

## ***Annex 7:***

# **Usability of sickness absence data from selected European member states for work-related health reporting**

**Feasibility study as part of work package 4 “Improving indicators”  
of the project WORKHEALTH II**

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## **Introduction**

Health monitoring necessitates high quality and comparability of data. In several Member States health data provided by social insurance institutions are routinely used for work-related health monitoring. Sickness absence data serve well as morbidity indicators because they often originate from compulsory income replacement schemes and therefore apply to large working populations. Furthermore, sick leave often is notified after a medical examination and therefore even information on diseases are available. When figures on sickness absence are compared for job titles, industry branches or workload factors particularly hazardous work areas or working conditions can be highlighted and subjected to further studies and preventive measures. Therefore, high quality sick leave data related to work load information can give insight into work related morbidity.

However, it is increasingly noticed that these data may not be comparable because social security is very differently organised in Europe. It is therefore especially tempting to work on protocols providing the comparability of these health data and their usability in health monitoring. The work package 4 of the project WORKHEALTH II therefore deals with further exploring the possibilities to include social insurance data from the Member States into a health monitoring system. Based on work carried out in the previous project WORKHEALTH, research was focussed on defining an intersection of social insurance data and relative measures for which the comparability may be acceptable.

## **Methods**

### ***Step 1: Confining to selected member states***

It is well known that social insurance is very differently organised across Europe. This applies to the kind of insurance, the conditions for utilisation, the population insured and the kind and level of benefits and other supports. As data of social insurance institutions are processed and stored according to the needs of the administration they primarily represent the specific national characteristics and utilisation of social insurance rather than morbidity. In order to study the comparability of this data therefore only social insurance institutions were taken into consideration which are known to make use of their data for work-related health reporting and were represented by WORKHEALTH II project partners. This covered the member states Sweden, Austria, and Germany.

### ***Step 2: Confining to “hard” indicators***

At the 9th Business Meeting of the European Network of Social Insurance for Health / ENSIfH (21./22. September 2005, Berlin) the possibilities for data inclusion was discussed. With regard to the high diversity and limited comparability the group decided to focus on indicators which could be built in all data sources and at the same time highlight long lasting sickness absence (>15 days) only. By this strict inclusion criteria a reasonable comparability was expected.

In order to relate sickness absence data to the world of work a stratification according to occupations or industrial sectors is desirable. It turned out that only the German data (represented by the BKK health insurance, which insures approximately 20% of the German population) include information both on occupations and industrial sectors whereas the Swedish data provide information on occupations only and the Austrian data on economic sectors only. The German codes for occupations (Klassifikation der Berufe) were matched to the international ISCO code, which is used in Sweden. The economic sectors are coded according to the NACE system in Germany and in Austria. However, in BKK reports the NACE codes are partly aggregated to achieve a smaller number of items, so the NACE codes with matches in both countries (see tab 1) were included only.

### ***Step 3: Checking for data availability***

As a result of checking for data availability it turned out in all three countries that the desired indicators are not routinely reported. Therefore specific data processing would be necessary to meet the demands of the project. However, data processing in social insurance institutions is technically demanding and time consuming as the data cover large populations. Data processing therefore gives priorities to the daily duties of social insurance institutions. Furthermore, longitudinal data in general are not easily available as the large data sets are placed into an inactive file rather soon. For this feasibility study it was therefore decided to use a “softened” indicator and to make use of relative figures only (see step 4).

In Sweden, neither incidence nor prevalence rate by occupation or industry are available for the sick pay period of employers. From day 15 and onwards in sick leave data on sickness benefit periods are available for workers at the Swedish Social Insurance Agency. Information on occupation is available in the case management files of local offices but it is not compiled at the national level. Instead, data on occupation and sickness absence for relatively small samples of workers are regularly collected from local offices and analysed at the national level. No data is available on industry. These sample data were used to produce tables on sickness absence by occupation, comparable to that of Germany, in 2005. However, the sample size turned out to be too small to produce reliable incidence or prevalence rates at the detailed level of occupations used in German tables. However, data of the Swedish Social Insurance Agency on sickness cash benefits and data on occupations and industries of the population available at Statistics Sweden, based on personal identity numbers, can be linked to produce necessary data for this type of comparative projects. However, the time schedule and cost constraints of the project did not allow such a data linkage.

