

INNODRIVE

**Intangible Capital and Innovations: Drivers of Growth and Location
in the EU**



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**Intangible Capital and Innovations: Drivers of Growth and
Location in the EU**

Acronym: INNODRIVE

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**Report on Data Gathering and Estimations in INNODRIVE using
Firm-Level Data (LEED in the micro approach)
(Deliverable No. 14, WP3-8)**

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Hannu Piekkola (UNIVAASA) with the support of the INNODRIVE consortium involved in
WP3-8

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1. Background

State of the art

The INNODRIVE project includes data gathering for a period of up to two years. The data description and results below are preliminary, subject to revision until February 2010. At this stage, estimations of the value of organisation capital are not reported and those on other kinds of intangible capital are preliminary.

INNODRIVE project summary

It is widely recognised that knowledge and intellectual capital are major determinants of the generation of innovation and thus the enhancement of growth, employment and competitiveness of the European Union. The importance of R&D and innovation is also explicitly recognised in the ‘Lisbon process’. Yet, our knowledge of the contribution of intangibles to economic performance is still incomplete. While firms undoubtedly are at the centre of innovation and productivity growth, their activities are hard to analyse empirically. Furthermore, at the macro level the national accounts data on capital formation focus primarily on fixed investment and have only recently attempted to measure investment in intangibles such as software, mineral exploration and artistic creations. The aim of this research project is to improve our understanding by providing new data on intangibles and new estimates of the capacity of intangible capital to generate growth.

We envisage doing this at both the firm and national levels. At the micro level, the goal of the research is to improve our insight into the contributions of intangibles to the growth of firms, by exploiting the potential of recently established linked employer–employee datasets (LEEDs) and by implementing a performance-based methodology to analyse how firms use knowledge and human capital to increase their productivity and how mobile workers react to these processes. At the national-economy level, we will expand the traditional growth accounting framework by including, in capital formation, estimates of the investment in intangibles that have hitherto largely been counted as current expenditure in the conventional national accounts.

This research will thus explore uncharted territories in EU socio-economic research. The project will establish new foundations for the formulation of policies to strengthen growth and employment in the EU, by providing new estimates of the contribution of intangibles to economic performance.

Micro approach partners

University of Vaasa (UNIVAASA)

Germany Institute for Economic Research (DIW)

Statistics Norway, Research Department for Labour Market (STATNO)

National Institute of Economic and Social Research (NIESR)

Institute for Economic Research (IER)

The Research Institute of the Finnish Economy (ETLA)

Center for Economic Research and Graduate Education of Charles University and the Economics Institute, Academy of Sciences of the Czech Republic (CERGE–EI)

2. Micro data

In the micro approach of the INNODRIVE project and in building up the harmonised data and methodology, an integral part of the analysis is to divide the intangible capital of firms into that related to organisational work, ICT (information, communications and technology) and R&D. Micro-level firm data from the six countries under study varies by country (see the table in the appendix 4). For the harmonised methodology, project manager has distributed the Stata econometric package scripts used in the building-up of LEED data in Finland. For the micro-level data, in their final version Finland and Slovenia have data that cover all the years from 1995 to 2006, with the aim of evaluating intangible capital for the years 1998–2006. The most important difference is that job switches from one firm to another cannot be tracked in the Czech data and some countries have data for only some years, as in the case of Germany for 1999–2001. Also, the UK has a relatively small sample of firms in the panel. Yet, despite differences in the data, we have been able to construct a harmonised dataset for all the countries – Finland, Norway, Slovenia, the Czech Republic, Germany and the UK. In constructing the tables, we have deflated earnings by the earnings index in each country. This is based on the evolution of regular wages, with the base year being 2000.

Access to the micro data used in the project is restricted. In general, micro data are made available for researchers based on project descriptions and approval of projects. The rules are usually strict for foreign-based researchers. Data are obtained on a country-by-country basis and are available at a non-aggregated level for the individual partner only. The LEED data, almost without exception in the research community, are received from data suppliers on the condition that they are not disseminated.

The UK statistical data is from the Office of National Statistics (ONS), which has Crown copyright and is reproduced with the permission of the controller of Her Majesty's Stationary Office and the Queen's Printer for Scotland. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets that may not exactly reproduce the aggregates of national statistics. A similar proviso applies to the rest of the data.

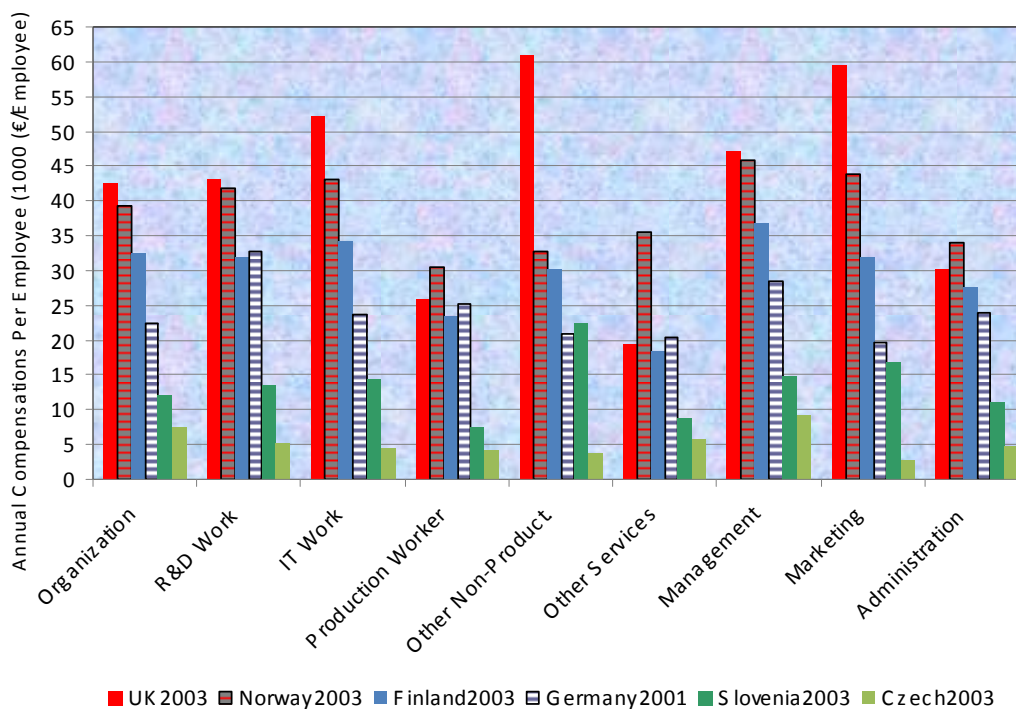
3. Technical issues

Some technical and methodological issues arose while building the micro database and working with the data, which should be pointed out. First, working with LEED data requires vast processing capabilities, as we are dealing with ranges from 500,000 workers in Slovenia to up to 40 million in Germany, across a period of 3-13 years. For this purpose, an appropriate 64-bit computer environment with Stata/MP 10 had to be set up in most of the countries and in the UK and Slovenia, it had to be used in a secure room at the statistical offices. In the UK, the statistical office does not currently provide a 64-bit computer but the data is either less comprehensive than in other countries or in the UK the SAS software has to be used in some approaches. Stata/MP is a 64-bit version of Stata for dual-core and multicore/multiprocessor computers. It allows datasets with up to 32,767 variables with the number of observations limited only by the available amount of RAM. Additionally, Stata/MP allows matrices of up to 11,000 times 11,000 on computers with sufficient memory and can therefore fit models with more independent variables.

4. Overall tables

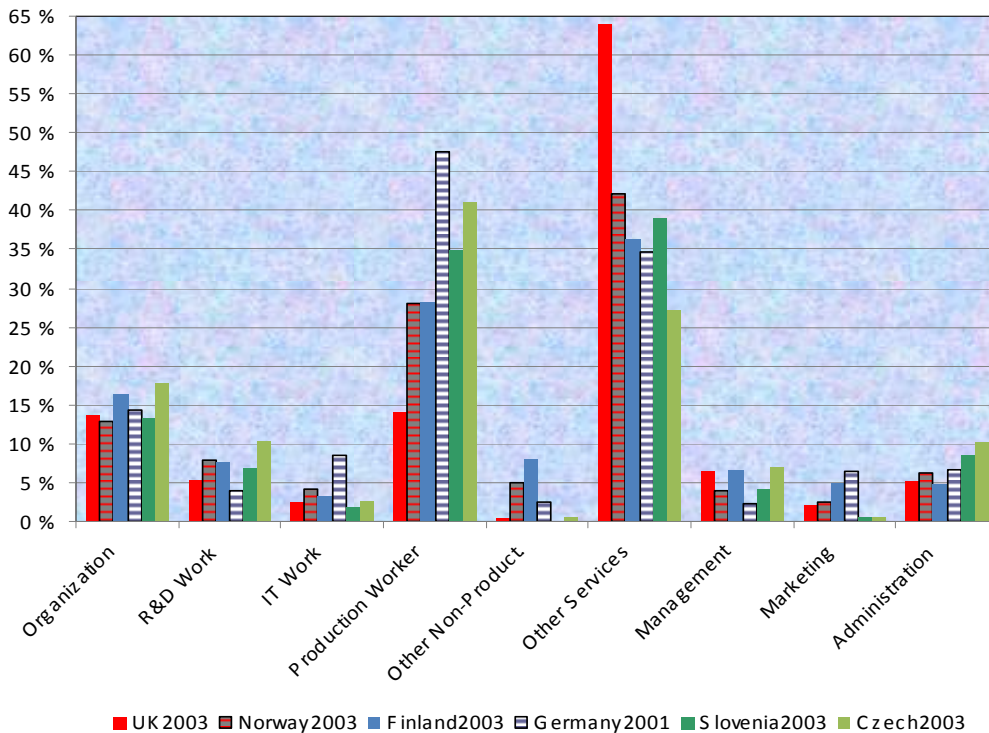
We have produced the first version of overall tables on worker structures and employee compensation at the firm level to be used in the estimations. Summary tables are shown in appendix 4. The valuation of organisation capital will be done econometrically, so the OC asset value (organisational asset) is not the final one. R&D assets are obtained from R&D employee compensation as well as ICT personnel assets by assuming a suitable value of depreciation and the share of employee compensation of total investment (the depreciation rate is 20% for R&D and 33% for ICT personnel assets). Figure 1 reports the average occupational compensation across the countries by occupation for a comparable year – 2003 or 2001 for Germany.

Figure 1. Occupational compensation: Annual compensation + social security tax



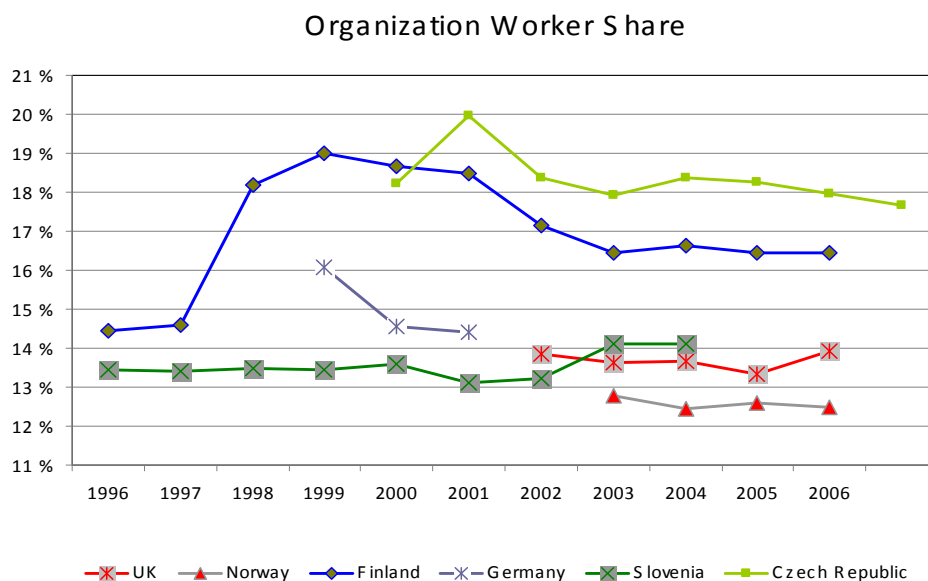
First, it should be noted that all the results are tentative. Figure 1 reveals that annual earnings are highest in the UK followed by Norway. Annual earnings in Germany are less than those in the UK, Norway and Finland, which is likely to stem from data problems. The relative wage by occupation shows some interesting results. R&D and ICT work are on average better paid than organisational work. The last three columns show annual earnings by type of organisational work: management, marketing and administration. Usually the annual earnings are highest for management work. The exception here is the UK, where earnings are highest for marketing. It is of interest next to examine the distribution of workers across the occupational categories shown in Figure 2 below.

Figure 2. Occupational shares



The shares sum up to 100%, when excluding the last three subcategories of organisational work. It is clear that production workers are on average around 30% of all workers. The manufacturing sector is largest in Germany and the Czech Republic, where the share of production workers exceeds 45% and 40% respectively. R&D workers represent a rather notable share, at around 7%. The share of R&D workers is surprisingly low in Germany, being less than 5%, although the manufacturing sector is large. In recent years, the share of ICT workers has been 3% on average, but in this category the share is highest (8%) in Germany. The service sector is not very large in Germany, but a relatively large part of it is in the ICT sector. Figure 3 shows the share of organisational workers.

Figure 3. Share of organisational workers

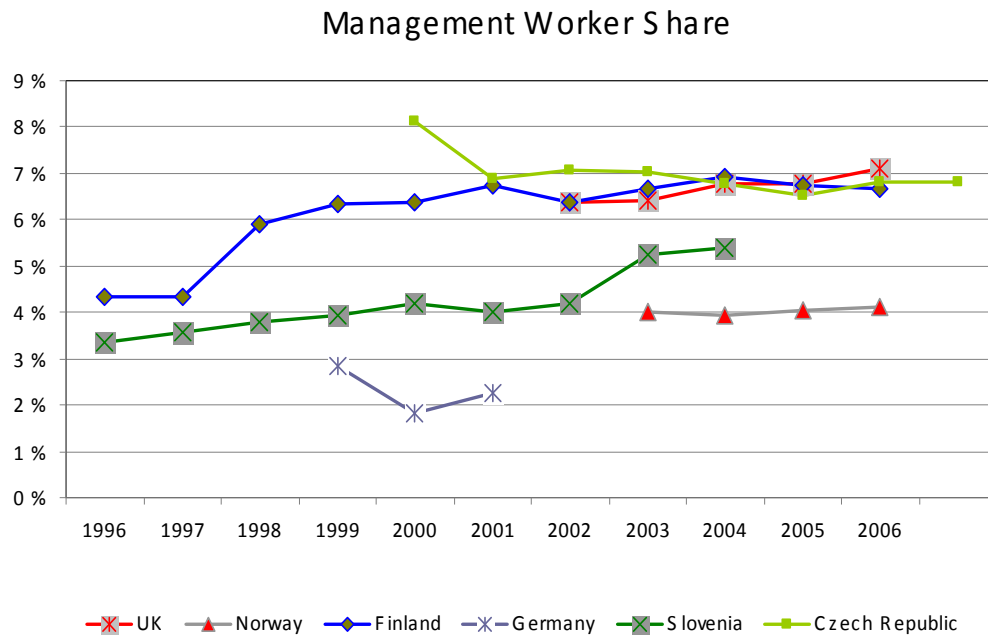


Figures 2 and 3 reveal a surprising similarity in the share of workers engaged in organisational work. In all countries, the average share among the total workforce is not far from 15%. In Finland, the share of organisation capital workers was highest in 1998–2001. In other countries, the share of organisational workers has not increased over time.

