



cutting through complexity

TAX

Tax Incentives for R&D in Switzerland

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Swiss-American
Chamber of Commerce



Universität St. Gallen



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1 Preface



Jörg Walker

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Switzerland worldwide enjoys recognition as one of the countries with the highest innovation capacity. However, in order for innovations to succeed, research and development (R&D) is needed. R&D is the prerequisite for new products, services and technologies – and thus for continued economic growth.

For years, Switzerland has led the international innovation index but there are growing indications that this will not remain so forever as global competition for the most attractive research location has greatly intensified. In particular small and mid-size companies in Switzerland, which are often less mobile, are increasingly feeling the pressure.

Using targeted educational, research and innovation policy, Switzerland is trying to further increase its location quality. Strategic investments for example in the educational system improve the basic conditions. However, one important element has until now been left out of the equation: tax incentives for R&D.

A look at other countries shows that this instrument is indispensable for future-oriented educational, economic, and location policy making. But what effects would tax incentives for R&D have on the Swiss economy? This question has been analyzed at the HSG (Hochschule St. Gallen) by Prof. Keuschnigg and this publication summarizes the primary results of the study.

In the long term, can Switzerland afford to deprive itself of attractive tax incentives to promote innovation? According to most of the representatives of the Swiss economy who took part in a survey of members of the Swiss-American Chamber of Commerce along with clients of KPMG: No. They were also largely in agreement on who the main beneficiaries of such tax incentives should be: Swiss small and mid-size companies.

This publication is to be understood as a contribution to an objective political discussion. The tax experts at KPMG show how a possible model could be designed to not only be consistent with the scientific findings of the HSG study and the demands of the Swiss economy but also to be met with international acceptance.

A handwritten signature in blue ink, appearing to read 'Walker', written in a cursive style.

2 Innovation in Switzerland

Innovation is a central source of economic growth and prosperity in Switzerland. As a high-cost economy, the country has to concentrate on products and services with a high degree of added value. Research and innovation therefore has to be in the foreground. This is particularly obvious at times when the Swiss franc is strong.

Since Switzerland is too small to be a production location for mass products, and also has no reserves of raw materials, it can only be successful if it develops innovative incentives for new products, processes and technologies. Although Switzerland currently has a high potential for innovation, its success in the future is by no means assured. Switzerland is also engaged in a fierce international competition in the area of research. Innovation-promoting framework conditions are therefore necessary in order to preserve and improve Switzerland's innovation capacity. All possible instruments should therefore be taken into consideration and – to the extent possible – be put into practice. However, Switzerland currently has no tax incentives for R&D. Yet these would be more suitable than any other means to strengthen innovation capacity in the long term. Tax incentives would provide some financial relief to research companies in Switzerland, promote new R&D in Switzerland and prevent the migration of R&D activities abroad.

2.1. In facts and figures ¹

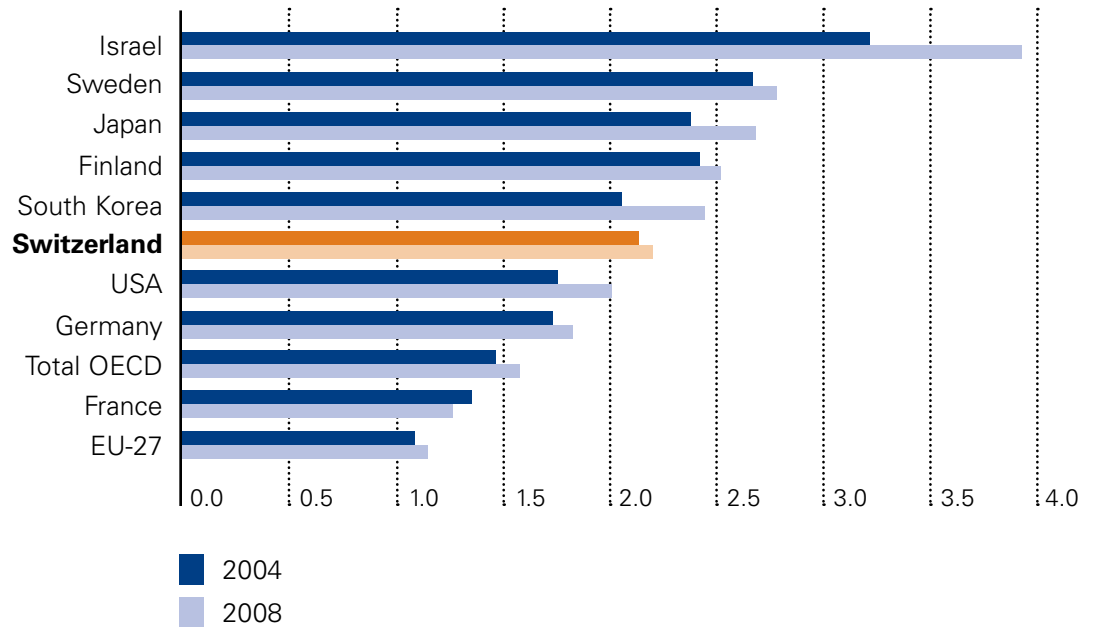
2.1.1. Switzerland's strengths in innovation

Switzerland has a high level of innovation capacity measured by its total private R&D expenditure as a percent of GDP. In 2008, private companies in Switzerland devoted CHF 12 billion to their own domestic R&D expenditure (so-called intramural R&D expenditure²), corresponding to 2.2% of GDP. Switzerland is thus among the top countries (in sixth place, ahead of the USA and Germany).



Intramural R&D expenditures in the private economy in an international comparison, 2004 und 2008 *

In % of GDP



* Exceptions to reference year 2008: for Japan, South Korea and the OECD (total) the year 2007.

Source: OECD, Main Science and Technology Indicators, December 2009.

According to the 2011 Global Innovation Index³, Switzerland is actually the most innovative country in the world having moved up in the rankings from 4th place last year. On the one hand, the Global Innovation Index takes into account the framework conditions and on the other hand it considers the actual innovation accomplishments for each country. While Switzerland did not have the best result in any individual criterion, it was able to demonstrate strong results throughout all categories.

2.1.2. Switzerland's weaknesses in innovation

Above all, this strong position may be attributed to the large multinational companies domiciled in Switzerland whose business activities are particularly research-intensive. An overview of the total R&D expenditure, however, hides a certain weakness in respect of small and mid-size companies.⁴

Only 16% of total intramural R&D expenditure is spent by small and mid-size companies, although these constitute 72% of the companies with R&D activities in Switzerland. However, in the period between 2004 and 2008, small and mid-size companies increased their R&D expenditure by 54% (an average of 11% per year). This increase is double that of Swiss companies overall.⁵

This clearly shows that innovation is central also for small and mid-size companies and that they invest accordingly. The desire to invest is, however, clearly held back by the very high costs and corresponding financing restrictions. Thus, it is indicated that small and mid-size companies cannot afford to perform R&D to the extent that would be optimal for their businesses and for the national economy.

According to the 2011
Global Innovation Index
Switzerland is the most
innovative country in the
world.

2.1.3. Method of financing R&D in Switzerland

87% of all R&D projects are financed internally. However, smaller companies⁶ only finance 53% of R&D costs internally (excluding micro-companies with 0 to 9 employees where the figure was 67%) and are dependent on R&D contracts or contributions while larger companies are largely (92%) able to self-finance. This trend has intensified in recent years.⁷

The aim is to finance as much as possible internally. The more external financing has to be obtained, the higher the financing costs for R&D and thus the sale prices for products, particularly those of small and mid-size companies.

