

Expert Group on Fiscal Measures for Research

**Report submitted to CREST in the context of the Open Method of
Co-ordination**

The Hague, June 15th, 2004

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1. Composition of the group

The Group was composed of the following representatives from the participating countries:

| Country | Name | Organisation |
|-----------------|--|---|
| Chair | de GROENE Hans | Ministry of Economic Affairs Deputy Director General Innovation Policy |
| Rapporteur | van de VELDE Ilona | Ministry of Economic Affairs |
| Commission | van der Zwan Arie | DG RTD.M2 |
| Austria | BUCHTELA Georg | AWS - Austria Wirtschaftsservice Innovation & Technologie/TECMA |
| Belgium | DELHAUSSE Bernard | Dienst Productie en analyse van R&D indicatoren/Service de Production et de l'analyse des indicateurs de R&D POD Wetenschapsbeleid/SPP Politique scientifique |
| Cyprus | POUROS Alexis | Planning Bureau |
| Czech Republic | VANEK Tomáš | Institute of Organic Chemistry and Biochemistry Head of the Department of Plant Cell Cultures Academy of Sciences of the Czech Republic |
| Denmark | SCHULTZ-MØLLER Peter | Ministry of Finance Senior Adviser |
| France | DESCLOS de la FONCHAIS Jean-Marc GAILLARD Michel | Ministère de la Jeunesse, de l'Education Nationale et de la Recherche DTC2 |
| Germany | SCHNEIDER Stefan | BMBF - Ref. 113 |
| Ireland | MOONEY Paul PERKINS Michael | Ministry of Finance PR of Ireland to EU |
| Israel | ZEIGER Ilana | Ministry of Industry, Trade and Labour Office of the Chief Scientist |
| Italy | ANCARANI Vittorio | Università di Torino Dipartimento di scienze sociali |
| Lithuania | ZURASKAS Stanislovas | Ministry of Education and Science Head of Technology Division |
| Norway | HEKLAND Jon | Research Council of Norway Special Adviser |
| Portugal | FERNANDES Miguel | Agência de Inovação, S.A. |
| Romania | SBARNA Mircea IOSIF Monica BALAN Mioara | Romanian Mission to EU |
| Slovak Republic | BLASKO Ronald DEMKOVA Diana | Ministry of Finance Department of Budget Analysis Ministry of Education Department of S&T Policy |
| Slovenia | ANDREJASIC Ingrid | Ministry of Finance |

| | | |
|----------------|---|--|
| Spain | DIAZ Nieves | Ministry of Science and Technology DG of Promotion and Innovation |
| Sweden | ZETTERSTRÖM Erik | Ministry of Finance Tax and Customs Department Division of Tax Policy Analysis |
| United Kingdom | LANSER Paul SLINGER Tristan HOPWOOD Richard | Inland Revenue Inland Revenue Inland Revenue |

2. Executive summary

The 3% Action Plan ("Investing in research: an action plan for Europe" (Com (2003)226 final) put forward by the Commission to achieve Research and Development expenditure of 3% of GDP identified a range of new actions for research policy and other policies. One of the instruments of implementation of the actions is the open method of co-ordination (OMC). The OMC provides a flexible framework to foster the implementation of these actions by mutual learning, collective monitoring and joint actions with and between Member States. One of the themes is: "fiscal measures for research" and an ad hoc expert group was set up to propose recommendations to CREST.

The overriding conclusion of the exercise carried out by the Expert Group is that fiscal measures are a popular instrument among EU member states when it comes to policies to promote research and innovation. The large majority of the 22 countries that completed the questionnaire, designed by the Expert Group, use these kind of measures. Moreover, there are strong indications that the (relative) importance of fiscal measures in the policy mix is increasing. Many measures identified have only recently been implemented.

The increasing importance of fiscal measures in this policy field shows that many countries are of the opinion that these instruments boast a number of clear advantages over direct measures. Fiscal measures have relatively low administrative costs compared to direct financial incentives. The private sector can decide what is the most productive way to invest, and there is less risk of governmental failure. Fiscal measures are usually characterised by easy accessibility. It should be noted however that a few countries very deliberately refrain from using fiscal measures for reasons of principle like the avoidance of a narrowing of the tax base and a preference for keeping the tax system as simple and transparent as possible.

Mutual learning, on a voluntary basis, is the essence of the "Open Method of Co-ordination" process. The conclusion of the Expert Group regarding the process is that in the field of fiscal measures a good start has been made. The answers to the questionnaire have provided a wealth of information on (trends in) the use of fiscal measures for research in participating countries. In addition, in-depth presentations on concrete measures and experiences in a number of countries have provided useful information.

Exchanging information on measures and experiences is positive. However, formulating lessons and recommendations, let alone suggestions for (concerted) actions by member states, is more difficult. Perhaps the most painful conclusion of the Expert Group is that there is a severe lack of thorough evaluations and thus of reliable information on effectiveness and efficiency of measures. And even if this information were available for some countries, it is far from certain that resulting lessons or recommendations would apply directly to other countries as well. Obviously, national circumstances determine to a large extent what is effective and what is not and therefore should be of prime importance when it comes to the design of measures.

Main findings and recommendations

General:

- Countries use a range of fiscal measures to promote R&D. Most countries provide some form of tax incentive related to general R&D costs and investment, aimed at encouraging business and companies to do R&D. Further in depth investigation into

why countries abolish their fiscal measures and why countries expand their fiscal budgets would be useful;

Encourage the creation and early growth of research-intensive firms:

- It appears that fiscal measures for the creation and early growth of research-intensive firms so far only play a very limited role in the policy mix. Given the importance of creation and early growth of research intensive firms for realising the objectives of the 3% Action Plan, the Expert Group is of the opinion that the use of fiscal measures in this field merits more attention and consideration. Drawbacks of this kind of measures (for instance no up front “cash”) can be tackled through careful design;
- Recently several countries have introduced fiscal measures for the creation and early growth of research-intensive firms. At present, there is little information on effectiveness and efficiency of these measures. It is recommended that monitoring of the take-up and success of these schemes is carried out in detail, in order to gain a more in-depth understanding during next cycles;

Facilitate fund raising by foundations supporting R&D activities in Europe:

- It was recognised that the fiscal environment of foundations is part of the general treatment of foundations. It appears that interesting examples of significant contributions to research exist and therefore it would be interesting to explore further the possibilities of facilitating fundraising, taking into account the general treatment of foundations and the risk of distortions. This Expert Group supports the initiative of the Commission to further explore the various aspects attached to foundations, either by a new or an existing expert group;
- The Expert Group appreciates the work done by the EFC to promote the role of foundations and their operating environment in Europe through the recommendation of a number of principles. When it comes to the tax treatment of foundations, however, the majority of the Expert Group is not convinced that the principles put forth by the EFC in this respect can be recommended. Although the plea for clear rules and user friendliness is endorsed by the Expert Group, the suggestions for (harmonised) tax treatment throughout Europe is not. These would lead to a significant rise of the administrative burden of member states. The fiscal treatment of foundations in terms of promoting R&D is essentially viewed as a national issue;

Raise the attractiveness of research careers:

- It should be recognised that fiscal measures aimed at promoting research or innovation in general are likely to have a positive effect on the attractiveness of research careers. A variety of more specific measures has been identified, both of a direct and an indirect nature. However no formal evaluations exist, and thus little information is available on the effectiveness or efficiency of the policies. Obviously, effectiveness and efficiency of the measures are likely to depend on the specific design of them in relation to the national circumstances (for instance the level of the tax rates). It is recommended that countries, using measures in this field, monitor and evaluate the results in order to facilitate a more in-depth treatment during next cycles. It is generally felt that fiscal measures in this area should be part of a broader policy mix aimed at promoting the attractiveness of research careers and the availability of researchers;

- The fact that measures only apply to foreign experts could give rise to the question whether these constitute unfair or harmful competition. If member states were to agree, the Expert Group could further explore the effects of this issue during future cycles;

Improve fiscal measures:

- When implementing a new fiscal measure; it is very important to define clear policy targets and indicators to enable the evaluation process, right from the start. Schemes should be appropriate, efficient, and effective;
- The use of a single method to evaluate a fiscal measure is not advised. A combination of methods like a survey, interviews, desk study and econometric analyses should be used. In the case of fiscal schemes econometric analysis is particularly appropriate because of the large population of beneficiaries compared with direct measures;
- Right from the beginning of implementing the fiscal measure all the necessary data for monitoring and evaluating should be collected;
- Changes in the scheme can also be used to evaluate its effectiveness by econometric modelling;
- Effectiveness and efficiency of measures are served by adhering to the general principles of simplicity, transparency and certainty. Overly complex schemes will deter businesses from claiming fiscal benefits, as the process of making claims will be costly and time consuming for them;
- One of the suggestions made was to ensure co-operation among different government authorities in such a way that companies experience a holistic treatment (one-stop-shop). In this way only one governmental organisation needs to be approached instead of multiple ones. Another way to achieve this goal is to develop and maintain constructive links with business in developing and monitoring policy;
- A suggestion made by a number of member states is to include a pre-approval mechanism to reduce companies' perceived uncertainty and costs of post litigation, although a disadvantage might be the longer application process;

Disclose data on the budgetary cost of fiscal measures:

- The information provided on the costs of fiscal measures was generally poor, with the costs or budgets either not known or the information not provided. Better information on budgetary and administration costs should be provided during next cycles. Perhaps the poor information provided so far, is the result of the fact that tax expenditures are frequently measured less precisely than direct spending. The Expert Group sees no obvious justification for this difference and recommends better measurement of tax expenditure;

Definition of R&D:

- The Expert Group discussed the variety of definitions and came to the conclusion that this does not seem to be a problem. It does not feel a need for harmonisation of the definitions used; they should follow from perceived problems and policy objectives formulated

- At the national level the formulation and application of definitions in practice require close co-operation between the tax authorities and experts in the field of innovation policy. Consultation with the business sector during the design process may also contribute to workable definitions;

Fiscal design:

- Issues relating to fiscal design should be treated in more detail during next cycles;
- When designing tax measures for research Member States need to be aware of the territoriality issue and take it into account in both existing and in new schemes with the view of avoiding infringement of the Treaty. In addressing this issue there is – in the view of the Expert Group – an urgent need to develop a common understanding of the various types of such restrictions which are or are not compatible with the Treaty.

Looking ahead

As stated the Expert Group is of the opinion that the first cycle of the OMC process has been a good start and has provided a sound basis to build on in subsequent cycles. The questionnaire should be repeated on a yearly basis to improve the quality of information submitted and to track developments in time. Some recommendations for improvement of the questionnaire are summarized in Annex 6.7. Further, specific issues merit more in-depth treatment on the basis of more (and better) information. In the view of the Expert Group this requires a stronger commitment of the tax authorities in the participating countries regarding these specific issues as well as more serious efforts in the field of evaluations.

3. Introduction

The 3% Action Plan ("Investing in research: an action plan for Europe" (Com (2003)226 final) put forward by the Commission to achieve Research and Development expenditure of 3% of GDP identified a range of new actions for research policy and other policies. One of the instruments of implementation of the actions is the open method of co-ordination (OMC). The OMC provides a flexible framework to foster the implementation of these actions by mutual learning, collective monitoring and joint actions with and between Member States. One of the themes is: "fiscal measures for research" and an ad hoc expert group was set up to propose recommendations to CREST.

Public support of private R&D efforts is generally deemed legitimate, because of the positive externalities attached to these efforts. In this context, the Action Plan states that fiscal incentives are increasingly used to encourage business research as they can support a wide population of firms, including SMEs, while leaving enterprises a maximum of independence. To be effective, fiscal measures for research should be designed with care and co-ordinated with other research support instruments. The Action Plan states that, although optimal design depends on the country – specific context, there is scope for mutual learning.

More specifically, the Action Plan addresses the following actions regarding fiscal measures for research:

- (a) Encourage the creation and early growth of research-intensive firms;
- (b) Facilitate fund raising by new or existing foundations supporting R&D activities in Europe;
- (c) Raise the attractiveness of research careers;
- (d) Improve fiscal measures for research on the basis of formal evaluations whose results should be disclosed, mutual learning, the application of principles of good design such as simplicity, low administrative cost and stability;
- (e) Disclose data on the budgetary cost of fiscal measures.

The Expert Group on Fiscal Measures for Research held its first meeting in November 2003. In this meeting a common level of understanding regarding the objective and nature of the process was reached. In general the Expert Group showed a great willingness to contribute to the work of the Group and to share information and experiences in order to stimulate the process of open co-ordination and mutual learning. It stressed the need to build upon work previously carried out, for instance by OECD and EU, and to involve the authorities responsible for the design and implementation of fiscal measures (usually ministries of Finance). Following its first meeting the Expert Group met in December 2003 and in January, February, March, April and May 2004. During the December meeting Prof. Bruno van Pottelsberghe, chairman of a previous independent Expert Group on Fiscal Measures, shared his experiences with the current Group.

As far as the scope of the study is concerned it was agreed that the Group should not only focus on fiscal measures specifically designed to promote research but also on fiscal measures of a more general nature that have a particular relevance for the research climate in a country. Furthermore, it was stressed that, although research is important, measures affecting other elements of the innovation climate should also be included, as well as possible measures at other levels than the national level (regional).

The first task of the Expert Group was to design a monitoring system that provides an overview of measures and main developments in each country and that can be repeated annually. The Expert Group designed a questionnaire and circulated it to all member states of CREST in January. 22 Countries have completed and returned the questionnaire.

Using the questionnaire, the Expert Group treated some issues in more detail. A number of countries presented their measures and experiences. Apart from the actions mentioned in the Action Plan, cross-cutting issues like state aid and bottlenecks and other obstacles surrounding fiscal measures were addressed.

In December 2003 the Commission held presentations on state aid (DG Competition) and related fiscal issues (DG TAXUD).

In January, France and Portugal presented their measures for encouraging the creation and early growth of research intensive firms. Hungary also presented their fiscal instruments for R&D and described the use of a new foundation for developing R&D. During the same meeting Norway, the United Kingdom and the Netherlands presented their methods of evaluating the effectiveness of their policies.