For Germany and Austria, both datasets contained gender specific information on duration of sickness absence (in days), number of cases and duration per case with respect to the two selected diagnoses mental ill health and cardiovascular diseases. Information was stratified by economic sectors as given in table 1.

#### ***Step 4: Comparing relative differences for CVD and Mental Ill Health***

As mentioned before the desired “hard” indicator, say sickness absence >15 days, could not be realized for reasons of demanding data processing. The indicator therefore was “softened” aiming at inclusion of all sickness cases. As pointed out in step 1 this a priori increases the non comparability as sickness absence regulations are different in both member states. However, comparability can be improved by making use of relative differences only. Therefore, in German and Austrian the sector specific sickness absence figures were contrasted to the country specific overall average. By this it is expected that – ideally - relative figures are stable across countries. E.g. a higher sickness absence of employees working in the construction industry compared to all workers in a country should point to different influences of working condition rather than follow from country specific sickness absence regulations, which affect all workers in that country.

Finally, data on duration (days/1000) and frequency (spells/1000) of sickness absence as well as days per spell were provided by the German and Austrian social insurance institutions. For all NACE codes considered percent deviations from the average stratified by gender were then calculated.

Data were confined to circulatory diseases (CVD) and mental disorders only because these diseases were in the focus of the WORKHEALTH II project.

Table 1: Match of economic sectors used for reporting German and Austrian sickness absence data

<b>Austria</b>		<b>Germany</b>	
<b>Code</b>	<b>Economic sector</b>	<b>code</b>	<b>Economic sector</b>
A	agriculture; hunting and forestry	A	Land- und Forstwirtschaft
B	Fishing		No counterpart
C	mining and quarrying		No counterpart
D	Manufacture		No counterpart
D15	manufacture of food products; beverages and tobacco	DA	Nahrung und Genuss
D17	manufacture of textiles und textile products	DBDC	Textil, Bekleidung, Leder
D18	manufacture of textiles und textile products		
D19	manufacture of leather and leather products		
D20	manufacture of wood and wood products	DD	Holzgewerbe
D21+D22	manufacture of pulp, paper and paper products; publishing and printing	DE	Holz. Papier. Druck. Verlage
D24	manufacture of chemicals. chemical products an man-made fibres	DG	Chemische Industrie
D25	manufaxture of rubber and plastic products	DH	Gummi- und Kunststoffwaren
D26	manufacture of other non-metallic mineral products	DI	Glas. Keramik. Steinen/Erden
D27+D28	manufacture of basic metals an fabricated metal products	DJ	Metallerzeugung
D29+D30	manufacture of machinery and equipment nec	DK	Metallverarbeitung
D31	manufacture of electrical and optical equipment		No counterpart
D32	manufacture of electrical and optical equipment		No counterpart
D33	manufacture of electrical and optical equipment		No counterpart
D34	manufacture of transport equipment		No counterpart
D35	manufacture of transport equipment		No counterpart
D36+D37	manufacturing nec	DN	Möbel und Sonstige Erzeugnisse

E	electricity, gas and water supply	E	Energie- und Wasserversorgung
F	construction	F	Baugewerbe
G	wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	G	Handel
H	hotels and restaurants	H	Gastgewerbe
I	transport, storage and communication	I	Verkehr; Post und Telekommunikation
J	financial intermediation	J	Kredit- und Versicherungsgewerbe
K	real estate, renting and business activities public administration and defence	K	Dienstleistungen
L	compulsory social security	L	Öffentliche Verwaltung, Sozialversicherung
M	Education	M	Erziehung und Unterricht
N	health and social work	N	Gesundheits- und Sozialwesen

## Results

Sickness absence figures for Germany and Austria due to mental ill health and circulatory diseases according to NACE groups are given in table A1 and A" in the appendix. The results point to large overall differences between the two member states. However, it has to taken into consideration that in Germany duration and frequency of sickness absence is related to the insured population whereas the Austrian figures are given for the employed population.