In 2008, the public sector invested only CHF 198 million directly in research projects. The Commission for Technology and Innovation (CTI) plays an important role as a promoter of innovation on behalf of the federal government. It is comprised of 59 qualified members from business, research and academia.⁸ In 2010, 343 projects were supported, triggering R&D costs of approx. CHF 235 million, to which the federal government contributed approx. CHF 100 million.⁹ For the period from 2008 to 2011, the overall CTI budget was approx CHF 523 million.¹⁰ Preconditions to obtain financial assistance are that the company collaborates with a recognized research institution and that the business partner in principle bears at least 50% of the project costs.

2.1.4. Increasing international competition

Switzerland faces ever-increasing international competition for R&D functions and production locations of internationally flexible companies. This contributes to the fact that large Swiss companies today have the majority of their research carried out by subsidiaries abroad.¹¹ The intramural R&D activities of Swiss companies abroad in 2008 totalled CHF 15.8 billion, in contrast to only CHF 12 billion in Switzerland. R&D is thus following the trend toward globalisation and becoming more and more international. In the last few years this trend has intensified significantly (increase in foreign intramural R&D expenditure by 64% compared to 2004). The share of intramural activities conducted abroad by large companies has fallen since 2004 from 98% to 95%, while that of small and mid-size companies has risen from 2% to 6%.¹² This means that small and mid-size companies are also increasingly active internationally, although it is still primarily the large Swiss companies that are active abroad.

There are various reasons for the growing R&D activities abroad although costs as well as access to markets represent very important factors.

2.2. Proposal for R&D tax incentives in Switzerland

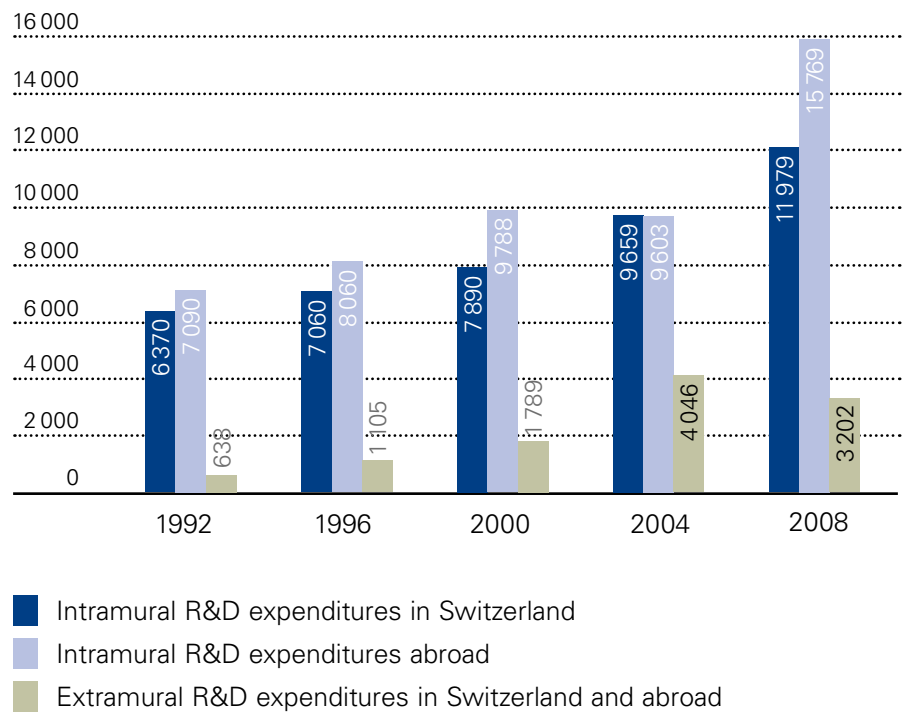
The tendency on the one hand to have a very innovative economy which on the other hand is dominated by large companies conducting more and more of their R&D activities abroad, together with the tremendous cost pressures on R&D particularly for the small and mid-size companies, forces Switzerland to further improve its attractiveness as a location, despite its existing popularity. To do so, various instruments can be taken advantage of. In comparison to many other countries¹³ which directly compete with Switzerland, it is peculiar that Switzerland has up until now not used the means of R&D tax incentives¹⁴, although other countries have long used such incentive measures successfully.

Small and mid-size companies often cannot afford R&D to the extent that would be optimal for their businesses and for the national economy.

Large Swiss companies today carry out a majority of their research through subsidiaries abroad.

Intramural R&D expenditures in Switzerland and abroad and external R&D expenditures, 1992-2008

In millions CHF at current prices



Source: BFS



This results in a significant disadvantage for Switzerland as a location for R&D activities compared to its international competitors. By introducing tax incentives for R&D, an additional incentive would be created both to maintain or increase R&D in Switzerland as well as to attract additional activities to Switzerland from abroad.¹⁵

R&D tax incentives can generally either be structured as so-called “input” or “output” incentives. “Input” incentives influence the cost side of R&D, e.g. R&D costs being more than 100% deductible for tax purposes or R&D tax credits. “Output” benefits on the other hand subject income generated from intellectual property to lower taxation. In our opinion, both elements are of central importance for Switzerland to remain a research location of choice for multinationals and specifically to strengthen the current as well as to secure the future innovation capacity of Switzerland’s economic backbone, the small and mid-size companies.

Thus for some time now the political discussion has shown interest in Switzerland’s attractiveness from a tax perspective in relation to private R&D activities and the risk that large companies will relocate their research activities abroad (Noser/liberal fraction motion of December 17, 2008; Hurter motion of March 19, 2010). Furthermore, as of January 1, 2011 the Canton of Nidwalden has introduced the IP box system¹⁶ and is taxing income from intellectual property at a lower rate than regular income (“output” incentive) in order to further strengthen its attractiveness from a tax perspective. Discussions on related subjects are currently also being held between the federal government, the cantons and various trade associations.

In order to investigate the need for the introduction of R&D tax incentives in Switzerland, KPMG Switzerland and the Swiss-American Chamber of Commerce (AmCham) together with the University of St. Gallen, have published a study titled “Economic Analysis of Tax Incentives for Research and Development”, authored by Dr. Christian Keuschnigg and Dr. Evelyn Ribi. Even though “output” incentives should be an integral part of the Swiss innovation policy as they are in many OECD countries the study and this publication exclusively address the so-called “input” tax incentive measures.





“ Switzerland must remain attractive in order to prevent migration of R&D. Tax incentives would therefore be a sensible measure. ”

Christoph Huber, Head of Global Tax, OC
Oerlikon Management AG

3 Economic analysis

Under the title “Economic Analysis of Tax Incentives for Research and Development”, Prof. Dr. Christian Keuschnigg and Dr. Evelyn Ribi of the University of St. Gallen analyzed what economic effects the introduction of R&D tax incentives in Switzerland might have.

3.1. Objective of the study

The objective of the study was to identify any need for action in Switzerland in relation to tax incentives for private R&D in an international context. Using economic criteria, the need for government incentives for innovation and the benefits of tax incentives in comparison to direct subsidies are demonstrated. Furthermore, a proposal for the specific structuring of tax incentives in Switzerland is set-out, the net benefit to the national economy as well as the effectiveness of which being expressed using economic criteria. The information and arguments developed in the study constitute a fresh contribution to the economic-political discussion on innovation policy in Switzerland.

