. (2)

The municipal public employment services (PES) are responsible for matching and for active labour market policy, while monitoring and analysis are undertaken at the regional level. The Labour Market Balance supports the work of the PES. Developed in 2006 as a part of a national monitoring strategy (national overvågningsstrategi) to support systematic monitoring of the labour market through standardised methods and transparent communication about labour market developments, (3) the Danish Labour Market Balance provides data on job opportunities for approximately 850 occupations by region covering the entire labour market. The Labour Market Balance model uses demand data from the employer survey and regional PES data on unemployment by qualification to serve as a proxy source for current supply.

Using these data, regional labour market intermediaries are able to prioritise employment and training measures and counsel jobseekers. The Labour Market Balance consists of three components:

- A national employer survey;
- A labour market model, drawing data from the survey, PES data on the registered unemployed and registered vacancies, and national statistical data about employment and turnover in the labour market;
- An online interface.

The online interface of the Labour Market Balance helps PES staff to prioritise employment measures, and frontline caseworkers with a tool to support jobseekers in finding employment. It allows the user to
identify occupations with labour shortages or a sufficient supply of labour. Occupations are classified as ‘less good job opportunities’, ‘good job opportunities’ and ‘excellent job opportunities’. It is also used to manage the adult apprenticeship scheme, the ‘positive list’ (positivliste) for educational opportunities, migration policy and upskilling and reskilling. Data are updated every six months.

**Aims**

The overall aim of the skills anticipation activities is to provide individuals with better opportunities to obtain employment. In order to achieve this, skills planning uses foresight initiatives to inform education, employment and skills policies.

The purpose of the Labour Market Balance is to support the day-to-day operation of municipal job centres and other labour market actors and intermediaries. Its aim is to provide information on the regional job situation for guidance counsellors in PES, and to provide the regional governing bodies with an overview of the current employment situation that can inform the monitoring of employment policies and measures. The Labour Market Balance is a part of the Active Employment Initiative (Aktiv Beskæftigelsesindsats), established by law. It is used to target jobseeker CVs and job plans and offer upskilling, education, job training, etc.

**Legal framework**

Responsibility for the day-to-day implementation of employment policies in Denmark is largely decentralised to the municipal level. The Agency for Labour Market and Recruitment has three Labour Market Offices (Arbejdsmarkedskontorer) that work to ensure the implementation of reforms in municipal job centres and coordinate the continuity between employment, education and growth and business policies (4). In addition, they serve the eight Regional Employment Offices (Regionale Arbejdsmarkedsråd) that coordinate collaboration across municipalities and support for areas with either a lack of labour or high unemployment. Also, the Offices approve the regional ‘positive list’ for the regional education and training fund (uddannelsespulje).

At the national level, the

*(Ministeriet for Børn, Undervisning og Ligestilling)* produces statistics on education, the labour market and labour supply, including forecasts on the educational behaviour of each cohort, which are used to set policy targets.

The *Ministry of Finance* (Finansministeriet) produces quantitative forecasts specifically on labour demand and supply in the public sector. Trade unions produce long-term forecasts on labour supply and labour market imbalances using data provided by *Statistics Denmark* (Danmarks Statistik), the Ministry of Education and the *Ministry of Employment* (Beskæftigelsesministeriet).

The *Ministry of Higher Education and Science* (Uddannelses-og Forskningsministeriet) provides online guidance about higher education programmes with good employment prospects through *Uddannelseszoom* (Education Zoom), a digital tool for reviewing statistical data for higher education and
At the regional level, the **Regional Growth Forum** assesses future education and skills needs in each region. These committees bring together 21 representatives from regional authorities, municipalities, business communities, labour market actors and education and research organisations. They are tasked with creating and maintaining growth in their region. There are six Regional Growth Fora.}

Finally, an independent think tank, the **Economic Council of the Labour Movement** (ECLM) (Arbejderbevægelsens Erhvervsråd) conducts small, in-depth analyses for unions and businesses. In 2016 for example, the ECLM published a report which mapped the need for labour towards 2025. According to the report, Denmark will by this point be at risk of needing skilled people and have a surplus of highly skilled people. ECLM is funded by the Danish trade unions.

**Governance**

Skills governance is decentralised in Denmark. Although well established, concerns are expressed that the existing approach may no longer suffice to inform stakeholders about medium-term skills needs. Regional offices and a national agency work to ensure a systematic approach, continuity and congruence in skills anticipation activities.