As pointed out before due to the different sickness absence schemes in both countries a comparison should be based on relative figures. As an example figure 1 shows deviations of the duration of sickness absence in economic sectors from the national average in German and Austrian respectively. Obviously, sector specific relative sickness absence duration is quite comparable across countries. In each country several economic sectors show low sickness absence days. In contrast e.g. health and social work, education and social security note far above the average in each country. The transport, storage and communication sector is more affected in Germany showing an 67% increase above average compared to only 30% in Austria. Figures for CVD as well as for frequency of sickness absence are given in appendix (fig A1-A4).

**Duration of sickness absence due to mental disease  
Percent deviation from average days/1000 employees**

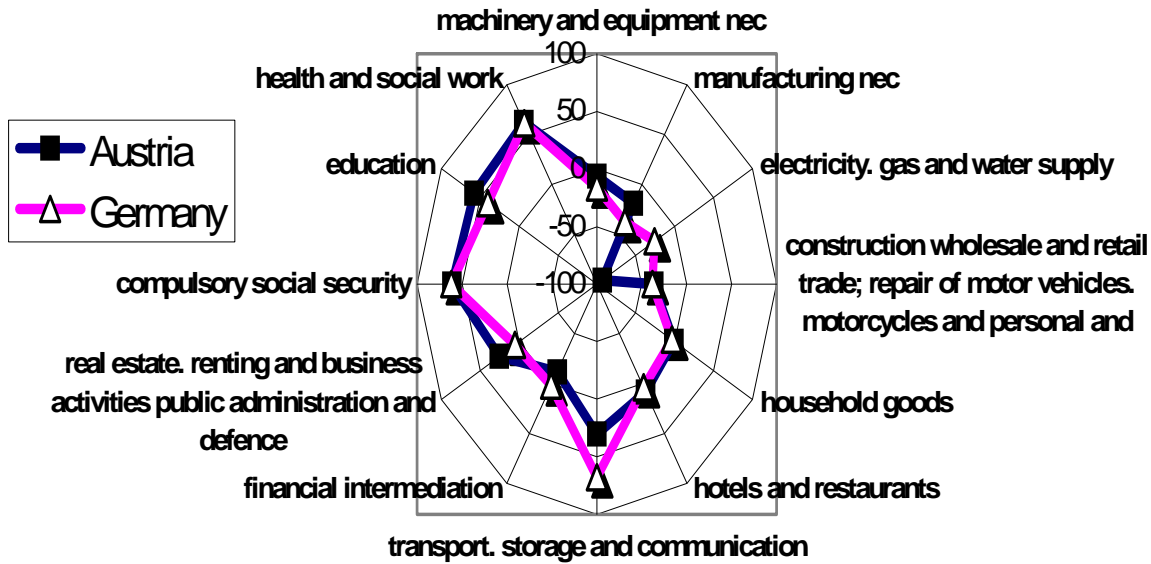


Figure 1: Percent deviation from national average in duration of sickness absence due to mental disorders in Germany and Austria.

In order to highlight economic sectors with marked elevation in sickness absence only those with an increase greater than 10% from average in one of the countries are given in figure 2 and 3. In principle, the sectors are affected in both countries often even to the same extent. However, there are also sectors which are more affected in only one country. The sector “rubber and plastic products” e.g. is affected by an increased sickness absence due to mental disorders in Austria but not in Germany.

## Recommendations

Sickness absence data are used for work-related health monitoring in several European member states. By comparisons of sick leave data across occupations and industrial branches work areas with special preventive needs can be highlighted. However, using sickness absence data on an international level requires comparability what is not the case for process data based on very different health insurance regulations in Europe. As a consequence, comparability has to be ensured by defining comparable indicators.