In February the Czech Republic held a presentation on bottlenecks and obstacles when applying fiscal measures. Sweden gave a presentation on the fiscal measures used to facilitate fund raising by new or existing foundations supporting R&D activities. The Czech Republic, Denmark, Italy, Sweden and Belgium presented their fiscal measures to raise the attractiveness of research careers.

In March, Spain presented the bottlenecks and obstacles they encounter when applying fiscal measures.

As background, information was collected on the use of fiscal measures by major competitors of the EU, notably the US, Canada, Australia and Japan (see Annex 6.6).

From responses to the questionnaire and subsequent discussions several other cross-cutting issues were identified. Consequently the Expert Group also paid attention to questions regarding the policy mix, the definition of R&D and fiscal design.

Based on the responses to the questionnaire and the information provided through the presentations, the Expert Group discussed possible conclusions and recommendations. This report, submitted to CREST, summarises these results.

In the view of the Expert Group, one important remark, of a more general nature, should be made beforehand. There appears to be a lack of thorough evaluations of measures applied and therefore there is little objective information on the efficiency and effectiveness of measures. This is also due to the fact that a lot of measures are relatively new. From this it follows that it is far from easy to define good or best practices. This would require a more in depth study of the specific issues, for instance during next cycles of the OMC-process. Consequently, the Expert Group has chosen not to present good or bad practices, but rather “interesting examples” of existing measures, that can inspire other countries to examine or consider similar measures.

The key chapter of this report is chapter 4. Here the results of the Expert Group are reproduced. In the first part of chapter 4 the facts, figures and key issues with regard to the actions, as mentioned before, are dealt with. After each action, recommendations are formulated. In the second part a few cross cutting issues are discussed.

4. Results

Chapter 4 consists of three parts. The first part – section 4.1 – presents a general overview of fiscal measures in the participating countries. The second part – section 4.2 – deals with facts, figures, interesting examples and recommendations regarding the specific actions stated in the Action Plan. In the third part – section 4.3 – several cross cutting issues are treated.

As explained, an important source of information are the answers to the questionnaire. This questionnaire included questions regarding, for instance, the use of fiscal measures, many characteristics of the measures mentioned by the participating countries and suggestions for lessons learned and possible recommendations. The full questionnaire can be found in Annex 6.1, some additional questions added afterwards are presented in Annex 6.2.

Part of the information supplied through the answers to the questionnaire is presented in this chapter. Additional results are summarised in Annex 6.3. As mentioned in chapter 3, information for the analysis in this chapter was also provided through presentations by various countries.

4.1 Measures in member states, a general overview

Which countries use fiscal measures to promote R&D?

In total 22 countries responded to the questionnaire. These responses include 12 members of the EU 15, 8 accession countries, plus Israel and Norway.

As Table 1 shows, most of the countries that have completed the questionnaire use fiscal measures to promote R&D – 17 out of 22. In total, 63 measures have been identified in these 17 countries (although it should be noted that it could be difficult to judge whether a measure is a single measure or just part of another measure). In general, countries tend to use only a few fiscal measures, with only Hungary, Ireland and Italy having more than four measures.

Five countries, namely the Czech Republic, Cyprus, Germany, the Slovak republic and Slovenia do not have fiscal measures for research for a variety of reasons. Some are of the opinion that fiscal measures are hard to control, and not efficient and transparent enough. Others want to avoid the narrowing of the tax base. Some countries prefer using decreased corporate tax rates as an indirect measure to encourage spending in various areas including R&D.

Table 1: Overview of the use and the number of fiscal measures for research

| Countries covered | Response received | Uses fiscal measures | Number of fiscal measures |
|-------------------|-------------------|----------------------|---------------------------|
| Austria | Y | Y | 3 |
| Belgium | Y | Y | 3 |
| Czech Republic | Y | N | 0 |
| Cyprus | Y | N | 0 |
| Denmark | Y | Y | 3 |
| France | Y | Y | 4 |
| Germany | Y | N | 0 |
| Hungary | Y | Y | 9 |

| | | | |
|-----------------|----|----|----|
| Ireland | Y | Y | 6 |
| Israel | Y | Y | 4 |
| Italy | Y | Y | 7 |
| Latvia | Y | Y | 3 |
| Lithuania | Y | Y | 4 |
| Netherlands | Y | Y | 2 |
| Norway | Y | Y | 1 |
| Portugal | Y | Y | 1 |
| Romania | Y | Y | 4 |
| Slovak Republic | Y | N | 0 |
| Slovenia | Y | N | 0 |
| Spain | Y | Y | 3 |
| Sweden | Y | Y | 2 |
| UK | Y | Y | 4 |
| TOTAL | 22 | 17 | 63 |

Source: Question 1.

What areas of research do fiscal measures promote?

Countries use a range of fiscal measures to promote R&D. As Table 2 shows, most countries (16 out of 17) provide some form of tax incentive related to general R&D costs and investment. Just under half of the countries (8 out of 17) use measures specifically to promote patents and intellectual property. Seven countries also use fiscal measures to support research foundations (or similar bodies). Eight countries use fiscal measures to promote the employment of researchers and improve research careers.

Table 2: countries with fiscal measures by general aim of measure

| | R&D costs and investment | Research careers | Research Foundations | Patents and intellectual property |
|-------------|--------------------------|------------------|----------------------|-----------------------------------|
| Austria | Y | | Y | Y |
| Belgium | Y | | Y | Y |
| Denmark | Y | Y | Y | |
| France | Y | Y | | |
| Hungary | Y | Y | Y | Y |
| Ireland | Y | | | Y |
| Israel | Y | Y | | Y |
| Italy | Y | Y | | |
| Latvia | Y | | | |
| Lithuania | Y | Y | Y | |
| Netherlands | Y | | | |
| Norway | Y | | | |
| Portugal | Y | Y | | Y |
| Romania | Y | | | Y |
| Spain | Y | | | Y |
| Sweden | | Y | Y | |
| UK | Y | | Y | |
| TOTAL | 16 | 8 | 7 | 8 |

Source: Question 1.

How are fiscal measures targeted?

The majority of countries use measures aimed at encouraging businesses and companies to do R&D. As shown in Table 3, 16 out of the 17 countries have fiscal measures targeted at businesses (including both companies and the self-employed). Just over a third of countries (7 out of 17) have measures aimed at research foundations (or similar bodies, such as universities). Eight countries have measures benefiting research workers or individuals (including foreign researchers, researchers returning from abroad, research students and individuals investing in R&D).

Table 3: groups directly benefiting from fiscal measures in each country

| | Businesses/ companies | Workers or individuals | Research Foundations | Others |
|-------------|--------------------------|---------------------------|-------------------------|--------|
| Austria | Y | | Y | |
| Belgium | Y | | Y | Y |
| Denmark | Y | Y | Y | |
| France | Y | Y | | |
| Hungary | Y | Y | Y | |
| Ireland | Y | Y | | |
| Israel | Y | Y | | Y |
| Italy | Y | Y | | |
| Latvia | Y | | | |
| Lithuania | Y | Y | Y | |
| Netherlands | Y | | | |
| Norway | Y | | | |
| Portugal | Y | | | |
| Romania | Y | | | |
| Spain | Y | | | |
| Sweden | | Y | Y | |
| UK | Y | | Y | Y |
| TOTAL | 16 | 8 | 7 | 3 |

Source: Questions 1 and 3.

Some countries have fiscal measures targeted at specific types of research activity or specific groups within the economy – see Table 4 below. More than half of the countries (9 out of 17) have measures that are more generous or have simplified rules for small companies (SMEs). Five countries have additional benefits for start-up companies.

Eight countries specifically target measures to promote researchers and research careers. This includes both tax incentives to employers for the cost of employing researchers and to researchers themselves. The researchers targeted include research students, researchers on sabbaticals, foreign researchers and researchers returning from abroad.

Seven countries have measures to promote research foundations (or equivalent bodies). Eight countries also have measures that provide incentives for collaborative research either amongst a group of private organisations or between private and public bodies. Other targeted measures include incentives for R&D in environmental (Belgium, though this can be considered as a side-effect and not a real target) and medical issues (UK), incentives for R&D

firms undergoing structural change (Israel), R&D tax credits available only to industrial companies and tax allowances for R&D in IT-related fields (Italy).

Table 4: areas targeted by fiscal measures in each country

| | SMEs | Start-ups | Research careers | Research collaboration | Research Foundations | Other |
|-------------|------|-----------|------------------|------------------------|----------------------|-------|
| Austria | | | | | Y | |
| Belgium | | | | | Y | Y |
| Denmark | Y | | Y | Y | Y | |
| France | Y | Y | Y | | | |
| Hungary | Y | Y | Y | Y | Y | |
| Ireland | | Y | | | | |
| Israel | | | Y | | | Y |
| Italy | Y | | Y | Y | | Y |
| Latvia | Y | | | | | |
| Lithuania | | | Y | | Y | |
| Netherlands | Y | Y | | | | |
| Norway | Y | | | Y | | |
| Portugal | | Y | Y | Y | | |
| Romania | | | | Y | Y | |
| Spain | Y | | | Y | | |
| Sweden | | | Y | | Y | |
| UK | Y | | | Y | Y | Y |
| TOTAL | 9 | 5 | 8 | 8 | 7 | 4 |

Source: Questions 1 and 3.

Trends in the use of Fiscal Measures

The statement in the 3% Action Plan that fiscal incentives are increasingly used to encourage business research is illustrated by the draft “R&D investment snapshot”, which is being composed by the Commission. Fiscal measures are becoming an increasingly significant element of the overall policy mix to boost private R&D and major fiscal initiatives are being introduced or extended in many countries. Although they must be considered as forgone revenues rather than public research funding, the snapshot shows that fiscal and other indirect measures are equivalent to a significant percentage of the total EU -25- public funding of R&D, be it with significant differences from country to country.

This general picture is corroborated by the answers to the questionnaire: the role of fiscal measures is very significant in some countries (see also 4.2.5) and the increasing use of fiscal measures is demonstrated by the fact that many measures have only been introduced recently.

To measure and rank the relative attractiveness of R&D tax systems among jurisdictions the B-index model can be used (see Annex 6.5). The B-index is the minimum benefit-cost ratio at which an R&D investment becomes profitable given a jurisdiction’s income tax treatment for firms performing this work. The value of the B-index depends on the income tax treatment of R&D. The more favourable its tax treatment of R&D, the lower is a jurisdiction’s B-index and, other things being equal the greater amount of R&D that will be conducted by its

corporate residents ¹. It must be noted, however, that difficulties exist in interpreting the B-index, for example in judging the underlying corporation tax framework. A periodic comparison of the B-index can result in an interesting picture of developments over time, as can be seen in Annex 6.5.

To get a better grip on developments in fiscal measures over time the questionnaire should be repeated on a yearly basis.

¹ “Measuring the Attractiveness of R&D Tax Incentives: Canada and Major Industrial Countries” Jacek Warda, 1999.

4.2 Actions

4.2.1 Encourage the creation and early growth of research-intensive firms

4.2.1.1. Facts, figures and key issues

The creation and early growth of research intensive firms is undoubtedly a key issue of innovation policy in many countries, both on national and regional/local levels. However from the information gathered, it appears that fiscal measures so far only play a very limited role in the policy mix in this field. However, start-up can often use more general fiscal measures.

Only a few countries have measures specifically aimed at the creation and early growth of research-intensive firms (France, Hungary, Ireland, The Netherlands and Portugal – see Table 4). France and Portugal presented their measures during a meeting of the Expert Group. For a short description of the measures of all 5 countries see Annex 6.4. It appears that around half of the measures are a part of a more general fiscal measure for research and the other half is specific for start-ups. Most of these measures have been introduced recently. The response to the questionnaire indicates that there seem to be no plans to implement new measures in the near future which focus on the creation and early growth of research intensive-firms.

To a certain extent the limited use of fiscal measures aimed at young research-intensive firms is understandable, as these measures have several drawbacks for start-ups (see paragraph 4.3.1). Notably, benefits of fiscal measures frequently depend on the profit being made and do not provide “cash” up front. On the other hand, typical advantages of fiscal measures - easy accessibility and relatively low administrative costs - suggest that they might be particularly suitable for this type of firm.

Although only a few countries have specific measures for the creation and early growth of companies, the Group recognises that this type of companies could also benefit from fiscal measures for SMEs. Fiscal measures for SMEs are more commonly used (see Table 4).

A key issue that can be identified in this context is that, although easy accessibility and simplicity are relatively strong points of fiscal measures, SMEs still experience barriers that deter them from making use of these measures.

4.2.1.2. Interesting example

The Young Innovative Company (France)

The 2004 Finance Act started up “The Young Innovative Company” status for SME’s. These companies must have less than eight years of age, engage R&D expenditures for at least 15 % of the total revenue charges and possess the following criteria :

- I To be SME :
 - less than 250 persons ;
 - sales turnover lower than 40 M€;
 - or total of assessment lower than 27 M€
- II The company must be less than eight years old : But it is possible to adopt the device during the period of eight years.
- III The expenditures of R&D must amount to 15 % at least of the total charges of the company (R&D is defined by the Frascati Manual)
- IV The capital of the company must be held up to 50 % at least by natural persons, or by SME’s held at least up to 50 % by natural persons, by foundations of research, by companies of venture capital (approved by Ministry of Finance)

V The company must really be a new company and cannot be created through the picking of former activities. The new company must not be controlled by another company.

Advantages granted to the young innovative company :

- 1) Exemption of corporate tax on the benefits :
 - total during 3 years, and 50 % during the following two years
 - exemption of corporate tax during eight years
- 2) Exemption of property tax and trade tax during 7 years, if the local administration votes to this exemption. All these fiscal advantages cannot exceed the maximum defined by the rule de “*minimis*” (100 000 euros for three years).
- 3) Exemption of employer’s share of social security for the researchers and technicians, business counsels for the patent right working in the company. This exemption is also allowed to chairmen, researchers or patentees, who are working in the company.

This device has been set up on January 1st 2004, and today more than 1 000 companies have asked for the status of young innovative company.