Administrative workers with tertiary education represent half of organisational workers. In general, the type of organisational work differs, which may also be owing to different occupational classifications.

Figure 4 shows the evolution in the share of managers.

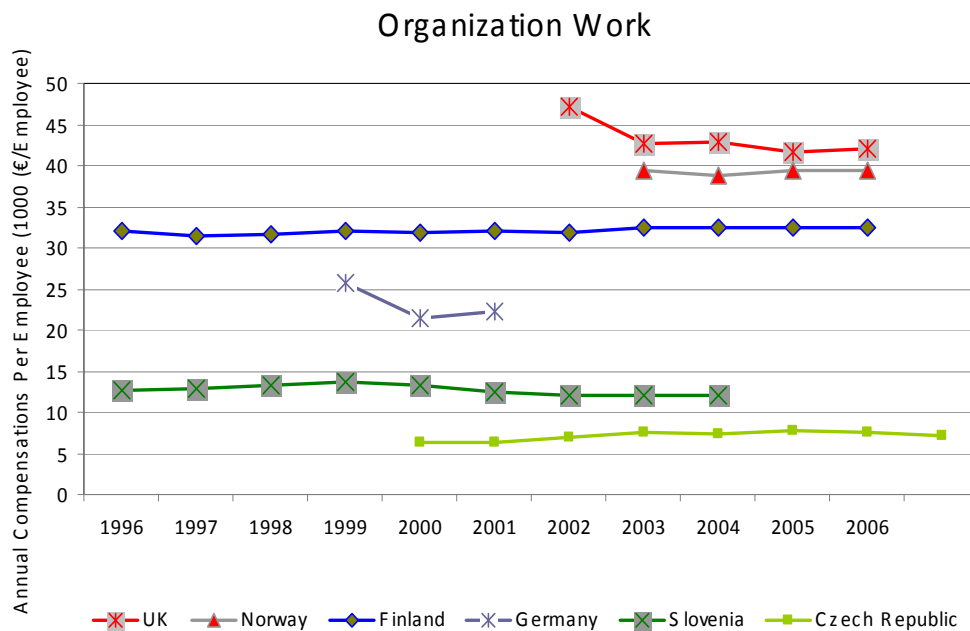
Figure 4. Share of managers



Here it can be seen that the share of managers has increased in Finland and Slovenia and the share has stabilised to around 7% in the UK, Finland and the Czech Republic. On the other hand, in these countries the share of marketing workers is lowest. Thus, the comparatively high salaries for marketing workers in the UK may be explained by the inclusion of managerial marketing staff in this category. In Germany, the share of managers is lowest, at around 3%. It is also interesting to note that the share of marketing workers is fairly high in Finland and Germany. The share working in skilled administration is highest in the Czech Republic. This outcome is probably owing to the high share of workers with tertiary education.

Figure 5 shows the evolution of annual earnings for organisational work over the years, which also reveals the years covered by the data for each country.

Figure 5. Organisational work: Annual compensation + social security tax



The figure shows that the relative annual payments are those expected. The missing years are explained by some countries only having data for restricted years (1999–2001 for Germany, from 2002 onwards for Norway – see the table sheets in the appendix 4. Slovenia will amend data for the year 2005–06). Annual compensation has decreased somewhat in the UK, while compensation for organisational work in other countries has rather closely followed the average earnings index. In Germany, the yearly variation may be owing to the calculation of earnings, as later discussed in the description of German data.

5. Firm data

Organisation, R&D and ICT assets per sales have been calculated to see some comparability of the firm-level data. These have been calculated assuming a perpetual inventory method and 20% depreciation. Since we have records for a maximum of 12 years, we have evaluated this for a three-year period and assumed a predetermined growth rate before then. The methodology is explained in the report for WP2 (Jona-Lasinio et al., 2009). Figures 6, 7 and 8 show the evolution over the years in Finland, Norway and the Czech Republic.

Figure 6. Organisation, R&D and ICT assets per sales in Finland

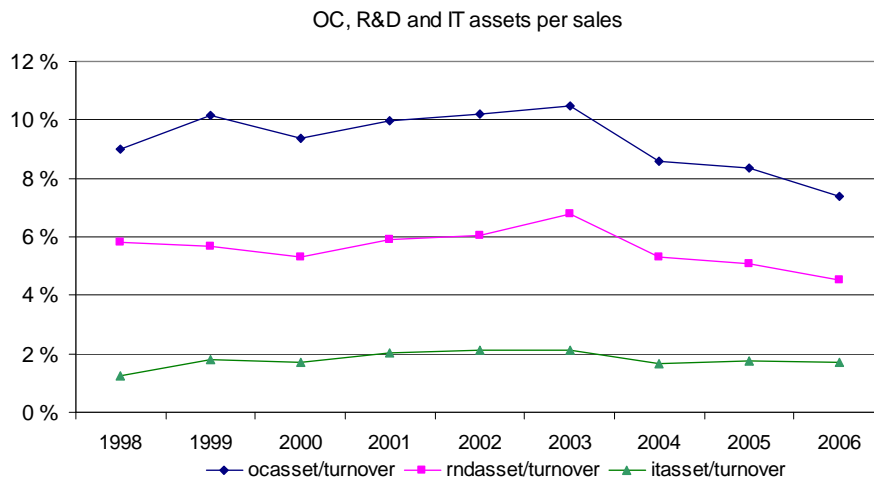


Figure 7. Organisation, R&D and ICT assets per sales in Norway

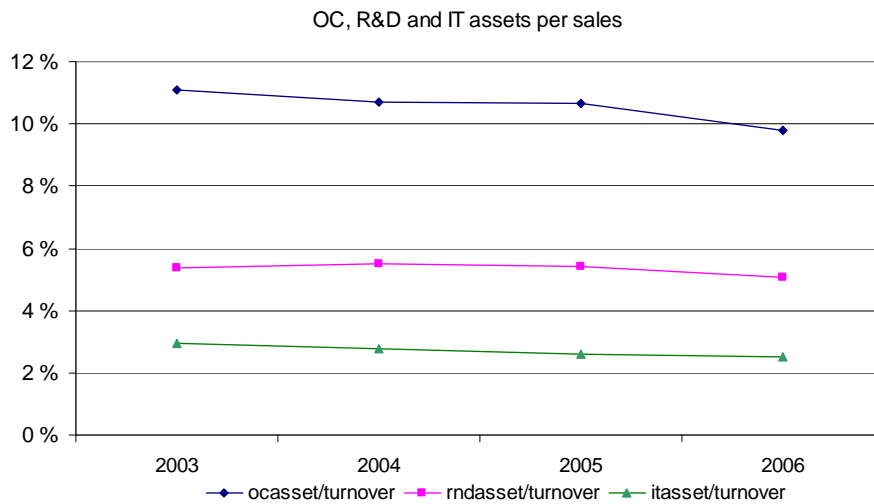
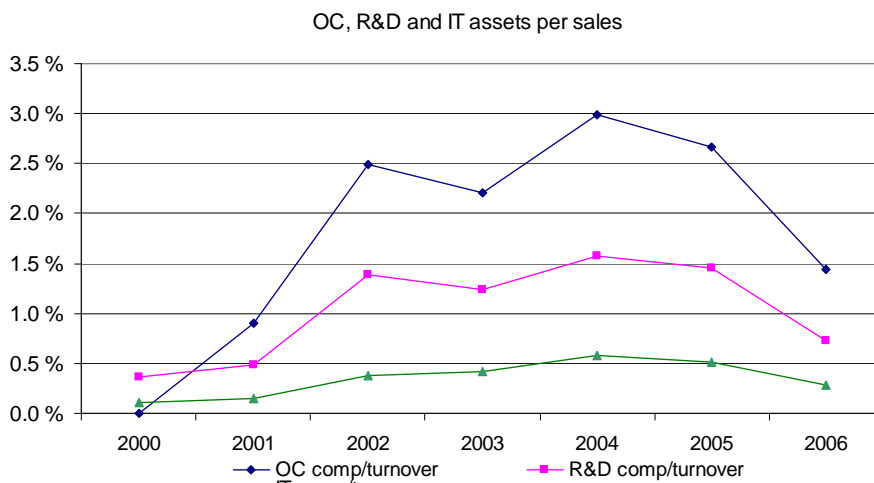


Figure 8. Organisation, R&D and ICT assets per sales in the Czech Republic



The figures show that the shares of each asset are surprisingly similar in Finland and Norway. Organisation capital (ocaaset) is the largest category, followed by R&D assets at 5-6% of sales. ICT personnel assets represent 2.5-3% of sales. Here the depreciation rates are 20% for all assets (R&D and IT), while the depreciation rate of ICT personnel assets will be later increased to 33%.

The share of organisation capital is tentative, as this will be estimated separately for each industry. The first calculations indicate that the evolution of organisation capital is the same as for R&D and ICT capital. The same depreciation rate of 20% may lead to an over-high value, which is twice that of R&D assets. We also argue that organisation capital is forward-looking. More investment in this asset facilitates the use of other intangible capital. Thus, the relative recent values of it should be valued appropriately. A comparison of Nordic countries with the Czech Republic reveals that the share of intangible capital is fourfold lower in the Czech Republic. One apparent reason is the fourfold lower wages. It appears that the firms operating there are able to achieve high levels of value added relative to the compensation for intangibles. In the Czech Republic, we can also see a decrease in the share of intangibles with respect to sales in 2006. This is explained by the increase in sales while the compensation for organisational work stayed at the same level.

6. Conclusions

The figures obtained so far have been useful in showing the possible caveats for the data, which are still to be improved. The same share of organisational workers in each country may give evidence for the argument that this category is the most appropriate one for national-level comparisons. Yet in the Czech Republic, the share of administration may still be too high and we have to contrast these results with the share of workers with tertiary education in each country. In Slovenia, the share of ICT workers is also fairly low. In Germany, it may be essential to include the high share of marketing workers in the intangible capital calculations.

The share of managers is around 7% in the UK, Finland, Norway and the Czech Republic. The share is lower than that recorded in Labour Force Surveys by Eurostat in the UK, while the share is higher in Finland and Norway. We believe that micro data provide more appropriate figures. In Germany, the share of managers is a low 2-3% of all workers, as in the Labour Force Survey by Eurostat. We hold that the calculation of the share of organisational workers is more appropriate when evaluating organisational structures of the own-account type in the Corrado, Hulten, and Sichel (2006) approach.

The first firm-level results show that intangibles should indeed be evaluated against their productivity. In the Czech Republic, the value added can be considerably higher than in the Nordic countries. Therefore, it is better to use performance-based methods to assess the value of organisation capital than make ad hoc assumptions about the depreciation rates that are set at the same level in each country.

Our objective is to obtain the first final version of the data before the Rome workshop in September 2009. We will thus also be able to produce the value of organisation capital that accounts for its relative productivity, as well as appropriate values for ICT personnel assets and R&D assets.

7. Data descriptions by country

7.1 Finland (UNIVAASA)

LEED data are convenient in an analysis relying on the operation of different tasks and occupations that have emerged in the new wave of globalisation. The labour data are from the Confederation of Finnish Industry and Employers, with 7.2 million person-year and 44,816 firm-year observations for the years 1996–2006. The data include a rich set of variables covering compensation, education and profession. Non-production employees receive salaries and production workers, 42% of all workers, receive an hourly wage. There are 41 non-production worker occupations, which are listed in appendix 1. Employee data are linked to financial statistical data provided by the Suomen Asiakastieto, to include information on profits, value added and capital intensity (fixed assets). Nearly two-thirds of firms in the employee data can be matched to these financial balance sheets. To eliminate firms with unreliable balance sheets, we include in the analysis only firms that have on average sales exceeding €2 million and also delete firm observations where employee compensation is less than 5% of total sales. The final LEED data of 4.19 million person-year observations cover 5,749 firm-year observations after dropping the years 1996–97 (used to build up R&D assets). The employee data in the sample cover 254,000 employees annually on average (the original employee data cover 465,000 employees) and hence, almost one-fifth of the entire workforce in the private sector. These data on over 1,326 firms also include the relatively low share of 77 firms that report operation-based balance sheets.

Employee compensation is evaluated from monthly salaries, multiplied by 12.5 and using the average figure for social security taxes over the years (30%). The occupational classification is specific to the data of the Confederation of Finnish Employers and is transformed to that used by all project partners relying on ISCO-88 (see appendix 1). The occupational codes are adaptable to ISCO-88 using additional information on education level (for qualifications) and industrial codes, since some occupations are industry-specific. Most importantly, the occupations in manufacturing and services are separated. The occupational codes are available for all employees in the firms considered (6,139 firm-year observations). Organisational compensation is derived from occupations classified to relate to organisational work (marketing, selling and administration with tertiary education).

Average sales are €95 million (in 2000 prices) and average sales growth has been a rapid 3.2%, but varying between up to 9% in 2000 and moderate growth at 2% in 2002. In firms with operation-based accounting, expenses for selling, general and administration are on average 12.4% of sales (in contrast to 17.5% in Lev and Radhakrishnan (2003)). Some 60% of this relates to administration. The summary tables in the appendix 4 reveal that organisational compensation is twice that of R&D compensation and fourfold that of ICT compensation.

7.2 Norway (STATNO)

All data used in the Norwegian part of the INNODRIVE project are obtained from databases maintained within Statistics Norway. Data on firms are obtained from the structural statistics and accounting statistics, including information on employment, income, costs, assets and liabilities. These data are available at the firm level (as opposed to the lower levels of plants or establishments). The data include the entire population of private, non-financial firms. Each firm has a unique and constant identifier (a firm ID), allowing us to track firms over time. The data may also be linked to surveys on ICT use and R&D.

The Norwegian Tax Directorate's Register of Wage Sums contains detailed information on almost all jobs in the economy (self-employment excluded). We know the start and end dates of each job, the average agreed number of hours per week in the job and the sum of wages received by employees within each calendar year for each job. The data also include a unique person identifier (person ID) and the firm ID, such that we can link these data to the firm data. Using the person ID, we can also add data on individual educational levels and track workers over time.

The final data source is the database with occupational codes for each job. These are obtained from the social security linked employer–employee register, where firms report information on all employment relationships. The occupations are coded according to the EU standard ISCO-88(COM).