3.2. Starting position

As a starting position, the study concludes that despite its high level of innovation capacity, Switzerland is losing ground in an international comparison. Above all, increasing internationalization of R&D activities is observed which also leads to a relocation of innovative activities by Swiss companies abroad. There is thus a need for action in order to maintain the accomplishments of the past and to protect Switzerland’s top position as a location for innovation in the mid- and long-term.

Switzerland is losing ground in the international competition as a research location.

3.3. Basic criteria for strong R&D

What conditions have to be present in a country so that companies can and want to pursue R&D activities? What specific measures can highly-developed countries like Switzerland take as a reaction to the decrease in their relative innovation capacity in a globalized environment?

The most important basic conditions are:

- The existence of suitable human resources such that R&D can be conducted at all. Sufficient highly-qualified people in the appropriate disciplines or the possibility that such people are attracted from abroad without great difficulty to be employed domestically are thus central factors.
- Basic research carried out primarily at universities and other government institutions. This has become increasingly important for R&D activities carried out by businesses over the last few years. On the other hand, private research in companies is more intensely directed towards applied

problem areas and commercialization. Adequate government financing of this research and the promotion of cooperation between universities and companies through various instruments has therefore become increasingly important for years.

- The willingness to engage in business activity at all and to take on the risk associated with R&D activities.
- Moderate R&D costs and good financing options. Since R&D activities are normally very risky, the cost of capital is generally high and for many companies it is difficult to obtain adequate external financing, even where financial markets are highly developed. The government can support these companies by granting them tax incentives or even credit guarantees or for example by creating the institutional framework conditions for increased availability of venture capital.

Financial incentives increase the locational attractiveness and competitiveness.

3.4. International competition

Many developed countries offer good framework conditions for innovative companies that are similar to those of Switzerland and then raise their location attractiveness through financial support of private R&D efforts. Frequently-used instruments are on the one hand direct subsidies of individual projects and on the other hand tax measures such as tax credits and increased deductibility of R&D expenses from the tax base.

3.5. Effect of financial incentive measures on R&D

For Switzerland, government support for private innovation efforts would be appropriate for several reasons:

- Firstly, the positive effects of innovation are not limited to those companies that actually carry out the associated R&D work. Additionally, significant positive side effects (spillovers) result for other companies which can introduce new products at lower cost and improve processes and hence increase revenues. The social rate of return on innovations is thus significantly higher than the private rate of return for the companies conducting the R&D.
- Secondly, it is primarily young and innovative companies as well as small and mid-size companies which are not in a position to secure the financing needed for R&D. While it is true that these companies can achieve high returns on investment which are above the market rates, private capital providers are often not willing to extend credit due to the lack of information. In such cases, government support can strengthen the financing options for such companies which facilitates the realization of additional profitable projects and increases overall economic efficiency.
- Thirdly, the intense international competition for innovative companies provides another reason for government support. Such measures should stop the decline in relative location attractiveness, the migration of innovative activities and the loss of tax base and hence support ongoing economic growth and high employment at attractive wages.

The social rate of return on innovations is significantly higher than the private rate of return of the companies conducting the R&D. Government incentives for such activities should thus be encouraged.

3.6. Choice of incentives

In order to remove the aforementioned obstacles to innovation and to strengthen the innovation capacity in the long term, tax incentives for private R&D expenditure is a more appropriate instrument than introducing

additional direct subsidies. Empirical studies show that tax incentives increase R&D investments in the long term while direct subsidy programs often only provide significant benefits to a limited number of parties. For companies, the financial effects of tax measures are also easier to estimate than those of participating in a selection process for subsidies. This is particularly due to the fact that the tax incentives apply equally to all companies and directly influence their costs relating to R&D activities, while obtaining direct subsidies for projects is generally highly uncertain. The fact that the companies can more easily plan with the tax incentives increases the likelihood that they will in fact adapt their R&D activities.

In contrast to direct subsidies, higher tax deductibility of R&D expenses awards success, as tax savings are only possible if taxable income is eventually realized. This increases the willingness to take risks, particularly in small and mid-size companies, and encourages companies to avoid the negative consequences of not being able to offset tax losses. Tax reductions are important because R&D investments tend to be riskier than other investments. Generally it can also be said that the more radical the attempted innovation, the riskier the R&D project. It therefore has to be expected that tax incentives in comparison to subsidies would also have a favorable influence on the effectiveness of R&D investments and would promote more radical and long-term innovation.

A further positive aspect of tax measures is that if the qualifying categories are correctly defined, they encompass all companies engaged in R&D. It is then left to the companies themselves to decide on the specific projects in which to invest and the technologies they wish to further develop.

In comparison to subsidies, R&D incentives reward success and increase the willingness to take risks.



Tax measures provide broad support for R&D.

A further advantage of tax measures can be the simplicity with which they can be claimed. Among other factors, this depends on the general complexity of the corporate tax system, the classification of R&D expenditure, the structuring of the deduction rates and the depreciation guidelines. Taking into account international standards, the objective should be that claiming the various cost reductions requires comparatively little time and expense, particularly also for international companies. In comparison, the bidding process for direct project support is uneven, frequently more complex and less transparent.

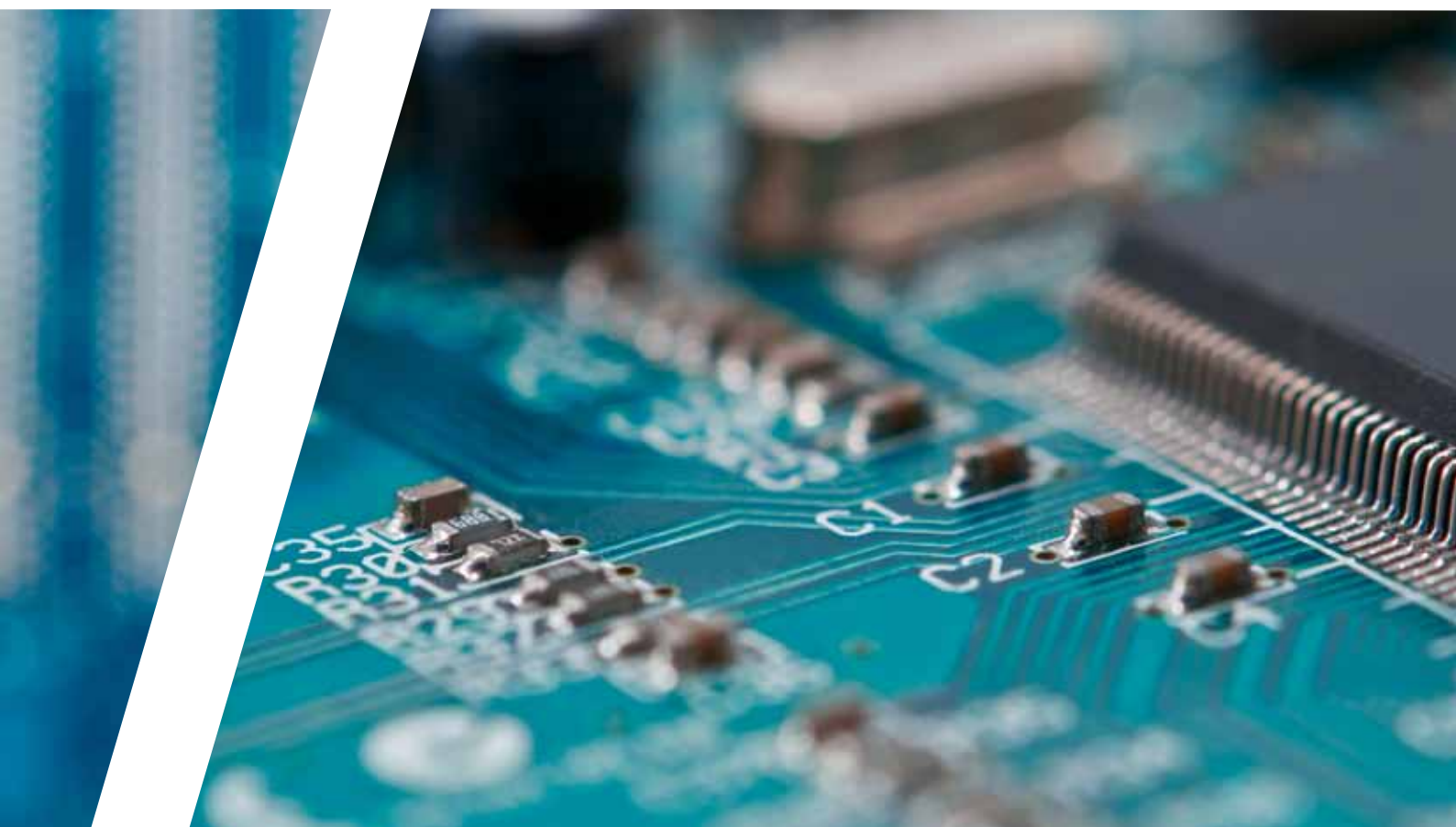
3.7. Structure of tax incentives for R&D