4.2.1.3. Recommendations

- Given the importance of creation and early growth of research intensive firms for realising the objectives of the 3% Action Plan, the Expert Group is of the opinion that the use of fiscal measures in this field merits more attention and consideration. Drawbacks of this kind of measures (for instance no up front “cash”) can be tackled through careful design;
- To support the first recommendation it is essential that the countries that use fiscal measures in this area monitor and evaluate the take-up and success of these schemes in detail, in order to gain a more in-depth understanding during next cycles. At present, there is little information on effectiveness and efficiency of these measures;
- The issue of difficult access for SMEs could be minimised by supplying information either through publications, on the internet or road shows. To minimise the barriers to making claims for companies the general principles of simplicity, transparency and certainty are also very important (see paragraph 4.2.4). A fully web-based implementation of the application procedure could make access for SMEs easier.

4.2.2. Facilitate fund raising by new or existing foundations supporting R&D activities in Europe

4.2.2.1 Facts, figures and key issues

The interest in the role of the non-profit sector, in the development of Europe has surged in the last few years. The European Commission has recognised this and in 1997 the Commission released a Communication on promoting the role of voluntary organisations and foundations. Of particular interest in this context is the potentially important part that foundations supporting research could play in helping EU-countries reach the 3% target in the Action Plan. The Commission suggests that actions that assist fund raising by new or existing foundations supporting R&D activities in Europe should be encouraged. Research foundations, among other things, could help to increase the amount of fundamental research funds, to increase European research integration, to fund interdisciplinary projects, to fund small projects and to fund research independent of the pressure of industry.

The Expert Group has taken a close look at some of the environmental aspects that research foundations face, and the legal requirements and tax treatment of foundations and their donors.

What constitutes a foundation? Legal definition

There is no common legal definition of the term foundation; moreover, in some countries there is no exact legal definition. For example, in many countries foundations are only allowed to pursue public benefit purposes while other countries admit any legal purpose. General characteristics of foundations in most countries are that they are independent bodies with their own source of funds that are used for a specific purpose according to their own judgement. They are usually run by independent management boards or trustees. The European Foundation Centre, EFC, has recognised these features of public benefit foundations and has developed the following definition:

Foundations are independent, separately constituted, non-profit bodies with their own established and reliable source of income, usually but not exclusively from an endowment, and their own governing board. They have been attributed goods, rights and resources for the performance of work and support for public benefit purposes, either by supporting associations, institutions or individuals etc., or by operating their own programmes.²

Requirements for foundations that support R&D and are entitled to certain privileges

Even though legal requirements for foundations in the European countries are very diverse things narrow down a bit when considering the ones that receive favourable (tax) treatment by the government. In general it can be said that the countries that do allow special tax treatment only allow it for foundations that meet the terms of the EFC definition above. It is also very common to provide special tax treatment for such foundations. There is however no consensus regarding the public benefit purposes that lead to tax benefits. More specifically, whether support of R&D leads to tax breaks or not. This is also evident in the responses to the questionnaire, see Table 5.

Table 5³: countries with measures to facilitate fundraising by R&D foundations

| | Individual donors | Corporate donors | Foundations |
|-----------|-------------------|------------------|-------------|
| Austria | | | Y |
| Belgium | Y | Y | Y |
| France | Y | Y | Y |
| Denmark | Y | | Y |
| Germany | Y | Y | Y |
| Hungary | Y | Y | Y |
| Ireland | Y | Y | |
| Latvia | Y | Y | Y |
| Lithuania | Y | Y | Y |
| Norway | Y | Y | |
| Portugal | Y | Y | Y |
| Romania | Y | Y | |
| Sweden | | | Y |
| UK | | Y | Y |
| TOTAL | 11 | 11 | 11 |

Source: Questions 17-20 of questionnaire.

² “Working with Foundations in Europe: Why and How?” European Foundation Centre, Brussels 2001.

³ This table includes measures of a more general nature, whereas Table 1-4 only cover measures specifically for research promotion.

Despite the fact that most countries permit tax relief for public benefit foundations, only eleven have answered that R&D support led to some kind of tax relief for foundations (or its donors). It is also clear that countries using measures to facilitate fundraising regularly have measures both for the foundations themselves and for individual and corporate donors.

The form of tax benefit for the foundation

If we turn our attention to the form of the beneficial treatment in the countries that run such schemes we find that the exact rules are relatively diverse. However, a common feature is to exempt foundations from paying income tax. Usually only income from commercial activities unrelated to the public benefit purposes, in this case R&D, is taxed. It is also a customary practice to exempt these foundations from paying real estate, gift and inheritance taxes.

The form of tax benefit for individual donors

Eleven countries answered that they have some kind of measure directed towards individual donors, as can be seen in Table 5. Of the countries permitting tax breaks for R&D foundations only Austria, Sweden and the UK do not grant tax relief for individual donors. The exact form of the tax relief differs between countries. The shared feature is that in each country there is a maximum amount that can be deducted from an individual's gross income. In all countries except Hungary this amount is related to the personal income.

The form of tax benefit for corporate donors

Eleven countries answered that they have some kind of measure directed towards corporate donors. Austria, Denmark and Sweden are the only countries that have measures for foundations but do not allow companies to deduct donations. The exact form of the tax relief differs between countries. In most cases a maximum amount can be deducted from corporate gross income.

Enhancing the legal and fiscal environments for foundations in Europe; principles suggested by the EFC

The EFC is working to promote the role of foundations and their operating environment in Europe. In a series of reports the EFC has documented the prevalence of foundations in different countries, the characteristics of foundations, the landscape in which they operate and their importance. This work has helped the EFC to create a few fundamental principles on which they believe good national, and EU, legislation on public benefit foundations should be based. The most relevant principles in this forum that EFC have put forth are the following:

1. The right to create: there should be a fundamental right to for any natural person or legal entity to create a public benefit foundation in any EU member state;
2. Definition: a basic definition, like the one above, should be introduced;
3. Legal requirements: clear legal requirements for the establishment, and governance, of a foundation should be incorporated in the law;
4. The public benefit purposes: a public benefit purpose should be any lawful purpose that supports or promotes public benefit (R&D ought to be included on the list). However, whatever list of purposes is chosen it should be revised from time to time. So that the notion of public benefit remains responsive to social needs and to public perceptions of what is worth supporting with tax concessions;
5. Tax treatments of the foundation and its donors: the rules for applying for tax exemption of the foundation as well as tax incentives for the donor should be clear and user friendly. Tax relief schemes should be clearly defined in the law and should not be at the discretion of the competent authority. There should be a presumption that all foundations engaged in public

benefit activities should be relieved of income-, gift-, inheritance-, property- and land taxes. However, income judged as been expended on activities other than those defined, as being of public benefit should be taxed in the normal way. The tax treatment of foreign and national foundations should be the same in each EU country. In particular cross-border giving and the receipt of gifts across borders should attract identical tax relief, as should gifts or giving to or from foundations inside or outside of the European union. Both companies and individuals should be entitled to an income tax deduction or credit with respect to donations made to foundations engaged in activities of public benefit. The limits to be applied should be generous. In principle, according to the EFC, the limits should be the same for all European citizens or companies giving to European foundations.

4.2.2.2. Interesting example

Foundations (Sweden)

Civil law

The main regulation is the Foundation Act that came into force on January 1, 1996. According to the act a foundation is described as assets that are managed independently to pursue a specific purpose according to the deed of the founder. There are two main categories of foundations: the largest group covers *grant-making foundations* that receive their income from the return of invested assets; the second group is formed of *operating foundations* with some kind of project or business related activities.

One or more founders, individuals and legal entities can establish a foundation. Essential elements for setting up a foundation are the deed of the foundation and the transfer of property in accordance with the deed. The deed has to describe the purpose of the foundation and the assets. The assets have to be handed over to a third party who has promised to manage the assets in accordance with the deed. The law does not require a minimum capital, however the assets have to be sufficient to pursue the stated purpose for a period of at least five to six years. In the process of establishment, no state approval is needed – a foundation receives legal capacity as soon as it is founded. However, some foundations must register with the supervision authority but registration is not a prerequisite for establishment. Foundations that have to maintain accounting records and submit annual reports (foundations with business activities, parent foundations, foundations set up with participation of the state, and foundations with assets beyond a certain amount) must register. The foundation has to be given a name containing the word foundation/*stiftelse*.

Tax treatment of the foundation

Foundations are taxed as other legal entities (e.g. income tax). The income tax rate is 28% according to the Income Tax Act. However, if a foundation has a public benefit purpose and uses its income mainly to pursue this purpose for a period of several years, it only has to pay income tax on income from real estate and business activities. The public benefit purposes enumerated in the Income Tax Act are: the well-being and upbringing of children; education; help to the needy; *research*; Nordic co-operation; and strengthening the defence of Sweden in co-operation with public bodies. If the benefit is limited to a small group of people (e.g. family foundations) no tax exemption will be granted. A foundation has to use approximately 80% of its income during a period of several years on the pursuit of its public benefit purpose.

A number of foundations of a special character (some of them listed by name in the Income Tax Act) are exempt from income tax except on income derived from real estate. An example of such a foundation is the Nobel Foundation.

Foundations that support research, and fulfil the requirements for limited income tax liability, also do not have to pay real estate tax, net wealth tax, gift tax or inheritance tax.

There are no regulations limiting activities abroad. However, a foundation pursuing activities wholly outside Sweden might face difficulties in receiving a tax-privileged status.

Donors.

Donations from individuals are not tax deductible nor are donations from corporations generally deductible. However, companies can deduct some donations as business expenditure if they are related to the business.

4.2.2.3. Recommendations

- It appears that interesting examples of significant contributions to research by foundations exist and therefore the Expert Group is of the opinion that it would be interesting to explore further the possibilities of facilitating fundraising – through tax measures – by foundations supporting R&D-activities. Obviously, account should be taken of the general treatment of foundations and the risk of distortions. It should also be recognised that the fiscal environment of foundations is part of the general treatment of foundations;
- The Expert Group appreciates the work done by the EFC to promote the role of foundations and their operating environment in Europe through the recommendation of a number of principles. When it comes to the tax treatment of foundations, however, the majority of the Expert Group is not convinced that the principles put forth by the EFC in this respect can be recommended. Although the plea for clear rules and user friendliness is endorsed by the Expert Group, the suggestions for (harmonised) tax treatment throughout Europe is not. These would lead to a significant rise of the administrative burden of member states. The fiscal treatment of foundations in terms of promoting R&D is essentially viewed as a national issue;
- The Expert Group supports the initiative of the Commission to further explore the various aspects attached to foundations, either by a new or an existing expert group.

4.2.3. Raise the attractiveness of research careers

4.2.3.1. Facts, figures and key issues

In order to overcome the shortage of researchers it is possible to have fiscal incentives for (foreign) employees (key staff), including those employees devoted to R&D. These fiscal incentives do not directly reduce the tax liability of a company, but indirectly through the (wage costs of) R&D employees who they might want to recruit. From the responses to the questionnaire it appears that around half of the countries that use fiscal measures have fiscal measures to raise the attractiveness of research careers (see paragraph 4.1). Most of these countries reduce the income tax of foreign experts who decide to work in their country. The definition of a foreign researcher differs; sometimes the researcher should earn a minimum income or some kind of experience is needed. In most cases there is a time limit of three years. Some countries have a tax exemption for PhD students.

Apart from these direct measures some countries have indirect measures which appear to have a positive influence on research careers. In the case of indirect measures a possibility is diminishing the costs of wages of R&D personnel for the employer. In this way a research career could be stimulated in an indirect way. Belgium has a somewhat different system. A company enjoys a fiscal advantage (lump-sum exemption on the taxable benefits) when an additional worker is hired for R&D activities or to enlarge the firm's technological potential. One of the many disadvantages of this measure is that it is seldom the case that a worker remains full-time and full year devoted to research over the years. So, when a researcher leaves the job, or stops being employed full time, full-year by the firm (i.e. because he also

undertakes the commercialisation of the products) the employer has to pay back the amount received several years ago. If he hires a new worker, he gets an inflation-adjusted exemption.

Summing up a great diversity of both direct and indirect measures exist, with different definitions of eligible researchers, the scope of the measure, and the period of tax relief etc. During the February meeting of the Expert Group a few countries held brief presentations about their fiscal measures to raise the attractiveness of research careers.

The discussion in the Expert Group focussed on several issues. First of all, there was the question whether the promotion of research careers requires specific fiscal incentives – direct or indirect – for employees. Some argued that tax measures aimed at R&D costs and investment in general are sufficient as they are likely to have an indirect effect of increasing the attractiveness of research careers. Obviously incentives to perform additional R&D can lead to an increased demand for researchers (and higher wages).

Secondly, the effectiveness of measures in this area was discussed. Little information on effectiveness and efficiency is available, as no sound evaluations exist. There are indications that measures of this type can contribute to the availability of researchers. For instance, in the example below from Denmark, the measure seems to have contributed to a rise in the number of researchers.

Finally, the issue of competition between member states was raised. Some argued that measures in this area could lead to harmful competition within Europe, whereas the focus should be on the position of the EU vis a vis the US and other parts of the world. Others basically welcomed competition as a sound basis for progress in Europe.

4.2.3.2. Interesting example

The special tax-provisions for researchers and experts (Denmark)

Introduction a target for the special tax provision

The special tax provisions applies to experts and researchers from abroad (both Danish and foreign citizens) and was originally introduced in 1991 in order to attract highly skilled employees. The special tax provision is permanent, i.e. not limited at a certain time span.

Taxation under the special tax provision

The tax provision implies a comparatively low tax rate at 31 per cent of the gross wage (labour market contribution at 8 per cent and 25 per cent personal income tax of wage net of labour market contributions). The low and uncomplicated tax rules implies that no tax deductions are allowed, while the employee is fully taxable on other income (e.g. interest income) in line with the ordinary Danish tax rules. Participation in the special tax provision is allowed for a period of 3 years within a period of 10 years.

Eligibility

The conditions for eligibility under the special tax-provisions are aimed at preventing tax-shopping, and ensuring that the arrangement is targeted at highly skilled employees.

