European Employment Observatory

EEO Review: The Employment Dimension of Economy Greening

Denmark

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1. Introduction

The issue of green jobs has been on the Danish policy agenda for decades, before the rise of the more recent debate on climate change (for instance Finansministeriet, 1997). Although not clearly defined, green jobs have typically been associated with activities related to energy saving, recycling of waste, production of energy from renewable sources. For example, a special public fund labelled 'Green jobs in Denmark' was active from 1997 to 2001. It supported a wide range of activities like improved energy management in firms, establishment of new environmentally friendly firms and products, nature preservation, waste handling and production of organic food (CASA, 2002).

The interest in economy greening and the employment consequences thereof is manifest in a lively policy debate concerning approaches to combine employment generation with fulfilling 'green goals' like conservation of nature, energy saving and the introduction of new sustainable energy sources. This debate is now driven forward both by the prominence of the climate issues on the political agenda and by the recent rapid rise in Danish unemployment, which has renewed interest in policies to stimulate job-creation.

Concerning climate change, the role of Denmark as the host of the climate summit (COP15) in December 2009 has obviously also played a prominent role. In late 2008, the then Prime Minister Anders Fogh Rasmussen announced that Denmark should be a front runner in green growth. Thus, 2009 was marked by several highly profiled climate conferences in Denmark. For example, in March and May 2009, Copenhagen hosted two conferences with a focus on green technology and on how to reduce carbon dioxide (CO2) emissions. Both conferences aimed at raising awareness among international businesses. The climate summit itself in December 2009 was accompanied by a large number of public events focused on the need for a greener economy.

2. Labour market outcomes

This section examines three aspects of labour market outcomes of economy greening in Denmark. Firstly, different estimates of the actual number of green jobs are presented. Secondly, a discussion of some estimates of the employment effects of various proposals for 'green growth packages' follows. Thirdly, some views on the potential effects of a shift towards a greener economy on the demand for qualifications are discussed.

2.1 The number of green jobs

Due to the vagueness of the concept of green jobs, it is hard to get exact information about the importance of this specific form of employment (cf. the discussion of various definitions in European Commission, 2009:109-110). No national studies have attempted to estimate their number, but most of the available international literature tends to put Denmark high on the list, when assessing the share of GDP and employment related to such 'green' activities. A study on renewable energy sources

(RES) covering the EU Member States assessed the total employment generated by such activities in Denmark to around 60 000 persons in 2005. The majority of those were employed in the production of equipment related to wind-energy, where Denmark has had the advantage of being an early starter. The remainder are mainly involved in activities related to biomass and biowaste (Frauenhofer, 2009:56). RES-jobs in Denmark amount to just above 2 % of total employment. Within the EU, this relative size of the RES-sector is only surpassed by Sweden and Lithuania (Employment in Europe, 2009, p.112).

Other comparative studies have focused on the so-called eco-industries, which are defined as direct and indirect employment generated by activities related to the pollution and resource management industries. Direct employment covers employment in activities concerning the operation and maintenance of equipment or the provision of environmental goods and services, as well as employment in activities aimed at the production of environmental equipment or infrastructure to provide environmental services. Indirect employment covers employment in activities that provide intermediate inputs for the production of environmental equipment and services (Employment in Europe, 2009, p.109). Applying this definition, the total direct employment in eco-related jobs in Denmark has been estimated at 82 000 persons in 2000 of which about half are in pollution management (GHK, 2007, p.37-38).

To this can be added 108 000 jobs in sectors based on natural resources (agriculture and forestry) and their quality (e.g. environment-related tourism) making the total direct number of jobs in eco-related jobs add up to 190 000 persons or about 6.9 % of total employment. In addition to estimates of direct and indirect employment levels, one can also estimate the induced employment effects – namely the economic impact induced by the spending of the additional income received from direct and indirect employment. Applying this broader definition, the total number of employment in Danish eco-industries has been estimated at 338 000 jobs in 2000 or the equivalent of 12.3 % of total employment (GHK, 2007, p.36).

2.2 Employment effects of 'green growth packages'

The interest in the employment aspects of economy greening is also manifest in the focus on the number of jobs that can be created, contained in some of the plans for green growth that are put forward in the debate.

