



Austrian Bundesministeriums für Umwelt, Jugend und Familie, Vienna

E c o l o g i c a l T a x R e f o r m a n d I n n o v a t i o n i n A u s t r i a n E n t e r p r i s e s

SH/RI

15. December 1998 / 346.83/Z-34683e.doc



INFRAS

Gerechtigkeitsgasse 20, Postfach, CH-8039 Zurich, Tel. +41 1 205 95 95, Fax +41 1 205 95 99, E-Mail zuerich@infras.ch
Mühlemattstrasse 45, CH-3007 Bern, Tel. +41 31 370 19 19, Fax +41 31 370 19 10, E-Mail bern@infras.ch

ISO 9001/14001 certified

15. December 1998 / 346.83/Z-34683e.doc/ SH/RI

Ecological Tax Reform and Innovation in Austrian Enterprises

Study commissioned by the Austrian Bundesministeriums für Umwelt, Jugend und Familie, Vienna

Schriftenreihe des BMUJF Band 21/1998

Joint project carried out by INFRAS, Zurich and Energieverwertungsagentur, Vienna (www.eva.wsr.ac.at)

Executive summary

The study examines to which extent a fiscally neutral Environmental Tax Reform (ETR), i.e. an increased taxation on energy use, combined with a corresponding cut in non-wage labour taxation, could strengthen the innovative potential of companies and could add, in the longer run, to the competitiveness of companies and the whole economy.

The term „innovation“ which is used throughout this study is a broad one. It encompasses process and product innovation, as well as innovations that addresses basic functions of goods and services or underlying needs of consumers.

In the recent economic literature there is ample evidence that environmental innovations in particular may benefit from a properly designed and long term oriented environmental policy, for which an ETR is a good example.

Since, so far, a true ETR has not been introduced in any country, practical experiences with this instrument are still rare, and effects on companies, sector and the economy have to be simulated. This can either be done with models („top-down“), or by analysing policy-induced changes in the use of technologies at the company level („bottom-up“). In the last couple of years, a number of models have been developed which have



INFRAS

Gerechtigkeitsgasse 20, CH - 8002 Zürich, Tel. ++41 +1 205 95 95, Fax ++41 +1 205 95 99, E-Mail zuerich@infras.ch
Mühlemattstrasse 45, CH - 3007 Bern, Tel. ++41 +31 370 19 19, Fax ++41 +31 370 19 10, E-Mail bern@infras.ch

found, by and large, positive net effects of a properly designed (i.e. fiscally neutral) ETR on output and employment.

However, the majority of these models fall silent when policy-makers want to know how environmental policy can stimulate innovation, which is generally considered to be of paramount importance in globalised markets. If innovation is the core mechanism which is required to increase eco-efficiency of processes, products and services, and if such an increase is warranted to balance the economy and the environment, then additional information is needed to give a fair validation of the effects of an ETR.

The current study aims to make a small step in this direction. It looks at two Austrian enterprises (one from the paper and pulp industry, one from the food industry) and examines how the energy costs of these companies are affected by various ETR scenarios and which innovative efforts management is likely to make in light of higher energy prices. Although Austria has introduced a tax on gas and electricity in 1996 („Energy Tax 96“), the companies benefit from a „cap“ which limits the tax burden at a maximum of 0.35% of the net production value. Such a taxation level cannot be expected to lead to major innovation efforts and is mainly of fiscal nature.

Figure 1 shows the net tax burden for SCA Laakirchen AG, the company in the paper industry, as a function of the various scenarios:

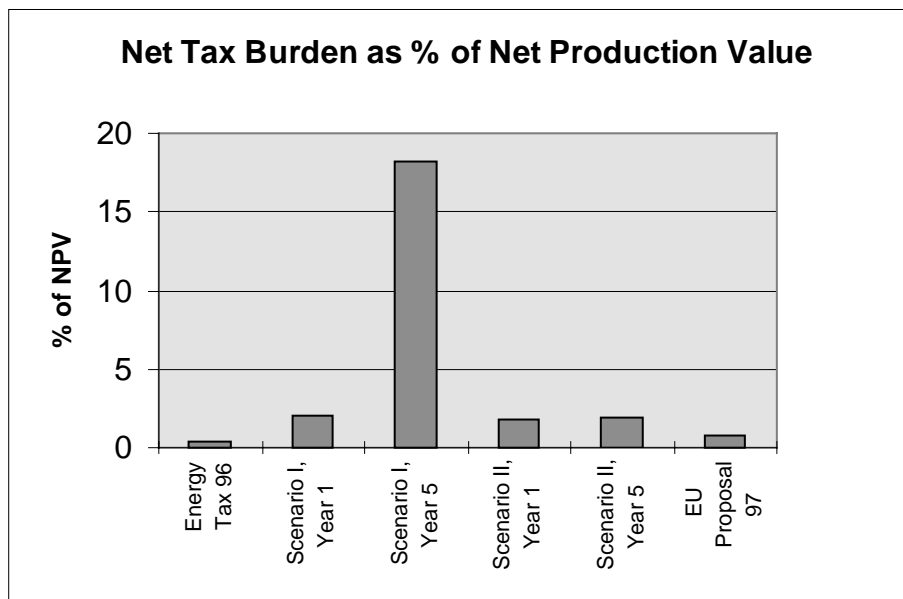


Figure 1: Net tax burden as a percentage of the net production value resulting from the various tax scenarios at SCA Laakirchen AG. Whereas scenarios I and II (according to WIFO 1995) comprise a recycling scheme, the revenues of the existing „Energy Tax 96“ are not recycled. The effects of the current (1997) EU proposal on the enterprise (assuming minimum tax rates in the absence of the „Energy Tax 96“) are given for comparison (for details see full text).