A specific R&D promotion model must take into account the structure of private innovation in Switzerland which is particularly characterized by a very high share of large companies, having a high degree of international flexibility. In contrast to this, the contribution of small and mid-size companies to the overall economic innovation volume is less significant. However, as particularly innovative technologies and product ideas often originate in small and mid-size companies, efforts for innovation in these companies should be explicitly supported.

In order to achieve the highest level of effectiveness, tax measures should be applicable to R&D activities in general such that all expenses for innovation in qualifying categories would lead to tax incentives and not only the amount exceeding a certain volume.

3.7.1. R&D costs tax deductible at 130%

Increased deductibility of expenses at 130% can significantly lower the average effective tax burden for a company, and thus significantly increase the



attractiveness of Switzerland as an R&D location in an international comparison. Large companies with mobile R&D departments will also have a significantly greater incentive to move their innovative activities to Switzerland, or not to move them abroad in the first place.

Within a certain range, the cantons should be able to determine the deduction rates for the cantonal income taxes themselves, for example 110%-140%.

3.7.2. R&D costs tax deductible at 170% for small and mid-size companies

In order to give special support to R&D efforts of small and mid-size companies which primarily produce in Switzerland and which most frequently experience difficulties in financing their innovative activities, a higher deduction rate of 170% for a small investment volume of no more than CHF 10 million is suggested. For expenses beyond this, the regular deduction rate would then apply. This should particularly support innovation efforts in small and mid-size companies which up until now have represented too small a share in the investment volume. Through this the high innovative potential inherent to many young companies can be realized and used productively.

3.7.3. Profit as a precondition for the incentive

By designing the R&D incentive in the form of a higher deductibility from the tax base instead of in the form of a tax credit, it is ensured that the companies can profit from the tax incentives only if they earn taxable profits in Switzerland. Companies with international activities may then also be tempted to move other business units, such as purchasing, production or trade to Switzerland, in order to be able to make full and timely use of the incentive measures.

3.7.4. Losses carried forward with no time limit / Cash payment for small and mid-size companies

If in a particular year the tax base is so low that the increased deductibility would result in a tax loss, it should be possible to carry forward such a tax loss to future fiscal years with no time limit. Interest should be paid by the tax authorities on such tax losses as otherwise the current value of the tax incentives and hence the investment incentives would be reduced. An exception may, however, be made for small companies, which could be provided through a cash payment for any unused tax incentives. This would loosen their financial restrictions, leading to an expansion of investment volume and therefore also an increase in overall economic efficiency.

Innovation efforts, particularly at small and mid-size companies, should be reinforced and promoted.

Tax measures to promote R&D

- Deductibility of all current R&D expenses from the tax base at a rate of 130% (with no upper limit)
- Higher deduction rate of 170% for R&D expenses up to CHF 10 million
- No time limit on balances carried forward with interest for tax incentives that cannot be fully used in the year they originate because the tax base is too low
- Cash payout of unused tax incentives to small companies and start-ups
- Flexibility in setting the deduction rate on the cantonal level

3.7.5. EU compatibility

The tax measures should take into account the relevant EU regulations so that long-term applicability is guaranteed. In particular, it needs to be considered whether the territorial limitation, i.e. limiting the incentives to R&D activities within one country, is compatible with the basic freedoms of the EC Treaty. Tax incentives that are limited to R&D activities in Switzerland should, however, represent a permissible territorial limitation. Moreover, a classification of the tax incentives as government aid should be avoided. This is taken into account in the current reform proposal as the measures are in no way selective. Specifically, they are in principle open to all companies, irrespective of their size and sector. Regulations favoring small and mid-size companies are accepted by the EU.

3.7.6. Definition of qualifying R&D and implementation

One important point is the definition of R&D that qualifies for the tax measures. As for many other countries, it would make sense for Switzerland to be guided by the Frascati Manual of the OECD (OECD, 2002). According to this manual, R&D encompasses creative work which is carried out on a systematic basis in order to increase knowledge particularly of humanity, culture and society, and its utilization to discover new applications. This description includes basic research, applied research and experimental development.

Amongst others, the following countries rely on the Frascati manual for their definition of qualifying R&D: France, Germany, Italy, Spain, the Netherlands, Ireland, Belgium, the USA, Canada, Australia, India and Japan.

To decide whether a particular project may be classified as a qualifying R&D expense, it should be examined as to whether it fulfils the Frascati - or a related - definition. Such a declaration is to be made and documented first and foremost by the company and should be followed by an official verification. Since in Switzerland income taxes are collected both on the federal and the cantonal level, for reasons of efficiency it is advisable to define a central authority equipped with the required technical knowledge which is independent of the tax authorities. A classification of an expense as R&D-related which is approved by this authority would then be binding both for the federal taxes and the various cantonal tax authorities.

3.7.7. Subjective entitlement

The fundamental goal of the introduction of R&D tax incentives is to promote innovation activity in Switzerland and thus to secure existing jobs and create new ones. For this reason, only R&D projects which are conducted in Switzerland should be able to benefit from the tax incentives. For companies based in Switzerland which carry out all their research activities through foreign subsidiaries, there would thus be no possibility to claim tax incentives. R&D activities conducted by third parties commissioned and paid for by a company should give rise to an entitlement to tax incentives in the contracting company only to the extent that the third party's R&D department is located in Switzerland. The third-party company itself would then have no additional entitlement to claim the tax incentives as it assumes no investment risk.

Tax incentives for R&D can contribute to the creation of new jobs.

3.8. Conclusions of the study

The study's conclusion is unambiguous: While the proposed system would still not propel Switzerland to the top of the international ranking with respect to R&D incentives, it would significantly improve its position and at a minimum draw level with certain competitors.