As early as 1997, a report from the Ministry of Finance gave this question a top priority (Finansministeriet, 1997, Chapter 1). Also, later reports putting forward 'green proposals' have often aimed at quantifying their employment effects.

As one example, the joint report from the United Federation of Danish Workers (Fagligt Fælles Forbund, 3F) and the Ecological Council, presented detailed assessments of the direct and indirect employment effects of its 22 proposals for investments that amounted to a total of DKK 27.8 billion per year (equal to EUR 3.7 billion). The proposed investments covered initiatives in the areas of:

- Promotion of sustainable energy sources (biomass, wind, waves and sun)
- Energy saving in transportation and heating of homes

- Renovation of sewers and drinking water facilities

The overall direct effects were estimated at 50 000 jobs per year of which 28 000 were directly related to the proposed initiatives in the above sectors. 22 000 additional jobs were created in the other sectors delivering goods and serviced to the main provider of the investments. This indirect effect was calculated applying the input-output-tables of the Danish national accounts (Fagligt Fælles Forbund, 2009:5). No assessments were made of the supplementary job generation from the additional income created by the projects.

In a similar exercise from the Economic Council of the Labour Movement, the macro-economic and employment effects from a green growth package of public investments were estimated. The investment package amounted to DKK 10 billion (EUR 1.3 billion). The proposed investments were in the areas of energy-saving renovations in public buildings and transportation. The overall employment effects in 2010 were estimated at 10 000 full-time jobs including direct effects, indirect effects and additional income effects. The calculations were based on a combination of input-output tables and the Danish macro-econometric model ADAM, which is also used by the Ministry of Finance. The net effect on the public budgets was calculated to be an increase in the deficit of DKK 5 billion (EUR 0.7 billion). This amounted to about half the initial costs of the investment package due to the additional public income from taxation and savings on unemployment benefits caused by the rise in employment.

2.3 Effect on the demand for qualifications

While a number of attempts to assess the extent of green jobs in Denmark can be noted, as well as efforts to estimate the overall employment impacts of 'green growth packages', there are no examples of more detailed analyses of the overall consequences of such moves on the demand for qualifications or on imbalances in the labour market.

There can be several reasons for this.

Firstly, one can again point to the vagueness of the concept of green jobs, which makes it difficult to provide more general assessments of the labour market effects of climate change or the implementation of green investments and technologies.

Secondly, the Danish labour market already contains labour with the relevant qualifications for a wide variety of 'green activities' spanning from sustainable energy (windmills) to waste handling and energy saving. In many of these areas, Denmark has had the advantage of being an early mover in green technologies. An important factor has been the widespread use of 'green taxes' in the form of high indirect taxes not only on energy for heating and transport, but also on other environment-related goods like drinking water and waste water. Furthermore, rather strict regulations are in place, when it comes to the environmental effects of wastewater and emissions from both the public and the private sector. This situation has lead to a rather high level of awareness on behalf of both private households and companies of the needs to invest in energy saving equipment and other environmentally-friendly technologies, thus over time gradually creating the demand for the relevant skills. The adap-

tation to climate change and green jobs therefore comes as less of a shock than would otherwise have been the case.

Thirdly, in some cases, like the windmill-sector, the worry is not so much the lack of qualified labour, but the tendency to offshore many of the lower-skilled jobs that are directly related to the manufacturing process. As the production of windmills becomes more standardized, competition from low-wage countries has significantly increased. The proper strategy will therefore be to further develop the more advanced skills required in this sector. The focus of Danish technical universities on the special qualifications required for engineers in the windmill sector is an example of this approach.

Fourthly, Denmark already has a flexible vocational training system in place, which is quite developed in relation to the rest of Europe. It does not include special training programmes explicitly targeted at the green economy. However, programmes, such as those aimed at the installation of energy-saving equipment in buildings could be included under such a heading. Many of the vocational training programmes include skills that are relevant for 'green technology', also due to the long-lasting influence from the demand side that was mentioned above. Furthermore, as proposed for instance by the Danish Metal Workers Union, there is clearly a potential for thinking in terms of new 'green educations' like for instance an 'energy-smith' who will service and maintain green energy suppliers in private homes as well as companies, optimise installations for electric cars, etc. Such new job functions could be related not only to the manufacturing sector, but just as much to the service and installation sector targeted at private households or companies. Examples could be the installation and service of sun energy systems and new types of refrigeration equipment.