The Norwegian data on occupations only begin in 2001. Other data are available before then, from 1995 or 1999, but because the occupational information is central to the INNODRIVE project, we only use data for the period 2001–06. The years 2001 and 2002 are used for calculating initial assets for 2003.

We restrict the sample to firms with an average turnover of at least NOK 40 million, corresponding to roughly €5 million. We also condition it on at least 10 employees every year.

Table 1. Sample selection: Norway

Criterion	No. of firms	No. of firm-year observations
All data (private sector, not financial services and not primary sector)	181,712	644,506
At least 10 employees	31,323	114,104
Mean turnover at least €5 million	7,394	33,912
At least two consecutive years of observations	6,643	33,127
Missing variables, sector requirements, no link to employee data	6,202	21,816

Source: Statistics Norway Matched Employer-Employee Data

The final data contain 6,202 firms and 21,816 firm-year observations for the period 2003–06. There are 507,632 jobs (workers) in our data for 2006.

The firms in the final sample employ on average some 100 employees and had a mean turnover of €36 million in 2006. All amounts reported in the STATNO summary tables are measured in 1,000 current euros (except computed hourly wages). Hourly wages are not observed directly, but have been calculated as the wage sum for the job and year divided by the agreed number of hours of work for the period employed in the job that year. Organisational workers make up 12.5% of employees, consisting of managers at 4.1%, marketing workers at 2.6% and administrative workers at 5.8%. These shares vary only a little over time.

7.3 United Kingdom (NIESR)

The analysis reported in the appendix 4 UK table is preliminary and is subject to change.

Introduction

The UK database is compiled from a range of datasets. To the extent possible, we follow the data collection and analysis procedures adopted by the coordinating institute. Our main source of data for firm-level growth analysis is the Annual Business Inquiry (ABI) micro data, which underpins the old census of production and national accounts in UK. We also consider

Financial Analysis Made Easy (FAME) – a commercially available company accounts database that forms the basis for the UK contribution to the European AMADEUS database. We collect financial and firm-level intangible items that are available from these two sources (described below). Intangible items based on LEED data are obtained from the Annual Survey of Hours and Earnings (ASHE) linked to enterprises in the Business Structure Database (the BSD, an experimental dataset providing a census of UK firms). We also consider the innovation measures available in the UK Community Innovation Surveys (CIS) of 2005 and 2007. These are primarily used to construct local area measures of innovation. Below we consider each of these datasets in turn.

ABI – ONS secure data lab (Virtual Microdata Lab)

The ABI (sometimes also referred to as the Annual Respondents Database) is a micro database made available to approved researchers at secure sites of the Virtual Microdata Lab (VML). The data we are using run from 1997–2005. Data for manufacturing are available back until the early 1970s; service data are only included from 1997 onwards. Sector coverage is almost complete for the non-agricultural private business sector, although the financial services sector (SIC67) is omitted completely. While the data are collected based on a census for firms with over 250 employees, for firms under this threshold participation is based on a stratified sample of the Inter-departmental Business Register. Data are collected on the basis of reporting units of analysis, which may refer to a subset of plants within an enterprise. The data files we use have been constructed at the plant level, where enterprise-level financial data have been allocated to plants within the enterprise based on employment shares.

Data within the ABI include employment, measured as numbers employed. There is no detailed breakdown of the characteristics of workers. Information at the 5-digit level SIC and postcode of the plant is reported. Financial data are collected for the census of firms with over 250 employees. Information on gross output, gross value added, intermediate inputs, net capital expenditure on plant and machinery, vehicles, land and buildings are generally available separately. In addition, there is information on total labour costs. These variables together give us all the basics to estimate standard production functions, provided capital stocks have been constructed. We use the capital stock estimates described in Harris and Drinkwater (2000) for the production sector and Harris (2005) for the service sector.¹ All data are nominal and have subsequently been double deflated using producer price indices from official sources (Business Monitor). These are industry price indices at the 4-digit level, for both inputs and outputs. Table 2 gives an overview of the main variables collected from the ABI that we include in our analysis.

No variables are available to provide any information on labour quality. We have constructed and matched in at the 3-digit industry level Labour Force Survey data on shares of workers with five skill categories – no qualifications, national vocational qualification (NVQ) levels 1-2, NVQ 3, NVQ 4, degree or above. This is less suitable than a firm-specific indicator of human capital and it remains to be seen whether this can be used in our analysis.

¹ These were kindly made available by Professor Richard Harris. The ONS also has a capital stock series available.

Table 2. Variables and sample sizes (plant data) in the ABI (1997–2005)

Variable name	Description	Average annual obs over period covered	Coverage
Core variables			
Empment	Employment	2,071,214	1997–2005
r_go	Real gross output, 2000 prices	239,915	1997–2005
r_gva	Real gross value added, 2000 prices	239,919	1997–2005
r_inter	Real intermediate input expenditure, 2000 prices	239,919	1997–2005
k_total	Total capital stock	1,716,541	1997–2005
Additional variables			
TLC	Total labour costs	240,483	1997–2005
Advert	Purchase of advertising services	242,327	1997–2005
Compu	Computer services	242,327	1997–2005
Telecom	Telecoms services	242,327	1997–2005
RD	R&D (y/n)	259,337	2003, 2005
RNDexp	R&D expend	261771	2001
Exp	Export sales	254,458	1999–2004
Imp	Imports	254,438	1999*–2004
non-ind_exp	Non-industrial exports	254,458	1999*–2004
non-ind_imp	Non-industrial imports	254,438	1999*–2004

* The sample size for 1999 is small – and is not included in the average.

Source: ONS.

FAME²

FAME data are mainly to be used to conduct the SGA analysis that is planned within INNODRIVE and allow for the consideration of book and market value discrepancies. The company accounts database vintage that we have chosen to work with runs from 1997 to 2005–06. This vintage has a ready-made look-up table that makes it possible to link these data to the ABI, although linking is still not without its problems. FAME contains information on companies' turnover, employment, net tangible assets and wage bill. As a company accounts database it has no information on workers. The construction of a mean wage per employee should give some indication of the skill level within a firm, albeit a crude one. This is only possible for 46% of the full UK sample. FAME does contain a number of possible variables that might capture intangible assets: companies' reporting of net intangible assets, administration expenses, costs of sales and R&D (although the latter is available for very few companies). The FAME data are not specifically nationally representative, although they should represent a large chunk of national output. To avoid double counting, we focus solely on consolidated accounts.

² The FAME database source is the Bureau van Dijk.

ASHE – ONS secure data lab (VML)

The ASHE panel for 1997–2007 contains information on the earnings, hours worked, age and occupations of a 0.6% sample of employees in UK. Individuals are included in the sample on the basis of their national insurance number and the information available is largely collected from PAYE³ records held by employers. From 2002 onwards, the panel includes information on individuals' tenure with the organisation in which they currently work. We use wage information for individuals whose pay is not affected by absence. We drop second jobs. Occupations are available at the SOC2000 unit group level from 2002 onwards and SOC1990 in earlier years. Look-up tables are available between the SOC2000 and ISCO-88 unit groups, and between the SOC1990 unit groups and ISCO-88 minor groups. We classify individuals into the occupational categories used in INNODRIVE based on these look-up tables (the work so far has focused on the link from 2002 onwards). Discrepancies arise for three reasons: there are several SOC2000 unit groups that can only be linked to ISCO-88 minor groups; INNODRIVE categories do not cover all occupations in SOC2000; and lack of information on employees' education affects our allocation of workers into key 'organisational' capital groups.

From 2002 onwards, most individuals can be linked to their employers in the BSD (and ABI) using available enterprise codes. Enterprise codes are missing in the data prior to 2002 and these are linked in through the PAYE reference for the years 1998–2001. The employer–employee match is possible for 83%, 90%, 70% and 98% of employees in the years 1998, 1999, 2000 and 2001 respectively. On average, employees in the ASHE are linked to a little more than 2% of enterprises in the BSD (the census of UK firms). These tend to be large enterprises and account for 50-60% of UK employees. On average, ASHE employees account for 1% of employees in these linked enterprises. Firm-level intangible items that are based on wage equations estimated on these LEED data and on compensation shares of employees in particular occupations are constructed only for a subset of large firms (because of the small sample size of the ASHE). We will experiment with different samples of firms based on firm size, ASHE representativeness and the number of job switchers.

UK CIS – ONS secure data lab (VML)

The UK CIS has detailed information on innovation for a sample of UK enterprises with more than 10 employees (e.g. enterprises in the CIS for 2005 account for 1 in 11 such enterprises in the population). Our main use of these data is to construct local area estimates of innovation. CIS data are collected at the reporting unit level and can be linked to the ABI and BSD to obtain full postcodes and information on firm structure. Innovation information for single-site enterprises is easily allocated to the relevant local area. In multi-site enterprises, the innovation information can be allocated to the plant level (and hence local area) based on employment shares. This requires mapping plant employment in conjunction with reporting unit employment, and hence linking the CIS to the ABI (the BSD does not have information at the reporting unit level). Because the ABI is not available after 2005, we are unable to follow this procedure for the CIS 2007. An alternative is to focus on single plant enterprises.

The initial objective within INNODRIVE was to construct innovation indicators at the NUTS 4 level. Our analysis suggests that the quality of the CIS data at this level of disaggregation is inappropriate (based on an assessment of the coefficients of variation of the main data items). Separately, for the UK, NUTS 4 is an administrative geography with little meaning in economic terms. For these reasons, we will proceed to collect local area data at a higher level of geographical aggregation. We are considering the use of 45 self-contained UK city-regions,

³ PAYE refers to the pay-as-you-earn tax system.

which account for just under 80% of total UK employment and which tend to overlap with the commuting patterns of managers and professionals. Thus, they potentially delineate both labour markets for high-level skills and the geographical boundaries within which extensive face-to-face business interactions and knowledge exchange and transfer may take place.

7.4 Germany (DIW)

The German LEED data is derived from the Social Security Dataset (SSD) provided by the Federal Employment Agency. The data cover about 35 million workers over three years and can be considered a true panel for the period 1999–2001. Eight characteristics are covered for each worker, providing detailed information on wage levels, sectoral affiliation, compensation, education and profession (Table 3).

Table 3. Information provided by the SSD

Information	Characteristic
Beginning and end of employment	dd/mm/yy
Establishment ID	Region (county), industry (NACE 4-digit level)
Person ID	8-digit level
Type of occupation	3-digit level, see appendix 4
Full-time/part-time	40 hrs, >18 hrs, < 18 hrs
Education	Seven categories, adjusted to the ISCED classification*
Nationality	3-digit level, 215 nationalities
Wage	Gross compensation
Personal	Gender, date of birth

* Based on Schneider (2008).

Source: SSD (Author's compilation)

Since only employment relationships in the realm of the (largely mandatory) social security system are covered, certain persons and establishments, like the self-employed, are not included in the data. Additionally, high wages are top-coded using the upper limit for contributions to the social security system. The wage level of each person is recorded as the average wage per day and employee.⁴

With respect to their industry, establishments are classified according to the sectoral code of the Federal Employment Agency following the NACE Rev. 3 structure in 54 category groups (see appendix 2).

There are 12,234 units at the NUTS 4 and 439 at the NUTS 3 level in Germany. We aggregate to planning regions (*Raumordnungsregionen*), of which there are 97 in Germany. Typically, these include a major town and about three to five surrounding rural areas.

Worker occupations are listed in appendix 1. The occupational classification is specific to the data from the Federal Employment Agency and is transformed to that used by all partners

⁴ The upper earnings limit in the statutory pension fund for the social security contributions is different in the East and West and changes according to the general level of income. Since individual remuneration varies with the number of employment days, the average wage level of an establishment has been calculated with wages standardised as average wage per day.

relying on ISCO-88 (see appendix 1). The occupational codes are adaptable to ISCO-88 using additional information on education level (for qualifications) and industrial codes since some occupations are industry-specific. Occupations in manufacturing and services are separated. The occupational codes are available for all employees in the firms considered. Organisational compensation is derived from occupations classified to relate to organisational work (marketing, selling and administration with tertiary education) (see appendix 1).

7.5 Czech Republic (CERGE–EI)

We use Czech micro data from two sources. First, we rely on a national employer survey, the Information System on Average Earnings (ISAE), from the first quarters of 2000 to 2007. The enterprise survey is conducted on behalf of the Czech Ministry of Labour and Social Affairs and firm response is mandatory; the survey also represents the Czech version of the EU-wide Structure of Earnings Survey. For over 2,000 firms and over 1 million workers annually, it contains hourly wages, gender, education, age and a detailed occupational classification for each worker employed in the sampled firms, which also report their total employment, ownership and industry (using the NACE classification). The wage records are drawn directly from firms' personnel databases and the definition of hourly wage is detailed and fully consistent across firms; it includes total quarterly cash compensation and bonuses divided by total hours worked for that quarter. The detailed occupational classification (ISCO-88 at the 4-digit level) is used to identify various occupational groups and their share of firms' employment and compensation. We use weights corresponding to industry and firm size sampling probabilities to re-establish population moments.

The second source of micro data consists of the Creditinfo/Aspekt database, which is a Czech source for the EU-wide AMADEUS database. It provides company-level balance sheet information from the Czech Republic during 1999–2006. It covers various financial indicators and NACE codes as well as regional codes, but no information on R&D spending is included. Although NUTS 4 locations are not included, this distinction can be made using postcodes. Financial data are available for about 5,000–9,000 distinct companies, depending on the subset of financial variables considered, which makes in total about 60,000 firm-year observations. These data include 25 balance sheet items (e.g. total assets, fixed assets, financial investments, equity, capital funds, profit and loss of the current year, liabilities), 14 income items (e.g. production and sales, value added, staff costs, operating profit or loss, financial profit or loss) and 6 cash flow items (e.g. profit sharing, net cash flow from operations). They come from various kinds of financial statements. No operation-based accounting is available in the Czech Republic.

Table 4 shows the number of firms in our two main sources of micro data (together with the Aspekt's database coverage of fixed assets (FA) in the economy as reported by the Czech Statistical Office (CZSO)). The last column gives the number of firms in a merged file where we combine the employment structure information from the ISAE data with the balance sheet information from the Aspekt data.

Table 4. The number of firms in Czech data

	ISAE	ASPEKT		Merged
	Firms	Firms	Coverage by FA (vs. CZSO) (%)	Firms
1999	–	9,277	21.91	974
2000	2,095	8,681	20.61	1,184
2001	2,640	6,682	17.87	1,474
2002	3,086	7,469	12.69	1,617
2003	3,006	7,964	13.28	1,688
2004	3,596	7,899	12.45	2,046
2005	4,073	7,141	12.22	2,154
2006	5,848	5,186	8.75	1,814
2007	6,660	–	–	–

Source: ISAE, ASPEKT

7.6 Slovenia (IER)

In building the INNODRIVE micro database for Slovenia, three main data sources were merged: 1) balance sheet data for Slovenian firms, 2) income tax statements at the individual level and 3) the Statistical Register of Employment (SRDAP). The time span of the main database is 1994–2004, which will be extended upon availability to 2006. The database covers the complete industry classification, i.e. A, B, CA–CB, DA–DN and E–K, which means that we are practically dealing with the population (the Slovenian economy), not a sample. The INNODRIVE micro database for Slovenia was created by merging the datasets in a secure room at the Statistical Office of the Republic of Slovenia.