This feasibility study involving German, Austrian and Swedish health insurance institutions has shown that in general sickness absence data can be used for international work-related health reporting. It is therefore worthwhile to extend the analyses to other member states. However, some recommendations should be followed:

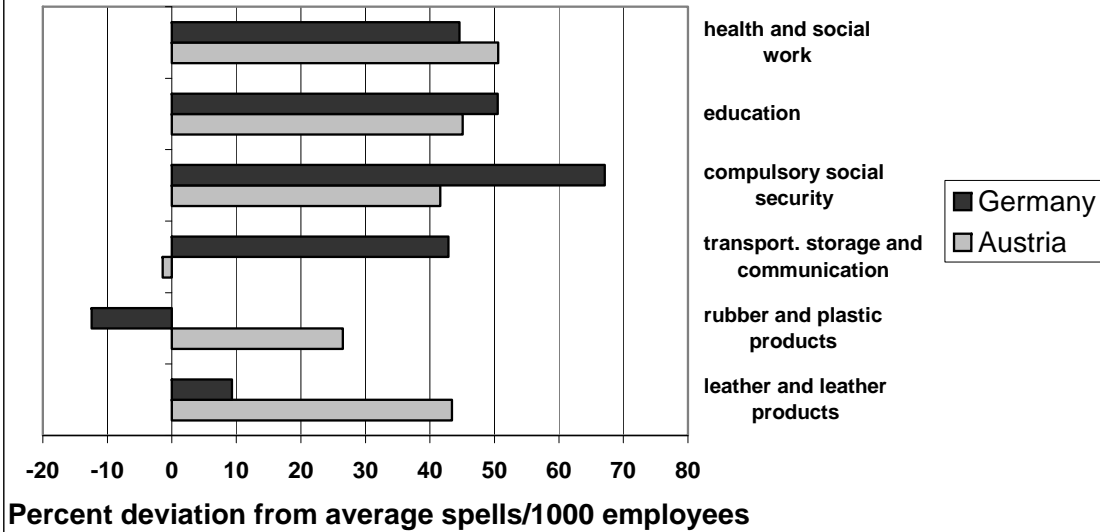
- Data processing in social insurance institutions is technically demanding, therefore allow for several months between agreement on indicators and final data retrieval.
- Include rather large populations especially when disease and job-codes specific results are desired.
- Use “strict” indicators e.g. “sickness absence > 15 days”. These indicators usually can be covered even when sickness absence regulations are very different.
- Use “relative” operational indicators and contrast economic sector specific sickness absence figures to the country specific overall average. Differences then may point to influences of working condition rather than follow from different sickness absence regulations.

Social insurance regulations and institutions have changed a lot in recent years in many member states. These changes affect the utilization of health services and will not foreseeable come to an end. Making use of social insurance data in international comparisons therefore can not be based on a long-term standard protocol. In contrast, definition of indicators



and data retrieval procedures have to be continuously adapted. However, this is rather common in health monitoring and challenges with respect to sickness absence data do not seem to be higher as for work accidents. In this field the European ESAW project has successfully work on the inclusion of social insurance data on work accidents into the European health reporting system.

