

Green Jobs and Green Skills in Europe

**Moving towards a statistical definition of green
jobs**

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**Terence Hogarth
Institute for Employment Research,
University of Warwick**

Green Policy and Green Jobs

- Green policy however defined will have some impact on overall employment levels and content of jobs (*e.g.* via impact on oil price, carbon taxes, *etc.*)
- Modelling the impact tends to suggest a neutral or impact on overall employment levels in the EU...
- ...but this can hide substantial churn in the labour market (i.e. sectoral and occupational change)
- So a key question becomes identifying the winners and losers from green policy

Measuring Green Jobs

- **Different approaches to measurement**
 - Multi-sectoral macro-modelling with an employment model providing estimates of employment by occupation (e.g. DG Empl. Study in 2010)
 - Essentially does not classify green jobs *per se*, but looks at outcomes for the occupational structure of employment
 - Forecasting exercises comparing BAU estimates to those resulting from various green scenarios
 - Often relatively high levels of aggregation even at ISCO 2-digit can disguise the amount of change taking place
- Hence attempts to devise classifications of green jobs (e.g. O*NET classification Dierdorff et al., 2009)

Green Job Measures

- **Not spoilt for choice**
 - Classifications of industrial sector (e.g. EGSS definition)
 - Provides a relatively narrow view of the impact of green policy on employment by concentrating on a few industrial sectors such as the 'environmental sector'
 - Occupational classifications
 - Provided insights into how the green agenda might affect the content of every job (e.g. in the way ICT did in 1970s and 1980s)
 - Which classification to be used depends on which question is being asked. If the research interest is in skills change the emphasis is more occupational classification (where occupation is a proxy measure for skill).

How might the green agenda affect job content

- **Just a manifestation of technical change**
 - Efforts to reduce the carbon footprint is likely to affect all jobs to some extent
- **A form of change giving rise to specific skills needs captured within new occupations**
- **Can be both – not mutually exclusive categories**
- **O*NET classification attempts to capture both in its occupational categorisation of:**
 - Green increased demand occupations
 - Green enhanced demand occupations
 - New and emerging green occupations

O*NET Occupational Classification

- **Green Increased Demand Occupations.** The impact of green economy activities and technologies is an increase in the employment demand for an existing occupation. However, this impact does not entail significant changes in the work and worker requirements of the occupation. The work context may change, but the tasks themselves do not. An example is the increased demand for electrical power line installers and repairers related to energy efficiency and infrastructure upgrades.
- **Green Enhanced Skills Occupations.** The impact of green economy activities and technologies results in a significant change to the work and worker requirements of an existing occupation. This impact may or may not result in an increase in employment demand for the occupation. An example is the occupation architect, where greening has increased knowledge requirements pertaining to energy-efficient materials and construction, as well as skills associated with integrating green technology into the aesthetic design of buildings.
- **New and Emerging (N&E) Green Occupations.** The impact of green economy activities and technologies is sufficient to create the need for unique work and worker requirements, resulting in the generation of a new occupation. This new occupation could be entirely novel or 'born' from an existing occupation. An example would be solar system technicians who must be able not only to install new technology, but also to determine how this technology can best be used on a specific site.

Source: Dierdorff *et al.* (2009) p. 11/12

- Add green decreased demand occupations (?)

Examples of (a) green increased demand and (b) green enhanced occupations

• **Examples of Green Increased Demand Occupations**

- Fish and Game Wardens
- Forest and Conservation Technicians
- Forest and Conservation Workers
- Helpers--Carpenters
- Hydrologists
- Industrial Engineers
- Industrial Machinery Mechanics
- Industrial Production Managers
- Industrial Safety and Health Engineers
- Industrial Truck and Tractor Operators
- Insulation Workers, Floor, Ceiling, and Wall

• **Examples of Green Enhanced Occupations**

- Aerospace Engineers
- Agricultural Technicians
- Aircraft Structure, Surfaces, Rigging, and Systems Assemblers
- Architects, Except Landscape and Naval
- Atmospheric and Space Scientists
- Automotive Specialty Technicians
- Civil Engineers
- Construction and Building Inspectors
- Construction Labourers
- Construction Managers
- Continuous Mining Machine Operators
- Electrical Engineering Technicians
- Electrical Engineers
- Electro-Mechanical Technicians

