IBC Taxation Index 2005

Effective Tax Burden of Companies and on Highly Qualified Manpower

Report for the «IBC BAK International Benchmark Club»®
Executive Summary
Basel and Mannheim, December 2005
Acknowledgements

This report is a further result of the research project on tax burdens in an international and inter-regional comparison, commissioned by BAK Basel Economics on behalf of the «IBC BAK International Benchmark Club»® (IBC). We are delighted to present the most recent inter-regional analysis of effective tax burdens in Europe and the United States. The report contains a survey of tax and social security regimes in Switzerland and twenty other countries as well as detailed inter-regional analyses of effective tax rates of companies and on highly qualified manpower. The headline figures of these analyses are published as IBC Taxation Index 2005.

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Mannheim and Basel, December 2005

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Sponsors of the research project IBC Module Taxation:

- Swiss Federal Tax Administration, Bern
- Tax and Finance Departments of the Cantons of Basel-Stadt, Nidwalden, Schwyz, St. Gallen, Ticino, Valais, and Zug
Executive Summary

Aim of the study and method applied
Taxation of companies constitutes a commonly accepted location factor. Companies pay taxes on profits and capital. Also, under competitive labour markets for highly skilled employees, companies have to compensate these highly skilled employees for international differences in labour tax burdens. Both elements thus constitute a tax burden on companies and influence the attractiveness of a particular region as a location for investment. This study presents effective tax rates of companies and on highly qualified manpower in twenty European countries and the United States.

The research was executed on behalf of the «IBC BAK International Benchmark Club»® (an initiative of BAK Basel Economics), which evaluates and compares economic performance and location factors across European regions. The headline figures of this Executive Summary are published as IBC Taxation Index 2005. This Index is regularly updated and illustrates trends in the effective tax burdens of companies and on highly qualified employees.

Beside Switzerland the study covers most EU15 member states (Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Spain, Sweden, and the United Kingdom), in order to complete the Scandinavian countries also Norway, and five new EU-member states in Eastern Europe (Czech Republic, Hungary, Poland, Slovakia, and Slovenia). Some US regions are also covered. Especially for Switzerland, inter-regional differences in taxation are taken into account: Thirteen Swiss cantons are analysed. With respect to the other countries, we focus in this executive summary on the most important region in each of the other countries. In the report, we take a more regional point of view and take into account inter-regional differences in other countries as well.

The scope of the study is as follows:

- First, due to a great number of relevant tax rules, effective tax burdens may differ significantly from statutory tax burdens. Therefore, the analysis quantifies meaningful estimates of effective tax burdens. These estimates take into account the most important rules of all the relevant taxes. For company taxation, these include the corporation tax with surcharges, other profit related taxes, real estate taxes, and specific taxes based on capital. For the taxation of highly skilled manpower, the study considers income taxes including surcharges, tax-like social security contributions as well as wage taxes paid by the company.

- Second, an effective tax rate is always the result of the underlying assumptions. To identify the general context, and to find out the most relevant tax provisions in different economic constellations, the so-called tax drivers, the study examines the effect of important tax provisions on effective tax burdens.

- Third, taxation is deemed to be an important location factor. In order to compare the attractiveness of different locations from a tax perspective, the study compares effective tax burdens inter-regionally and internationally. Furthermore we show the impact of both measures on regional productivity growth.

Company Taxation
The determination of the effective tax burden of companies bases on the common approach introduced by Devereux and Griffith. We measure the effective tax burden of a profitable investment that yields a standardized pre-tax rate on investment of 20%. We assume a corporation in the manufacturing sector, which undertakes a particular mix of investments and uses a particular combination of
sources of finance. The types of investment considered are intangibles, industrial buildings, machinery, financial assets, and inventories. The sources of finance are new equity capital, retained earnings, and debt.

The tax rates computed for each region comprise taxes levied at the national, the state, and the municipal level. The study focuses on the effective tax burden at the corporate level, which is especially relevant for the choice of a location of international corporations. Therefore, taxes on corporate income and capital are included. Beside the statutory tax rates of these taxes we also take into account interactions of different kinds of taxes and the most important rules for the definition of the tax base, e.g. differences in depreciation allowances and inventory valuation.