Moreover, three additional data sources are being incorporated: 1) the investment survey data, 2) the innovation survey (CIS) data and 3) the industrial production survey data. The survey data sources are samples and cover the time span 1995–2004, which will also be extended upon availability to 2006. The surveys are either annual or biennial and are carried out on a pre-selected sample of manufacturing and non-manufacturing firms (with 20 or more employees), with no additional conditions put on actual R&D activity or firm size. Most importantly, the data gathered by the innovation surveys include, inter alia, information on product and process innovation of firms during the preceding two years, as well as data on the determinants of innovation such as number of employees and R&D expenditure.

The balance sheet data include approximately 26,000 Slovenian firms and contain the key information for estimation of a measure of total factor productivity (TFP) at the firm level: firm-level sales, tangible and intangible capital, material costs, labour costs, number of workers based on the aggregate number of working hours and industry at the NACE 5-digit level. These data are available for the firms in all economic sectors, including services. For this project especially the following variables are relevant: capital formation, investment, employees (number and hours worked), labour costs, intermediate inputs (value and volume), operating surplus and mixed income, sales (value and volume), imports and exports of goods, value added, value added at producer prices and volume, and assets (various categories). The volumes and the value added at producer prices are obtained from surveys, which include some 600-700 Slovenian firms per annum. Data on imports and exports for firms are reported in detail by market and product.

Data from the income tax statements contain information on annual income earned by all workers who filed a personal income tax (PIT) report, which amounts to more than 500,000 employees. The following data categories are available for persons liable for PIT: 1) labour income, 2) income from short-term contracts, 3) income from land-ownership and 4) dividends. For this project especially the following labour income variables are relevant: gross salaries, social contributions, personal income tax (withheld and paid), allowance for annual vacation, severance payments and annual bonus.

The Statistical Register of Employment (SRDAP) data contains various data available by worker and firm. It has to be mentioned that it is a subset, as it does not include individuals on short-term contracts that represent the only source of income. It therefore only includes employees on wages and salaries. The SRDAP includes for each worker the relevant information on gender, age, job title (occupation), tenure, educational attainment (field and degree), location of work and spans of employment by worker and firm. The information on tenure is available for each worker only from 1986 onwards, although this is a relatively stable category in Slovenia at the firm level and it should not cause any major difficulties. The CIS is linked to data at the NUTS 4 level or at a more aggregate level. The latter data source includes the following variables that are relevant for our project: market research spending, R&D spending, advertising spending and patents data.

Some technical and methodological issues arose while building the micro database for Slovenia and working with the data, which should be pointed out. First, working with LEED data requires vast processing capabilities, as we are dealing with up to 500,000 workers in 26,000 firms across 11 years. For this purpose, an appropriate 64-bit computer environment with Stata/MP 10 had to be set up in a secure room at the Statistical Office of the Republic of Slovenia. Stata/MP is a 64-bit version of Stata for dual-core and multicore/multiprocessor computers. It allows datasets with up to 32,767 variables with the number of observations limited only by the available amount of RAM. Additionally, Stata/MP allows matrices of up to 11,000 times 11,000 on computers with sufficient memory and can therefore fit models with more independent variables.

In addition, there were several issues with the data to be solved. The quality of data was problematic in the balance sheets for smaller firms and for sectors A–B. The hours worked in the balance sheets are in part standardised, i.e. without overtime, which had to be imputed. There were missing data in the income tax statements, e.g. for managers, which had to be imputed. There was also a problem of duplicated data in the Statistical Register of Employment, whereby some individuals were registered multiple times for the same event, which made for example the employment spells problematic (months of employment). As already mentioned, the SRDAP excludes individuals on short-term contracts where such contracts are the only source of income. Furthermore, between 1999 and 2000 there was a change of classification of occupations in Slovenia, in which the previous Standard Classification of Occupations was replaced by the International Standard Classification of Occupations (ISCO). For this reason, the occupations had to be back casted for worker observations before 2000, which was possible owing to the longitudinal nature of the data. Additionally, as already indicated, the survey data is not entirely available on an annual basis and it excludes small firms.

Based on the information obtained, the occupational compensation structure for Slovenia was computed for the period 1994–2004. The euro values are given in constant 2000 wages, where the wholesale price index and the average 2000 exchange rate of the Bank of Slovenia were used. The number of observations per annum varies between 398,344 and 468,583. The annual compensation per employee varied among sectors; it was lowest for production workers (€7,820 in 2004) and highest for other non-production workers (€24,520 in 2004).

The hourly wage varied in a similar fashion: it was lowest for organisational (€2.00 in 2004) and production workers (€3.54 in 2004) and highest for marketing (€7.66 in 2004) and other non-production workers (€10.96 in 2004). Interestingly enough, the hourly wage in management did not appear to be among the highest on average. The share of workers is highest in other services and production and lowest in marketing and IT work. Through time, the share of workers in Slovenia shows a distinct increasing trend in IT work, management and other services, and a distinct decreasing trend in production, R&D and administration. The standard deviation is lowest for production workers and highest for those in marketing, management and other non-production work.

Glossary of Abbreviations

ABI	Annual Business Inquiry
ASHE	Annual Survey of Hours and Earnings
BSD	Business Structure Database
CIS	Community Innovation Survey
CZSO	Czech Statistical Office
FA	Fixed assets
FAME	Financial Analysis Made Easy
ICT	Information, communications and technology
ISAE	Information System on Average Earnings
ISCO	International Standard Classification of Occupations
LEED	Linked employer–employee dataset
NACE	General industrial classification of economic activities
NUTS	Classification/nomenclature of territorial units for statistics
NVQ	National vocational qualification
ONS	Office of National Statistics
PAYE	Pay as you earn (tax system)
PIT	Personal income tax
R&D	Research and development
SGA	Sales, General and Administration (expenses)
SIC	Standard Industrial Classification
SOC	Standard Occupational Classification
SRDAP	Statistical Register of Employment
SSD	Social Security Dataset
VML	Virtual Microdata Lab

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Appendix 1. Occupational classification of non-production workers in the INNODRIVE project

	Occupation of Non-Production Worker	Organization Worker	R&D Worker	IT Worker
	Management	Management		
	R&D		x	
	R&D superior		x	
	Supply transport non-prod			
	Supply transport non-prod superior			
Manufacturing	Computer			x
	Computer superior			x
	Safety quality maintenance non-prod			
	Marketing purchases non-prod	Marketing		
	Marketing purchases non-prod superior	Management		
	Administration non-prod	Administration		
	Administration non-prod superior	Administration		
	Finance admin non-prod			
	Finance admin non-prod superior	Management		
	Personnel management non-prod	Administration		
	Cleaner garbage collectors messengers			
	Media			
	Computer processing services			x
	Computer processing services super			x
	Salesperson contract work services			
	Warehouse transport services			
	Maintenance gardening forest servi			
	Teacher counseling social science professionals			
	Hotel restaurants			
	Hotel restaurants superior			
	Social and personal care			
	Health sector			
Services	Forwarder services			
	Purchases and sales services			
	Insurance worker			
	Insurance worker superior			
	Small business manager			
	Finance services			
	Finance services superior	Management		
	Marketing services			
	Marketing services superior	Marketing		
	R&D worker services		x	
	Personnel project manag serv	Administration		
	Personnel project manag serv super	Management		
	Administration services			
	Administration services superior	Management		

Appendix 2. Classification of occupations in Germany (DIW)

Wert/ Value	Klassifikation der Wirtschaftszweige 1993 (3-Steller)	Classification of Economic Activities 1993 (3-digit)
11	Pflanzenbau	Growing of crops; market gardening; horticulture
12	Tierhaltung	Farming of animals
13	Gemischte Landwirtschaft	Growing of crops combined with farming of animals (mixed farming)
14	Erbringung von Dienstleistungen auf der landwirtschaftlichen Erzeugerstufe sowie von gärtnerischen Dienstleistungen	Agricultural and animal husbandry service activities, except veterinary activities
15	Gewerbliche Jagd	Hunting, trapping and game propagation, including related service activities
20	Forstwirtschaft	Forestry, logging and related service activities
50	Fischerei und Fischzucht	Fishing, operation of fish hatcheries and fish farms; service activities incidental to fishing
101	Steinkohlenbergbau und -brikettherstellung	Mining and agglomeration of hard coal
102	Braunkohlenbergbau und -brikettherstellung	Mining and agglomeration of lignite
103	Torfgewinnung und -veredlung	Extraction and agglomeration of peat
111	Gewinnung von Erdöl und Erdgas	Extraction of crude petroleum and natural gas
112	Erbringung von Dienstleistungen bei der Gewinnung von Erdöl und Erdgas	Service activities incidental to oil and gas extraction, excluding surveying
120	Bergbau auf Uran- und Thoriumerze	Mining of uranium and thorium ores
131	Eisenerzbergbau	Mining of iron ores
132	NE-Metallerzbergbau (ohne Bergbau auf Uran- und Thoriumerze)	Mining of non-ferrous metal ores, except uranium and thorium ores
141	Gewinnung von Natursteinen	Quarrying of stone
142	Gewinnung von Kies, Sand, Ton und Kaolin	Quarrying of sand and clay
143	Bergbau auf chemische und Düngemittelminerale	Mining of chemical and fertilizer minerals
144	Gewinnung von Salz	Production of salt
145	Gewinnung von Steinen und Erden a.n.g., sonstiger Bergbau	Other mining and quarrying n.e.c.
151	Schlachten und Fleischverarbeitung	Production, processing and preserving of meat and meat products
152	Fischverarbeitung	Processing and preserving of fish and fish products
153	Obst- und Gemüseverarbeitung	Processing and preserving of fruit and vegetables
154	Herstellung von pflanzlichen und tierischen Ölen und Fetten	Manufacture of vegetable and animal oils and fats
155	Milchverarbeitung	Manufacture of dairy products
156	Mahl- und Schälmaschinen, Herstellung von Stärke und Stärkeerzeugnissen	Manufacture of grain mill products, starches and starch products
157	Herstellung von Futtermitteln	Manufacture of prepared animal feeds
158	Sonstiges Ernährungsgewerbe (ohne Getränkeherstellung)	Manufacture of other food products
159	Getränkeherstellung	Manufacture of beverages
160	Tabakverarbeitung	Manufacture of tobacco product
171	Spinnstoffaufbereitung und Spinnerei	Preparation and spinning of textile fibres
172	Weberei	Textile weaving
173	Textilveredlung	Finishing of textiles
174	Herstellung von konfektionierten Textilwaren (ohne Bekleidung)	Manufacture of made-up textile articles, except apparel
175	Sonstiges Textilgewerbe (ohne Herstellung von Maschenware)	Manufacture of other textiles
176	Herstellung von gewirktem und gestricktem Stoff	Manufacture of knitted and crocheted fabrics
177	Herstellung von gewirkten und gestrickten Fertigerzeugnissen	Manufacture of knitted and crocheted articles
181	Herstellung von Lederbekleidung	Manufacture of leather clothes
182	Herstellung von Bekleidung (ohne Lederbekleidung)	Manufacture of other wearing apparel and accessories
183	Zurichtung und Färben von Fellen, Herstellung von Pelzwaren	Dressing and dyeing of fur; manufacture of articles of fur
191	Ledererzeugung	Tanning and dressing of leather
192	Lederverarbeitung (ohne Herstellung von Lederbekleidung und Schuhen)	Manufacture of luggage, handbags and the like, saddlery and harness

Appendix 2. Cont'd.

193	Herstellung von Schuhen	Manufacture of footwear
201	Säge-, Hobel- und Holzimprägnierwerke	Sawmilling and planing of wood; impregnation of wood
	Furnier-, Sperrholz-, Holzfaserplatten- und Holzspanplattenwerke	Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board, fibre board and other panels and boards
202	Herstellung von Konstruktionsteilen, Fertigbauteilen, Ausbauelementen und Fertigteilbauten aus Holz	Manufacture of builders' carpentry and joinery
203	Herstellung von Verpackungsmitteln und Lagerbehältern aus Holz	Manufacture of wooden containers
204	Herstellung von Holzwaren a.n.g. sowie von Kork-, Flecht- und Korbwaren	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting Materials
205	Herstellung von Holzstoff, Zellstoff, Papier, Karton und Pappe	Manufacture of pulp, paper and paperboard
211	Papier-, Karton- und Pappeverarbeitung	Manufacture of articles of paper and paperboard
212	Verlagsgewerbe	Publishing
221	Druckgewerbe	Printing and service activities related to printing
222	Vervielfältigung von bespielten Ton-, Bild- und Datenträgern	Reproduction of recorded media
223	Kokerei	Manufacture of coke oven products
231	Mineralölverarbeitung	Manufacture of refined petroleum products
232	Herstellung und Verarbeitung von Spalt- und Brutstoffen	Processing of nuclear fuel
233	Herstellung von chemischen Grundstoffen	Manufacture of basic chemicals
241	Herstellung von Schädlingsbekämpfungs- und Pflanzenschutzmitteln	Manufacture of pesticides and other agro-chemical products
242	Herstellung von Anstrichmitteln, Druckfarben und Kitten	Manufacture of paints, varnishes and similar coatings, printing ink and mastics
243	Herstellung von pharmazeutischen Erzeugnissen	Manufacture of pharmaceuticals, medicinal chemicals and botanical products
244	Herstellung von Seifen, Wasch-, Reinigungs- und Körperpflegemitteln	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations
245	Herstellung von sonstigen chemischen Erzeugnissen	Manufacture of other chemical products
246	Herstellung von Chemiefasern	Manufacture of man-made fibres
247	Herstellung von Gummiwaren	Manufacture of rubber products
251	Herstellung von Kunststoffwaren	Manufacture of plastic products
252	Herstellung und Verarbeitung von Glas	Manufacture of glass and glass products
261	Keramik (ohne Ziegelei und Baukeramik)	Manufacture of non-refractory ceramic goods other than for construction purposes; manufacture of refractory ceramic products
262	Herstellung von keramischen Wand- und Bodenfliesen und -platten	Manufacture of ceramic tiles and flags
263	Ziegelei, Herstellung von sonstiger Baukeramik	Manufacture of bricks, tiles and construction products, in baked clay
264	Herstellung von Zement, Kalk und gebranntem Gips	Manufacture of cement, lime and plaster
265	Herstellung von Erzeugnissen aus Beton, Zement und Gips	Manufacture of articles of concrete, plaster and cement
266	Be- und Verarbeitung von Natursteinen a.n.g.	Cutting, shaping and finishing of stone
267	Herstellung von sonstigen Mineralerzeugnissen	Manufacture of other non-metallic mineral products
268	Erzeugung von Roheisen, Stahl und Ferrolegierungen (EGKS))	Manufacture of basic iron and steel and of ferro-alloys (ECSC1)
271	Herstellung von Rohren	Manufacture of tubes
272	Sonstige erste Bearbeitung von Eisen und Stahl,	Other first processing of iron and steel and production of non-ECSC1 ferro-alloys
273	Herstellung von Ferrolegierungen (nicht EGKS)	
274	Erzeugung und erste Bearbeitung von NE-Metallen	Manufacture of basic precious and non-ferrous metals
275	Gießereiindustrie	Casting of metals
281	Stahl- und Leichtmetallbau	Manufacture of structural metal products
282	Kessel- und Behälterbau (ohne Herstellung von Dampfkesseln)	Manufacture of tanks, reservoirs and containers of metal; manufacture of central heating radiators and boilers

Appendix 2. Cont'd.