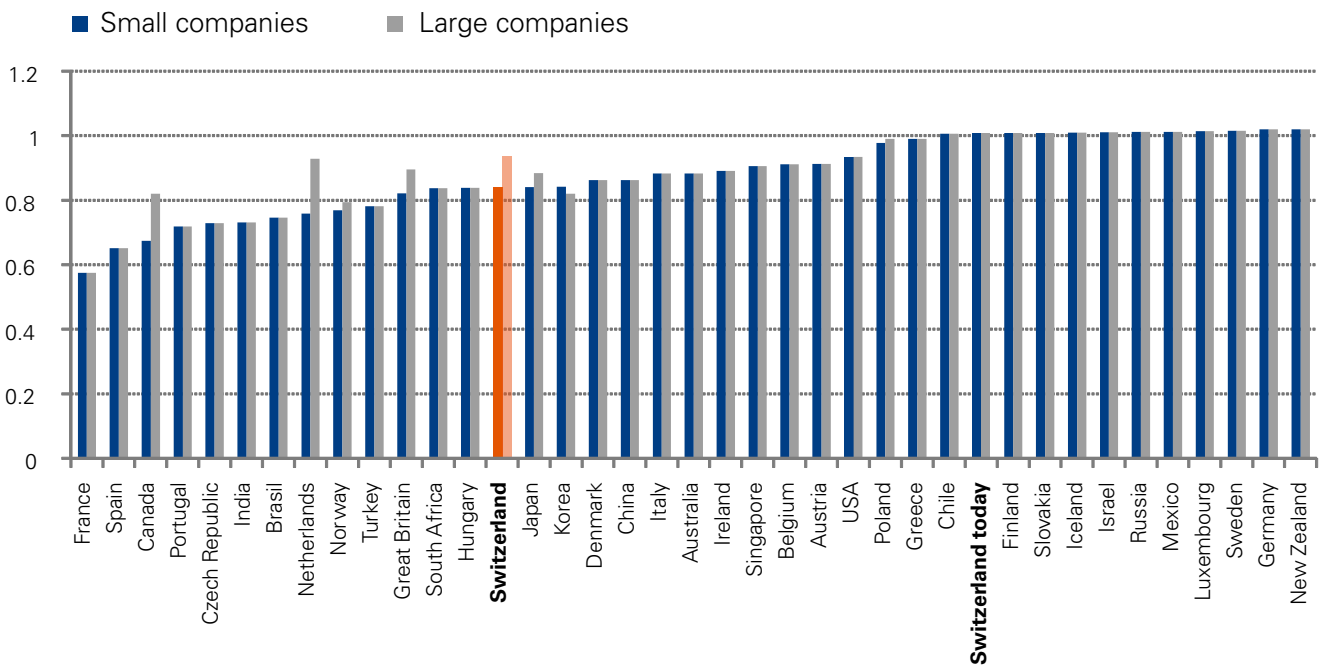
Tax incentives also stimulate domestic innovation by small as well as large and internationally flexible companies. The new products, technologies and processes created increase value creation not only in the company conducting the research but also by means of external revenues (spillovers) in other companies, primarily the ones located nearby. The increased innovation capacity secures the foundation for future economic growth in Switzerland. Only with more innovation can productivity increase making higher salaries and greater employment security possible. The additional profits and the higher salaries will be taxed, which will significantly reduce the net loss in tax revenues, which would initially be incurred by the tax incentives, at least in the mid- to long term.

The economic effects of tax incentives for R&D are clearly positive.

Innovative sectors use their resources to produce above-average earnings for the national economy. It therefore makes sense to direct resources to where they produce the most income for the economy as a whole and to replace investments with normal returns with investments in the innovative sectors with above-average returns. For the national economy the net benefit is clear. Countries with higher levels of innovation have higher levels of productivity and thus higher income per-capita.

B-Index¹⁷ for small and large companies prior and after the introduction of R&D tax incentives

In millions CHF at current prices



Source: HSG representation based on OECD (2009b)





4 R&D tax incentives in other countries

Looking across the borders to compare different systems of tax incentives for R&D provides interesting insight.¹⁸ Below, the EU's Lisbon Strategy and the models of several countries are presented. The in-depth analysis of the effect and practicability of the individual models will provide important input for the detailed design of a Swiss model.

4.1. The EU's Lisbon Strategy

In its Lisbon Strategy, the EU formulated the goal that overall expenditure for R&D as a proportion of GDP should increase to 3% in the EU zone. Originally this objective was to be reached by 2010, but the increase from 1.82% in 2000 to 1.9% in 2008 proved to be weak and unsatisfactory. This goal is now to be realized by 2020 with the increase in R&D activities coming primarily from private companies: in the future they are to spend 2% of GDP on R&D projects. "The EU Commission is therefore making a specific recommendation to member states that on the one hand they should educate more students in technical disciplines and improve knowledge transfer from universities to businesses and on the other hand create tax and other financial incentives for the private economy"¹⁹. The specific implementation of such incentive systems differs from country to country. In many European countries such as France, Belgium, Spain, Portugal, as well as Denmark, Ireland and the United Kingdom, the tax system has long included specific regulations that significantly reduce the cost of R&D through tax incentives. In an increasing number of countries, income from intellectual property is also given favorable tax treatment, usually in the form of so-called IP boxes ("output" incentives).

4.2. France

For years, R&D has been supported through the so-called tax credits (Crédit d'Impôt Recherche, CIR). New regulations provide that the total expenses for the fiscal year are to be included in the calculation of the tax credit. As a result, under certain circumstances, R&D work contracted to third parties can be included even if such work has already benefited from local R&D incentives. For annual research expenses of up to EUR 100 million the tax credit is 30%; above that it is 5%. For first time recipients or for companies that have not received a credit for more than five years, the rate of the tax credit is increased in the first year to 50% and to 40% in the second year. Thus for R&D expenditure of EUR 100 million, in the first year EUR 50 million may be credited to the income tax owed. Any excess is to be carried forward and – to the extent it cannot be set off against income taxes – paid out in cash after one year. For new companies, any surplus is to be paid out immediately. France also applies a reduction in social contributions and withholding tax in respect of salaries for R&D personnel. As an additional and new measure, license revenues for certain self developed intellectual property rights are to be taxed at a reduced rate ("output" incentive).

4.3. Belgium

Companies may elect to either claim a tax-free amount equal to 13.5% of asset costs or the investment that relates to R&D (e.g. patents) or take a corresponding tax credit for certain types of investments in R&D. The credit can be carried forward for five assessment years and unless it can be set off against taxes owed is then paid out in cash. Moreover, for qualified research personnel companies only have to pay 25% of the salary withholding taxes to the authorities thus reducing their personnel costs. In addition, license revenue from qualifying patents is included in the tax assessment basis at only 20%.

4.4. United Kingdom

Companies with fewer than 500 employees which also fulfil certain financial criteria can deduct their R&D costs at a rate of 175%; for larger companies the factor is 130%. Smaller companies which have tax losses have the option to receive a cash tax credit instead of the higher deduction. In such cases, the credit is 14% of the corresponding loss. In calculating the tax assessment base, the costs of capital investments and buildings are 100% deductible in the year they originate. In its 2012 budget, the United Kingdom has also included a proposal for the introduction of "output" incentives which is expected to become law in April 2013.

4.5. Czech Republic

As an example of a younger economy, the Czech Republic has introduced a 200% deduction for certain R&D expenditure. The expenditure which qualifies includes all personnel costs for research personnel, write-offs on investments relating to R&D and other costs directly attributable to R&D. Losses resulting from these deductions may be set off against future profits over the next three years.