The headline results presented by the IBC Taxation Index are expressed by the effective average tax rate (EATR). An EATR indicates the effective tax burden on a profitable investment, i.e. it indicates the attractiveness of a location for investments carried out by international companies.

The results display significant dispersions of the EATRs between the highly developed regions covered (see Figure 1-1). The EATRs range from 14% in Zug, Switzerland, to 37.6% in Boston, USA. Ireland, Swiss regions and the new EU member states in Eastern Europe display comparatively low effective tax burdens. In contrast, locations in France, Germany, and the United States have the highest EATRs. These results indicate remarkable differences in the attractiveness of regions from a tax perspective. Switzerland, Ireland, and the new EU member states are marked as especially attractive locations.

Figure 1-1: IBC Taxation Index 2005: Companies (%)

Note: The economically most important city of a region is considered (for Swiss Cantons the capital (Kantonshauptort)).
Source: BAK/ZEW

Basically, statutory profit tax rates mainly determine the ranking of the EATR. Thus, from the point of view of the tax authorities the statutory tax rate seems to be an important tool in order to attract highly profitable investments. However, in practice the tax burden always depends on the individual characteristics of each investment. Special rules regarding the tax base or property taxes may be very relevant in particular cases. Important additional factors are local taxes. French corporations carry an ex-
tra tax burden in form of the *taxe professionnelle*. For example, effective tax burdens are lower in Italy than in France, although the combined statutory profit tax rate in Italy is significantly higher than the one in France. Since a local business tax and an innovation tax are levied on Hungarian companies, the effective tax burden remarkably depends on the composition of the turnover.

Besides an international comparison of effective tax burden, this study also displays inter-regional differences within each country. Since the Swiss tax system is characterized by the federal structure of the country, there is great inter-regional variation among the assessed Swiss cantons. The cantons of Zug, Nidwalden, and Schwyz rank ahead of the others. Nevertheless, all analysed Swiss cantons have comparatively low or moderate tax levels. The EATR ranges from 14.0% in Zug up to 22.8% in Basel-Landschaft. Moderate inter-regional variation exists in Germany, where the levels of the trade tax and the real estate tax vary between municipalities. A similar degree of inter-regional variation is found in France. In Austria, Italy, and the Netherlands inter-regional variation is not or almost not relevant, as regional and local governments are not entitled to levy important corporate taxes on their own, or do not make use of it. In general, however, national tax legislation dominates – with the exception of Switzerland – the size of effective tax burdens.

A second set of results is expressed by the effective marginal tax rate (EMTR). Although EMTRs are less relevant than EATRs for international location decisions, these figures provide some useful supplementary information on effective tax burdens of companies. EMTRs indicate the effective tax burden on an investment that is marginal in economic sense, i.e. an investment that earns a net present value of zero. This investment limits the profitable investment opportunities of a company. Thus, the lower the EMTR at the corporate level the larger is the theoretically optimal level of investment. Also, a lower EMTR on investment indicates a competitive advantage over competitors who face higher EMTRs.

The dispersion of effective EMTRs between the assessed regions is even greater than the dispersion of EATRs. It ranges from 6.9% in the Canton of St. Gallen up to 33.5% in Doubs, France. These results suggest that the optimal level of investment and the competitiveness of companies located in different regions also differ dramatically from a tax perspective. Generally, the impact of local and non-income taxes on the EMTR is stronger than their impact on the EATR. Thus, there is a disadvantage for companies which have to pay substantial non-income taxes. Consequently, the attractiveness of France as expressed by the EMTR is even lower than the one expressed by the EATR. Furthermore, the impact of depreciation allowances is even stronger on the EMTR. For example, companies located in Slovenia show a comparatively low EMTR due to favourable depreciation allowances.