The overall common conditions for attachment for both experts and researchers are that for a period of 3 years prior to entering the tax-provision the employee must have been non-taxable in Denmark. Further, for a period of 5 years prior to entering the tax-provision the employee must not have had control of the firm, i.e. either through management or a majority shareholding of the firm.

In addition, for researchers it is required that the employee is to be approved by a research institution, i.e. university or research council. For experts it is required that the annual wage bill exceeds 98,000 Euro (2004-level) in order to target the provision to highly qualified experts. Furthermore, that the expert move the residence to Denmark and is fully taxable in Denmark from the beginning of the engagement.

Number of persons covered by the special tax-provision

From the introduction in 1991 there has been a steady increase in the number of researchers attached to the special tax-provision from 36 by the beginning of 1993 to 269 in 1998 and 573 at the beginning of 2003. There has also been a marked increase in the number of experts attached to the special tax provision from 335 in 1993 to around 1,000 from 1999 onwards.

4.2.3.3. Recommendations

- As stated before, no formal evaluations exist, and thus little information is available on the effectiveness or efficiency of the policies. Obviously, effectiveness and efficiency of the measures are likely to depend on the specific design of them in relation to the national circumstances (for instance the level of the tax rates). It is recommended that countries, using measures in this field, monitor and evaluate the results in order to facilitate a more in-depth treatment during next cycles;
- It is generally felt that fiscal measures in this area should be part of a broader policy mix aimed at promoting the attractiveness of research careers and the availability of researchers;
- The fact that measures only apply to foreign experts could give rise to the question whether these constitute unfair or harmful tax competition. Member States have agreed to abolish all harmful tax competition in the area of business taxation (Conclusion of the ECOFIN Council meeting on 1 December 1997 concerning taxation policy (98/c 2/01)). This agreement does not cover personal taxation and, as recently as November 2003, ECOFIN did not support extension to do so. However, if member states were to agree, the Expert Group could further explore the effects of this issue during future cycles. Any extension of the Code of Conduct would require unanimous agreement by Member States in ECOFIN.

4.2.4. Improve fiscal measures for research on the basis of formal evaluations whose results should be disclosed, mutual learning, the application of principles of good design such as simplicity, low administrative cost and stability

4.2.4.1 Facts, figures and key issues

Just 8 of the 17 countries that use fiscal measures have evaluated those measures. In only three countries, evaluation results have been published, whilst in four other countries, the results are not (yet) available (see Table 6). The Expert Group discussed methodology for evaluating fiscal measures. Norway, the United Kingdom and the Netherlands held a presentation about this subject and bottlenecks encountered. Norway and the United Kingdom have not yet started their evaluation, whereas, the Netherlands have already finished theirs.

Some general observations emerged from the presentation and subsequent discussion:

- It is difficult to assess causality and additionality. Does the fiscal measure lead to more R&D than in the situation without the fiscal measure?
- If the fiscal R&D scheme is heavily dominated by a few companies then this can slant the results of an evaluation of the policy. In this case, a change of the policy of one of these companies could influence the outcome of an evaluation.
- If an evaluation looks upon third order effects, like the broad economic effects of a scheme, one must realise that it can take several years before the effects become perceptible.
- It is difficult to find a representative control group because: the fiscal measure is generic by nature, the counterfactual is difficult to define.

The key issue with respect to evaluation is the question of additionality. Aspects that play an important role are:

1. a clear understanding of objectives from the start;
2. the availability of data;
3. the availability of a counterfactual scenario, such as a control group;
4. the methodology used;

Table 6: evaluation of fiscal measures

| | Are measures evaluated? | Are results available? |
|---------|-------------------------|--------------------------|
| Austria | Y | Not published |
| Belgium | Y | On a ad hoc/recent basis |
| Denmark | | |
| France | | |
| Hungary | Y | Y |
| Ireland | | |
| Israel | | |
| Italy | | |

| | | |
|--------------|----------|----------|
| Latvia | Y | Y |
| Lithuania | | |
| Netherlands | Y | Y |
| Norway | Y | Not yet |
| Portugal | Y | Not yet |
| Romania | | |
| Spain | | |
| Sweden | | |
| UK | Y | Not yet |
| TOTAL | 8 | 6 |

Source: Question 11.

Mutual learning

Mutual learning, on a voluntary basis, is the essence of the “open method of co-ordination” process. The opinion of the Expert Group is that in the field of fiscal measures a good start has been made. The answers to the questionnaire have provided a wealth of information on (trends in) the use of fiscal measures for research in the participating countries. In addition, in-depth presentations on concrete measures and experiences in various countries have provided useful information.

Exchanging information on measures and experiences is positive, however, formulating lessons and recommendations, is more difficult. It has already been stated: there is a severe lack of thorough evaluation and, thus, of reliable information on the effectiveness and efficiency of measures. And even if this information were available for some countries, it is not at all certain that results, lessons or recommendations following from this, will apply directly to other countries as well. Obviously, national circumstances also determine what is effective and what isn't and thus influence the required design of measures.

Principles of good design

From the answers to the questionnaire it appeared that there is a common understanding of the importance of these principles. Effectiveness and efficiency of measures are served by adhering to the general principles of simplicity, transparency and certainty. Overly complex schemes will deter businesses from claiming fiscal benefits, as the process of making claims will be costly and time consuming for them. The long-term nature of R&D investment also means that businesses value certainty in receiving support through R&D fiscal measures.

4.2.4.2 Interesting examples

Evaluations

Evaluation (The Netherlands)

The Dutch fiscal scheme for R&D is called WBSO and provides for a fiscal facility that reduces wage costs for R&D employees by reducing wage tax and social security contributions for companies. In 2002 the WBSO was evaluated for the last time. Given the aim of the WBSO, a central question in the evaluation was whether and to what extent the WBSO leads companies to conduct more R&D activities and to become more innovative. Additionally the evaluation looked into the broad economic effects.

It appeared during the process that it was difficult to assess causality (does more WBSO lead to more R&D or vice versa). There was also a lack of a representative control group, data and clear policy targets (when is the scheme effective).

A combination of methods was used. These were econometric analyses, telephone survey, desk research and interviews. The econometric analyses consisted of an estimation of price elasticity (to make causality plausible), an econometric model by Heckman to estimate size of the effects and use of connected data base of several statistical offices in the Netherlands. Because econometric analyses only take into account structural users of the WBSO this was completed by telephone survey, desk research and interviews. 500 companies that use or had used the WBSO were asked about decision-making on R&D, the effects of using the WBSO, experiences with implementation of the WBSO and potential improvements in its design. In the processing of the results, various dimensions are often distinguished, such as size, category, sector etc. Semi-structured interviews were conducted with representatives of a limited number of companies. These interviews served mainly to shed light on the initial insights and to gain further understanding of the use of the WBSO. Literature about the most recent scientific insights and policy studies in the field of quantitative evaluation research and the use of tax credits schemes was studied.

One of the results was that 1 Euro WBSO will generate around 1.02 Euro extra R&D. In the longer term the effect is larger. This result is in line with international literature. The WBSO makes a significant contribution towards Dutch R&D intensity, both at corporate level and structurally at the macro level. Overall total R&D-spending in the Netherlands rises with somewhat more than the total of the WBSO budget. The scheme is evaluated on a regular basis (every three/four years) and results are all disclosed.

Evaluation (Norway)

A tax incentive scheme ('SkatteFUNN') for R&D expenses was introduced in Norway in 2002. The scheme has quickly become a major feature of the Norwegian R&D support system. With no prior experience with this type of instruments evaluation becomes most important. The evaluation was put up for international tender in 2003 and later contracted to Statistics Norway. Detailed evaluation design will be defined during 2004. A major evaluation data base will be compiled based on historical records and supplemented with new surveys. Analysis will start gradually from 2005 onwards with major reporting at end of 2007.

The broader part of the evaluation will be work of econometric nature based on register data and operational archives, however complemented by various more detailed surveys. In particular Nordland Research will address the more complex issue of behavioural additionality and the importance of features within the firms and its environment for the capability to exploit the tax incentive with a successful outcome. The evaluation strategy is further based on a mix of 'before-after' studies and 'quasi-experiments' based on discontinuities in the design of the scheme over time. First-order effects will be studied based on presumed (observed) firm behaviour. However, the evaluation will also look into whether the tax incentive alters the relation between R&D and other variables; i.e. creates 'structural breaks', and how the tax incentive scheme interoperates with other, more direct type support measures.

Principles of good design

Ongoing consultation with business (United Kingdom)

The aim of the UK R&D tax credit schemes is to increase the incentives for companies to undertake R&D, thus leading to greater R&D. Therefore it was recognised from the beginning that the design of the schemes should be simple and allow companies to know with certainty how much tax credit they would receive.

To deliver simplicity and certainty the UK consulted widely with business on the initial design of the scheme and followed this with a number of further consultations on individual aspects of the scheme design. The first consultation took place in late 1999 and the most recent was in 2003. The result of this extensive consultation is that the scheme has been fine tuned to meet the needs of business. Most of the changes to the scheme's design since its introduction have come about in direct response to issues raised by business through these consultations.

One example of an improvement relates to the way the schemes work for expenditure on staffing costs. In order to keep the schemes simple they were initially drafted to only allow expenditure on a company's own staff doing R&D. However, consultations indicated this caused problems in particular sectors where hiring in of external staff is more common. Therefore rules were drafted to allow such costs, thus ensuring equality between different sectors.

As well as improving the design of the schemes, the inclusive development of the schemes has resulted in business, and other stakeholders, having a collective sense of ownership of the schemes. This has led to continuing publicity for the schemes, and discussion of them. This may be one of the reasons take up of the schemes has exceeded initial expectations.

Without this inclusive process it is likely the schemes would not have been taken up by claimants to the degree they have. Given that the aim of the schemes is to encourage claimants to do more R&D, it is vital that the schemes are tailored to their needs. Ongoing, detailed and responsive consultation has achieved this. Discussions with business continue now not so much on the design of the scheme but rather on the interaction between claimants and the Inland Revenue at a practical level.

4.2.4.3. Recommendations

Evaluations

- When implementing a new fiscal measure, it is very important to define clear policy objectives, targets and indicators to enable the evaluation process, right from the start. Schemes should be appropriate, efficient and effective. For instance, one should define precisely the term innovation and choose clear indicators to monitor the process in advance;
- Right from the beginning of implementing the fiscal measure all the necessary data for monitoring and evaluating should be collected;
- The use of a single method to evaluate a fiscal measure is not advised. A combination of methods like a survey, interviews, desk study and econometric analyses should be used. In the case of fiscal schemes econometric analysis is particularly appropriate because of the large population of beneficiaries compared with direct measures;
- Changes in the scheme can also be used to evaluate its effectiveness by econometric modelling.

Mutual learning

- The Expert Group finds that the first cycle of this process has been a good start and has provided a sound basis to build on in subsequent cycles. The questionnaire should be repeated on a yearly basis to improve the quality of information submitted and to get a grip on developments in time. This should be done as efficiently as possible, without causing an extra administrative burden (for some recommendations regarding the questionnaire, see Annex 6.7). Further, as mentioned before, specific areas need more in-depth treatment on the basis of more and better information. The role of regional incentives could be such an area. Further, It seems worthwhile to explore more in depth why countries abolish their fiscal measures and also why countries expand their fiscal budgets.

Principles of good design

- One of the suggestions made was to ensure co-operation among different government authorities in such a way that companies experience a holistic treatment (one-stop-shop). Another way to achieve this goal is to develop and maintain constructive links with business in developing and monitoring policy. Above the UK tells how this could be done.
- A suggestion, which was made by a number of countries, is to include a pre-approval mechanism to reduce companies' perceived uncertainty and costs of post litigation. In this case a company has to judge in advance whether a particular activity is eligible for a fiscal measure. This requires a planning capacity that some companies find hard and can lengthen the application process. It could be useful to build in the fiscal measure flexibility for a firm to allow them - even after receiving support - to adjust their R&D to new developments. This would allow them to respond to any signals, for instance from customers, and increase the chances the project is successful.

4.2.5 disclose data on the budgetary cost of fiscal measures

4.2.5.1. Facts, figures and key issues

The questionnaire asked about the budgetary costs of fiscal measures. For example questions were asked with respect to the percentage of GDP and the share of the costs of the fiscal measure(s) in the total innovation budget. Some other questions were: is there an upward limit on the total costs of fiscal measures? What are the administrative costs of the measure and is there any development or trend in time in relation to the costs (last 10 years)?

The information provided on the costs of fiscal measures was generally poor, with the costs or budgets either not known or the information not provided. Of the few countries which supplied information on what proportion of the total budget for innovation policies is allocated to fiscal measures the proportion varies considerably from insignificant to 75% (The Netherlands 50%; UK 75%). The proportion of GDP ranges from 0.02% till 0.15%. On administration costs there is even less information available. This could be partly explained by the fact that in all countries the Ministry of Finance is involved in the fiscal measure for R&D. This Ministry is usually in charge of all fiscal measures of which the R&D measures are only a part. The administrative costs will not always be separately calculated.

No country that replied to the question on development or trend in time has an upper limit to the cost of the measures. The budgets have been increasing at different paces. For some the budget is gradually increasing and for some it has more than doubled in a year.

4.2.5.2. Recommendations

- The obvious recommendation is that countries should provide better information on budgetary and administration costs during next cycles. Perhaps the poor information provided so far, is the result of the fact that tax expenditures are frequently measured less precisely than direct spending. The Expert Group sees no obvious justification for this difference and recommends better measurement of tax expenditure.

4.3. Cross-cutting issues

4.3.1. Policy mix

Fiscal measures and direct policy measures for research can interact and positively reinforce each other. Fiscal instruments can stimulate R&D investment along a broad front, while direct measures are better suited to target specific actors or technology areas whenever there is a need to rectify weaknesses or build on strengths. However, these types of direct and indirect fiscal instruments might also interfere with each other. Policy makers therefore need to ensure that fiscal and direct measures complement each other. It should be noted that some countries refrain from fiscal measures for reasons of principle like to avoid narrowing the tax base, difficulties to control or a deliberate preference for targeted support schemes.