4.6. China

Qualifying R&D companies have the option to deduct R&D costs in the current fiscal year at a rate of 150%. Losses resulting from these deductions may be set off over five years against future profits. Moreover, an immediate or accelerated write-off may be used for R&D equipment. Companies whose status is confirmed by the Chinese authorities as "high and new technology enterprise" also benefit from a reduction in the income tax rate of 40% on the relevant income. The status must be re-applied for and confirmed by the authorities every three years.

4.7. India

Upon fulfilment of certain criteria, companies may deduct qualifying internal R&D expenditure (e.g. salaries and costs for R&D-related materials) at a rate of 200%. Moreover, Indian companies may take a tax deduction at a rate of 125% to 175% for their payments (e.g. research contracts) to qualifying companies operating in India.



4.8. Singapore

Payments made to R&D companies in Singapore and internal R&D costs of Singapore companies may be deducted at a rate of 130%- 150%. Additionally, the first S\$ 300k as well as additional qualifying R&D expenditure is deductible at a rate of 100%, such that a tax deductibility rate of up to 250% can be attained. Moreover, for qualifying R&D projects approved by the Singapore authorities, a tax deduction rate of 200% is applied.

4.9. USA

On the federal level, since 1981 there has been a system of growth incentives which expires every two years but is renewed again and again – usually retroactively. In this system, only R&D expenditure exceeding a defined base value qualifies for tax incentives. The calculation of the base value as well as the applicable rate may be performed in different ways. In addition, many states have also implemented their own systems of tax credits.

4.10. Canada

At the federal level, Canada grants companies a tax credit of 20% on total R&D expenses. For small companies the deduction is 35% which can be paid out if the tax owed is lower. This system is supplemented by additional credits of 10% to 20% at the provincial level.



4.11. Overview

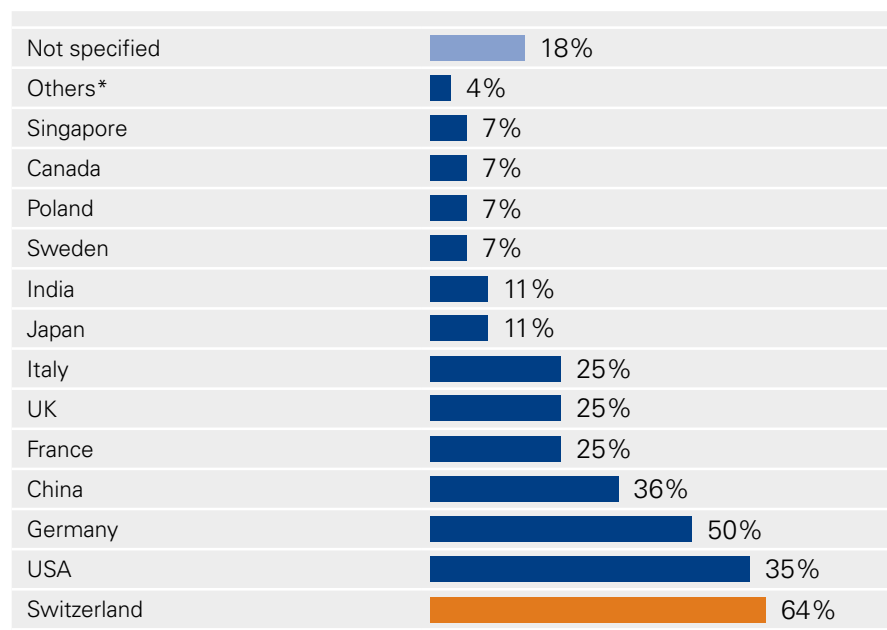
Country	General deductibility of R&D costs (100%)	Higher deductibility of R&D costs (>100%)	Tax credit	Additional tax incentives (e.g. accelerated depreciation)	Definition of qualifying R&D costs based on Frascati Manual
France	x		x	x	x
Belgium	x	x	x	x	x
United Kingdom	x	x	x	x	x
Czech Republic	x	x		x	
China	x	x		x	
India	x	x			
Singapore	x	x		x	x
USA	x		x	x	x
Canada	x		x	x	x

5 Survey

In order to take into consideration the opinion of the industry on the discussion in respect of the introduction of tax incentives for R&D, selected representatives – mostly CFOs and tax directors – were surveyed on this subject after the conclusion of the HSG study by KPMG and the Swiss-American Chamber of Commerce using online questionnaires or personal interviews. The results of the survey are presented below. The number of interviews and completed questionnaires is not statistically representative. Nevertheless, it is clear from the answers that the industry favors the introduction of tax incentives for R&D.

The companies surveyed have their headquarters in Switzerland (79%) and in the USA (21%). The majority are listed companies or large privately-owned companies.

Where are your main R&D centers located?



* Liechtenstein, Shanghai, Australia, Brasil, Spain, Belgium, Finland, Denmark, Austria, Netherlands

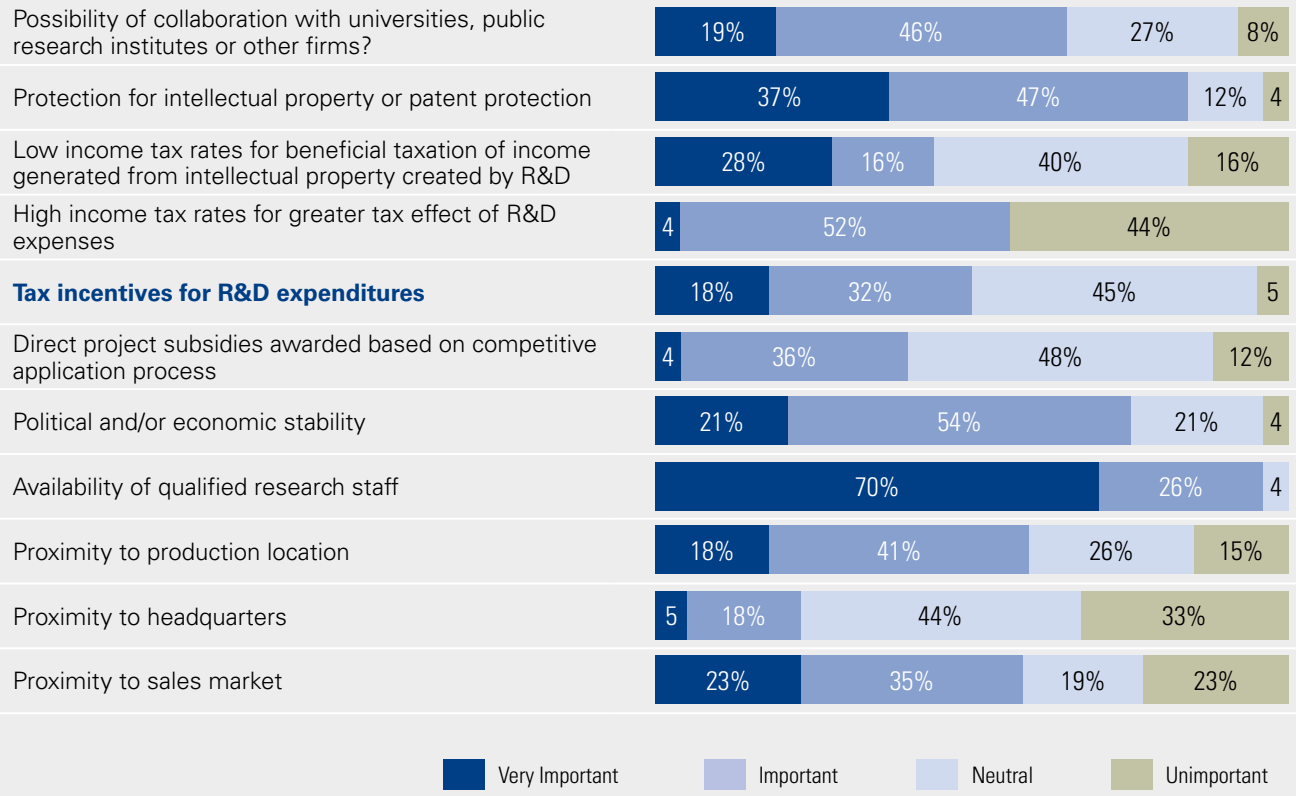
The primary R&D locations of these companies are, as expected, Switzerland and the USA. Another important research location is Germany.