A supplementary part of the study also considers shareholder taxation, i.e. the personal income tax on dividends, interest payments, and capital gains on the disposal of shares, the surcharges on the personal income tax, and individual net wealth taxes on shareholding and lending. We assume that the owners of a company are domestic resident shareholders who reside at the location of the company. The scope of this investigation is to evaluate the impact of shareholder taxation on the effective tax burdens presented above. The estimates provide valuable insights into the distortionary effects of domestic personal tax systems, especially with respect to financing decisions. The tax burden at the shareholder level is an important measure for small and medium-sized companies. In that constellation, effective marginal tax burdens are much more important than effective average tax rates.

Our results suggest that effective tax burdens at the overall level heavily depend on the tax status of the relevant shareholder. Whereas for zero-rate shareholders there is often a bias in favour of debt financing, top-rate shareholders frequently prefer financing an investment with retained earnings. For zero-rate shareholders, the effective tax burden at the corporate level remains the single most important factor in determining the size of the tax burden. However, there are several exemptions where

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Notice that in Swiss Cantons always the tax burden in the capital (Kantonshauptort) has been used.
final taxes are also imposed on capital income of zero-taxed shareholders. For top-rate shareholders, the tax treatment of capital gains and interest payments is very important in our calculations as well.

For all types of shareholders, there is a considerable correlation between effective marginal tax rates at the corporate level and at the overall level. Although we cannot conclude straightforwardly from these results that locations that impose a low level of corporate taxes also impose a low level of personal taxes, we find that in most cases personal taxes on capital income at least do not compensate for the tax burdens at the corporate level. However, there are substantial exceptions to this finding: Especially those Swiss cantons which impose relatively high top personal income tax and net wealth tax rates display comparatively low corporate-level EMTRs but high overall-level EMTRs in an international comparison.

**Taxation of Highly Skilled Manpower**

The tax burden on highly skilled manpower is measured by means of a simulation model developed at the ZEW. The model allows considering several components of the remuneration package, the family status, and varying levels of compensation. This concept parallels established methodologies for the quantification of company tax burdens by calculating the effective average tax rate (EATR) as an indicator of the tax burden. The basic idea of our approach is that employers compete for highly qualified employees and therefore have to compensate these for taxes on labour income and tax-like social security contributions. As a consequence, the tax burden of different regions is compared for a given *disposable income* after taxes which the employee can obtain at all locations.

The model determines the tax burden in two steps. At first the tax assessment of a typical qualified employee’s income before taxes (the *employment costs*) is conducted. If the resulting income after taxes falls short of (exceeds) the required disposable income, in a second step the assessment is repeated for higher (lower) employment costs. The model then iterates until the employment costs necessary to obtain the predetermined disposable income is found. The effective average tax rate (EATR) is calculated by dividing the difference between employment costs and disposable income (the *tax wedge*) by the employment costs. The EATR thus expresses how much the employer has to expend in addition to the predetermined disposable income. For example, if an employee with a disposable income of €100,000 faces an EATR of 25% this means that the tax wedge (€33,333) amounts to a quarter of the employment costs (€133,333).

Taxes in this context are all income taxes including surcharges and state and municipality taxes, as well as payroll taxes paid by the company. Social security contributions are part of the tax burden inasmuch as the employee does not earn a specific, individual benefit by paying them. According to the basic idea of competition, there is little risk of unemployment for the kind of qualified employees considered here. Hence contributions to unemployment insurance, and by a similar reasoning also contributions to accident insurance, are defined as taxes. Health premiums, on the other hand, are not considered to be taxes since they are deemed to provide a genuine insurance.

Contributions to public pension schemes are considered to be partly taxes. The first pillar of old-age insurance is usually organised as a pay as you go system involving redistribution between generations and between high and low earning workers. Inasmuch as contribution payments do not result in actuarially fair pension entitlements, they constitute an implicit tax rather than an insurance premium. To account for this implicit tax, entitlements earned by the highly qualified employee are computed according to the legislation currently in force and offset against contributions.

In this study, we distinguish between three kinds of compensation: (1) cash compensation, (2) contributions to old-age provisions, and (3) benefits in kind. These components are taxable in different periods. Cash compensation and benefits in kind are taxable income in the year of payment. Contributions to old-age provisions are either excluded from taxable income and thus pension benefits are subject to taxation, or contributions are paid out of taxed income implying that pensions are non-taxable income.
during retirement. Our model explicitly deals with the timing of tax and pension payments by using an inter-temporal approach.