283	Herstellung von Dampfkesseln (ohne Zentralheizungskessel)	Manufacture of steam generators, except central heating hot water boilers
284	Herstellung von Schmiede-, Preß-, Zieh- und Stanzteilen, gewalzten Ringen und pulvermetallurgischen Erzeugnissen	Forging, pressing, stamping and roll forming of metal; powder metallurgy
285	Oberflächenveredlung, Wärmebehandlung und Mechanik a.n.g.	Treatment and coating of metals; general mechanical engineering
286	Herstellung von Schneidwaren, Werkzeugen, Schlössern und Beschlägen	Manufacture of cutlery, tools and general hardware
287	Herstellung von sonstigen Eisen-, Blech- und Metallwaren	Manufacture of other fabricated metal products
291	Herstellung von Maschinen für die Erzeugung und Nutzung von mechanischer Energie (ohne Motoren für Luft- und Straßenfahrzeuge)	Manufacture of machinery for the production and use of mechanical power, except aircraft, vehicle and cycle engines
292	Herstellung von sonstigen Maschinen für unspezifische Verwendung	Manufacture of other general purpose machinery
293	Herstellung von land- und forstwirtschaftlichen Maschinen	Manufacture of agricultural and forestry machinery
294	Herstellung von Werkzeugmaschinen	Manufacture of machine-tools
295	Herstellung von Maschinen für sonstige bestimmte Wirtschaftszweige	Manufacture of other special purpose machinery
296	Herstellung von Waffen und Munition	Manufacture of weapons and ammunition
297	Herstellung von Haushaltsgeräten a.n.g.	Manufacture of domestic appliances n.e.c.
300	Herstellung von Büromaschinen, Datenverarbeitungsgeräten und -einrichtungen	Manufacture of office machinery and computers
311	Herstellung von Elektromotoren, Generatoren und Transformatoren	Manufacture of electric motors, generators and transformers
312	Herstellung von Elektrizitätsverteilungs- und -schalteinrichtungen	Manufacture of electricity distribution and control apparatus
313	Herstellung von isolierten Elektrokabeln, -leitungen und -drähten	Manufacture of insulated wire and cable
314	Herstellung von Akkumulatoren und Batterien	Manufacture of accumulators, primary cells and primary batteries
315	Herstellung von elektrischen Lampen und Leuchten	Manufacture of lighting equipment and electric lamps
316	Herstellung von elektrischen Ausrüstungen a.n.g.	Manufacture of electrical equipment n.e.c.
321	Herstellung von elektronischen Bauelementen	Manufacture of electronic valves and tubes and other electronic components
322	Herstellung von nachrichtentechnischen Geräten und Einrichtungen	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy
323	Herstellung von Rundfunk- und Fernsehgeräten sowie phono- und videotechnischen Geräten	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods
331	Herstellung von medizinischen Geräten und orthopädischen Vorrichtungen	Manufacture of medical and surgical equipment and orthopaedic appliances
332	Herstellung von Meß-, Kontroll-, Navigations- u.ä. Instrumenten und Vorrichtungen	Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment
333	Herstellung von industriellen Prozeßsteuerungsanlagen	Manufacture of industrial process control equipment
334	Herstellung von optischen und fotografischen Geräten	Manufacture of optical instruments and photographic equipment
335	Herstellung von Uhren	Manufacture of watches and clocks
341	Herstellung von Kraftwagen und Kraftwagenmotoren	Manufacture of motor vehicles
342	Herstellung von Karosserien, Aufbauten und Anhängern	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers
343	Herstellung von Teilen und Zubehör für Kraftwagen und Kraftwagenmotoren	Manufacture of parts and accessories for motor vehicles and their engines
351	Schiffbau	Building and repairing of ships and boats
352	Schienenfahrzeugbau	Manufacture of railway and tramway locomotives and rolling stock
353	Luft- und Raumfahrzeugbau	Manufacture of aircraft and spacecraft
354	Herstellung von Krafträdern, Fahrrädern und Behindertenfahrzeugen	Manufacture of motorcycles and bicycles
355	Fahrzeugbau a.n.g.	Manufacture of other transport equipment n.e.c.
361	Herstellung von Möbeln	Manufacture of furniture

Appendix 2. Cont'd.

362	Herstellung von Schmuck und ähnlichen Erzeugnissen	Manufacture of jewellery and related articles
363	Herstellung von Musikinstrumenten	Manufacture of musical instruments
364	Herstellung von Sportgeräten	Manufacture of sports goods
365	Herstellung von Spielwaren	Manufacture of games and toys
366	Herstellung von sonstigen Erzeugnissen	Miscellaneous manufacturing n.e.c.
371	Recycling von Schrott	Recycling of metal waste and scrap
372	Recycling von nichtmetallischen Altmaterialien und Reststoffen	Recycling of non-metal waste and scrap
401	Elektrizitätsversorgung	Production and distribution of electricity
402	Gasversorgung	Manufacture of gas; distribution of gaseous fuels through mains
403	Fernwärmeversorgung	Steam and hot water supply
410	Wasserversorgung	Collection, purification and distribution of water
451	Vorbereitende Baustellenarbeiten	Site preparation
452	Hoch- und Tiefbau	Building of complete constructions or parts thereof; civil engineering
453	Bauinstallation	Building installation
454	Sonstiges Baugewerbe	Building completion
455	Vermietung von Baumaschinen und -geräten mit Bedienungspersonal	Renting of construction or demolition equipment with operator
501	Handel mit Kraftwagen	Sale of motor vehicles
502	Instandhaltung und Reparatur von Kraftwagen	Maintenance and repair of motor vehicles
503	Handel mit Kraftwagenteilen und Zubehör	Sale of motor vehicle parts and accessories
504	Handel mit Krafträdern, Teilen und Zubehör, Instandhaltung und Reparatur von Krafträdern	Sale, maintenance and repair of motorcycles and related parts and accessories
505	Tankstellen	Retail sale of automotive fuel
511	Handelsvermittlung	Wholesale on a fee or contract basis
512	Großhandel mit landwirtschaftlichen Grundstoffen und lebenden Tieren	Wholesale of agricultural raw materials and live animals
513	Großhandel mit Nahrungsmitteln, Getränken und Tabakwaren	Wholesale of food, beverages and tobacco
514	Großhandel mit Gebrauchs- und Verbrauchsgütern	Wholesale of household goods
515	Großhandel mit Rohstoffen, Halbwaren, Altmaterial und Reststoffen	Wholesale of non-agricultural intermediate products, waste and scrap
516	Großhandel mit Maschinen, Ausrüstungen und Zubehör	Wholesale of machinery, equipment and supplies
517	Sonstiger Großhandel	Other wholesale
521	Einzelhandel mit Waren verschiedener Art (in Verkaufsräumen)	Retail sale in non-specialised stores
522	Facheinzelhandel mit Nahrungsmitteln, Getränken und Tabakwaren (in Verkaufsräumen)	Retail sale of food, beverages and tobacco in specialised stores
523	Apotheken, Facheinzelhandel mit medizinischen, orthopädischen und kosmetischen Artikeln (in Verkaufsräumen)	Retail sale of pharmaceutical and medical goods, cosmetic and toilet articles
524	Sonstiger Facheinzelhandel (in Verkaufsräumen)	Other retail sale of new goods in specialised stores
525	Einzelhandel mit Antiquitäten und Gebrauchsgütern (in Verkaufsräumen)	Retail sale of second-hand goods in stores
526	Einzelhandel (nicht in Verkaufsräumen)	Retail sale not in stores
527	Reparatur von Gebrauchsgütern	Repair of personal and household goods
551	Hotels, Gasthöfe, Pensionen und Hotels garnis	Hotels
552	Sonstiges Beherbergungsgewerbe	Camping sites and other provision of short-stay accommodation
553	Restaurants, Cafes, Eisdielen und Imbißhallen	Restaurants
554	Sonstiges Gaststättengewerbe	Bars
555	Kantinen und Caterer	Canteens and catering
601	Eisenbahnen	Transport via railways
602	Sonstiger Landverkehr	Other land transport
603	Transport in Rohrfernleitungen	Transport via pipelines

Appendix 2. Cont'd.

611	See- und Küstenschifffahrt	Sea and coastal water transport
612	Binnenschifffahrt	Inland water transport
621	Linienflugverkehr	Scheduled air transport
622	Gelegenheitsflugverkehr	Non-scheduled air transport
623	Raumtransport	Space transport
631	Frachtschlag und Lagerei	Cargo handling and storage
632	Sonstige Hilfs- und Nebentätigkeiten für den Verkehr	Other supporting transport activities
633	Reisebüros und Reiseveranstalter	Activities of travel agencies and tour operators; tourist assistance activities n.e.c.
634	Spedition, sonstige Verkehrsvermittlung	Activities of other transport agencies
641	Postdienste und private Kurierdienste	Post and courier activities
642	Fernmeldedienste	Telecommunications
651	Zentralbanken und Kreditinstitute	Monetary intermediation
652	Sonstige Finanzierungsinstitutionen	Other financial intermediation
660	Versicherungsgewerbe	Insurance and pension funding, except compulsory social security
671	Mit dem Kreditgewerbe verbundene Tätigkeiten	Activities auxiliary to financial intermediation, except insurance and pension funding
672	Mit dem Versicherungsgewerbe verbundene Tätigkeiten	Activities auxiliary to insurance and pension funding
701	Erschließung, Kauf und Verkauf von Grundstücken, Gebäuden und Wohnungen	Real estate activities with own property
702	Vermietung und Verpachtung von eigenen Grundstücken, Gebäuden und Wohnungen	Letting of own property
703	Vermittlung und Verwaltung von Grundstücken, Gebäuden und Wohnungen	Real estate activities on a fee or contract basis
711	Vermietung von Kraftwagen bis 3,5t Gesamtgewicht	Renting of automobiles
712	Vermietung von sonstigen Verkehrsmitteln	Renting of other transport equipment
713	Vermietung von Maschinen und Geräten	Renting of other machinery and equipment
714	Vermietung von Gebrauchsgütern a.n.g.	Renting of personal and household goods n.e.c.
721	Hardwareberatung	Hardware consultancy
722	Softwarehäuser	Software consultancy and supply
723	Datenverarbeitungsdienste	Data processing
724	Datenbanken	Database activities
725	Instandhaltung und Reparatur von Büromaschinen, Datenverarbeitungsgeräten und -einrichtungen	Maintenance and repair of office, accounting and computing machinery
726	Sonstige mit der Datenverarbeitung verbundene Tätigkeiten	Other computer related activities
731	Forschung und Entwicklung im Bereich Natur-, Ingenieur-, Agrarwissenschaften und Medizin	Research and experimental development in natural sciences and engineering
732	Forschung und Entwicklung im Bereich Rechts-, Wirtschafts- und Sozialwissenschaften	Research and experimental development in social sciences and humanities
741	sowie im Bereich Sprach-, Kultur- und Kunstwissenschaften	Legal, accounting, book-keeping and auditing activities; tax consultancy; market research and public opinion polling; business and management consultancy; holdings
742	Rechts-, Steuer- und Unternehmensberatung, Markt- und Meinungsforschung, Beteiligungsgesellschaften	Architectural and engineering activities and related technical consultancy
743	Architektur- und Ingenieurbüros	Technical testing and analysis
744	Technische, physikalische und chemische Untersuchung	Advertising
745	Werbung	Labour recruitment and provision of personnel
746	Gewerbsmäßige Vermittlung und Überlassung von Arbeitskräften	Investigation and security activities
747	Detekteien und Schutzdienste	Industrial cleaning
748	Reinigung von Gebäuden, Inventar und Verkehrsmitteln	Miscellaneous business activities n.e.c.
751	Erbringung von sonstigen Dienstleistungen überwiegend für Unternehmen	Administration of the State and the economic and social policy of the community
751	Öffentliche Verwaltung	

Appendix 2. Cont'd.

	Auswärtige Angelegenheiten, Verteidigung, Rechtsschutz, Öffentliche	
752	Sicherheit und Ordnung	Provision of services to the community as a whole
753	Sozialversicherung und Arbeitsförderung	Compulsory social security activities
801	Kindergärten, Vor- und Grundschulen	Primary education
802	Weiterführende Schulen	Secondary education
803	Hochschulen	Higher education
804	Erwachsenenbildung und sonstiger Unterricht	Adult and other education
851	Gesundheitswesen	Human health activities
852	Veterinärwesen	Veterinary activities
853	Sozialwesen	Social work activities
900	Abwasser- und Abfallbeseitigung und sonstige Entsorgung	Sewage and refuse disposal, sanitation and similar activities
911	Wirtschafts- und Arbeitgeberverbände, Berufsorganisationen	Activities of business, employers' and professional organisations
912	Gewerkschaften	Activities of trade unions
	Sonstige Interessenvertretungen sowie kirchliche und sonstige religiöse	
913	Vereinigungen (ohne Sozialwesen und Sport	Activities of other membership organisations
	Film- und Videofilmherstellung, -verleih und -vertrieb,	
921	Filmtheater	Motion picture and video activities
	Hörfunk- und Fernsehanstalten, Herstellung von Hörfunk- und Fernsehprogrammen	
922	Erbringung von sonstigen kulturellen und unterhaltenden Leistungen	Radio and television activities
923	Korrespondenz- und Nachrichtenbüros sowie selbständige Journalisten	Other entertainment activities
924	Bibliotheken, Archive, Museen, botanische und zoologische Gärten	News agency activities
925	Sport	Library, archives, museums and other cultural activities
926	Erbringung von sonstigen Dienstleistungen für Unterhaltung, Erholung und Freizeit	Sporting activities
927	Erbringung von sonstigen Dienstleistungen	Other recreational activities
930	Private Haushalte	Other service activities
950	Rehaträger-Betriebe	Private households with employed persons
953	Werkstätten für Behinderte	Rehabilitation centres
954	Exterritoriale Organisationen und Körperschaften	Sheltered workshops
990		Extra-territorial organisations and bodies

Appendix 3. Categorisation of organisation capital

Occupation	Production workers	R&D incl. medical doctors, health professionals	Health, medical equipment operators, optical and electronic equipment operators
	Ain=1	Ain=2	Ain=3
011	2	-	6
012	2	-	6
021	2	-	6
022	2	-	6
031	2	-	6
032	2	-	6
041	2	-	6
042	2	-	6
043	2	-	6
044	2	-	6
051	2	-	6
052	2	-	6
053	2	-	6
061	2	-	6
062	2	-	6
	Ain=1	Ain=2	Ain=3
071	14	-	-
072	14	-	-
081	14	-	-
082	14	-	-
083	14	-	-
091	14	-	-
	Ain=1	Ain=2	Ain=3
101	14	-	-
102	14	-	-
111	14	-	-
112	14	-	-
121	22	-	-
131	22	-	-
132	22	-	-
133	22	-	-
134	22	-	-
135	22	-	-
141	13	-	-
142	13	-	-
143	24	-	-
144	24	-	-
151	24	-	-
161	20	-	-
162	20	-	-
163	20	-	-
164	20	-	-
171	17, 18	-	-

Appendix 3. Cont'd.