Has your Company set up any R&D centers or operations in the last 5 years?



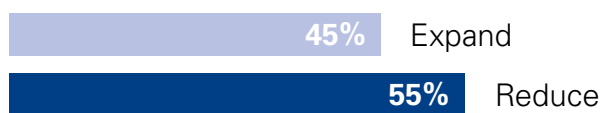
Almost half of the companies surveyed have set up new R&D locations in the last five years. Out of 20 new major R&D locations, eleven are in Asia, six are in Europe and there is one each in the USA, Latin America and Africa. Thus a fundamental expansion by international companies to the Asian market for R&D activities can also be seen.

How important are the following factors for the selection of an R&D location; that is, what are the main criteria for selection of a location and/or for moving it to another country?



Among the mobile companies surveyed, promotion of R&D through tax incentives is, as expected, not a primary factor for the selection of the R&D location; more important factors are in particular qualified personnel, proximity to production and sales markets, protection of intellectual property, political and economic stability and collaboration with public and private research institutions. The survey does show, however, that tax incentives for R&D are considered to be more important than the opportunity to obtain direct subsidies. For Swiss small and mid-size businesses which are less mobile, tax incentives for R&D could thus be significantly more important.

Is your company more likely to expand or to reduce R&D in Switzerland during the next 5-10 years?



Some 55% of the companies surveyed say that R&D activity in Switzerland will be reduced over the next 5-10 years. By far the most frequently-cited reason for this are the high costs in Switzerland. The second major reason is the distance to sales markets. Since the lack of proximity to the new sales markets is a given, government intervention must focus on the cost side. The location disadvantages must be compensated by financial advantages, such as tax incentive measures, in order not to fall behind in the international competition for locations.

The 45% of companies which will either increase or maintain their R&D presence in Switzerland, primarily state the following reasons:

- Switzerland's protection of intellectual property
- Standards that IP is retained in Switzerland / at the HQ or centralization of IP
- Human capital / know-how

Could the introduction of R&D tax incentives in Switzerland change anything with regard to this decision?



54% of the companies which are likely to reduce R&D in Switzerland say that the introduction of tax incentives for R&D could definitely influence this decision.

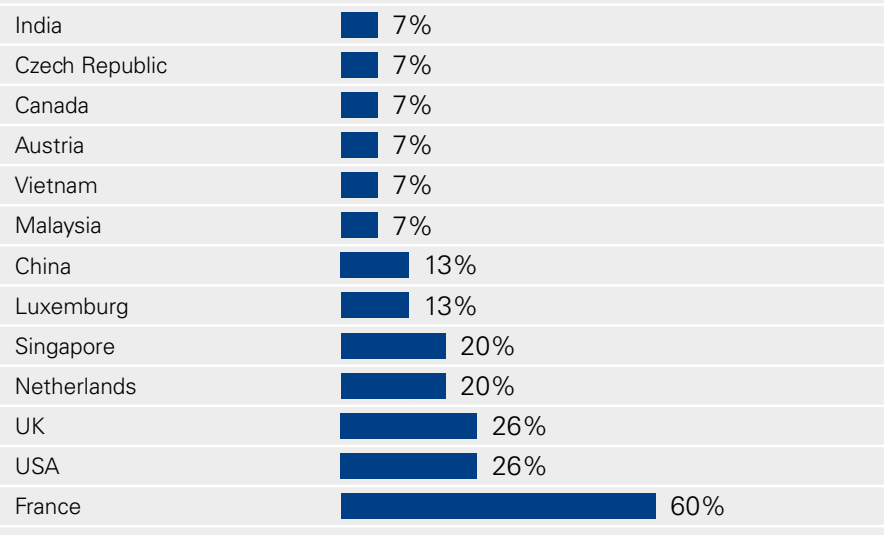
82% of the companies surveyed say that the introduction of tax incentives for R&D in Switzerland would be beneficial and that this would lead to an increase in Switzerland's innovation capacity. The introduction of tax incentives for R&D would make Switzerland much more attractive as a research location in international comparison. From this it may be concluded that by means of targeted measures, further improvement in location factors already at a very high level could be achieved, thereby allowing Switzerland to remain one of the absolute top locations for R&D.

74% of the companies surveyed say that the introduction of tax incentives for R&D would be beneficial, particularly for small and mid-size companies and would increase their competitiveness. The reason for this definitive statement is that the small and mid-size companies, in contrast to large companies, have less opportunity to relocate R&D activities to more cost-effective locations abroad and therefore have to compete internationally while contending with high Swiss costs. As previously noted, this disadvantage is exacerbated by a strong Swiss franc.

63% of the companies surveyed say that the introduction of tax incentives for R&D could constitute a partial replacement for the cantonal tax privileges. Moreover, such incentives would be applicable to all companies in Switzerland conducting research. This will eliminate the unequal treatment of local and foreign business activities as particular applies for mixed companies. A concept of tax incentives for R&D is thus fairer and benefits Swiss businesses and primarily Swiss small and mid-size companies.

France is considered to be the country with the most attractive system of tax incentives for R&D by far, followed by the USA and the UK. The Asian countries fall somewhere in the middle or towards the bottom of the rankings. From this it may be concluded that due to the proximity to markets and the pool of skilled labor, these locations are attractive without having to develop tax incentives. Conversely, it may be inferred that through the introduction of attractive tax incentives for R&D, Switzerland could once again compensate for its location disadvantages with respect to market proximity and costs.

Can you name countries that seem especially attractive to you with regard to tax incentives for R&D?



“The importance of ‘output’ incentives in addition to ‘input’ incentives must not be discounted; in the end, I assume that our research will bear fruit.”

Barbara Kessler, Head of Group Tax & Insurance, Novartis International AG




6 Conclusions and Suggestions

As this publication documents, Switzerland today possesses a high level of innovation capacity. This strong position is above all due to the large multinational companies domiciled in Switzerland, although these companies already carry out a significant part of their research abroad through subsidiaries. This trend must be reversed. Switzerland is also engaged in an international competition for research. Framework conditions which promote innovation are therefore needed in order to maintain and increase the innovation capacity. Switzerland as a research centre has to be strengthened so that the associated jobs can be preserved.