The base case represents the **IBC Taxation Index** for highly skilled manpower. Here, we consider an employee’s disposable income of €100,000 that consists of 75% cash compensation, 20% old-age contributions, and 5% benefits in kind. The employee is single and has no other income. The IBC Taxation Index for the year 2005 is shown in Figure 1-2. The effective tax rates vary in between a span of over 30 percentage points. We find the lowest tax burden in the Canton of Zug with 24.7%. The employment of highly qualified manpower is the most expensive in Finland with 56.5%.

In other words, an employer has to pay €132,802 for a highly qualified employee in Zug in order to compensate the employee with €100,000 after taxes and charges. In Finland, he has to spend additional €100,000 to grant the employee the same income after taxes and charges like in Zug. The employment there costs €229,885.

**Figure 1-2: IBC Taxation Index 2005: Highly Qualified Manpower (%)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Effective Tax Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zug</td>
<td>24.7%</td>
</tr>
<tr>
<td>Schwyz</td>
<td>25.4%</td>
</tr>
<tr>
<td>Nidwalden</td>
<td>27.2%</td>
</tr>
<tr>
<td>Ticino</td>
<td>31.2%</td>
</tr>
<tr>
<td>Basel-Stadt</td>
<td>31.7%</td>
</tr>
<tr>
<td>Baselland</td>
<td>34.3%</td>
</tr>
<tr>
<td>Bellinzona</td>
<td>34.6%</td>
</tr>
<tr>
<td>Bern</td>
<td>35.7%</td>
</tr>
<tr>
<td>Genève</td>
<td>35.0%</td>
</tr>
<tr>
<td>Neuchatel</td>
<td>35.9%</td>
</tr>
<tr>
<td>Vaud</td>
<td>36.1%</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>39.4%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>41.0%</td>
</tr>
<tr>
<td>United States</td>
<td>42.5%</td>
</tr>
<tr>
<td>California</td>
<td>43.0%</td>
</tr>
<tr>
<td>Spain</td>
<td>43.8%</td>
</tr>
<tr>
<td>France</td>
<td>44.4%</td>
</tr>
<tr>
<td>Italy</td>
<td>44.6%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>45.8%</td>
</tr>
<tr>
<td>Germany</td>
<td>46.0%</td>
</tr>
<tr>
<td>Austria</td>
<td>48.9%</td>
</tr>
<tr>
<td>Austria</td>
<td>51.9%</td>
</tr>
<tr>
<td>Austria</td>
<td>52.3%</td>
</tr>
<tr>
<td>Austria</td>
<td>55.0%</td>
</tr>
<tr>
<td>Austria</td>
<td>56.5%</td>
</tr>
<tr>
<td>Source: BAK/ZEW</td>
<td></td>
</tr>
</tbody>
</table>

Note: In Switzerland, the tax burden has been calculated for the capital of the Canton (Kantonshauptort).

If one considers the whole range of effective tax burdens in the countries, there are several remarkable findings:

- The Swiss cantons (yellow pillars) are all on top of the ranking. The effective tax rates amount to between 24.7% in Zug and 38.5% in Vaud. Within Switzerland, Zug, Schwyz (25.4%), and Nidwalden (27.2%) bear the lowest burden. This group is followed by Zürich, Luzern, Ticino, Valais, and Basel-Stadt with tax rates between 31.2% and 34.7%. Basel-Landschaft, Bern, St. Gallen, Genève, and finally Vaud form the group with the highest burden in the Swiss ranking. The rates amount to between 35.5% and 38.5%.

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Again, in Swiss Cantons always the tax burden in the capital (Kantonshauptort) has been used.
Only five countries bear tax rates which can compete with the tax rates in the Swiss cantons. These are Slovakia (26.5%), Texas (31.7%), Massachusetts, New York, and Austria. The three latter of them with tax rates of between 36.8% and 38.5%, range at the higher end of the Swiss ranking. The closest competitors for the Swiss countries therefore are Slovakia and Texas.