172	17, 19	-	-
173	17, 20	-	-
174	17, 21	-	-
175	17, 22	-	-
176	17, 23	-	-
177	17, 24	-	-
181	19	-	-
182	19	-	-
183	19	-	-
184	19	-	-
191	12, 15, 16	-	-
192	12, 15, 16	-	-
193	12, 15, 16	-	-
201	12, 15, 16	-	-
202	12, 15, 16	-	-
203	12, 15, 16	-	-
211	12, 15, 16	-	-
212	12, 15, 16	-	-
213	12, 15, 16	-	-
221	19	-	-
222	19	-	-
223	19	-	-
224	19	-	-
225	12, 15, 16	-	-
226	12, 15, 16	-	-
231	12, 15, 16	-	-
232	12, 15, 16	-	-
233	12, 15, 16	-	-
234	12, 15, 16	-	-
235	12, 15, 16	-	-
241	12, 15, 16	-	-
242	2	-	-
243	12, 15, 16	-	-
244	12, 15, 16	-	-
251	12, 15, 16	-	-
252	12, 15, 16	-	-
261	12, 15, 16	-	-
262	12, 15, 16	-	-
263	12, 15, 16	-	-
270	12, 15, 16	-	-
271	5, 6	-	-
272	12, 15, 16	-	-
273	12, 15, 16	-	-
274	12, 15, 16	-	-
275	12, 15, 16	-	-
281	25	-	-
282	25	-	-
283	25	-	-
284	12, 15, 16	-	-

Appendix 3. Cont'd.

285	12, 15, 16	-	-
286	21	-	-
291	21	-	-
301	21	-	-
302	21	-	-
303	21	-	-
304	22	-	-
305	21	-	-
306	4	-	-
311	7	-	-
312	7	-	-
313	7	-	-
314	7	-	-
315	7	-	-
321	7	-	-
322	12, 15, 16	-	-
323	12, 15, 16	-	-
331	8	-	-
332	8	-	-
341	8	-	-
342	8	-	-
343	8	-	-
344	8	-	-
345	8	-	-
346	8	-	-
351	8	-	-
352	8	-	-
353	8	-	-
354	8	-	-
355	8	-	-
356	8	-	-
357	8	-	-
361	8	-	-
362	8	-	-
371	8	-	-
372	8	-	-
373	8	-	-
374	8	-	-
375	8	-	-
376	8	-	-
377	8	-	-
378	8	-	-
391	23	-	-
392	23	-	-
401	23	-	-
402	23	-	-
403	23	-	-
411	23	-	-
412	23	-	-

Appendix 3. Cont'd.

421	23	-	-
422	23	-	-
423	23	-	-
424	23	-	-
431	23	-	-
432	23	-	-
433	23	-	-
441	5, 6	-	-
442	5, 6	-	-
451	5, 6	-	-
452	5, 6	-	-
453	5, 6	-	-
461	5, 6	-	-
462	5, 6	-	-
463	5, 6	-	-
464	5, 6	-	-
465	5, 6	-	-
466	5, 6	-	-
471	5, 6	-	-
472	5, 6	-	-
481	5, 6	-	-
482	2	-	-
483	5, 6	-	-
484	5, 6	-	-
485	5, 6	-	-
486	5, 6	-	-
491	4	-	-
492	4	-	-
501	4	-	-
502	4	-	-
503	4	-	-
504	4	-	-
511	4	-	-
512	4	-	-
513	4	-	-
514	4	-	-
521	22	-	-
522	-	80	-
531	12, 15, 16	-	-
541	9	-	-
542	3	-	-
543	3	-	-
544	3	-	-
545	14	-	-
546	14	-	-
547	3	-	-
548	2	-	-
549	3	-	-

Appendix 3. Cont'd.

	Ain=1	Ain=2	Ain=3
601	3	5	-
602	7	2	-
603	5, 6	2	-
604	5, 6	2	-
605	14	2	-
606	12, 15, 16	2	-
607	13	2	-
611	12, 15, 16	2	-
612	12, 15, 16	2	-
621	-	2	-
622	-	2	-
623	7	2	-
624	5, 6	2	-
625	14	2	-
626	13	2	-
627	12, 15, 16	2	-
628	12, 15, 16	2	-
629	12, 15, 16	2	-
631	13	2	-
632	13	2	-
633	13	2	-
634	17	2	-
635	17	-	22
	Ain=1	Ain=2	Ain=3
681	-	-	4, 20, 21
682	-	-	4, 20, 21
683	-	-	4, 20, 21
684	-	-	11
685	-	-	11
686	-	-	4, 20, 21
687	-	-	12
688	-	-	12
691	-	9	-
692	-	9	-
693	-	9	15, 16
694	-	9	15, 16
701	-	8	13
702	-	8	-
703	-	8	21
704	-	8	14
705	-	8	13
706	-	8	-
711	-	-	5
712	-	-	5
713	-	-	5
714	-	-	5
715	-	4	5

Appendix 3. Cont'd.

716	-	4	5
721	-	4	5
722	-	4	5
723	-	4	5
724	-	4	5
725	-	4	5
726	-	4	5
731	-	8	-
732	-	8	-
733	-	8	-
734	-	8	-
741	-	5	-
742	-	5	-
743	-	5	-
744	12, 15, 16	5	-
751	-	1	17, 21, 23
752	-	1, 10	-
753	-	1, 9	-
761	-	1	-
762	-	1	-
763	-	1	-
771	-	8	13
772	-	9	-
773	-	8	-
774	10	5	2, 3
781	-	8	24
782	10	5	24
783	10	5	24
784	-	6	24
791	-	6	-
792	-	6	-
793	-	6	-
794	-	6	-
801	-	6	-
802	-	6	-
803	-	6	-
804	-	6	-
805	-	6	-
811	-	-	25
812	-	-	25
813	-	-	25
814	-	-	25
821	-	-	1
822	-	-	1
823	-	-	1
831	-	7	1
832	-	7	1
833	-	7	-
834	-	7	-

Appendix 3. Cont'd.

835	-	7	-
836	-	7	-
837	17	-	-
838	-	-	4, 20, 21
841	-	2	-
842	-	2	-
843	-	2	-
844	-	2	-
851	-	2	11
852	-	2	11
853	-	2	11
854	-	2	11
855	-	2	11
856	-	2	11
857	-	2	11
861	-	2	18
862	-	2	18
863	-	10	18, 23
864	-	-	7
871	-	-	7
872	-	-	7
873	-	-	7
874	-	-	7
875	-	-	7
876	-	-	7
877	-	-	7
881	-	-	18,19
882	-	-	7
883	-	-	22
891	-	-	4, 20, 21
892	-	-	4, 20, 21
893	-	-	4, 20, 21
901	-	-	10
902	-	-	10
911	-	-	8,9
912	-	-	8,9
913	-	-	8,9
921	-	-	10
922	-	-	10
923	-	-	10
931	-	-	10
932	-	-	10
933	-	-	12
934	-	-	12
935	-	-	12
936	-	-	12
937	-	-	12

Appendix 4. Preliminary summary tables in the INNODRIVE micro approach

Combined Preliminary Summary Table for all INNODRIVE Micro Partner Countries

OVERALL	Short Name	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Occupation Compensations: salaries+social security tax socsec		FIN											
Social Security Tax (e.g. 0.30 in Finland)		FIN GER FIN GER FIN GER CR											
All Sectors	(1+socsec)*Annual Comp Per Employee	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Organization	Compensation ocw	15.26	15.40	14.73	14.83	23.54	18.28	18.46	19.67	22.35	22.25	24.30	24.30
R&D Work	Compensation rndw	15.64	15.75	14.95	15.13	28.75	21.53	20.90	19.95	22.65	22.76	23.07	24.13
IT Work	Compensation itw	16.51	16.66	16.04	15.91	25.11	18.70	19.37	22.35	24.73	24.76	24.76	25.83
Production Worker	Compensation ain1w	4.32	10.73	10.55	10.65	19.79	15.60	15.24	13.14	15.32	15.33	15.22	16.39
Other Non-Production Worker	Compensation ain2w	17.27	17.50	16.65	17.34	24.98	18.97	19.43	24.88	24.99	25.31	24.03	23.23
Other Services	Compensation ain3w	9.78	9.91	9.43	9.29	16.46	13.24	13.43	11.21	14.65	14.47	14.63	15.94
Management	Compensation managew	18.36	18.41	17.57	17.57	30.29	22.25	22.57	22.52	25.63	25.29	25.30	27.45
Marketing	Compensation marketingw	17.09	17.06	16.26	16.72	24.63	17.89	18.18	23.93	25.81	25.82	25.52	26.89
Administration	Compensation adminw	13.26	13.31	12.74	12.86	21.90	16.35	16.82	15.35	17.93	18.01	17.91	19.14
	obsyear	220843	352383	420192	451423	476934	472933	485619	484108	483573	481795	482359	472536
Organization	Hourly Wage och	6.83	6.81	6.47	6.38	32.90	23.28	24.78	9.07	11.18	11.13	11.41	12.98
R&D Work	Hourly Wage rndh	7.85	7.92	7.46	7.41	48.10	34.44	36.16	9.77	12.15	12.02	12.39	12.97
IT Work	Hourly Wage ith	8.37	8.40	8.01	7.82	35.77	25.36	27.09	10.86	14.32	12.30	12.40	13.68
Production Worker	Hourly Wage ain1h	1.97	5.01	4.77	4.70	32.94	24.81	26.02	5.92	8.01	7.79	7.61	8.38
Other Non-Production Worker	Hourly Wage ain2h	8.41	8.61	8.18	8.19	31.19	23.43	24.08	12.67	14.02	13.12	12.66	11.90
Other Services	Hourly Wage ain3h	5.26	5.39	5.13	5.02	27.31	20.21	20.84	5.90	8.76	8.28	8.35	9.31
Management	Hourly Wage manageh	9.24	9.29	8.79	8.62	46.48	31.73	34.36	10.87	13.00	12.78	13.14	14.31
Marketing	Hourly Wage marketingh	8.46	8.49	7.97	8.11	31.72	21.60	23.15	11.51	13.24	13.81	13.22	14.03
Administration	Hourly Wage adminh	6.75	6.79	6.46	6.42	34.70	24.68	26.16	7.68	9.72	9.50	9.60	10.94
Organization	Share of workers oc	11.1 %	9.3 %	9.3 %	10.5 %	16.1 %	16.2 %	16.6 %	12.5 %	12.3 %	12.5 %	12.5 %	12.2 %
R&D Work	Share of workers rnds	6.7 %	5.5 %	5.9 %	5.6 %	7.3 %	7.3 %	7.1 %	6.1 %	6.4 %	6.7 %	6.3 %	6.2 %
IT Work	Share of workers its	1.2 %	1.0 %	1.4 %	1.3 %	4.3 %	3.7 %	3.9 %	2.0 %	2.5 %	2.5 %	2.5 %	2.6 %
Production Worker	Share of workers ain1s	12.7 %	24.1 %	23.4 %	22.9 %	36.6 %	38.3 %	37.8 %	24.4 %	24.4 %	23.9 %	23.6 %	21.4 %
Other Non-Production Worker	Share of workers ain2s	3.2 %	2.0 %	2.0 %	2.2 %	3.4 %	2.8 %	3.0 %	1.8 %	2.4 %	2.4 %	2.3 %	2.7 %
Other Services	Share of workers ain3s	30.2 %	23.2 %	23.2 %	22.8 %	35.1 %	33.1 %	33.2 %	32.4 %	34.8 %	34.8 %	35.6 %	34.8 %
Management	Share of workers manages	3.3 %	2.5 %	2.6 %	3.2 %	4.3 %	5.1 %	5.0 %	4.8 %	4.7 %	4.9 %	4.9 %	4.9 %
Marketing	Share of workers marketings	2.0 %	1.8 %	1.8 %	1.8 %	4.3 %	3.1 %	3.1 %	1.6 %	1.8 %	1.7 %	1.8 %	2.1 %
Administration	Share of workers admins	5.9 %	5.0 %	5.0 %	5.5 %	8.0 %	8.2 %	8.7 %	6.1 %	5.8 %	5.8 %	5.7 %	5.1 %
	ainall	220843	352383	420192	451423	476934	236468	242811	242056	241788	240899	241181	236272
Organization	Standard Deviation stdsga	709.63	737.13	667.48	672.48	718.04	538.06	514.26	487.67	371.63	358.68	363.34	9.86
R&D Work	Standard Deviation stdrnd	519.07	524.31	461.31	462.19	482.26	386.64	395.28	391.11	305.60	311.04	316.82	7.81
IT Work	Standard Deviation stdit	552.49	600.57	544.07	542.75	584.69	471.83	465.16	487.61	373.08	374.75	383.55	7.46
Production Worker	Standard Deviation stdain1	484.63	336.76	293.71	293.40	310.56	236.54	231.61	204.13	169.01	168.96	177.01	6.27
Other Non-Production Worker	Standard Deviation stdain2	807.28	845.10	862.82	909.61	984.51	768.30	800.01	804.65	590.41	609.55	675.69	6.67
Other Services	Standard Deviation stdain3	493.45	511.58	446.48	452.02	476.91	371.39	367.04	348.08	265.65	265.54	273.31	10.04
Management	Standard Deviation stdmanage	1032.56	1090.42	984.00	1003.16	1027.84	775.26	738.66	706.79	502.36	457.58	464.63	11.94
Marketing	Standard Deviation stdmarketing	1228.76	1211.25	1103.20	1168.22	1317.46	956.38	950.46	891.91	690.68	675.03	680.28	11.75
Administration	Standard Deviation stdadmin	592.82	604.07	555.78	599.42	644.14	469.28	464.68	443.71	349.27	344.75	356.95	8.15