Below are presented some advantages and disadvantages of fiscal measures compared to direct measures that were distinguished by the Group. These arguments should be weighted very carefully against one another when optimizing the policy mix.

Advantages of fiscal measures compared to direct measures:

- The private sector decides what is the most productive way to invest; because of the open character, it is a market friendly, bottom-up approach which reduces the risk of government failure (choosing the wrong projects for government-support);
- Ex ante companies have the certainty that financial support by the tax-credit will be available, if the necessary requirements are met. In case of subsidies and grants there is usually more uncertainty for companies whether they will receive them; .
- Simpler for governments to implement and less complicated to comply by companies, resulting in relatively low administrative costs when compared to direct financial incentives for both parties;
- Usually measures not depend on the amount of available funds, but on conditions established in fiscal rules (depending on budgetary conditions);
- Because of the usually relatively large take up of fiscal measures, they are likely to have the effect of political recognition of companies investing in R&D;
- Fiscal integrity may be improved as the existence of fiscal measures for research may encourage companies to report their profits more accurately.

Disadvantages of fiscal measures compared to direct measures:

- Less appropriate for targeted measures aimed at specific categories like early stage companies that need upfront 'cash' or specific sectors. Tax credits are also more appropriate for stimulating applied research than fundamental research, where the immediate market value is small but the wider social value is much higher. The tax credit would, in this case, need to be unrealistically large to induce businesses to conduct such research;
- Greater risk of dead weight loss (supporting projects which would have been performed anyway), and less additionality in the case of very large companies;
- Specific administrative design needed to control budgetary consequences (as foregone tax-revenues) in comparison with direct measures;

- The overall tax system will become more complicated with specific measures and the need for stronger control mechanisms, which places an extra burden on the tax system;
- Fiscal integrity may suffer from the risk of relabeling other activities as R&D;
- Higher risk on closed networks.

4.3.2. Definition of R&D

It appears from the answers to the questionnaire that countries use a variety of definitions of R&D. A number of countries use the Frascati Manual at least as a starting point and develop their own definitions. Also definitions originating from WTO and OECD are used as a lead. Definitions are tuned to national circumstances, issues to be solved and objectives formulated.

Another issue is the way a definition is handled within a country. It happens for instance that the Ministries in charge of the fiscal measure use different interpretations, which is obviously considered an obstacle when applying fiscal measures. In some countries no clear definitions exist which could also be a problem. And in some countries the problem is recognised that companies tend to interpret the definition of R&D as widely as possible. Or for some sectors like software the definition is too technical to understand for some eligible companies. The United Kingdom consulted businesses on the appropriate definition of R&D for tax purposes when R&D tax credits were first introduced in April 2000 (see also paragraph 4.2.4.2). Although this definition was found to be broadly internationally competitive in terms of the types of R&D activities included, there was concern that some companies were being deterred from making claims by the complexity and length of the definition. As a result, a second consultation document on the definition of R&D was published in 2003. The feedback from companies was that the boundaries around the types of qualifying costs were broadly in the right place. However, companies desired a simpler definition in order to provide greater certainty about whether their R&D activities qualify for support. The government has taken these comments onboard and, in March 2004, announced new guidelines defining R&D that are simpler and easier to use.

4.3.2.1. Recommendations

- The Expert Group discussed the variety of definitions and came to the conclusion that this does not seem to be a problem. It does not feel a need for harmonisation of the definitions used; they should follow from perceived problems and policy objectives formulated;
- At the national level the formulation and application of definitions in practice require close co-operation between the tax authorities and experts in the field of innovation policy. Consultation with the business sector during the design process may also contribute to workable definitions;

4.3.3. Fiscal design

In addition to the general principles of good design set out in the previous section, a number of issues emerge on the fiscal design of measures. For example, there is the issue of type of fiscal relief (credit, allowance or deferral). Another subject is the difference between volume-based and incremental measures. And then there are the more technical features of fiscal incentives, like carry back and carry forward mechanisms etc. The Expert Group gathered

information on these issues (see Annex 6.3), but it decided to focus – in this first cycle – on providing a general overview and information on the specific measures mentioned in the 3% Action Plan. Design issues could be treated more in-depth during next cycles.

In the course of the six months the Expert Group met, the relatively new issue of territoriality came to surface. This issue can be briefly explained as follows.

Direct taxation remains within the competence of Member States provided that they respect Community law, namely the Treaty rules on State aid and on fundamental freedoms⁴.

Some Member States have introduced tax measures to encourage R&D and have used different ways to target measures at potential beneficiaries. Most of these criteria (size of companies, eligible costs, incremental R&D costs, type of research) appear generally to be compatible with State aid rules and fundamental freedoms. However, the Commission has received a complaint and the European Court of Justice (ECJ) has been asked to give a preliminary ruling⁵ on the question of whether a territorial restriction⁶ infringes the fundamental freedoms of providing services and of establishment.

In the past the ECJ has ruled several times on territorial restrictions in the context of tax incentives and has always found that they were restricting one or more fundamental freedoms. However, the ECJ has recognised that a restriction can be justified; either by an exemption expressly provided for by the Treaty⁷ or by other grounds recognised by the ECJ and accepted by it as overriding requirements in the general interest. The restriction can only be justified if it is proportionate to the aims sought by the restriction. In practice this means that the Court will only accept a restriction if it is certain that the aims sought by the restriction cannot be achieved by using a less restrictive measure. The reasons accepted so far for restrictions of tax incentives are e.g. the need for fiscal supervision, and prevention of tax evasion. It seems, however, unclear how such reasons could justify territorial restrictions⁸. The ECJ has, until now, never ruled on the promotion of research as an acceptable justification of territorial restrictions. However, it has already rejected the erosion of the national tax base as an acceptable justification and although it has acknowledged fiscal supervision as a possible justification, it has, until now, always rejected it on the grounds of its disproportionality in the specific case.

While most fiscal measures are general and therefore fall out of the scope of EU State aid rules, some fiscal measures may be targeted to benefit certain undertakings in which case, existence of State aid in the meaning of Article 87(1) of the EC Treaty and compatibility in the meaning of Article 87 (3) (c) of the EC Treaty of such an aid should be examined against these articles.

4.3.3.1. Recommendations

- The Expert Group recommends that issues relating to fiscal design be treated in more detail during next cycles;

⁴ Articles 39 (freedom of workers) 43 (freedom of establishment), 49 (free services) of the EC Treaty and the correspondent Articles of EEE Agreement are relevant in this context.

⁵ C39/04 Laboratoires Fournier, JO C 071 du 20.03.04

⁶ Meaning that the benefit of the incentive is expressly limited to research conducted within the national territory of the Member State granting the incentive.

⁷ Article 46 and 55 of the EC Treaty

⁸ Justifications based on tax coherence have been considered by the Commission as being not relevant in the context of the preliminary ruling above

- When designing tax measures for research Member States need to be aware of the territoriality issue and take it into account in both existing and in new schemes with the view of avoiding infringement of the Treaty. In addressing this issue there is – in the view of the Expert Group – an urgent need to develop a common understanding of the various types of such restrictions which are or are not compatible with the Treaty.

5. Conclusions

The overriding conclusion of the exercise carried out by the Expert Group is that fiscal measures are a popular instrument among EU member states when it comes to policies to promote research and innovation. The large majority of the 22 countries that completed the questionnaire, designed by the Expert Group, use these kind of measures. Moreover, there are strong indications that the (relative) importance of fiscal measures in the policy mix is increasing. Many measures identified have only recently been implemented.

A quick scan among major competitors of the EU gives a similar picture. In the US, Japan, Canada and Australia fiscal measures also play an important role in the innovation policy mix.

The increasing importance of fiscal measures in this policy field shows that many countries are of the opinion that these instruments boast a number of clear advantages over direct measures. Fiscal measures have relatively low administrative costs compared to direct financial incentives. The private sector can decide what is the most productive way to invest, and there is less risk of governmental failure. And fiscal measures are usually characterised by easy accessibility. It should be noted however that a few countries very deliberately refrain from using fiscal measures for reasons of principle like the avoidance of a narrowing of the tax base and a preference for keeping the tax system as simple and transparent as possible.

Mutual learning, on a voluntary basis, is the essence of the “Open Method of Co-ordination” process. The conclusion of the Expert Group regarding the process is that in the field of fiscal measures a good start has been made. The answers to the questionnaire have provided a wealth of information on (trends in) the use of fiscal measures for research in participating countries. In addition, in-depth presentations on concrete measures and experiences in a number of countries have provided useful information.

Exchanging information on measures and experiences is positive. However, formulating lessons and recommendations, let alone suggestions for (concerted) actions by member states, is more difficult. Perhaps the most painful conclusion of the Expert Group is that there is a severe lack of thorough evaluations and thus of reliable information on effectiveness and efficiency of measures. And even if this information were available for some countries, it is far from certain that resulting lessons or recommendations would apply directly to other countries as well. Obviously, national circumstances determine to a large extent what is effective and what is not and therefore should be of prime importance when it comes to the design of measures.

Nevertheless, the Expert group is of the opinion that it has been able to formulate a number of useful recommendations, even during this first cycle. These are summarised in the Executive Summary.

As stated the Expert Group is of the opinion that the first cycle of the OMC process has been a good start and has provided a sound basis to build on in subsequent cycles. The questionnaire should be repeated on a yearly basis to improve the quality of information submitted and to track developments in time. Some recommendations for improvement of the questionnaire are summarized in Annex 6.7. Further, specific issues merit more in-depth treatment on the basis of more (and better) information. In the view of the Expert Group this requires a stronger commitment of the tax authorities in the participating countries regarding these specific issues as well as more serious efforts in the field of evaluations.

6. Annexes

ANNEX 6.1

Questionnaire on fiscal measures for research

General remarks

By using the phrase 'fiscal measures' in the questionnaire is meant to include tax measures and social contributions but not public expenditure. The fiscal measures concerned should focus on R&D financed by the private sector and the exploitation of the fruits of private R&D. Examples are incentives to promote research, encourage research careers and stimulate the use of patents.

If, as well as national tax measures focussed on research in your country, regional measures do exist, please answer the following questions both for the national and the regional measures.

General questions on measures/experiences and lessons to be learned

1. *Which instruments are used to stimulate R&D* e.g. are fiscal measures used to stimulate R&D? If not, why not? If yes, how do you consider the fiscal measures with respect to your total policy mix? What are the advantages or disadvantages of fiscal measures in comparison with other measures? Is there a distinction between measures specifically focussed on R&D and measures that concern the exploitation of the fruits of private R&D as mentioned in the general remarks? Please put together a short survey of the fiscal measures (to be detailed later). Is the fiscal measure notified to the Commission and if so is the measure ranked as aid by the Commission? What are the developments or trends in time of the importance of fiscal measures versus other measures during the last decade?

2. *If you have a definition relating to R&D for fiscal purposes, what is it?*

3. *Are fiscal measures to stimulate R&D targeted? And if so, how?*

(a) to certain types of research investments, e.g. collaborative research, R&D facilities, research institutes:

(b) to certain types of companies, e.g. large or small companies:

(c) to certain types of companies, e.g. to encourage the creation and early growth of research-intensive firms

(d) to facilitate fund raising by new or existing foundations supporting R&D activities:

(e) to raise the attractiveness of research careers, also for foreign researchers:

(f) in another way:

4. If the fiscal measure is targeted, what is *the take-up* of the fiscal measure by the target group (the degree to which the target group benefits from the measure? Can you explain the take-up? (why do companies not apply etc?))

5. *International aspects* e.g. has R&D to be carried out in the country that provides the fiscal measure? Must there be a certain amount of national content associated with the R&D (staff, equipment)? Must the results of R&D be exploited to the benefit of the country providing the fiscal measure? Is R&D by a permanent establishment in another state eligible? Is contract research, carried out in another state eligible? Also, is contract research within the state, funded by a foreign actor eligible?

6. What is the *life span* of the fiscal measure, if any?

7. Which *Ministries and intermediary organisations* are involved in the decision making process and the implementation of fiscal measures for research? If there are *different levels of Government* organisation, please describe them?

8. Are there any *particular issues or difficulties* when applying fiscal measures to stimulate R&D? E.g.

(a) state aid guidelines or code of conduct;

(b) access for SMEs;

(c) tax avoidance or evasion;

(d) difficult co-ordination between different governmental organisations concerned;

(e) defining R&D;

(f) familiarity with the measure;

(g) understanding of the rules to apply;

(h) complexity of the system used.

(i) Anything else

9. *Were there any difficulties* (see former question) in the past, which have been solved? How did you solve them?

10. *Costs* e.g. what are the budgetary costs of fiscal measures as mentioned in answer to question 1. to stimulate R&D as a % of GDP? And what is the share of the costs of the fiscal measure(s) in the total of the budget for innovation? Is there an upward limit on the total of fiscal measures? What are the administrative costs of the measure? Is there any development or trend in time for the costs (last 10 years)?

11. *Evaluation* e.g. do formal evaluations exist? If so, are the results disclosed? If not, is there any kind of evaluation practise or methodology? Could you tell something about the results of a (formal) evaluation?

Specific questions with respect to the individual measures

12. What kinds of R&D investments are supported by fiscal measures?

R&D investments can be divided in:

- (a) current expenditures, e.g. salaries of research personnel and costs of materials but could also be costs of training, advertising, overhead costs.
- (b) capital expenditures, e.g. costs of equipment and facilities.

And how is the fiscal measure designed? Fiscal measures usually take one of the three following forms:

- (1) tax deferrals, which are relieves in the form of a delay in payment of tax, e.g. depreciation allowances;
- (2) tax allowances or extra amounts over current business expenses deducted from gross income to arrive at taxable income;
- (3) tax credits or amounts deducted from tax liability.

Please fill in the appropriate box?

| Measures | (1) deferrals | (2) allowances | 3 tax credits |
|--------------|---------------|----------------|---------------|
| Expenditures | | | |
| (a) current | | | |
| (b) capital | | | |

13. If the measure is designed either as tax allowances or extra amounts over current business expenses deducted from gross income to arrive at taxable income (12.(2)) or tax credits or amounts deducted from tax liability (12.(3)) could you describe it, including the following topics where applicable:

- (a) what is the tax rate applicable?