Finally, one should of course point to the fact that the present economic crisis has lead to massive lay-offs in the construction sector and also in manufacturing, thus leaving many skilled workers unemployed. Hence, when it comes to investments to save energy in public and private buildings, the challenge is not the lack labour, but the lack of jobs to employ the existing qualified workforce.

3. Labour market policy development

Some of the proposals for green jobs that have been put forward and have already been mentioned above. This section first provides an overview of the main actors and their positions and then discusses some recent policy developments.

3.1 The major policy actors

Government bodies, think tanks, NGO's and the social partners have all been active in shaping the debate. The main actors in are the following (Jørgensen, 2009; European Foundation for Working and Living Conditions, 2009).

The main Government body is the Ministry of Climate and Energy, which was created in 2007 and took over responsibilities from the Ministry of the Environment (e.g. the new national and international climate efforts) and from the Ministry of Transport and Energy (the entire part concerning 'energy'). The ministry was thus set up to deal with green or at least climate-focused issues. Other Ministries like the

Ministry of Economic and Business Affairs, the Ministry of Food, Agriculture and Fisheries and the Ministry of the Environment have also taken part in the debate and in joint action plans presented by the Government.

One such initiative was the action plan 'Green growth' presented by the Danish Government. The proposal almost entirely dealt with issues connected to Danish agriculture and was mostly a proposal that focused on environment and nature protection and on how to contribute to lower CO2 emissions (Regeringen, 2009).

The Miljøøkonomiske Råd (Environmental Economic Council) is an independent economic advisory body established by law in 2007. The Environmental Economic Council is closely related to the Economic Council, which was created already in 1962. The two councils have a joint chairmanship and secretariat and also share the role of provider of independent professional input to the economic debates, but differ in their focus and also in the composition of the councils themselves.

The Environmental Economic Council has 24 members representing unions, employers, NGOs and the Danish Government. Independent economic experts are members as well. The council is presided over by four independent chairmen, which are usually university professors. The chairmanship and its secretariat prepare an annual report to the Environmental Economic Council, which contains analyses on different environmental issues with relevance to the Danish or Global economy. The latest report from the Chairmen of the Danish Council of Environmental Economics focused on three topical issues: the implementation of the EC Water Framework Directive, environmental (green) taxes and the reduction of greenhouse gas (GHG) emissions in the part of the economy not covered by the EU Emissions Trading Scheme (ETS)[1].

A further important participant in the debates about the greening of the economy and the potential for job-creation is the private organisation named The Ecological Council, which is an NGO that was formed in 1991. The main objective of the Council is to promote sustainable patterns of development, where environmental concerns, social justice and human well-being are the main focal points. It is an academic organisation dealing with environmental policy on a scientific basis, but at the same time trying to inform and have a dialogue with both politicians and the general public[2]. The Ecological Council has occasionally acted as a think-tank for trade unions, which engage in the debate on green jobs (Fagligt Fælles Forbund, 2005, 2009).

Finally one can note that the social partners have on several occasions positioned themselves in the debates on economy greening (cf. the overview in European Foundation, 2009, pp. 11-19). As one example, the Danish Confederation of Trade Unions (LO) published a letter to the Government in early 2009, calling for 'an aggressive plan of investments' of DKK 17 billion (EUR 2.3 billion). Of this amount, DKK 3 billion (EUR) should be earmarked for 'green growth, investments in new technologies and solar energy; and subsidies for energy saving in public buildings.

[1] See the website of the Economic Council, available at internet: www.dors.dk
[2] See the website of The Ecological Council, available at internet: www.ecocouncil.dk

Also the Confederation of Danish Industry has been very active in the climate debate, issuing position papers focusing on the potential for Danish industry in further developing green technologies and products.

3.2 Recent policy initiatives

In early 2009 an agreement between the Government and the major part of the opposition set up 'a green transport policy' for the period 2010-2020, which focuses on a framework and principles for green transport, for instance by supporting easier access to collective traffic and better conditions for bicycles. The agreement followed a report on sustainable transport and better infrastructure published by the Government in December 2008 (The Danish Government, 2008) and created a special investment fund of DKK 94 billion (EUR 12.6 billion). The focus on the plan was on sustainability rather than employment, but with direct reference to the latter. The public budget for 2010 contains additional allocations to the investment fund of DKK 2.7 billion (EUR 0.4 billion) to be spent from 2010 until 2013 (Finansministeriet, 2009, p.11).