Appendix 4. Cont'd. - Preliminary Summary Table for Finland

Firm-Level and Nuts IV level		Organ_CapitaldataCountry/TABLE CALCULATIONS/outsheet using "\$orgcapdata\Compensationsyear.out"											
COUNTRY	Short Name	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Occupation Compensations: salaries+social security tax socsec													
Social Security Tax (e.g. 0.30 in Finland)		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
All Sectors	(1+socsec)*Annual Comp Per Employee year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Organization	Compensation ocw	32.07	31.97	31.44	31.59	31.94	31.74	32.02	31.76	32.47	32.46	32.52	32.53
R&D Work	Compensation rndw	32.80	32.52	31.85	32.24	32.46	32.48	32.34	32.33	32.09	31.70	31.55	31.76
IT Work	Compensation itw	36.16	35.87	35.12	34.55	35.01	35.01	35.31	35.04	34.32	34.50	34.14	34.08
Production Worker	Compensation ain1w		23.11	23.74	24.11	24.11	24.12	23.69	23.42	23.42	23.66	23.46	23.95
Other Non-Production Worker	Compensation ain2w	31.52	31.28	30.97	31.10	30.97	31.18	30.92	30.32	30.18	29.94	30.18	30.39
Other Services	Compensation ain3w	19.32	19.25	19.03	18.51	18.44	18.32	18.36	18.30	18.32	18.24	18.29	18.45
Management	Compensation managew	36.87	36.25	35.97	35.95	36.62	36.59	37.04	36.42	36.72	36.87	36.90	37.03
Marketing	Compensation marketingw	32.86	32.43	31.77	32.76	32.84	32.22	32.46	32.13	31.90	31.88	31.50	31.47
Administration	Compensation adminw	27.12	27.00	26.68	26.93	26.86	27.05	27.02	26.88	27.69	27.86	28.00	28.18
	obsweyear	220843	352383	420192	451423	476934	472933	485619	484108	483573	481795	482359	472536
Organization	Hourly Wage och	17.21	17.10	16.58	16.42	16.41	15.79	15.50	15.20	15.45	15.41	15.21	14.95
R&D Work	Hourly Wage rndh	17.28	16.99	16.44	16.36	16.29	15.75	15.28	15.08	14.82	14.62	14.38	14.20
IT Work	Hourly Wage ith	19.08	18.80	18.17	17.64	17.69	17.08	16.79	16.44	16.01	16.04	15.73	15.39
Production Worker	Hourly Wage ain1h		10.82	10.60	10.44	10.41	10.14	9.84	9.63	9.46	9.39	9.29	9.21
Other Non-Production Worker	Hourly Wage ain2h	16.55	16.31	15.94	15.75	15.48	15.09	14.57	14.05	13.87	13.72	13.68	13.52
Other Services	Hourly Wage ain3h	11.20	11.20	10.95	10.71	10.58	10.24	9.99	9.75	9.70	9.63	9.57	9.45
Management	Hourly Wage manageh	19.62	19.20	18.77	18.41	18.59	17.89	17.66	17.20	17.20	17.18	16.98	16.72
Marketing	Hourly Wage marketingh	17.17	16.81	16.27	16.68	16.58	15.72	15.46	15.12	14.88	14.84	14.51	14.22
Administration	Hourly Wage adminh	14.55	14.47	14.10	14.03	13.80	13.49	13.11	12.87	13.24	13.32	13.14	13.03
Organization	Share of workers oc	19.8 %	14.4 %	14.6 %	18.2 %	19.0 %	18.7 %	18.5 %	17.1 %	16.4 %	16.6 %	16.5 %	16.4 %
R&D Work	Share of workers rnds	11.3 %	7.8 %	9.0 %	8.2 %	8.5 %	7.0 %	7.3 %	7.5 %	7.6 %	9.9 %	7.6 %	7.6 %
IT Work	Share of workers its	2.3 %	1.7 %	3.0 %	2.4 %	2.5 %	2.7 %	2.9 %	3.0 %	3.3 %	3.3 %	3.5 %	3.5 %
Production Worker	Share of workers ain1s	0.0 %	35.0 %	33.2 %	32.4 %	30.7 %	31.5 %	30.2 %	29.9 %	28.2 %	27.3 %	26.1 %	25.1 %
Other Non-Production Worker	Share of workers ain2s	9.5 %	5.9 %	5.9 %	6.6 %	7.6 %	7.8 %	8.5 %	7.9 %	8.1 %	8.0 %	7.9 %	7.7 %
Other Services	Share of workers ain3s	57.1 %	35.1 %	34.3 %	32.2 %	31.7 %	32.4 %	32.7 %	34.5 %	36.4 %	34.8 %	38.5 %	39.6 %
Management	Share of workers manages	6.8 %	4.3 %	4.3 %	5.9 %	6.4 %	6.4 %	6.7 %	6.4 %	6.7 %	6.9 %	6.7 %	6.7 %
Marketing	Share of workers marketings	5.5 %	4.9 %	4.8 %	5.0 %	5.1 %	5.0 %	4.9 %	4.9 %	4.9 %	4.5 %	4.9 %	4.9 %
Administration	Share of workers admins	7.6 %	5.3 %	5.4 %	7.2 %	7.6 %	7.3 %	6.9 %	5.9 %	4.9 %	5.2 %	4.8 %	4.9 %
	ainall	220843	352383	420192	451423	476934	472933	485619	484108	483573	481795	482359	472536
Organization	Standard Deviation stdsga	8.67	8.53	8.53	8.84	9.44	9.10	9.54	9.06	9.20	9.43	9.29	9.31
R&D Work	Standard Deviation stdrnd	7.07	6.71	7.34	7.28	7.86	7.92	8.02	8.47	7.88	8.16	7.72	7.92
IT Work	Standard Deviation stdit	9.38	9.50	8.94	8.82	9.76	9.20	9.45	9.31	9.10	9.12	9.40	9.13
Production Worker	Standard Deviation stdain1		6.92	6.89	6.62	6.78	6.77	6.91	6.56	6.60	6.53	6.35	6.51
Other Non-Production Worker	Standard Deviation stdain2	6.52	6.24	6.10	6.42	6.49	6.81	6.74	6.23	5.92	5.86	6.03	5.99
Other Services	Standard Deviation stdain3	5.27	5.57	5.49	5.53	5.83	5.81	5.90	5.82	5.76	5.80	5.87	5.82
Management	Standard Deviation stdmanage	10.55	9.72	9.79	10.66	11.50	11.18	11.45	10.89	11.04	11.30	11.70	11.36
Marketing	Standard Deviation stdmarketing	9.23	9.23	9.25	10.00	10.44	9.75	10.69	10.33	10.30	10.38	9.96	9.97
Administration	Standard Deviation stdadmin	6.73	7.01	6.89	7.01	7.00	7.20	7.03	6.85	7.62	8.08	7.75	8.21

Appendix 4. Cont'd. - Preliminary Summary Table for the Czech Republic

Firm-Level and Nuts IV level				Organ_CapitaldataCountry/TABLE CALCULATIONS/outsheet using "\$orgcapdata/Compensationsyear.out"												
COUNTRY	Short Name			1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Occupation Compensations: salaries+social security tax socsec CZK/EUR									35.6075	34.081	30.815	31.840	31.900	29.779	28.340	27.764
Social Security Tax (e.g. 0.35 in CR)									0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
All Sectors (1+socsec)*Annual Comp Per Employee year									2000	2001	2002	2003	2004	2005	2006	2007
Organization	Compensation	ocw	ocw	6.36	6.38	6.97	7.46	7.38	7.68	7.60	7.07					
R&D Work	Compensation	rndw	rndw	4.14	4.41	5.34	5.33	6.17	6.35	3.71	5.30					
IT Work	Compensation	itw	itw	2.08	4.44	5.05	4.57	5.27	5.87	2.73	3.80					
Production Worker	Compensation	ain1w	ain1w	3.14	4.06	4.13	4.36	4.71	4.87	2.98	3.84					
Other Non-Production Worker	Compensation	ain2w	ain2w	1.68	3.12	3.45	3.66	4.71	5.09	2.24	3.45					
Other Services	Compensation	ain3w	ain3w	4.97	5.30	6.13	5.87	6.10	6.30	5.98	6.44					
Management	Compensation	managew	managew	7.46	8.55	9.09	9.37	9.76	9.91	8.21	7.64					
Marketing	Compensation	marketingw	marketingw	1.76	2.45	2.99	2.66	3.22	3.78	1.98	2.66					
Administration	Compensation	adminw	adminw	3.05	4.19	4.43	4.71	5.33	5.36	4.07	4.63					
obsyear				555807.00	652 728	684 531	678 627	741 083	770 786	771 533	740 416					
Organization	Hourly Wage	och	och	2.63	2.66	2.91	3.11	3.03	3.20	3.09	2.90					
R&D Work	Hourly Wage	rndh	rndh	1.71	1.82	2.23	2.31	2.51	2.62	1.49	2.12					
IT Work	Hourly Wage	ith	ith	0.86	1.84	2.06	1.89	2.14	2.43	1.10	1.53					
Production Worker	Hourly Wage	ain1h	ain1h	1.37	1.75	1.82	1.89	1.94	2.08	1.24	1.61					
Other Non-Production Worker	Hourly Wage	ain2h	ain2h	0.70	1.29	1.42	1.56	1.89	2.13	0.90	1.39					
Other Services	Hourly Wage	ain3h	ain3h	2.10	2.26	2.60	2.55	2.53	2.67	2.48	2.66					
Management	Hourly Wage	manageh	manageh	3.07	3.54	3.73	3.87	3.97	4.09	3.29	3.12					
Marketing	Hourly Wage	marketingh	marketingh	0.74	1.04	1.27	1.12	1.34	1.58	0.81	1.10					
Administration	Hourly Wage	adminh	adminh	1.27	1.75	1.88	2.00	2.19	2.25	1.65	1.91					
Organization	Share of workers	oc	ocs	0.18	0.200	0.184	0.179	0.184	0.182	0.180	0.177					
R&D Work	Share of workers	rnds	rnds	0.10	0.093	0.095	0.103	0.098	0.097	0.094	0.093					
IT Work	Share of workers	its	its	0.02	0.025	0.020	0.028	0.026	0.025	0.026	0.032					
Production Worker	Share of workers	ain1s	ain1s	0.41	0.394	0.416	0.412	0.414	0.414	0.414	0.429					
Other Non-Production Worker	Share of workers	ain2s	ain2s	0.01	0.007	0.006	0.007	0.007	0.007	0.007	0.008					
Other Services	Share of workers	ain3s	ain3s	0.28	0.283	0.278	0.271	0.271	0.274	0.278	0.261					
Management	Share of workers	manages	manages	0.08	0.069	0.071	0.070	0.068	0.065	0.068	0.068					
Marketing	Share of workers	marketings	marketings	0.01	0.006	0.007	0.006	0.007	0.008	0.009	0.009					
Administration	Share of workers	admins	admins	0.09	0.125	0.106	0.103	0.109	0.110	0.102	0.099					
Organization	Standard Deviation	stdsga	stdocw	3.62	2.96	4.07	3.92	3.74	3.96	7.89	4.78					
R&D Work	Standard Deviation	stdrnd	stdrndw	3.30	3.89	4.29	3.81	3.76	4.09	4.80	5.75					
IT Work	Standard Deviation	stdit	stditw	3.78	4.84	5.52	5.14	5.53	6.10	5.26	5.94					
Production Worker	Standard Deviation	stdain1	stdain1w	2.02	2.41	3.00	2.70	2.90	2.73	3.20	3.27					
Other Non-Production Worker	Standard Deviation	stdain2	stdain2w	3.15	4.40	5.44	5.40	6.10	6.64	5.44	6.87					
Other Services	Standard Deviation	stdain3	stdain3w	8.60	2.89	5.00	3.52	3.58	4.25	4.06	4.33					
Management	Standard Deviation	stdmanage	stdmanagew	5.47	4.93	6.07	5.81	5.62	5.72	9.64	7.01					
Marketing	Standard Deviation	stdmarketing	stdmarketingw	3.68	4.19	4.32	5.24	5.74	6.87	4.43	6.00					

Appendix 4. Cont'd. - Preliminary Summary Table for Norway

Firm-Level and Nuts IV level		"\$data/wagesyearleed.out"		###	###	###	###	###	###	1.110	1.151	1.204	1.250	1.310	
COUNTRY	Norway	Short Name		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Occupation Compensations: salaries+social security tax socsec															
Social Security Tax (e.g. 0.30 in Finland)															
All Sectors (1+socsec)*Annual Comp Per Employee year															
Organization	Compensation	ocw	ocw									39.42	38.86	39.40	39.36
R&D Work	Compensation	rndw	rndw									41.77	41.57	41.81	41.85
IT Work	Compensation	itw	itw									43.15	42.27	42.68	42.38
Production Worker	Compensation	ain1w	ain1w									30.52	30.51	30.67	30.23
Other Non-Production Worker	Compensation	ain2w	ain2w									32.80	32.41	32.85	32.75
Other Services	Compensation	ain3w	ain3w									35.41	35.10	35.48	35.87
Management	Compensation	managew	managew									45.74	44.87	45.93	46.34
Marketing	Compensation	marketingw	marketingw									43.76	43.00	43.20	43.10
Administration	Compensation	adminw	adminw									34.01	33.69	34.34	34.45
											obsyear	410525.52	403945.55	398666.77	387597.41
Organization	Hourly Wage	och	och									24.17	24.60	25.90	24.79
R&D Work	Hourly Wage	rndh	rndh									25.56	24.46	25.23	24.13
IT Work	Hourly Wage	ith	ith									34.80	22.96	23.13	25.77
Production Worker	Hourly Wage	ain1h	ain1h									20.29	19.05	18.01	18.51
Other Non-Production Worker	Hourly Wage	ain2h	ain2h									24.54	19.60	18.56	19.45
Other Services	Hourly Wage	ain3h	ain3h									24.70	22.21	22.27	22.90
Management	Hourly Wage	manageh	manageh									26.47	26.02	27.67	27.53
Marketing	Hourly Wage	marketingh	marketingh									26.35	31.37	27.62	26.55
Administration	Hourly Wage	adminh	adminh									21.89	20.08	20.82	23.87
Organization	Share of workers	oc	ocs									12.8 %	12.4 %	12.6 %	12.5 %
R&D Work	Share of workers	rnds	rnds									7.8 %	8.3 %	8.2 %	8.3 %
IT Work	Share of workers	its	its									4.2 %	4.1 %	4.1 %	4.2 %
Production Worker	Share of workers	ain1s	ain1s									27.9 %	27.9 %	28.3 %	28.5 %
Other Non-Production Worker	Share of workers	ain2s	ain2s									5.0 %	5.0 %	5.0 %	4.9 %
Other Services	Share of workers	ain3s	ain3s									42.2 %	42.2 %	41.8 %	41.6 %
Management	Share of workers	manages	manages									4.0 %	3.9 %	4.0 %	4.1 %
Marketing	Share of workers	marketings	marketings									2.5 %	2.5 %	2.6 %	2.6 %
Administration	Share of workers	admins	admins									6.3 %	6.0 %	6.0 %	5.8 %
											obsw				
Organization	Standard Deviation	stdocw	stdocw									19.33	20.52	22.90	25.33
R&D Work	Standard Deviation	stdrnd	stdrndw									15.06	15.89	15.71	18.06
IT Work	Standard Deviation	stdit	stditw									15.43	15.60	16.12	17.51
Production Worker	Standard Deviation	stdain1	stdain1w									11.71	11.97	12.42	13.13
Other Non-Production Worker	Standard Deviation	stdain2	stdain2w									17.89	14.64	15.40	16.65
Other Services	Standard Deviation	stdain3	stdain3w									18.36	19.42	21.76	24.70
Management	Standard Deviation	stdmanage	stdmanagew									20.47	22.32	24.20	31.98
Marketing	Standard Deviation	stdmarketing	stdmarketingw									25.33	26.38	29.07	31.84
Administration	Standard Deviation	stdadmin	stdadminw									14.47	14.76	16.47	19.17

Notes:

a. Hourly wages calculated for each job as annual earnings divided by normal (contracted) hours (excl. overtime) for the duration of the job within the year.

b. All amounts in 1000 current EURO (current Norwegian kroner divided by average exchange Nkr/Eur 2003-2006 = 8.1084).