- (b) What is the amount of any floor or cap on the amount of R&D that can be claimed or a cap on the maximum amount of the tax incentive that can be deducted?

- (c) Is carry-over (backward or forward) possible?

- (d) Is the allowance or credit taxable?

(e) Is a cash refund possible? Firms, which are not in profit, could in this way also benefit from a fiscal measure.

(f) Could the tax credit be traded as such?

14. Tax credits and tax allowances come in three main forms depending on whether they are based on

(a) the level of R&D expenditures in a given year

(b) the increment of R&D expenditures

(c) a combination of level and increment.

Please describe your form if applicable.

15. If your tax credit or tax allowance is based on the increment of R&D expenditures in a given year how is your base period defined?

(a) on a rolling average base (the base period defined as a rolling average of firm-level expenditure on R&D in some number of preceding years);

(b) fixed base (the base period defined as the firm-level of R&D undertaken in a specific year which is then updated each year by inflation);

(c) sales based (the base period as a ratio of R&D to a firm's sales).

16. What kind of data and/or technical records is needed to apply for a fiscal measure and/or to enjoy the benefits of the fiscal measure?

17. With respect to fiscal measures to facilitate fund raising by new or existing foundations supporting R&D activities, are there certain (legal) requirements for a foundation that is entitled to certain privileges?

18. With respect to fiscal measures to facilitate fund raising by new or existing foundations supporting R&D activities, are there any (tax) benefit for individual donors making gifts to foundations?

19. With respect to fiscal measures to facilitate fund raising by new or existing foundations supporting R&D activities, is there any (tax) benefit for corporate donors making gifts to foundations?

20. With respect to fiscal measures to facilitate fund raising by new or existing foundations supporting R&D activities, is there any (tax) benefit for the foundations?

Recommendations

21. If another member-state would ask you how to design a fiscal measure to for research, what are your up to 10 favourite suggestions you would make? Warnings are also welcome.

22. Do you have any suggestion you would like to make to the Commission e.g. state aid.

23. Are there any plans for the future? Will the government budget for fiscal measures be raised? Are new measures considered? What kind of measures are being considered and why?

ANNEX 6.2

Additional questions:

1. Did you have fiscal measures to stimulate R&D in the past?
2. If yes, and they are different from those you apply at the moment, could you describe them in a few lines?
3. Why did you abolish these fiscal measures?
4. When did you abolish these fiscal measures?
5. If you have mentioned fiscal measures in question 1 could you please tell how long these measures exist?

ANNEX 6.3

How are fiscal measures designed to achieve their objective?

What expenditures are covered and type of relief provided?

Table 1 attempts to classify fiscal measures by the type of expenditure they support (current or capital) and the type of relief they provide (deferrals, allowances or tax credits⁹). This has proved difficult to judge for many of the measures. In many cases, measures do not fit easily into the classifications provided but, also, this part of the questionnaire was often not completed and insufficient information was provided to allow measures to be classified. A particular difficulty was judging whether measures cover current R&D expenditure, capital R&D expenditure or both. For this reason, the figures in Table 1 should be seen as indicative rather than exact.

Table 1: number of measures providing particular types of relief

| | Current expenditure | | | Capital expenditure | | |
|--------------|---------------------|-----------|------------|---------------------|-----------|------------|
| | Deferral | Allowance | Tax credit | Deferral | Allowance | Tax credit |
| Austria | | 1 | 2 | | | |
| Belgium | | 2 | | | 1 | |
| Denmark | | 3 | | | | |
| France | | 1 | 2 | | | |
| Hungary | Y | Y | Y | Y | Y | Y |
| Ireland | | 2 | 1 | | 2 | 1 |
| Israel | | 1 | | 1 | 1 | |
| Italy | | 4 | 2 | 1 | | 1 |
| Latvia | | 2 | | 1 | 1 | |
| Lithuania | | 4 | | | | |
| Netherlands | | 1 | 1 | | | |
| Norway | | | 1 | | | 1 |
| Portugal | | | 1 | | | 1 |
| Romania | | 3 | | | 2 | |
| Spain | | | 3 | | | 3 |
| Sweden | | 2 | | | | |
| UK | | 3 | 2 | 1 | | |
| TOTAL | 0 | 29 | 15 | 4 | 7 | 7 |

Source: Questions 1 and 12.

Notes: the number of measures may not equal the earlier total as some measures cover both current and capital spending. Figures should be treated as indicative rather than exact for this reason.

⁹ Tax deferrals are relief in the form of a delay in the payment of tax (such as depreciation allowances). Tax allowances are relief that allow expenditure, plus any extra amounts, over current business expenses to be deducted from gross income to arrive at taxable income. Tax credits include amounts deducted from tax liabilities or a payable credit.

Just over two-thirds of measures appear to provide incentives for current expenditure on R&D – 71 per cent of measures that could be classified were for current expenditure. Further, all 17 countries used fiscal measures based on current expenditure of some kind. Eleven of the 17 countries used fiscal measures based on capital expenditure on R&D – just under a third of measures.

Most measures (67 per cent) supporting current R&D expenditure provide relief through some type of tax allowance, with 14 out of 17 countries using such measures. This means that the R&D expenditure, plus any additional amounts, can be deducted when calculating taxable income. Virtually all other measures based on current expenditure used some type of tax credit to provide relief, with 10 out of 17 countries using such measures. This involves current R&D expenditure being deducted from tax liabilities or generating a payable credit. Unsurprisingly, no countries (except possibly Hungary) used a tax deferral measure based on current expenditure.

Measures supporting capital expenditure on R&D provide incentives through all three types of relief. Five countries appear to use tax deferrals to support capital R&D expenditure, with six countries using tax allowances and six countries using tax credits.

Volume or incremental based schemes?

Nearly all fiscal measures identified in the questionnaire responses are based on the level or volume of qualifying R&D expenditure. In some cases, the level of R&D expenditure determines the level of relief provided (for example, where that level of expenditure can be deducted from taxable income or tax liabilities) whilst, in other cases, the level of expenditure simply generates access to a set amount of relief.

Table 2: number of measures that are volume-based or incremental

| | Volume-based | Incremental | Combination |
|--------------|---------------------|--------------------|--------------------|
| Austria | | | 3 |
| Belgium | 2 | | 1 |
| Denmark | 3 | | |
| France | 3 | | 1 |
| Hungary | 9 | | |
| Ireland | 4 | | 1 |
| Israel | 4 | | |
| Italy | 6 | 1 | 1 |
| Latvia | 3 | | |
| Lithuania | 4 | | |
| Netherlands | 2 | | |
| Norway | 1 | | |
| Portugal | | | 1 |
| Romania | 4 | | |
| Spain | | | 2 |
| Sweden | 2 | | |
| UK | 4 | | |
| TOTAL | 51 | 1 | 10 |

Source: Question 14.

Only 7 of the 17 countries used fiscal measures based on increments of R&D expenditure. These are mostly provided as some combination of volume-based and incremental measures with the exception of one measure which is purely incremental (Italy).

Are measures capped, carried over, taxable, refundable or tradable?

Table 3 provides information on the number of fiscal measures that incorporate particular features in their design. Again, the figures should be seen as indicative as it is not always clear from the questionnaire responses whether measures do or do not have these features. Some measures also have restrictions around the features, for example, only part of the relief provided being taxable or only certain companies being eligible for a cash refund.

Table 3: number of measures containing various design elements

| | Floor | Cap | Carry forward | Carry backward | Relief taxable | Cash refund | Tradable |
|--------------|----------|-----------|---------------|----------------|----------------|-------------|----------|
| Austria | 0 | 0 | 2 | 2 | 0 | 1 | 0 |
| Belgium | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Denmark | 0 | 1 | 3 | 0 | 0 | 0 | 0 |
| France | 0 | 2 | 1 | 0 | 0 | 1 | 1 |
| Hungary | 0 | 6 | 9 | 0 | 0 | 0 | 0 |
| Ireland | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Israel | 0 | 0 | 4 | 4 | 0 | 0 | 0 |
| Italy | 0 | 2 | ? | ? | 2 | 0 | 0 |
| Latvia | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Lithuania | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Netherlands | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| Norway | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Portugal | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| Romania | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Spain | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Sweden | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 2 | 0 | 3 | 2 | 0 | 2 | 0 |
| TOTAL | 2 | 15 | 28 | 10 | 5 | 5 | 1 |

Source: Question 13.

Few fiscal measures have a floor or cap on the amount of R&D expenditure that qualifies for relief. Of the 17 countries, only the UK has a floor on qualifying R&D whilst eight countries have measures involving a cap on R&D that qualifies for relief.

Most countries allow some form of carry-over, although this is often part of natural tax or accounting rules. Carry-forward appears most common, with 11 out of 17 countries and forty-four per cent of all measures identified allowing this. Carry-backward is less common.

The relief provided by the fiscal measures in most countries is not taxable – only four of the 17 countries had measures that provided taxable relief. Few countries also had measures that provided a cash refund – only five countries. Only one country, France, has a measure that provides relief that can be traded.

Who is involved in the decision making process for fiscal measures?

In all but one of the 17 countries, the decision making process for fiscal measures involves a combination of different government ministries or authorities. In general, this reflects the fact that fiscal policy brings together taxation issues with innovation issues and so requires at least the ministries with knowledge and responsibility in those areas to work together.

The Finance Ministry or Department is involved in the fiscal measures for R&D in all 17 countries with the exception of Italy. This seems to reflect involvement in either the budgetary consequences of the measures or the tax policy side or both. In ten countries, the fiscal measures are implemented solely or jointly by the tax administration, usually operating as an agency of the Finance Ministry.

The other main ministries involved in the fiscal measures are the ministry for science and innovation (in eight countries), the ministry of economy/economic affairs (five countries) and/or the ministry for trade and industry (in six countries). Although this mainly seems to involve input into the decision-making process for fiscal measures, a range of innovation agencies often exist. Some of these are responsible for implementing the measures in a few countries, although usually jointly with the tax administration.

Table 4: involvement in decisions on fiscal measures in different countries

| | Economy | Finance | Tax | Industry / Trade | Science/ Innovation | Other |
|--------------|----------------|----------------|------------|-------------------------|----------------------------|--------------|
| Austria | | Y | | | | |
| Belgium | | Y | | | Y | Y |
| Denmark | | Y | Y | | Y | |
| France | Y | Y | | Y | Y | |
| Hungary | Y | Y | Y | | Y | Y |
| Ireland | | Y | y | Y | Y | |
| Israel | | Y | Y | Y | | |
| Italy | | Y | | Y | | Y |
| Latvia | Y | Y | | | | Y |
| Lithuania | | Y | Y | | | |
| Netherlands | Y | Y | Y | | | |
| Norway | | Y | Y | Y | Y | |
| Portugal | Y | Y | | | Y | |
| Romania | | Y | Y | | | Y |
| Spain | | Y | Y | | Y | |
| Sweden | | Y | Y | | | |
| UK | | Y | Y | Y | | |
| TOTAL | 5 | 16 | 11 | 6 | 8 | 5 |

Source: Question 7.

Notes: other ministries involved include the Ministry of Labour and Chancellery (Prime Minister) in Belgium, the Prime Minister's Office in Hungary, the Latvian Investment & Development Agency in Latvia, and the Ministry of Education, Research and Youth in Romania. In Israel, the Ministry of Industry of Trade and Industry also covers Labour.

Other ministries involved include the Prime Minister's Office (in two countries), the labour ministry (also in two countries), the Ministry of Education, Research and Youth (in one country), an investment and development agency (in one country) and the Ministry of the Regions (also in one country).

What is the life span of fiscal measures?

A few measures only allow benefits to be claimed for a specific period. For example, the tax relief for research workers in Israel provides benefits for a period not exceeding 18 months. The young innovative company measure in France is net for seven years, the personal investment company measure in France has a life span of 10 years and tax breaks for key personnel in Sweden are allowed for up to three years. However, virtually all measures were reported as having no specific end or expiry date.

Are fiscal measures ranked as state aid?

Of the fiscal measures identified in the questionnaire responses, the majority do not appear to have been notified as state aid. Where the responses expand, most have not been notified because the measure is not considered to be state aid and so notification is not seen to be necessary. Only six measures appear to have been notified, with two not ranked, three approved as state aid and one awaiting approval/ranking. However, for a third of measures, it is either not known if they are notified or the information is not provided.

Table 5: number of measures notified as state aid

| | Not stated | Not notified | Notified | |
|--------------|------------|--------------|------------|----------|
| | | | Not ranked | Ranked |
| Austria | 3 | | | |
| Belgium | 3 | | | |
| Denmark | 3 | | | |
| France | 4 | | | |
| Hungary | | 9 | | |
| Ireland | | 6 | | |
| Israel | | 4 | | |
| Italy | 6 | | | 1 (?) |
| Latvia | | 3 | | |
| Lithuania | | 4 | | |
| Netherlands | | | 2 | |
| Norway | | | | 1 |
| Portugal | 1 | | | |
| Romania | | 4 | | |
| Spain | 3 | | | |
| Sweden | | 2 | | |
| UK | | 2 | | 2 |
| TOTAL | 23 | 34 | 2 | 4 |

Source: Question 1.

ANNEX 6.4

Annex to 4.2.1 Encourage the creation and early growth of research intensive firms

France

The Young Innovative Company

The 2004 Finance Act started up “The Young Innovative Company” status for SME’s. These companies must have less than eight years of age, engage R&D expenditures for at least 15 % of the total revenue charges and possess the following criteria :

- I To be SME :
 - less than 250 persons ;
 - sales turnover lower than 40 M€;
 - or total of assessment lower than 27 M€
- II The company must be less than eight years old : But it is possible to adopt the device during the period of eight years.
- III The expenditures of R&D must amount to 15 % at least of the total charges of the company (R&D is defined by the Frascati Manual)
- IV The capital of the company must be held up to 50 % at least by natural persons, or by SME’s held at least up to 50 % by natural persons, by foundations of research, by companies of venture capital (approved by Ministry of Finance)
- V The company must really be a new company and cannot be created through the picking of former activities. The new company must not be controlled by another company.