Also as part of the negotiations over the public budget for 2010, a new public fund was created labeled the Fund for Green Restructuring and Business Innovation (Fonden til grøn omstilling og erhvervsmæsig fornyelse). The fund amounts to DKK 760 million (EUR 102 million) to be spent from 2010 to 2012 (Finansministeriet, 2009:179-180). The fund is aimed at private business and has a rather broad mission statement, which includes support to the development and commercial use of new products and services in the field of energy, waste handling, construction, transport and agriculture. The objectives of the fund also mention support to green innovations and exports related to the environment and climate and support in attracting foreign investments and labour to what is called 'the green area'. Given the rather broad description of the funds' remit, no attempt has been made to assess the employment effects of its activities. Furthermore, the potential effects on the labour market are almost absent in the description of the fund's activities, although one would of course expect some direct and indirect job-creation as a result of the fund.

4. Conclusions

In many respects, the Danish labour market seems well prepared for a greening of the economy:

- Over the last decades the structure of employment and qualifications have already adapted to a regime of high 'green taxes' on non-renewable energy and other scarce natural resource like drinking water.
- The flexible labour market training system is able to provide a number of programmes of relevance to the qualifications required for green jobs.
- Several actors and institutions have contributed to the development of a strong public awareness of environmental issues and also of the potential for environment-related employment creation.

These traits are also reflected in recent policy developments, where references to green jobs and economy greening are becoming ever more frequent. The economic

crisis has undoubtedly spurred this development, making the need to exploit the potential for employment creation in the often labour intensive green jobs, even more urgent.

References

Arbejderbevægelsens Erhvervsråd, *Grøn vækstpakke kan skabe 10 000 klimajobs (Green growth package can create 10 000 green jobs)*, Copenhagen, 2009. Internet: http://www.ae.dk

CASA, *Evaluering af den grønne jobpulje (Evaluation of the Green-job funding scheme),* Copenhagen, 2002. Internet: http://www.casa-evaluering.dk

The Danish Government, *Sustainable transport – better infrastructure*, Copenhagen, 2008. Internet: http://www.trm.dk

European Commission, *Employment in Europe 2009*, Office for Official Publications, Luxembourg, 2009.

European Foundation for the Improvement of Living and Working Conditions, *Greening the European economy: Responses and initiatives by Member States and social partners*, Eurofound, Dublin, 2009.

Fagligt Fælles Forbund, *Miljø, energi og beskæftigelse (Environment, energy and employment)*, Copenhagen, 2008. Internet: http:// www.3f.dk

Fagligt Fælles Forbund, *Grønne Job. Eksempler på energi- og klimainitiativer, der giver beskæftigelse (Green Jobs. Examples of energy and climate initiatives that creates employment)*, Copenhagen, 2009. Internet: http:// www.3f.dk

Finansministeriet, *Samfundsøkonomisk vurdering af grønne initiativer (Macroeconomic Assessment of green initiatives)*, Copenhagen, 1997. Internet: http://www.fm.dk

Finansministeriet, *Aftaler om Finansloven for 2010, November 2010 (Agreements related to the Budget for 2010)*, Copenhagen, 2009. Internet: http://www.fm.dk

Fraunhofer ISI, Ecofys, Energy economic group, Rutter and partner, Seureco and LEI, *The impact of renewable energy policy on economic growth and employment in the European Union*, Report for DG Energy and Transport, 2009. Internet: http://ec.europa.eu/energy/renewables/studies/doc/renewables/2009_employ_res_report.pdf

GHK, Cambridge Econometrics and Institute for European Environmental Policy, *Links between the environment, economy and jobs*, Report for DG Environment, 2007. Internet: http://ec.europa.eu/environment/enveco/industry_employment/pdf/ghk_study_wider_links_report.pdf

Jørgensen, C., *Denmark – Greening the European economy: responses and initiatives by Member States and social partners*, FAOS, Copenhagen, 2009.

Regeringen, *Grøn Vækst (Green Growth)*, Copenhagen, 2009. Internet: http://www.stm.dk