Appendix 4. Cont'd. - Preliminary Summary Table for Slovenia

Firm-Level and Nuts IV level		Organ_CapitaldataCountry/TABLE CALCULATIONS/outsheet using "\$orgcapdata\Compensationsyear.out"												
COUNTRY		Short Name	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
Social Security Tax			0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	
Payroll Tax (Progressive scale 0%, 3.8%, 7.8% and 14.8% - time variant classes) in million tolar; constant 2000 wages (wpi used) in euros (average 2000 exchange rate of the Bank of Slovenia used)														
All Sectors (1+socsec)*Annual Comp Per Employee (1000€)														
Organization	Compensation	ocw	ocw	in 1000 EUR										
R&D Work	Compensation	mdw	mdw	13.70	14.22	12.74	12.90	13.30	13.72	13.34	12.39	12.10	11.97	12.05
IT Work	Compensation	itw	itw	14.11	14.73	12.99	13.15	13.51	14.31	14.34	13.65	13.54	13.66	13.81
Production Worker	Compensation	ain1w	ain1w	13.38	14.10	13.01	13.17	13.40	14.09	14.18	14.29	14.29	14.48	14.72
Other Non-	Compensation	ain2w	ain2w	8.64	9.07	7.91	7.83	8.05	8.44	8.36	7.61	7.63	7.67	7.82
Other Services	Compensation	ain3w	ain3w	20.29	21.22	18.98	20.91	21.98	21.95	22.94	22.79	22.32	23.26	24.52
Management	Compensation	managew	managew	10.02	10.47	9.26	9.35	9.61	9.99	9.84	8.97	8.85	8.71	8.86
Marketing	Compensation	marketingw	marketingw	18.20	18.98	16.73	16.76	16.98	17.33	16.49	15.52	14.87	13.93	14.04
Administration	Compensation	adminw	adminw	18.41	18.76	17.00	17.40	18.55	18.80	18.28	17.56	16.94	17.46	17.28
			adminw	12.65	12.95	11.53	11.64	11.91	12.37	12.31	11.31	11.04	11.06	11.06
			obsyear	419472	436066	437222	426339	425916	398344	423309	455064	461263	466763	468583
Organization	Hourly Wage	och	och	in EUR										
R&D Work	Hourly Wage	mdh	mdh	3.28	3.33	2.83	2.72	2.65	2.56	2.46	2.47	2.40	1.97	2.00
IT Work	Hourly Wage	ith	ith	6.27	6.77	5.93	5.86	5.94	6.06	6.14	5.84	5.88	5.99	6.04
Production Worker	Hourly Wage	ain1h	ain1h	6.04	6.39	5.85	5.83	5.81	6.22	6.25	6.22	6.29	6.27	6.37
Other Non-	Hourly Wage	ain2h	ain2h	3.94	4.22	3.72	3.65	3.72	3.77	3.79	3.38	3.43	3.48	3.54
Other Services	Hourly Wage	ain3h	ain3h	8.67	9.52	8.60	8.83	9.70	10.94	10.41	10.04	9.75	10.08	10.96
Management	Hourly Wage	manageh	manageh	4.58	4.96	4.44	4.35	4.41	4.43	4.40	4.01	3.97	3.97	4.11
Marketing	Hourly Wage	marketingh	marketingh	8.12	8.67	7.59	7.44	7.34	7.25	7.05	6.65	6.53	5.98	6.10
Administration	Hourly Wage	adminh	adminh	8.21	8.64	7.65	7.65	8.21	7.91	7.78	7.44	7.47	7.62	7.66
			adminh	5.71	5.89	5.27	5.22	5.26	5.34	5.32	4.89	4.82	4.86	4.95
Organization	Share of workers	oc	ocs	13.6%	13.5%	13.4%	13.4%	13.5%	13.5%	13.6%	13.1%	13.2%	14.1%	14.1%
R&D Work	Share of workers	mnds	mnds	8.9%	8.7%	8.6%	8.5%	8.4%	8.5%	8.1%	7.5%	6.9%	6.8%	6.7%
IT Work	Share of workers	its	its	1.2%	1.2%	1.3%	1.3%	1.4%	1.7%	1.9%	2.0%	2.0%	2.1%	2.2%
Production Worker	Share of workers	ain1s	ain1s	38.0%	37.4%	36.9%	36.1%	35.7%	35.3%	34.8%	35.0%	34.8%	34.0%	33.5%
Other Non-	Share of workers	ain2s	ain2s	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Other Services	Share of workers	ain3s	ain3s	33.7%	34.6%	35.2%	36.2%	36.6%	36.8%	37.6%	38.3%	39.1%	39.1%	39.7%
Management	Share of workers	manages	manages	3.1%	3.2%	3.3%	3.6%	3.8%	3.9%	4.2%	4.0%	4.2%	5.2%	5.4%
Marketing	Share of workers	marketings	marketings	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.6%	0.6%	0.6%	0.6%
Administration	Share of workers	admins	admins	10.0%	9.8%	9.6%	9.3%	9.2%	9.0%	8.8%	8.6%	8.4%	8.3%	8.1%
			ainall	439878	456960	457774	445940	444816	415626	440782	473864	479801	484722	486105
Organization	Standard Deviation	stdsga	stdocw	2120	2203	1994	2009	2106	2106	2006	1937	1826	1760	1780
R&D Work	Standard Deviation	stdrnd	stdrndw	1550	1566	1377	1379	1415	1509	1543	1550	1500	1526	1555
IT Work	Standard Deviation	stditw	stditw	1648	1792	1623	1619	1706	1841	1812	1938	1838	1846	1889
Production Worker	Standard Deviation	stdain1	stdain1w	969	1003	874	874	893	907	884	805	821	820	860
Other Non-	Standard Deviation	stdain2	stdain2w	2415	2529	2582	2722	2914	3025	3157	3207	2925	3024	3353
Other Services	Standard Deviation	stdain3	stdain3w	1475	1529	1334	1351	1392	1443	1425	1380	1298	1297	1333
Management	Standard Deviation	stdmanagew	stdmanagew	3087	3262	2942	2999	3038	3051	2904	2812	2475	2249	2280
Marketing	Standard Deviation	stdmarketingw	stdmarketingw	3677	3625	3300	3495	3903	3780	3751	3552	3413	3333	3357
Administration	Standard Deviation	stdadminw	stdadminw	1772	1805	1660	1791	1890	1834	1813	1763	1720	1696	1755

Appendix 4. Cont'd. - Preliminary Summary Table for Germany (Average of Braunschweig, Ostfriesland and Stuttgart)

Firm-Level and Nuts IV level		"\$data/wagesyearleed.out"												
COUNTRY		Short Name	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Occupation Compensations: salaries+social security tax socsec														
Social Security Tax (e.g. 0.30 in Finland)														
All Sectors														
Organization	Compensation	ocw	year					25.63	21.52	22.34				
R&D Work	Compensation	rndw	ocw					40.69	35.54	32.84				
IT Work	Compensation	itw	rndw					27.19	23.87	23.79				
Production Worker	Compensation	ain1w	itw					27.48	26.96	25.08				
Other Non-Production	Compensation	ain2w	ain1w					22.24	21.27	20.97				
Other Services	Compensation	ain3w	ain2w					21.56	19.89	20.43				
Management	Compensation	managew	ain3w					37.63	27.89	28.50				
Marketing	Compensation	marketingw	managew					22.72	18.97	19.73				
Administration	Compensation	adminw	marketingw					27.20	23.15	24.01				
obsyear														
Organization	DAILY Wage	och	och					80.46	72.86	79.28				
R&D Work	DAILY Wage	rndh	rndh					123.30	115.40	122.64				
IT Work	DAILY Wage	ith	ith					84.65	78.06	84.31				
Production Worker	DAILY Wage	ain1h	ain1h					85.53	84.81	89.59				
Other Non-Production	DAILY Wage	ain2h	ain2h					69.08	67.65	70.73				
Other Services	DAILY Wage	ain3h	ain3h					67.64	64.72	67.38				
Management	DAILY Wage	manageh	manageh					114.66	99.72	110.29				
Marketing	DAILY Wage	marketingh	marketingh					71.07	62.66	69.00				
Administration	DAILY Wage	adminh	adminh					85.90	79.40	85.31				
ocs														
Organization	Share of workers	oc	ocs					16.1 %	14.6 %	14.4 %				
R&D Work	Share of workers	rnds	rnds					5.2 %	3.3 %	4.0 %				
IT Work	Share of workers	its	its					9.2 %	8.1 %	8.5 %				
Production Worker	Share of workers	ain1s	ain1s					43.8 %	46.4 %	47.5 %				
Other Non-Production	Share of workers	ain2s	ain2s					2.6 %	2.6 %	2.6 %				
Other Services	Share of workers	ain3s	ain3s					37.5 %	35.9 %	34.6 %				
Management	Share of workers	manages	manages					2.9 %	1.8 %	2.3 %				
Marketing	Share of workers	marketings	marketings					7.3 %	6.5 %	6.4 %				
Administration	Share of workers	admins	admins					7.4 %	6.9 %	6.7 %				
obs														
Organization	Standard Deviation	DAILY stdocw	stdocw					38.66	34.24	37.49				
R&D Work	Standard Deviation	DAILY stdrnd	stdrndw					24.57	25.71	25.74				
IT Work	Standard Deviation	DAILY stdit	stditw					38.31	35.33	37.15				
Production Worker	Standard Deviation	DAILY stdain1	stdain1w					31.95	29.89	31.23				
Other Non-Production	Standard Deviation	DAILY stdain2	stdain2w					33.43	32.92	33.63				
Other Services	Standard Deviation	DAILY stdain3	stdain3w					33.35	31.51	32.70				
Management	Standard Deviation	DAILY stdmanage	stdmanagew					34.60	35.99	35.68				
Marketing	Standard Deviation	DAILY stdmarketin	stdmarketingw					38.95	32.56	36.83				
Administration	Standard Deviation	DAILY stdadmin	stdadminw					36.16	32.66	35.19				

Notes:

a. Compensation is yearly income, in 1,000 Euro

Appendix 4. Cont'd. - Preliminary Summary Table for the UK

Firm-Level and Nuts IV level				"\$data/wagesyearleed.out"											
COUNTRY		Short Name		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Occupation Compensations: salaries+social security tax socsec				€/£							1.59	1.45	1.47	1.46	1.47
Social Security Tax (e.g. 0.30 in Finland)															
All Sectors				year											
Organization	Compensation	ocw	ocw								47.2	42.6	42.9	41.6	42.0
R&D Work	Compensation	rndw	rndw								48.4	43.2	43.5	44.9	43.3
IT Work	Compensation	itw	itw								57.4	52.0	52.0	51.2	50.0
Production Worker	Compensation	ain1w	ain1w								30.5	26.0	25.4	24.5	24.8
Other Non-Production Worker	Compensation	ain2w	ain2w								67.8	61.0	61.6	51.6	50.7
Other Services	Compensation	ain3w	ain3w								22.7	19.4	18.7	18.8	19.4
Management	Compensation	managew	managew								51.6	47.1	46.3	45.0	45.7
Marketing	Compensation	marketingw	marketingw								67.0	59.6	59.3	57.4	57.9
Administration	Compensation	adminw	adminw								34.1	30.2	30.1	28.7	29.0
				obsyear											
Organization	DAILY Wage	och	och								24.8	22.0	21.8	22.1	22.1
R&D Work	DAILY Wage	rndh	rndh								25.7	24.4	24.5	26.1	25.0
IT Work	DAILY Wage	ith	ith								29.6	26.9	26.4	26.8	26.1
Production Worker	DAILY Wage	ain1h	ain1h								14.8	13.0	12.9	12.7	12.9
Other Non-Production Worker	DAILY Wage	ain2h	ain2h								37.8	34.4	33.4	30.6	25.6
Other Services	DAILY Wage	ain3h	ain3h								13.2	11.6	11.4	11.5	11.7
Management	DAILY Wage	manageh	manageh								26.8	24.0	23.5	24.0	24.0
Marketing	DAILY Wage	marketingh	marketingh								33.7	29.6	27.7	27.9	28.6
Administration	DAILY Wage	adminh	adminh								18.8	16.4	16.5	16.4	16.1
Organization	Share of workers	oc	ocs								13.9%	13.6%	13.7%	13.3%	13.9%
R&D Work	Share of workers	rnds	rnds								5.8%	5.4%	5.6%	5.7%	5.9%
IT Work	Share of workers	its	its								2.7%	2.5%	2.5%	2.4%	2.6%
Production Worker	Share of workers	ain1s	ain1s								15.6%	14.1%	12.7%	12.3%	12.2%
Other Non-Production Worker	Share of workers	ain2s	ain2s								0.5%	0.4%	0.3%	0.3%	0.3%
Other Services	Share of workers	ain3s	ain3s								61.5%	63.9%	65.2%	66.0%	65.1%
Management	Share of workers	manages	manages								6.4%	6.4%	6.8%	6.8%	7.1%
Marketing	Share of workers	marketings	marketings								2.1%	2.1%	2.2%	2.2%	2.2%
Administration	Share of workers	admins	admins								5.3%	5.1%	4.7%	4.4%	4.7%
				obs											
Organization	Standard Deviation	stdocw	stdocw												
R&D Work	Standard Deviation	stdrnd	stdrndw												
IT Work	Standard Deviation	stdit	stditw												
Production Worker	Standard Deviation	stdain1	stdain1w												
Other Non-Production Worker	Standard Deviation	stdain2	stdain2w												
Other Services	Standard Deviation	stdain3	stdain3w												
Management	Standard Deviation	stdmanage	stdmanagew												
Marketing	Standard Deviation	stdmarketing	stdmarketingw												
Administration	Standard Deviation	stdadmin	stdadminw												

Notes:

a. Compensation is yearly income, in 1,000 Euro

b. Hourly wage not available, therefore daily wages