**The role of stakeholders**

A range of stakeholders participate in Danish skills anticipation activities through a well-established and transparent process of communication and cooperation. These social partners play an institutionalised role at all levels of skills anticipation and support the link between education and labour market needs, demonstrated by the number of fora comprising representatives from government, education, business and unions, such as the Regional Growth Forum, the ECLM, the National Advisory Council for Initial Vocational Education and Training (Rådet for de grundlæggende Erhvervsrettede Uddannelser) and the trade committees.

At national level, the National Advisory Council for Initial Vocational Education and Training monitors developments in society and labour market and highlights trends influencing VET. The Council then makes recommendations to the Ministry of Education regarding the VET programmes and their labour market relevance. At a regional and local level, VET colleges and social partners work together to enhance VET programmes to meet the needs of the local business environment. This is supported by local training committees (lokale uddannelsesudvalg), which ensure close contact between VET colleges and the local business environment. Labour market training (Arbejdsmarkedsuddannelser) is designed according to short-term labour market forecasts focused on specific occupations.

In addition, there are approximately 50 trade committees (faglige udvalg) comprising employers and employees across Denmark. These trade committees set the content of education and training programmes, objectives and assessments. Local training committees (lokale uddannelsesudvalg) work with colleges in programme planning supporting collaboration with local trade and industry. They undertake relevant analyses, development projects, etc., and maintain close contact with relevant
stakeholders to monitor the labour market. The Ministry of Education may also appoint development committees to examine new job areas that could possibly be covered by a VET programme. The committees are typically established in areas where no trade committees exist. (8)

The independent National Skills Advisory Groups in Denmark support the coordination and dissemination of data and intelligence gathered as part of skills anticipation activities. Therefore, they play a key role in skills anticipation.

**Target groups**

A number of tools have been developed to provide access to data and intelligence from the skills anticipation activities:

- The Labour Market Balance, which was developed to assist management and staff in the municipal job centres. It provides regional intermediaries and other stakeholders in the labour market with easy access to information about the current situation.
- **The Educational Guide** (*UddannelsesGuiden*) is an online tool that provides information about educational programmes. The objective of this guide is to inform students about employment opportunities and prospects for an educational programme when entering into education. Forecasts are also used to inform educational planning and training budgets.
- The ECLM provides data and intelligence for businesses, trade unions, and career counsellors located in schools and local educational guidance centres.

Guidance counsellors and services are a key target group for skills anticipation intelligence activities. Guidance counsellors and services are seen to have a key role in ensuring that young people, students and unemployed people have adequate information with which to make informed decisions.

**Funding and resources**

The Labour Market Balance is managed between the Danish Agency for Labour Market and Recruitment (*Styrelsen for Arbejdsmarked og Rekruttering*) and the regional Labour Market Offices. The Agency for Labour Market and Recruitment consists of 14 units, including the regional Labour Market Offices. In the Agency for Labour Market and Recruitment, one unit comprising two people is responsible for the Labour Market Balance. (9)

An external provider manages and administers the employer survey, which costs approximately 1.5 million Dkr. a year (€200,000).

**Methods and tools**

There are various tools used in undertaking skills anticipation in Denmark.
Skills assessment

Skills assessments are produced by the Agency for Labour Market and Recruitment (Styrelsen for Arbejdsmarked og Rekruttering) and the Labour Market Offices. These assessments are presented online in the Labour Market Balance by region, sector and occupation. They are updated every January and July, and are used by PES and career counsellors in the day-to-day work to support jobseekers. Skills assessments also include projects with financial support from the European Social Fund (ESF).

Skills forecasts

A number of forecast activities have been undertaken in Denmark:

- The National Agency for IT and Learning (part of the Ministry of Education) produces regular education statistics and quantitative forecasts on education. The statistics are disaggregated by education and show flows through the educational system.
- The Denmark Rational Economic Agent Model (DREAM) is a long-term dynamic computable general equilibrium model that can be used to simulate and forecast national education levels 30–40 years, or more, into the future. The model allows policymakers to evaluate long-term developments in the public finances. It is produced by the independent DREAM group.
- The Ministry of Finance develops quantitative forecasts on the demand and supply of skills in the public sector. A report from 2016 for example concluded that the educational level towards 2050 will increase. According to the report this will require a change in the educational composition in the private sector, as highly skilled people will mainly find employment in the private sector (Ministry of Finance 2016).
- The Profile Model (Profilmodellen) by the Ministry of Education uses the estimated educational status of each youth cohort transitioning through the education system in its forecasts. This model is based on past educational behaviour within the educational system; the educational level for each youth cohort leaving compulsory school is estimated for 25 years. The profile model is compared to labour market demands and forecasts to determine future skills needs and mismatches.

