2. APPLICATION OF FTA AND THE PERCEIVED IMPACT ON EMPLOYMENT POLICIES: THE CASE OF NANOTECHNOLOGY IN THE NETHERLANDS, GERMANY AND PORTUGAL

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Introduction

In this paper we will analyse the usage of FTA to support decision-making in employment policy relate to specific occupational groups. The examples can be better understood if one focus on the nanotechnology and its implications on some sectors (clothing, bio-medical engineering, micro-electronics). When this is done will be clear which occupations will engage a restructuring process (engineers, specialised technicians, qualified machine operators, quality controllers) and what policies are being designed to cope with it. This means toward which extend social partners have driven specific policies on these issues (focused in their sectors). And means also which are the Governmental policies towards the support on the increase of investments in the nano-science and nano-technology research, especially the one on research in social and economical implications of nanotechnology developments. Examples of application of scenarios on the nanotechnologies in several sectors will be presented. In this paper is intended to make further analysis on the perceived impacts on labour markets (of high qualified workers, of engineers and technicians, and so forth), using those possible scenarios. The purpose of this paper is to demonstrate the impact of the application of FTA, how it is being used to anticipate employment changes. The above mentioned sectors have a large importance in the national labour markets of Portugal and the Netherlands. And in these countries there are clear supporting policies towards the development of nanotechnologies (in Portugal through the organisation of the INL – International Iberian Nanotechnology Laboratory and in the Netherlands with programs like NanoMed among other). Revision of these policies will be made to assess the inclusion (or not) of labour market impact items in the FTA applied there.

Methodology

The interaction between the further development of nanotechnologies and employment structures can be investigated in two ways. The first, in a sense more conventional, approach is to study the economic implications of nanotechnologies and its effects on the labour market. This has some substantial methodological challenges. First of all: Up to now it is quite blurred what in detail should be considered as nanotechnology — and what should not. The definitions of nanotechnology proposed so far are rather broad and unspecific, and they leave lots of room for interpretation. None of them is generally accepted in the scientific

community. The definition used determines the “economic value” which is unsatisfactorily from a scientific perspective. Second, the scientific and political attractiveness of nanotechnology stems from its role as an enabling technology. That means that nanomaterials or nanotechnology components will be a decisive part of a more complex, usually ‘‘macro’’, product where the ‘‘nano’’ content might not be identified or recognized easily. These products are and will continue to be increasingly used in a number of fields and difficult to be numbered. A third problem arises from different quantification and valuation methodologies for “enabling” components.

A second, perhaps more interesting, approach is linked to the question how existing manufacturing practices and related qualification structures foster or hinder the future diffusion of nanotechnology developments. In most industrial branches, key qualifications are linked to knowledge about materials of certain groups and related processing technologies.

Results and policy impact/implications

Since most nanotechnology developments combine materials of different groups and use new structuring or analytical technologies, new multi-disciplinary multi-material qualifications are needed. Since those are not widely developed within the recent educational paradigm, their lack might shape the future development of nanotechnologies in various directions.

The EC calls upon to foster interdisciplinary training and education for R&D in Nanotechnology and Nanosciences, focusing on physics, chemistry, biology, toxicology and ecotoxicology and engineering, but also including entrepreneurial studies, risk assessment, and social and human sciences where appropriate. Training programs should also be targeted specifically at SMEs, who often lack the necessary ‘in house’ expertise or resources. And is stated that “due to the nature of N&N, societal issues may arise and should be anticipated e.g. for less skilled labour, as regards the risk of a disequilibria amongst different EU regions and as regards ensuring affordable access to the benefits of N&N e.g. in nanomedicine”.

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