The view on the total R&D expenditure hides certain weaknesses in respect of the small and mid-size companies. The desire to invest is clearly held back by the very high costs and corresponding financing restrictions. Thus, small and mid-size companies cannot afford R&D to the extent that would be optimal for their businesses and for the Swiss economy. At the same time, it is exactly these companies which are very important for the development of new technologies and which constitute a major growth engine for the Swiss economy. From an overall economic perspective, it is therefore desirable that the government lends its support by means of targeted improvements of the economic framework conditions. Moreover, it is usually the small and mid-size companies which in addition to R&D activities also have production sites in Switzerland. Swiss products are valued for their innovative qualities and accordingly generate high profit margins. Production and associated R&D activities in Switzerland are also currently weighed down by the strong Swiss franc. Development and production of innovative products are therefore becoming even more expensive. Consequently the risk of new investments for companies also rises. In this environment, should a small or mid-size company decide to move its R&D activities abroad, it could well result in a subsequent move of production to the same location. This would multiply the number of jobs lost.

In order to strengthen Switzerland as a production and research location in its international competition in the long term, in addition to the current support of R&D projects through direct subsidies, tax incentives on the cost side are recommendable particularly for small and mid-size companies. This is all the more so as the proposed type of incentive would support only successful companies as profits have to be realized before tax incentives are granted. This measure therefore promotes efficiency and does not lead to the random distribution of government funds. Subsidies should be used solely for projects which are particularly valuable for the economy as a whole but likely result in insufficient earnings for private companies. Finally, for small and mid-size companies, a cash payout of unused tax incentives should be provided in order to loosen their financial restrictions.

Government promotion of private innovation efforts would have positive effects not only on those companies that actually carry out the R&D activities. Additionally, there would be significant positive side effects (spillovers)



“Tax incentives for R&D expenditures would directly help Switzerland as a production location and strengthen the competitiveness of Swiss companies in the market.”

Daniel Vaterlaus, Chief Risk Officer,
Georg Fischer AG

on other companies, allowing them to introduce new products, improve processes and thus increase their revenues without great cost to them.

Moreover, Switzerland's attractiveness as a research location for foreign companies would be increased by the incentives granted. This in turn would lead internationally-respected companies to choose Switzerland as a location since tax incentives for R&D are being used by most OECD countries. Switzerland can thus in the future continue to claim its place as an attractive business location in the international tax competition attracting not only investment but also know-how and brilliant minds from abroad. This then also strengthens the nation's economy as a whole.

The net tax shortfall which would result from the introduction of tax incentives for R&D will be significantly reduced by the additional tax revenues anticipated in the mid- to long term.

“Promotion of R&D has a greater potential to benefit Switzerland's national economy than a further reduction in corporate tax rates.”

Christoph Huber, Head of Global Tax,
OC Oerlikon Management AG

Taking into account the international environment and the Keuschnigg / Ribi study, we propose the following model for the promotion of R&D in Switzerland:

- Deductibility of all current R&D expenditure from the tax base for direct federal taxes and cantonal and local taxes
 - Higher deduction rate of 170% for R&D expenditure up to CHF 10 million
 - Higher deduction rate of 130% for R&D expenditure exceeding CHF 10 million
 - Flexibility in determining the deduction rate at the cantonal level
 - No upper limit
- No time limits for carrying forward balances of tax incentives which cannot be fully utilized in the year they originate due to a low tax base
- Cash payout of unused tax incentives to small and start-up companies
- Broadest possible definition of R&D costs (based on the Frascati model)
- Review of the qualifying R&D expenses for the purposes of direct federal tax and cantonal- and local taxes by a central office independent of the tax authorities. For example, the Commission for Technology and Innovation (CTI) could be provided with the necessary technological knowledge and structured as an examining agency outside the tax authorities.
- Access to tax incentives must not be blocked by unnecessary administrative burdens; a transparent and practicable model is a precondition for successful implementation.
- The proposed model should be combined with the introduction of an “output” tax incentive for income from intangible assets, such as license boxes, so that a comprehensive system for the promotion of innovation can be guaranteed.

Summary

The goal must be to stimulate innovation activity with the simplest and most efficient administrative system in such a way that the income tax shortfall is in the mid-term compensated through additional tax revenues. Switzerland with its generally efficient administrative system and comparatively simple tax laws has good pre-conditions for introducing such a system with a favorable ratio of administrative expenses to economic advantage. Increased innovation capacity will secure the basis for future economic growth in Switzerland. Productivity can only increase through more innovation, making higher salaries possible and providing greater employment security. Tax incentive measures are therefore needed.



Notes

- 1 Based primarily on the Swiss Federal Statistical Office, 2010, F&E in der schweizerischen Privatwirtschaft 2008 [R&D in the Swiss Private Economy 2008]. Since 1983 the data has been collected every three years, and since 1992, every four years.
- 2 Includes all expenditure for R&D conducted by companies themselves, i.e. on their own premises.
- 3 See <http://www.globalinnovationindex.org>.
- 4 Companies with fewer than 100 employees.
- 5 Swiss Federal Statistical Office, 2010, F&E in der schweizerischen Privatwirtschaft 2008 [R&D in the Swiss Private Economy 2008], p. 9.
- 6 Companies with fewer than 50 employees.
- 7 Swiss Federal Statistical Office, 2010, F&E in der schweizerischen Privatwirtschaft 2008 [R&D in the Swiss Private Economy 2008], p. 20.
- 8 Refer to <http://www.kti.admin.ch>.
- 9 Commission for Technology and Innovation CTI, 2011, Jahresbericht Förderagentur für Innovation KTI 2010 [Annual report of the agency for promotion innovation CTI 2010], p. 6.
- 10 To cushion the effects of the strong franc, the federal government has increased this amount only for 2011 and 2012 by a total of CHF 20 million; cf. Swiss Federal Economics Dept. press release dated February 16, 2011.
- 11 Keuschnigg / Ribi, 2011, Volkswirtschaftliche Analyse der steuerlichen Förderung von F&E [Economic analysis of tax incentives for R&D], p. 3.
- 12 Swiss Federal Statistical Office, 2010, F&E in der schweizerischen Privatwirtschaft 2008 [R&D in the Swiss Private Economy 2008], p. 41 ff.
- 13 For example, France, Belgium, the United Kingdom, the Czech Republic, China, India, Singapore, the United States or Canada; see chapter 4, tax incentives for R&D abroad.
- 14 With the exception of the possibility of an insignificant annual reserve, only for research contracted to third parties.
- 15 Cf. A. Müller / R. Gramigna / T. Linder, Forschungsstandort Schweiz – mehr Attraktivität durch steuerliche Anreize, Konkreter Vorschlag für die Einführung von steuerlichen Fördermassnahmen [Research location Switzerland - more attractiveness through incentives, a concrete proposal for the introduction of tax incentives], in: Der Schweizer Treuhänder, 2008/10, p. 803 ff.
- 16 In the license box system, revenues from intellectual property are tax separately at a lower rate.
- 17 All major tax aspects of the capital utilization costs are summarized in the so-called B-Index. The index measures how much a unit of R&D actually costs a company, and thus corresponds to 1 minus the effective subsidy applicable to the relevant country.
- 18 Cf. for example T. Linder / A. Müller, Steuerliche Anreize für Forschung und Entwicklung, Ein Standortvergleich – Handlungsbedarf für die Schweiz [Tax incentives for R&D, A location comparison – a need for action by Switzerland], in: Der Schweizer Treuhänder, 2008/3, p. 146 ff.; KPMG Survey EMEA; KPMG Survey ASPAC
- 19 European Commission (2010), Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth, Brussels, cited in: Christian Keuschnigg / Evelyn Ribi: Volkswirtschaftliche Analyse der steuerlichen Förderung von Forschung und Entwicklung, Universität St. Gallen 2011

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