Skills foresight

The ECLM (Arbejderbevægelsens Erhvervsråd) is an independent think tank financed by trade unions. The aim of the ECLM is to contribute to a society where everyone has access to education. It conducts small, in-depth analyses for unions and businesses. It also produces skills foresights based on long-term forecasts (ten years) for labour supply and demand (to a lesser extent) using three kinds of model to analyse structural changes in the labour market:

- Administrative data about education and occupations from Statistics Denmark are used to construct models to assess probabilities of entering jobs in the labour market;
- An educational model (uddannelsesmodel) predicts the educational level and labour supply (using the Markov approach);
- Scenarios produced by DREAM (see above for more detail).
Other skills anticipation practices

In addition to the forecasting and foresight activities outlined above, other important sources of data from skills anticipation activities include:

- The national employer survey and
- Ad hoc analyses by the trade committees, the ECLM and Regional Growth Fora.

The national employer survey is conducted twice a year using a representative sample of private and public Danish companies (approximately 20,000 companies). The survey is contracted out to a private company by the Agency for Labour Market and Recruitment. The survey covers 850 job categories. It has a response rate of about 70–75 per cent and covers around 40–50 per cent of employment in Denmark. It analyses recruitment and labour shortages, with a particular focus on where companies fail to recruit employees in specific occupations. The employer survey data feed into the Labour Market Balance model and allow demand identified in the survey to be compared with supply by occupation. Employer surveys are one of the main sources of information used by the PES alongside their own administrative data. These surveys provide information on labour short-term changes and emerging trends in the demand for labour and skills.

Use of skills anticipation in policy

In Denmark, the skills assessment and anticipation exercises are used to determine secondary education provision; develop VET provision; support the services for young people and jobseekers; and inform migration policy.

At a national level, labour market forecasts have an impact on the budgets for training and education, as short- and medium-term projections are used as tools for planning and designing education and training budgets. Some educational institutions also use the forecasts to anticipate the intake of students (though not on a systematic basis).

Jobservice Danmark was established in July 2015 as a hotline for employers experiencing difficulties with recruitment of qualified labour or who need to upskill their employees. It is managed by the regional Employment Offices and supports employers in their recruitment of people across municipalities. (12)

Target groups’ uses of skills anticipation outputs

The skills anticipation outputs are targeted at young people transitioning from school to employment, jobseekers, training providers and employers. The current regional Labour Market Balances are shown on the websites of each employment region and are widely used, suggesting that outputs are reaching a wide audience. Importantly, outputs are aimed at labour market intermediates helping people transition
into and through the labour market. Young people are ultimately the target group of the skills anticipation outputs. Ensuring young people complete compulsory education is a priority in Denmark and the provision of high quality educational and vocational guidance is an important way of meeting these goals.

The Danish Act on Guidance in Relation to Choice of Education, Training and Career (2003) set out the restructuring of guidance services in the education system. The aim of the restructuring has been described as a process of developing and providing “a transparent guidance system with easy access to high-quality services.” Career guidance and counselling is regarded as a continuous process that helps young people make informed decisions about their career and learning.

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Endnotes

(1) For the Labour Market Balance online tool see: http://arbejdsmarkedsbalancen.dk/

(2) Ministry of Higher Education and Science (2016)

(3) Danish Agency for Labour Market and Recruitment (2006)


(5) Ministry of Higher Education and Science (2016b)

(6) For an example of the Southern Denmark regional growth forum (Region Syddanmark), see Region Syddanmark (2016)

(7) Economic Council of the Labour Movement (2016)

(8) Danish Ministry of Education (n.d.).

(9) Danish Agency for Labour Market and Recruitment (2016a)

(10) Ministry of Finance (2016)

(11) For more information about the Profile Model, see Danish Ministry of Education (2016b)

(12) Danish Agency for Labour Market and Recruitment (2016b)

(13) Euroguidance Denmark (2014)