Examples of new and emerging occupations

- Air Quality Control Specialists
- Automotive Engineering Technicians
- Automotive Engineers
- Biochemical Engineers
- Biofuels/Biodiesel Technology and Product Development Managers
- Biofuels Production Managers
- Biofuels Processing Technicians
- Biomass Plant Engineers
- Biomass Production Managers
- Biomass Plant Technicians
- Brownfield Redevelopment Specialists and Site Managers
- Carbon Capture and Sequestration Systems Installers
- Carbon Credit Traders
- Carbon Trading Analysts

Source: Dierdorff *et al.* (2009)

Initial estimates of people working in green occupations

- The following charts show the following
 - The first chart applies the O*NET approach to Europe. This requires matching the occupations in each of the O*NET categories to those in ISCO. This is at best an approximation. It is not designed to provide comparisons between the EU and the USA. Rather the concept which underlies the O*NET classification has been adopted in designing a classification based on ISCO. **Figure 1** is based on EU LFS data. It shows, for example, that across all occupations around 20 per cent of people are employed in green enhanced occupations and 30 per cent in green increased demand occupations. The remaining 50 per cent are in non-green jobs.
 - **Figure 2** shows how occupational employment in the EU is projected to change over the period 2010 to 2020 derived from the IER occupational projections for Europe. For example, it shows that there will be around 2.5 additional jobs in elementary occupations by 2020.
 - Assuming that the percentage of green enhanced and green increased demand jobs in each occupational group remains unchanged from 2010, **Figure 3** shows the expected change over the period 2010 to 2020 in the number of people employed in each type of green job within each occupation.

Figure 1: Applying the O*NET classification to European Occupational Data: indicative estimates for 2010 using EU LFS data

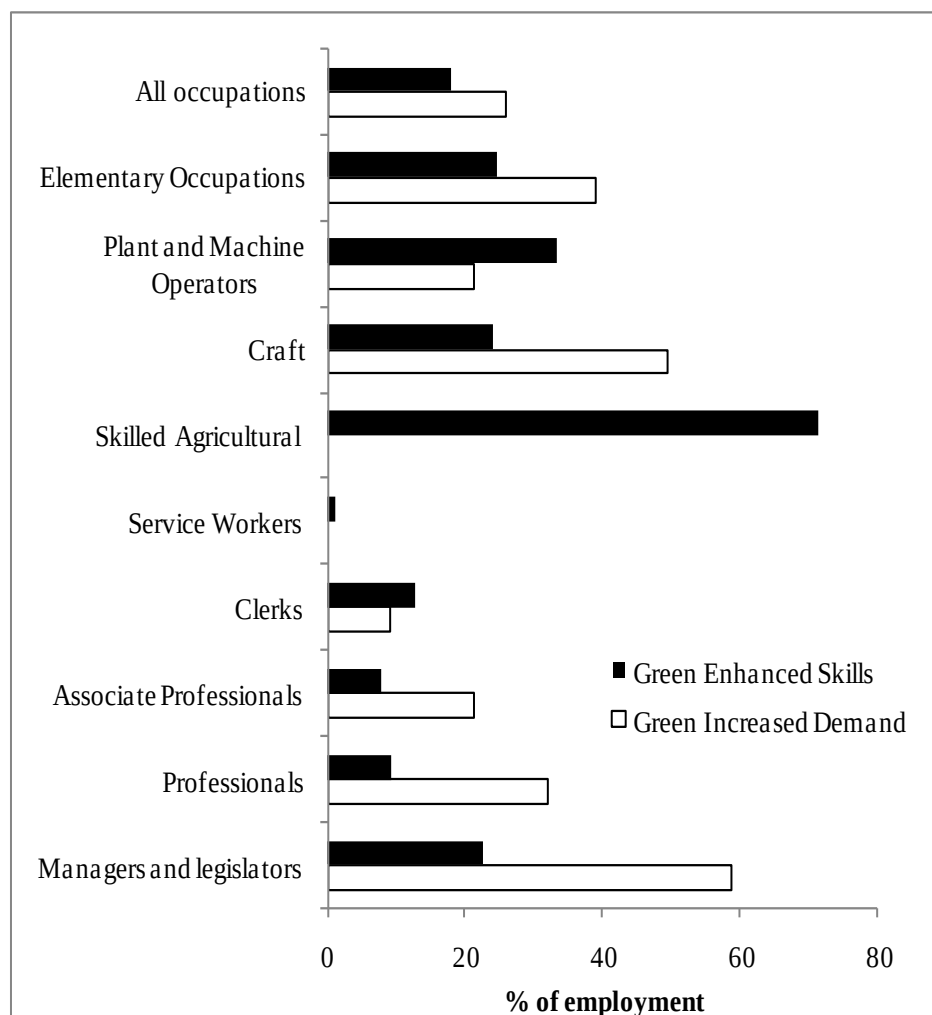


Figure 2: Projected employment change by occupation – based on IER Occupational Projections for Europe