Advantages granted to the young innovative company :

- 1) Exemption of corporate tax on the benefits :
 - total during 3 years, and 50 % during the following two years
 - exemption of corporate tax tax during eight years
 - 2) Exemption of property tax and trade tax during 7 years, if the local administration votes to this exemption. All these fiscal advantages cannot exceed the maximum defined by the rule de “minimis” (100 000 euros for three years).
 - 3) Exemption of employer’s share of social security for the researchers and technicians, business counsels for the patent right working in the company. This exemption is also allowed to chairmen, researchers or patentees, who are working in the company.
- This device has been set up on January 1st 2004, and today more than 1 000 companies have asked for the status of young innovative company.

Hungary

There are two new Hungarian measures intended to lessen the administrative burdens on entrepreneurial activity:

- 1) The Simplified Entrepreneurial Tax (EVA) is a fiscal measure introduced in 2004: the entrepreneurs can opt to prepare a simple tax declaration without needing to account for their costs one by one, using a flat-rate cost declaration instead. This significantly relieves the administrative taxation tasks for micro-companies, while it is also hoped to "whiten" the economy and generate more state tax revenue. First experiences show it is a success, with many entrepreneurs opting for EVA and an increased tax revenue for the state.
- 2) The so-called Single-Window Programme for starting a company is an initiative of the Ministry of Economy and Transport: instead needing to go to several places to obtain the necessary permits, a one-shop system is intended to facilitate the starting of a company. This program is in embryonic phase yet, so few experiences are available.

Ireland

The two measures below are not specifically targeted at R&D activities but the measures may be available to start-ups/SMEs involved in R&D activities:

Business Expansion Scheme (BES)

The BES provides an incentive to private investors to invest long-term equity capital in companies (particularly new and smaller ones), operating in certain sectors of the economy, which would otherwise find it difficult to raise such funding and would instead have to rely on loan finance which in turn can be difficult for small and start-up companies to obtain. Provided that an investor holds his or her investment for a minimum period of 5 years, the scheme provides individual investors with tax relief, at their marginal tax rate, in respect of investments of up to €1,750 per annum in certain qualifying companies engaged in qualifying trades which include the manufacture of goods, the operation of certain tourist traffic undertakings, certain traded services and certain research and development activity.

Seed Capital Scheme (SCS)

The Seed Capital Scheme encourages individuals to start up new businesses. The scheme provides a refund of tax paid in the previous six years to employees who leave employment and start their own business. In order to qualify for the refund, the individual must comply with certain conditions and the company must be carrying on a qualifying trade (essentially those which apply in the BES). The size of the refund depends on the amount of the individual's investment and effective tax rate. There is an upper limit in any one year of the tax paid on income of €1,750 with an overall investment limit for the previous six years of €182,240.

The BES may also be availed of by companies to which the Seed Capital Scheme applies.

The Netherlands

In the Netherlands the general fiscal measure WBSO is more generous for start-ups. The advantage is around 50% more than for a company which is not a start-up. A start-up is a company not older than 5 years which enjoyed for no more than 2 years WBSO. In the evaluation of the scheme the effect on start-ups was not measured. Before the measure was introduced it seemed that start ups did not take advantage from the WBSO.

Portugal

Portugal also held a presentation on their measures to improve the creation and early growth of research-intensive firms. Although these measures were very sophisticated they were for the greater part no fiscal measures. Portugal allows start-ups to deduct a tax credit for a six year period even if they do not have income in the first years.

ANNEX 6.5

Rate of tax subsidies for R&D

The B index

The amount of tax subsidy to R&D is calculated as 1 minus the B index. The B index is defined as the present value of before-tax income necessary to cover the initial cost of R&D investment and to pay corporate income tax, so that it becomes profitable to perform research activities. Algebraically, the B index is equal to the after-tax cost of an expenditure of USD 1 on R&D divided by one minus the corporate income tax rate. The after-tax cost is the net cost of investing in R&D, taking into account all the available tax incentives.

$$B \text{ index} = (1-A)/(1-t)$$

where A = the net present discounted value of depreciation allowances, tax credits and special allowances on R&D assets; and t = the statutory corporate income tax rate (CITR). In a country with full write-off of current R&D expenditure and no R&D tax incentive scheme, A = t, and consequently B = 1. The more favourable a country's tax treatment of R&D, the lower its B index.

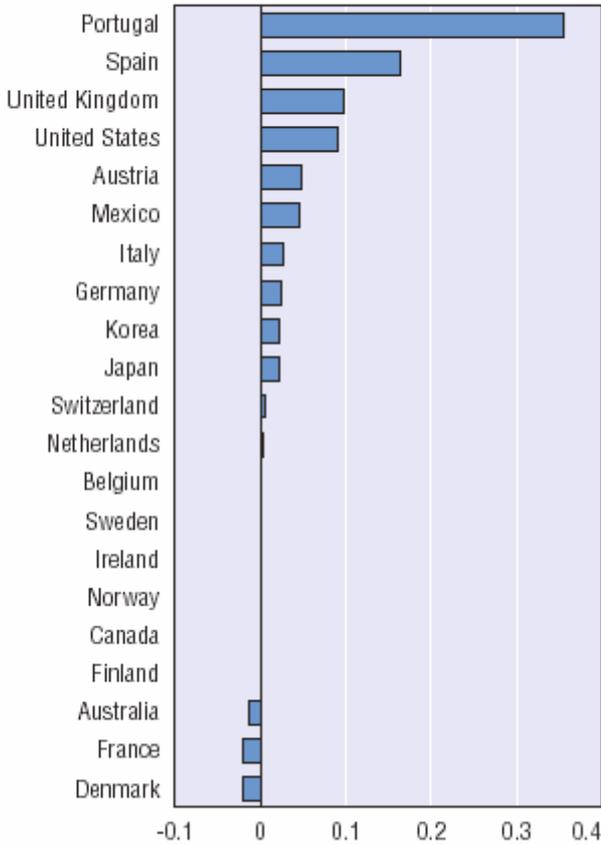
The B index is a unique tool for comparing the generosity of the tax treatment of R&D in different countries. However, its computation requires some simplifying assumptions. It should therefore be examined together with a set of other relevant policy indicators. Furthermore, its "synthetic" nature does not allow for distinguishing the relative importance of the various policy tools it takes into account (e.g. depreciation allowances, special R&D allowances, tax credit, CITR). Finally, these calculations are based on reported tax regulations and do not take into account country-specific exemptions and other practices.

B indexes have been calculated under the assumption that the "representative firm" is taxable, so that it may enjoy the full benefit of the tax allowance or credit. For incremental tax credits, calculation of the B index implicitly assumes that R&D investment is fully eligible for the credit and does not exceed the ceiling if there is one. Some detailed features of R&D tax schemes (e.g. refunding, carry back and carry forward of unused tax credit, or flow through mechanisms) are therefore not taken into account.

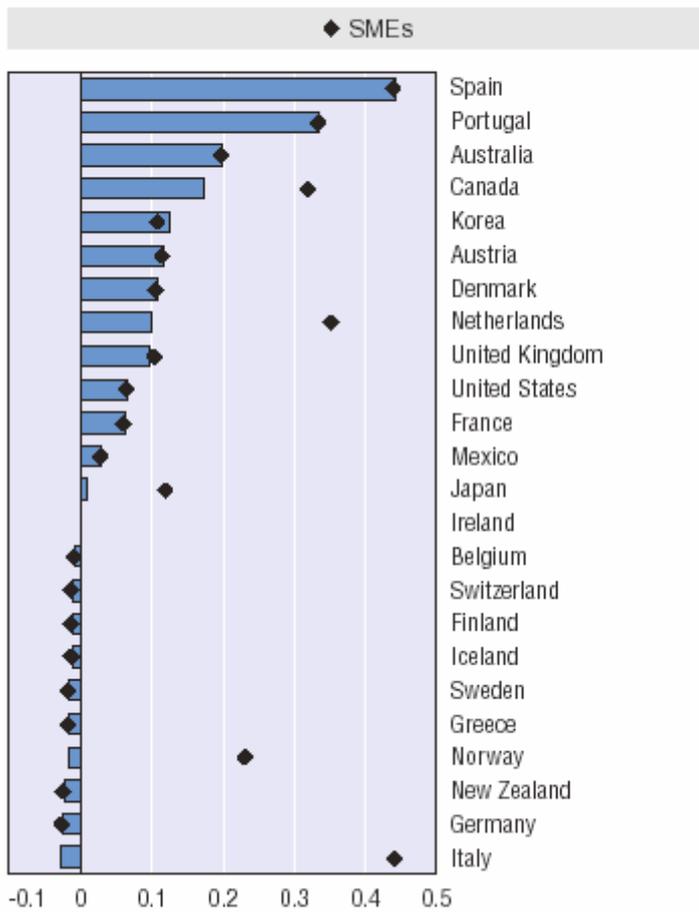
The effective impact of the R&D tax allowance or credit on the after-tax cost of R&D is influenced by the level of the CITR. An increase in the CITR reduces the B index only in those countries with the most generous R&D tax treatment. If tax credits are taxable (as in Canada and the United States), the effect of the CITR on the B index depends only on the level of the depreciation allowance. If the latter is over 100% for the total R&D expenditure, an increase in the CITR will reduce the B index. For countries with less generous R&D tax treatment, the B index is positively related to the CITR.

For further information, see J. Warda (2001), "Measuring the Value of R&D Tax Treatment in OECD Countries", STI Review No. 27, OECD, Paris.

**Change in the rate of tax subsidies for USD 1 of R&D,¹
large firms, between 1995 and 2001**



Rate of tax subsidies for USD 1 of R&D,¹
large firms and SMEs, 2001



1. Tax subsidies are calculated as 1 minus the B index. For example, in Spain, 1 unit of R&D expenditure by large firms results in 0.44 unit of tax relief.

Source: OECD, STI/EAS Division, May 2003.

ANNEX 6.6

Description fiscal measures for research: United States, Canada, Australia, and Japan

United States

To stimulate R&D spending in the United States under current law a research credit exists. The R&D tax credit was first enacted in 1981. Since then the tax credit was extended for periods varying from 0.5 to 5 years. The 1996 Act extension left a gap of 12 months between expiration of the prior credit and the modified credit. The current tax credit is available for amounts paid or incurred through June 30, 2004. January 29, 2003 a bill is introduced by some members of the House of Representatives to amend the Internal Revenue Code to, among other things, permanently extend the research credit ("Investment in America Act 2003"). The business community supports this proposal because corporate research projects generally require five to ten years from planning tot completion. Further a factor lessening the positive impact of the credit is uncertainty regarding whether the credit will be restored retroactively, if necessary.

Current law

The credit is only available for R&D done in the United States. The research credit shall be the amount equal to the sum of 20 percent of the excess of the qualified research expenses for the taxable year over the base amount and 20 percent of the basic research payments.

Qualified research expenses means in-house research expenses and contract research expenses.

In-house research expenses means wages, supplies used in the conduct of qualified research and amounts paid for the right to use computers in the conduct of qualified research.

Contract research expenses means 65 percent of any amount paid to any person (other than an employee of the taxpayer) for qualified research, prepaid amounts and amounts paid to certain research consortia. With respect to amounts paid to a qualified research consortium for qualified research on behalf of the taxpayer and one or more unrelated taxpayers 65 percent will be substituted for 75 percent. Qualified research consortium means an organisation which is exempt from tax, is organised and operated primarily to conduct scientific research and is not a private foundation.

In general the term qualified research means research which is undertaken for the purpose of discovering information which is technological in nature, and the application of which is intended to be useful in the development of a new or improved business component of the taxpayer, and substantially all of the activities of which constitute elements of a process of experimentation relating to a new or improved function, performance, or reliability or quality.

The base amount means in general the product of the fixed-base percentage, and the average annual gross receipts of the taxpayer for the 4 taxable years preceding the taxable year for which the credit is being determined. In no event shall the base amount be less than 50 percent of the qualified research expenses for the credit year. The fixed-base percentage is the percentage which the aggregate qualified research expenses of the taxpayer for taxable years beginning after December 31, 1983, and before January 1, 1989, is of the aggregate gross receipts of the taxpayer for such taxable years. For start-up companies different rules apply. In no event shall the fixed-base percentage exceed 16 percent.

In general the term basic research payment means any amount paid in cash by a corporation to any qualified organisation for basic research, but only if such payment is pursuant to a written agreement between such corporation and such qualified organisation and such basic research is to be performed by such qualified organisation.

Alternative Incremental credit

This tax credit works well for many companies whose R&D spending has grown consistently with their revenue. Because it appeared that some companies who were making significant R&D investments were not able to use the conventional credit due to the mechanics used to calculate the base amount an alternative incremental credit was implemented in 1996. The computation combines a three-tiered fixed base percentage with a reduced three tiered credit percentage. The "Investment in America Act of 2003" proposes an increase of the rates of the alternative incremental credit.

The tax credit is subject to ordinary carry back and carry forward rules. The research credit that remains unused at the end of the carry forward period is allowed as a deduction in the year following the expiration of such period.

State R&D tax incentives

States also have recognised the economic benefits of encouraging in-state research activities. R&D credits and incentives have been enacted in several states. Many states offer a tax credit modelled after the federal tax-credit guidelines.

Further information

For further information about current law, I would like to refer to the Internal Revenue Code section 41; IRC Sec.41(2003) and the Investment in America Act 2003 which is enclosed.

Canada

Fiscal measures

The federal income tax regime for R&D in Canada was put in place between 1983 and 1985. The key elements are income tax deductions and investment tax credits for eligible expenditures.

All provincial governments also supports research and development through tax deductions and six provinces offer various types of additional income tax incentives.

Federal tax measures

The federal government has provided income tax incentives for research and development since 1944. The basic structure of the current system consists of income tax deductions and investment tax credits (SR&ED tax incentives) for eligible current and capital expenditures. An eligible taxpayer must be a business performing eligible R&D in Canada.