The United States (red pillars) are in competition with the Swiss cantons with moderate and higher tax rates. In California, the highest tax rate of 39.5% applies. The US tax rates however are below most of the tax rates of the other European countries.

In contrast to the findings of the IBC Taxation Index for companies, the Eastern European countries (green pillars) are not all on top of the ranking. Regarding the taxation of highly qualified manpower, the reputation being a low-tax country is confirmed for Slovakia with the third lowest tax rate behind Zug and Schwyz. The other four Eastern European countries rank far behind with moderate or even high effective tax rates. Poland, Hungary, and the Czech Republic show tax rates between 39.2% and 43.0%. The most expensive Eastern European country is Slovenia with a tax rate of 52.3%. This is the third highest tax burden in the IBC Taxation Index.

The Scandinavian countries (light blue pillars) are all at the bottom end of the ranking. The tax rates amount to between 48.0% and 56.5%. All Scandinavian countries apply high tax rates on personal income. Denmark and Norway bear effective tax burdens of less than 50% (48.0 and 48.9% respectively). In Sweden, the tax burden amounts to 50.7%. The highest tax burden applies in Finland.

All but one of the remaining continental countries as well as Ireland and the United Kingdom show effective tax rates of between 38.6% in Austria and 44.6% in Italy. The span only amounts to 6.0 percentage points. Compared to this, the Swiss cantons covered are in a span of 13.8 percentage points. Despite or rather due to the geographical extension of these countries, the tax burden on highly qualified manpower displays weak variation. Beside Austria, moderate tax rates under 40% apply in Luxembourg and Spain. Ireland, Germany, the United Kingdom, the Netherlands, France, and Italy display tax rates between 40% and 45%. Belgium is an outlier in this group. With 54.1% Belgium has the second highest tax burden in the IBC Taxation Index.

The effective tax rates are driven by several aspects of income taxes and social security. Firstly, the most important tax drivers are the tax scales of the personal income tax, especially the top tax rate. Secondly beside the tax rates, the tax base also has an impact on the effective tax burden. The taxation or deductibility of certain income components, e.g. contributions to the social insurance or occupational pension plans or the taxation of public pensions or annuities from occupational pension plans is of high relevance. Thirdly, contributions to social insurance qualifying as charges raise the effective tax burden. The impact strongly depends on the value of contribution rates and the existence or non-existence of ceilings that cap the contributions for high incomes.

Families are subject to an advantageous treatment in almost all tax systems and systems of social security. The EATR varies in the case of an employee with a family requiring a disposable income of € 100,000 from 15% in Zug to 55% in Finland. The first and the last rank thus are the same as in the case of a single employee. However, the EATRs are lower. For the middle ranks however, there are changes.

The Swiss cantons again are on top of the ranking. There are only few changes in the Swiss ranking due to differing personal allowances and tax tables in the state income tax. Also the United States show substantially lower EATRs for families. Within the continental countries, Luxembourg, Germany, and France gain ranks due to their family taxation. Eastern European and Scandinavian countries do not have such differences in the taxation of singles and families. The EATRs only decrease little and the countries remain on the same rank or even lose ranks.

Furthermore, we quantify the tax burden of two other disposable income levels, € 50,000 and € 200,000. With increasing income those countries with low top income brackets of the personal in-
come tax gain ranks. Switzerland and the United States therefore lose ranks. With increasing income the tax burden increases substantially. For the high income level, also Poland, Austria, Spain, Luxembourg, Germany, Hungary, the Czech Republic, the United Kingdom, and Ireland directly compete with Switzerland and the United States.

**Synthesis of Both Indicators**

Due to differing methodologies it is not possible to compare these headline figures for companies and manpower directly. However, we can compare the rankings and the relative differences in effective tax burdens between both indicators of the IBC Taxation Index. Figure 1-3 presents a synthesis of the two headline figures. We indexed the effective tax burdens of all countries and the Swiss cantons relative to the average of all included Swiss Cantons. The vertical/horizontal distance between an observation and the axes shows how much lower/higher this location’s effective tax burden is compared to the average of the Swiss cantons in the case of companies (vertical axis) and in the case of manpower (horizontal axis).