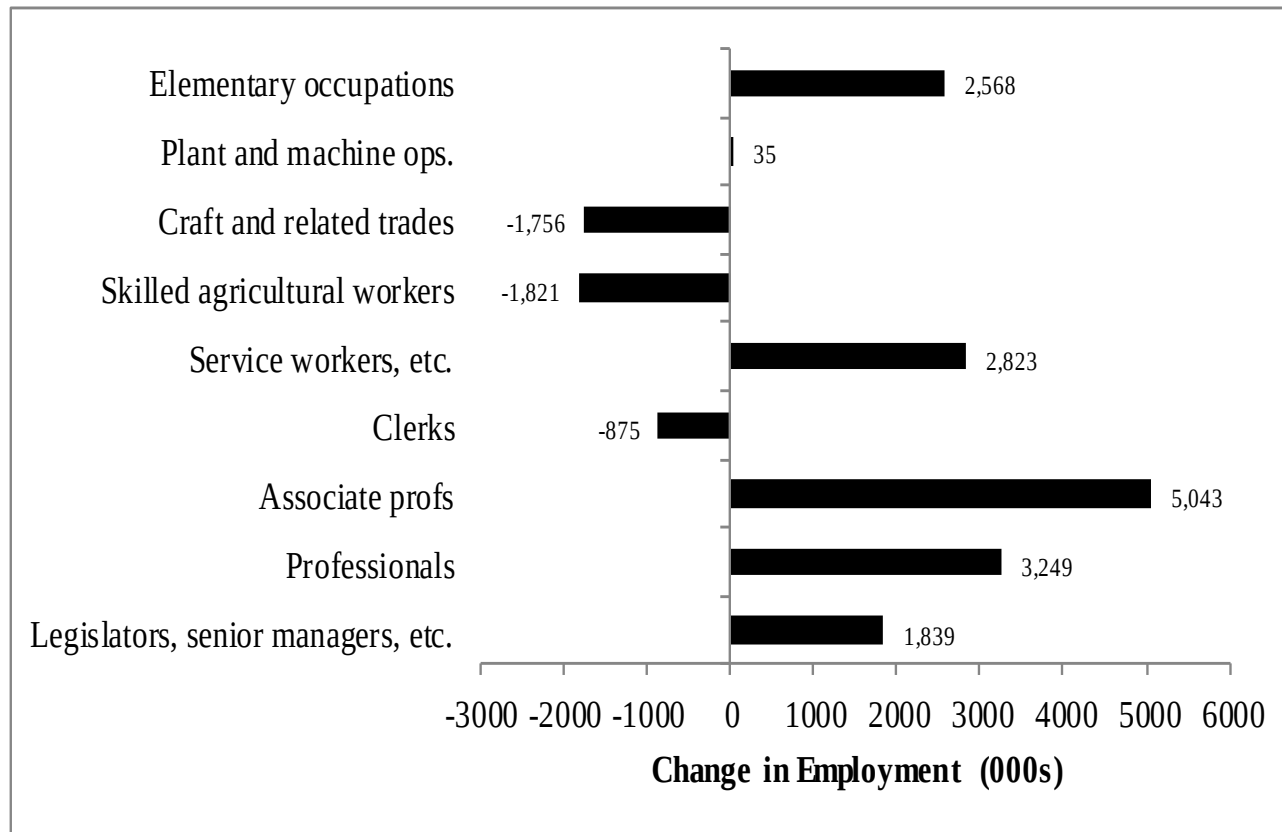
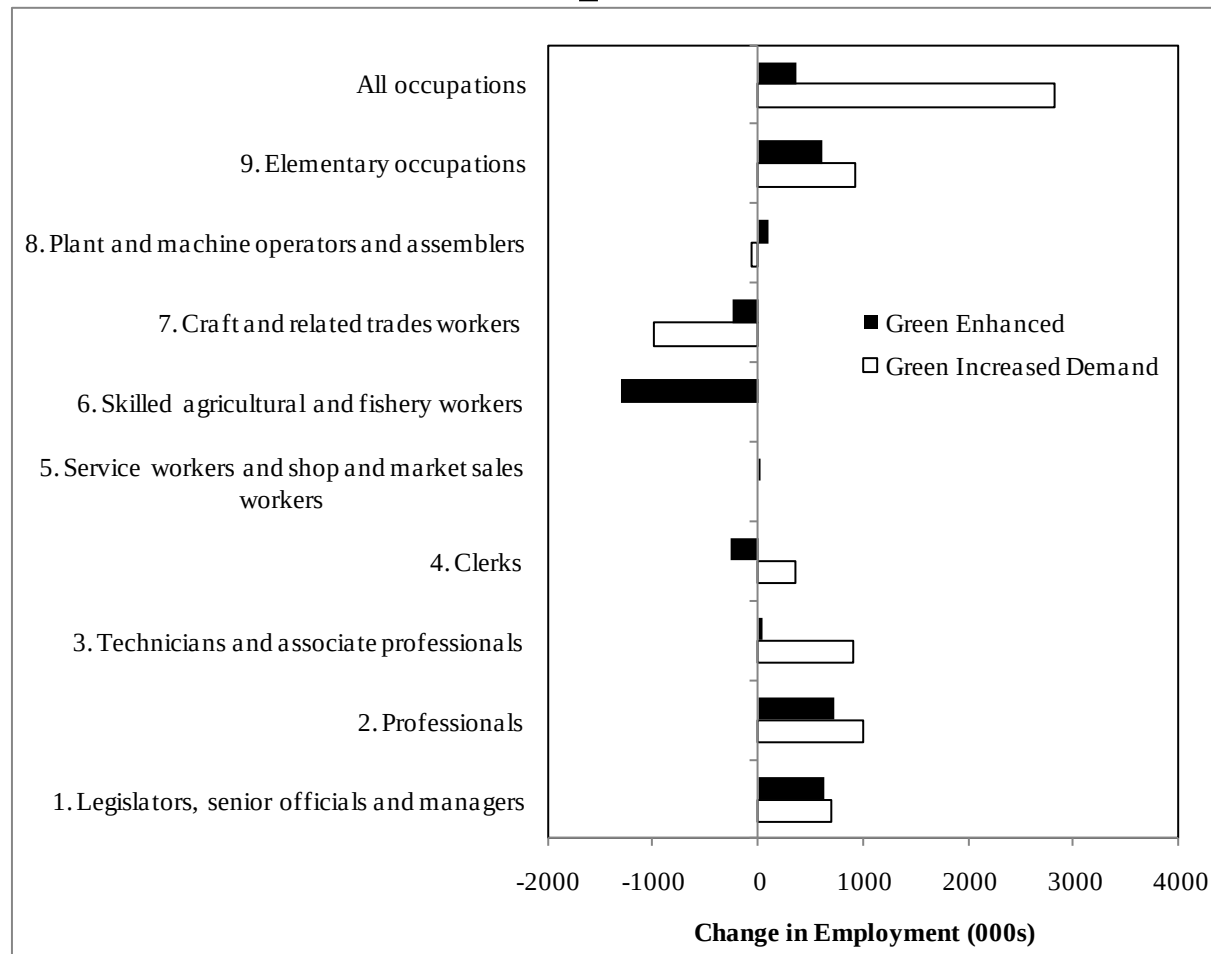


Figure 3: Change in numbers employed in each occupation 2010 – 2020 in green enhanced and green increased demand occupations



Tentative & Emerging Findings

- Green jobs per se (i.e. the new and emerging occupations) are probably a small, but important part of the EU economy
- Green increased demand accounts for a sizable share of employment (2.5 m extra jobs projected to be created by 2020)
- Green enhanced demand accounts for a more modest share of employment but often critical to the capacity of countries to meet low carbon agenda (*e.g.* study of renewables sector in the UK suggested skill shortages were likely to constrain future growth because of shortages of electro-mechanical technicians / engineers with the requisite experience)
- Green occupational classifications can be used to help anticipate skill needs
- Also allows insights into job quality, gender balance, regional / local dimensions, etc.

Thank you

Terence Hogarth
Institute for Employment Research
University of Warwick
Coventry
UK - CV4 7AL
t.hogarth@warwick.ac.uk