Contrary to the existing taxation scheme, all ETR scenarios applied in the study would lead to a marked net increase of energy costs in the case of the company from the paper industry, even if revenues are recycled by lowering non-wage labour taxes. In such a situation, a further increase in energy efficiency is likely.

The situation at Darbo AG, the enterprise in the food industry, is quite different. Figure 2 shows the net tax burden as a percentage of the net production value for this enterprise:

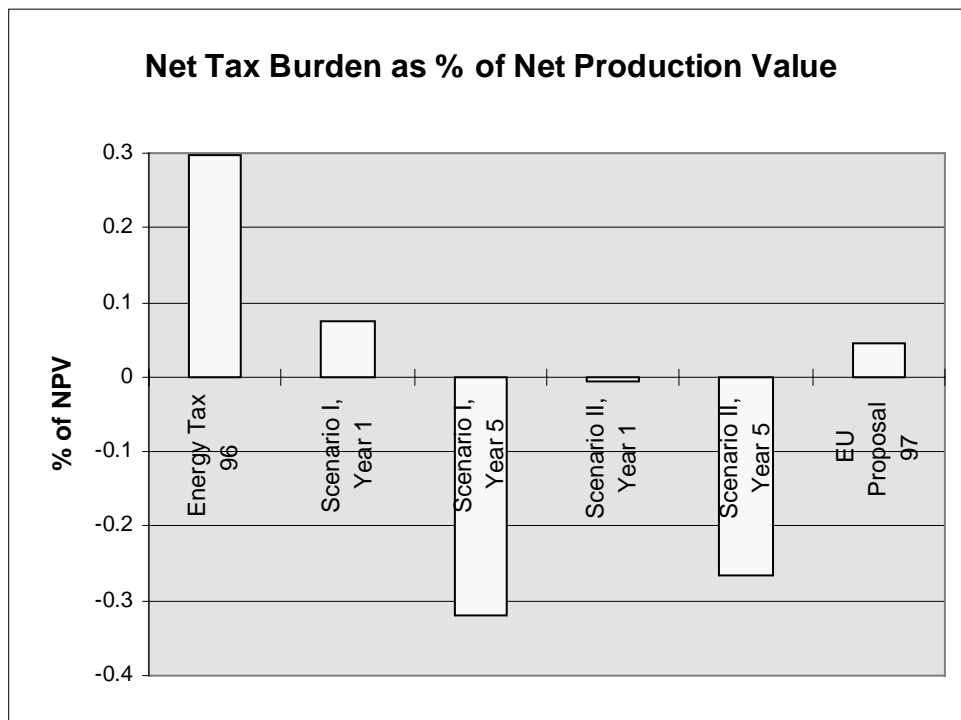


Figure 2: Net tax burden resulting from the various tax scenarios at Darbo AG (same scenarios as in Figure 1).

It is obvious that in this case, the recycling of the revenues would lead, at least towards the end of the five year period simulated, to a net benefit, which mirrors the fact that the plant examined is already energy efficient.

Nevertheless, an ETR would create a powerful incentive to further increase the energy efficiency in both firms, especially in the medium to long term. The case studies provide useful information on how the companies would try to achieve this (e.g. by further refining the input mix in the case of SCA Laakirchen AG, or by improving the heat/cold flux management in the case of Darbo AG).

Nevertheless, both companies would face some obstacles on the path towards a higher energy efficiency. A part of these obstacles are company-internal. For example, a single factory is unable to determine the product choice if strategic decisions (e.g. investment decisions) are made at headquarters. Or customers may reject an environmentally friendly consignment if the looks and feel of it do not correspond to the image consumers have been attributing to this company and its products for years. However, the majority of these obstacles occurs in the short run and would be overcome in the longer run.

If environmental policy should benefit both the environment and the economy and be effective in the long run, it should be oriented at long term objectives and be phased in gradually, so that companies can make investment decisions based on credible frame conditions. An ETR should, in the authors' opinion, be a cornerstone of such a policy.

In addition, in the case of Austria, a liberalised electricity and gas market would be a useful complement, if it allowed energy-intensive sectors and companies to generate electricity decentrally and to feed it into the grid at competitive market prices, which is not the case today. A liberalisation of the gas market would prevent a punishment of those companies that use gas to produce heat and electricity.