There are four countries with a lower tax burden than the Swiss average. Slovakia is below the Swiss average for both indicators. Ireland, Poland, and Hungary only have lower tax burdens regarding companies. Regarding highly qualified manpower these three countries display tax burdens which even are beyond all Swiss cantons.

**Figure 1-3: Correlation of IBC Taxation Index 2005: Companies and Highly Qualified Manpower**

All in all, we summarise our findings with regard to the regions considered as follows:

- **Swiss cantons** are in top positions for both indicators. Investments of companies and the employment of highly qualified employees are thus attractive from a tax point of view.
- **Eastern European countries** are in competition with Swiss cantons as long as it concerns the taxation of companies. However, they are taxing highly skilled manpower very differently. Slovakia competes directly with the cantons Zug, Schwyz, and Nidwalden. Poland, Hungary and the Czech Republic tax on the same level as most continental countries. Highly skilled manpower in Slovenia bears a tax burden comparable to Scandinavian countries.
- Scandinavian countries display low tax burdens on companies and very high tax burdens on the employment of highly qualified employees.

- Continental countries, Ireland, and the United Kingdom show moderate and high tax burdens for both indicators. Except for Ireland in the case of companies and Austria in the case of highly skilled manpower the tax burden in these countries is far beyond of the one in the Swiss cantons. With respect to highly qualified manpower Belgium is an outlier.

- The US tax burden represents the opposite of the system in Scandinavian countries. The US tax companies on a high level. The tax burden on employment of the highly skilled is on a moderate level. Thus, the US even compete with Swiss cantons.

If one compares the results of the IBC Taxation Index 2005 with the IBC Taxation Index 2003 one can see a clear trend of decreasing tax burdens for both indicators. With respect to company taxation, there have been substantial reforms. Especially, Austria, Poland and Slovakia decreased their corporate income tax rates. With respect to the taxation of highly qualified manpower, there have been reforms in Slovakia, Germany, and Italy with substantial reductions of the tax rate.

**Impact of Tax Burden on Regional Productivity Growth**

Tax levels are believed to have an incentive on individuals and companies, thereby influencing economic development. But the empirically analysis of this relation on a regional level is rather weak. To help to overcome this weakness, BAK Basel Economics started a research program „Policy and Regional Growth“ in 2003 to provide an empirical sound contribution to the discussion of location factors and economic growth. It analysed the influence of a set of regional location factors on the long term growth of a region. In 2005 the research focused on explaining productivity growth and used policy variables on innovative capacity, taxation levels, accessibility and regulation plus a number of control variables. Although the research is ongoing, the results available now allow first policy conclusions.

Taxation shows by far the strongest impact on long term productivity growth of the studied policy areas. The influence has the expected direction: lower tax levels lead to higher productivity growth. The impact of taxation of highly qualified employees is stronger than the impact of company taxation. For politicians, there are two messages contained in these results: First, fiscal policy is indeed an important location factor. Second, the influence of taxation in international competition is not limited to company taxation. With the increasing international mobility of highly qualified individuals and their higher importance in a knowledge economy, income taxation is a location factor far from negligible.

Innovation policies do have the expected positive impact on productivity growth, but this impact is smaller than expected. Fostering formal qualification and expenditures for research and development (the innovation indicators available) without proper quality controls might not be an efficient way to increase productivity growth. Innovation is a complex process, and policies supporting innovation should take this into account.

Tight labour market regulation has a strong positive impact on productivity growth. This is not surprising. Labour market regulation affects mainly the lower qualified part of the workforce and reduces their chances on the job market. Tighter labour market regulation can indeed increase average productivity of the working population, but this should not lead to wrong policy conclusions.

Finally, policies take time to effect growth. This is probably one of the most important results. The lag structure of the variables suggests that the effect of a specific policy measure exceeds the election period of politicians. But one day the positive effects will prevail. Those future positive effects will have to be clearly explained and communicated to stakeholders and the population.