The definition of eligible R&D is consistent with the internationally accepted definition used by the OECD and includes basic research, applied research and experimental development. Certain support work is also eligible where such work is commensurate with the needs, and directly in support, of basic research, applied research or experimental development. There is also certain work that is excluded from the income tax definition of R&D. Generally because it is not considered to be R&D in accordance with the OECD definition.

Eligible current expenditures include: salaries or wages of employees directly engaged in R&D; the cost of materials consumed in R&D; lease costs relating to machinery and equipment used all or substantially all (90 per cent or more) for R&D; expenditures incurred under various types of contracts; and overhead and administrative costs. Eligible capital expenditures generally consist of expenditures for machinery and equipment that is all or substantially all used or consumed in the prosecution of R&D in Canada. However, not all-current and capital expenditures are eligible expenditures. For example, capital expenditures for the acquisition of land or buildings (other than a highly specialised R&D building), and current expenditures for related rental or leasehold payments are not allowable R&D expenditures. Also excluded are expenditures made to acquire rights in, or arising out of, R&D.

Eligible current and capital expenditures are fully deductible; expenditures that are not deducted in a year can be carried forward indefinitely.

There are two rates of investment tax credit for R&D: a general rate of 20 per cent and, for certain smaller businesses, an enhanced rate of 35 per cent on up to \$2 million of eligible expenditures.

Expenditures on new equipment used for both R&D and other purposes may also qualify for an investment tax credit equal to one-half of the normal credit.

Investment tax credits may be used to reduce federal income taxes otherwise payable.

Tax credits which are not used in the year they are earned can be carried back three years or carried forward 10 years. In addition, smaller businesses eligible for the enhanced rate of tax credits and unincorporated businesses can obtain a refund of unused credits earned in a year. The general rate of refund is 40 per cent for tax credits earned on both current and capital expenditures. However, a 100 per cent refund is available for tax credits earned on current expenditures at the enhanced rate.

Corporations can also assign expected refunds of tax credits to lenders as security for bridge financing for their operations. Such assignments, however, are not binding on the Crown.

The Canada Revenue Agency is responsible for administering the tax investment credit, while the Department of Finance is responsible for the legislation that governs it.

The SR&ED (Scientific Research and Experimental Development) Partnership Committee is a joint initiative between industry and representatives of the Canada Revenue Agency. This committee participates in the development and implementation of the overall strategic direction of the tax investment credit for continuous improvement in the program's administration and delivery.

Evaluation methodologies

In late 1995 and 1996, the Department of Finance and Revenue Canada conducted a joint evaluation of the performance of the federal income tax incentives

A variety of methodologies were used to address the central evaluation questions. They included: surveys and interviews with industry, administrators and research and development experts; econometric analyses of the responses of corporate SR&ED performers to survey questions relating to incrementality and imitation; analyses of taxation, financial and industry data; and literature reviews.

Key findings

The survey of corporations that claimed income tax incentives for SR&ED performed in Canada provided information on both the characteristics of those corporations and the importance they place on the SR&ED tax incentives. In these respects, the survey found that:

1. research and development plays a very important role in the corporate strategies of respondents;
2. firms undertake research and development primarily to remain competitive;
3. internal cash flow is an important consideration in the decision to undertake research and development and government support improves this cash flow;
4. the federal SR&ED tax credit was rated as the most important component in the system of government support followed by refundability of the federal credit, while government grants and contracts received the lowest rating;
5. on average, respondents had claimed SR&ED tax incentives for seven years;

6. there is a strong correlation between firm size, as measured by the number of employees, and the size of SR&ED claims;
7. more than half of the firms reported employment growth for the period 1992 to 1994, with medium-sized firms in the area of information technology SR&ED most likely to report employment increases;
8. about 30 per cent of the work time of employees is devoted to SR&ED;
9. information technology SR&ED accounts for about 35 per cent of the SR&ED performed; manufacturing and processing SR&ED, 25 per cent; and materials SR&ED, 12 per cent; and
10. the proportion of non-Canadian ownership is relatively low among firms (Revenue Canada data for 1992 indicate that 94 per cent of corporations claiming the SR&ED tax credits were controlled by Canadians), but increases with the size category of SR&ED claims.

Econometric analysis of the survey results showed no statistically significant difference in the incrementality results for information technology firms versus other firms. Regression results also revealed the role of the SR&ED tax incentives in the decision-making process of firms. In particular, firms for which after-tax rate of return and cash flow considerations are more important tend to be more responsive to the SR&ED tax incentives. Similarly, firms regarding research and development as crucial to their success reported a lower degree of incrementality. Two observable characteristics of firms were found to be statistically significant in the incrementality regressions, but the magnitude of these effects is small. Specifically, firms that have a greater percentage of new (as opposed to improved) product or process SR&ED and that have SR&ED results subject to intellectual property protection tend to be more responsive to the incentives. All other observable firm characteristics, such as size, sector, age, ownership and intensity of research and development, were found not to be statistically significant. This implies that targeting SR&ED tax incentives to these firm characteristics would not likely increase their incrementality (or their cost-effectiveness).

Cost-effectiveness

The survey findings relating to incrementality and the estimate of the federal tax cost of the SR&ED tax incentives result in a cost-effectiveness ratio of 1:38. This means that each dollar of tax revenues forgone as a result of the tax incentives generated \$1.38 in additional SR&ED spending; in other words, the federal SR&ED tax incentives were found to be cost-effective.

Compliance

The dynamics of administering the SR&ED tax incentives have changed over the past few years. In addition to large growth in the number of claimants, more non-refundable claims are being submitted by large corporations and many smaller firms are submitting aggressive, but poorly supported, claims. Survey participants and industry associations that were interviewed noted that Revenue Canada appears to be taking a tougher stance to ensure compliance, in terms of what is eligible and what

documentation is required, than was previously the case, although no official or formal changes to operational procedures have been issued.

In order to better inform claimants about the SR&ED tax incentives, Revenue Canada is increasing the number and focus of information sessions and providing revised documentation which details the requirements to comply with the legislation and submit a complete claim. The accounting sector will be a specific target for information sessions and material.

Awareness

Despite a national effort to provide regional information seminars, the evaluation found that many recent new clients claimed to have had no previous knowledge of the existence of the SR&ED tax incentives, despite their eligibility to submit claims. Most of these new clients were made aware of the tax incentives through their accountant or a tax consultant. Presently, Revenue Canada is focusing on promoting the SR&ED tax incentives and providing more information to claimants and potential claimants through an outreach campaign. This approach will include opening new offices, providing public seminars, increasing the availability of staff to answer telephone enquiries, encouraging closer partnerships with industry associations, and making greater use of the Revenue Canada Internet site. This Internet site will be linked to other government and science sites.

Science Access is a program delivering a number of advisory services which will help, in particular, new claimants who are not certain of eligibility requirements, or what data is required to be captured, as well as other aspects of making a proper and complete claim. The services will include public seminars, individual taxpayer education, first-time claimant service and a Preclaim Project Review (PCPR). This optional review will provide up-front certainty about the eligibility of projects either before they are started or even once they are in progress.

For more information see www.fin.gc.ca/resdev/fedsys_e.html

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Australia

Key Elements of the R&D Tax Concession

- The R&D Tax Concession is an ongoing scheme designed to increase the level of R&D being conducted by Australian companies.
- It is broad-based, not industry specific, and market-driven with the applicant entity deciding upon the scope and timing of the R&D.
- It enables companies to deduct up to 125% of eligible expenditure incurred on R&D activities from assessable income when lodging their income tax returns.
- Companies may conduct some of their research and development activities overseas. Where the company satisfies the relevant conditions, their claim for the expenditure incurred overseas is limited to up to 10% of the total R&D project costs.
- For expenditure that qualifies for the 125% concession (excluding plant related expenditure), an additional 50% deduction may be available. Called the 175% Premium R&D Tax Concession, it is available to those companies that increase their level of this type of R&D expenditure relative to their average of such R&D expenditures over the previous three years. Grouping and other rules apply. Companies can claim the premium for their years of income that commence after 30 June 2001.
- An R&D Tax Offset, equivalent to the value of the R&D Tax Concession, is available to companies with an annual turnover of less than \$5 million and whose aggregate R&D amount is more than \$20,000 and less than \$1 million per year. These threshold tests are also subject to grouping rules. Eligible companies can elect to receive the offset of 30 cents for each dollar that would otherwise have been claimable as a deduction. Any entitlement to the 175% Premium Tax Concession will also be paid out as part of this offset. Companies can claim the offset for their years of income that commence after 30 June 2001.

For more information please consult the following site:

<http://www.ato.gov.au/content/downloads/GuidetotheRDTaxConcession.pdf> . You will find:"guide to the R&D tax concession 2003".

Japan

In order to establish a desirable tax system to achieve sustainable invigoration of the economy and society, while taking into account the current economic and fiscal environment, Japan introduced significant changes in their tax system in 2003. From the viewpoints of strengthening the global competitiveness of Japanese businesses, a new framework for R&D tax credit and focused investment incentives is introduced. The following fiscal measures for R&D are introduced in 2003:

R&D Tax Credit (proportional)

A new proportional R&D tax credit is introduced as an alternative to the existing incremental R&D tax credit.

- For R&D activities conducted by corporations, a proportional R&D tax credit of 8% plus 2% (applicable only for FY 2003 to FY2005) of the amount of R&D expenditure shall be introduced.
 - For corporations with a higher proportion of R&D expenses, up to 2% of additional tax credit shall be applied.
- For R&D activities conducted by SMEs, a proportional tax credit of 12% plus 3% (applicable only for FY 2003 to FY 2005) is introduced.
- For R&D activities conducted jointly by academic, business and government circles, or R&D commissioned by the government, in order to promote basic studies or innovative studies, a proportional tax credit of 12% plus 3% (applicable only for FY 2003 to 2005) is introduced.
- The scope of qualified R&D expenses shall include such expenses as labor, non-personnel expenses and depreciation for machinery and buildings and expenses of R&D activities conducted overseas.
- The amount of the R&D tax credit shall not exceed 20% of the amount of corporation tax.
- The amount of the R&D tax credit exceeding the ceiling may be carried-over for one year under certain conditions.

Accelerated depreciation for R&D investment

- In addition to the R&D tax credit (above), a special allowance (50%) shall be applied for R&D investment in FY2003 to FY2005.

As a result of these new measures the overall picture of the fiscal measures for R&D is as follows.

In the text "three years" means: 2003 till 2005.

(1) A credit for incremental research expenses:

The research credit is 15% of the excess of research expense over the base amount. (The base amount is the average of annual research expenses for the three years with the highest expenses in five tax years preceding the credit period.) The maximum amount is the sum of 12% of the corporation tax liability. (If the special research expense is included in the increased research expenditure, the maximum amount is the lesser of (1) the sum of 12% of the corporation tax liability and 15% of the special research expense or (2) 14% of the corporation tax liability.)

(2) Tax deduction system for total research expenses:

This system to select either (1) or (2) allows a tax deduction equivalent to 8% to 10% (10% to 12% for three years) of the total test and research expenses depending on their rates (the upper limit is the amount equivalent to 20% of the corporation tax for the relevant period).

The rate of test and research expenses means the rate of test and research expenses against the total amount of sales (the average sales of four years including the relevant period).

(3) Tax deduction for joint and entrusted researches based on industry-academic-government co-operation:

This system together with (2) allows a tax deduction equivalent to 12% (15% for three years) of the total test and research expenses for joint and entrusted testing and research with universities and public research institutes (The upper limit is the amount equivalent to 20% of the corporation tax for the relevant period.)

(4) Tax system to strengthen the technical base of small and medium-sized corporations:

Tax deduction of the amount equivalent to 12% (15% for three years) is allowed for testing and research expenses instead of applying the above (1) to (3). (The upper limit is the amount equivalent to 20% of the corporation tax for the relevant period.)

With respect to the amount in excess of the upper limit to the tax deduction, in case the amount in excess is more than the total test and research expenses for the preceding period, deferment of a year is allowed. (The upper limit to the total of (2) to (4) is the amount equivalent to 20% of the corporation tax for the relevant period.)

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(5) 50% special depreciation of the facilities for development and research

ANNEX 6.7

Recommendations for next year's questionnaire

Issue

National experts were asked to give recommendations concerning improvements to the layout and questions of next year's questionnaire. This note presents the recommendations received by 15 April 2004.

Recommendations from national experts

Focus of questionnaire

- ◆ Have a thematic focus to future questionnaires. No point in repeating the same questionnaire in full next year as most responses will probably be the same. Therefore, it might be more valuable to use next year's questionnaire to ask about any changes to fiscal measures and then to ask in more depth about particular issues relating to fiscal measures. Examples of issues might include: why fiscal measures are/aren't used; the definition of R&D used; the cost of measures; and so on. This should allow more considered analysis to underpin debate and thus recommendations

Question 1 – fiscal measures

- ◆ It would be helpful to ask an additional question here on what the aim or objective of each measure is – i.e. what is the measure specifically intended to achieve?

Question 2 – definition of R&D

- ◆ Might be interesting to investigate not just whether activities qualify as R&D but what activities, costs or incomes qualify for relief. In the UK, for example, only certain costs involved in an R&D project qualify for relief

Question 3 – are fiscal measures targeted?

- ◆ This question was not always answered fully or clearly. A better approach might be to ask who it is intended can apply for the measure and then ask whether additional or more generous support is offered within the general target group.

Question 4 – take-up of measures

- ◆ Rephrase question 4 which regards the take-up of fiscal measures by target groups. It is important to inquire this issue more generally – even if the measures are not targeted (as in Israel – it is open to all types of companies performing R&D), it is advisable to ask whether the take-up is large, whether it is more / less than the expected. For instance, it appears that in Spain the new fiscal measures are not in use to the extent it was supposed to be – if so, it is an interesting to explore what can explain such findings.

Question 12 – types of R&D investment supported

- ◆ This question did not seem to be well understood and was often either poorly answered or not answered at all. This partly reflects the fact that not all measures are based on R&D expenditures. It might be more useful to start by asking what tax the relief is granted through (e.g. corporate tax, income tax, capital gains tax, etc) and then about the type of expenditure.