### Frequency of sickness absence due to mental disease



### Duration of sickness absence due to mental disease

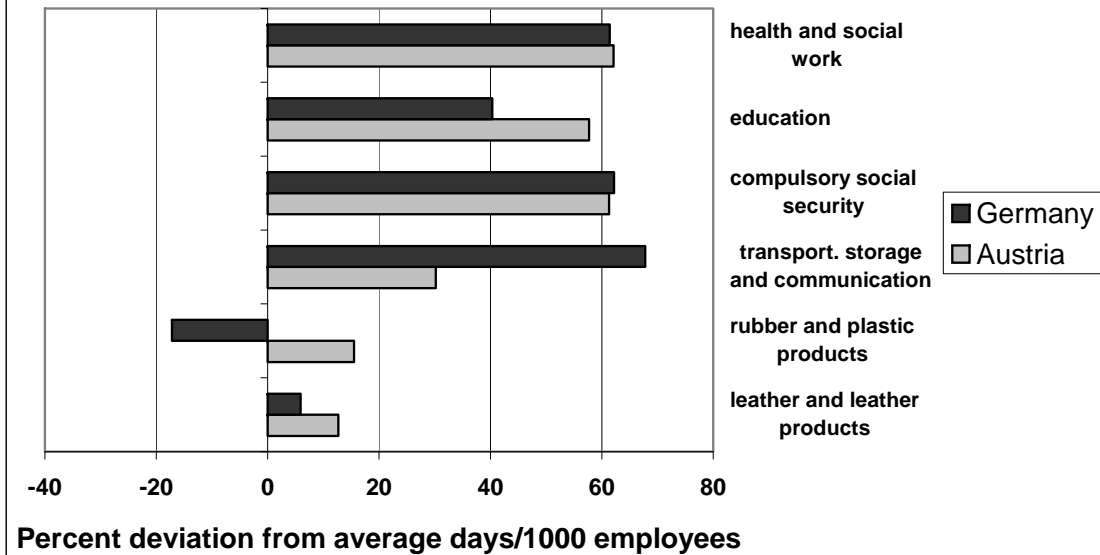


Figure 2: Economic sectors (NACE) with more than 10% deviation in sickness absence due to mental disorders

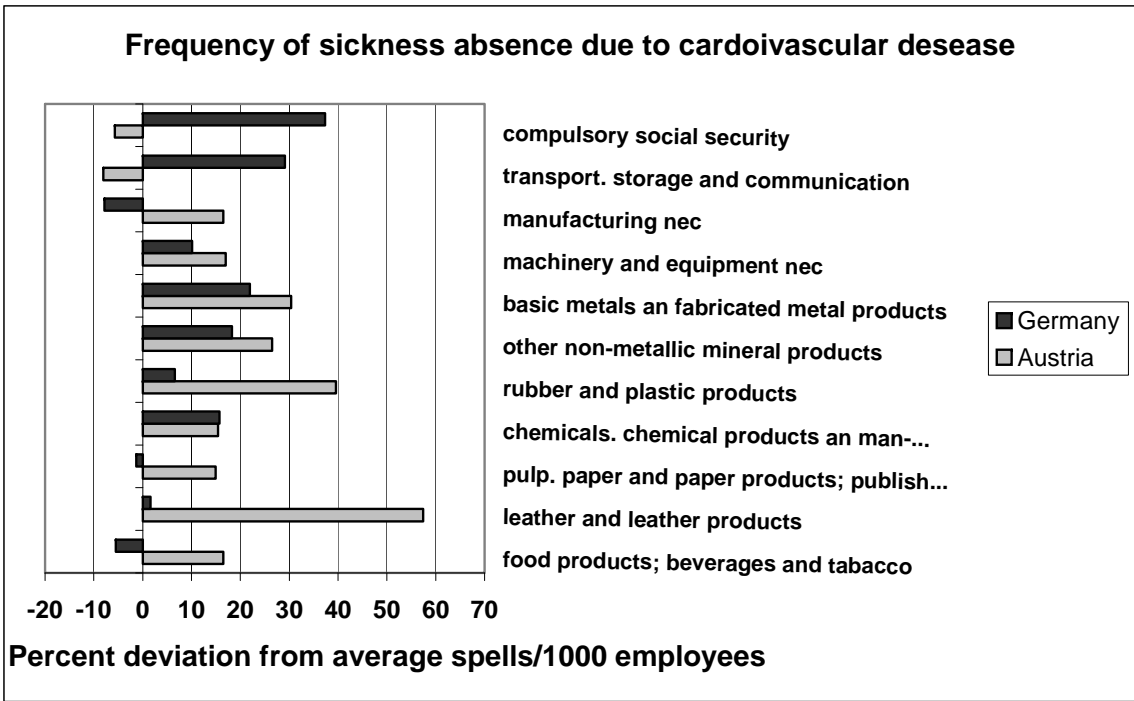
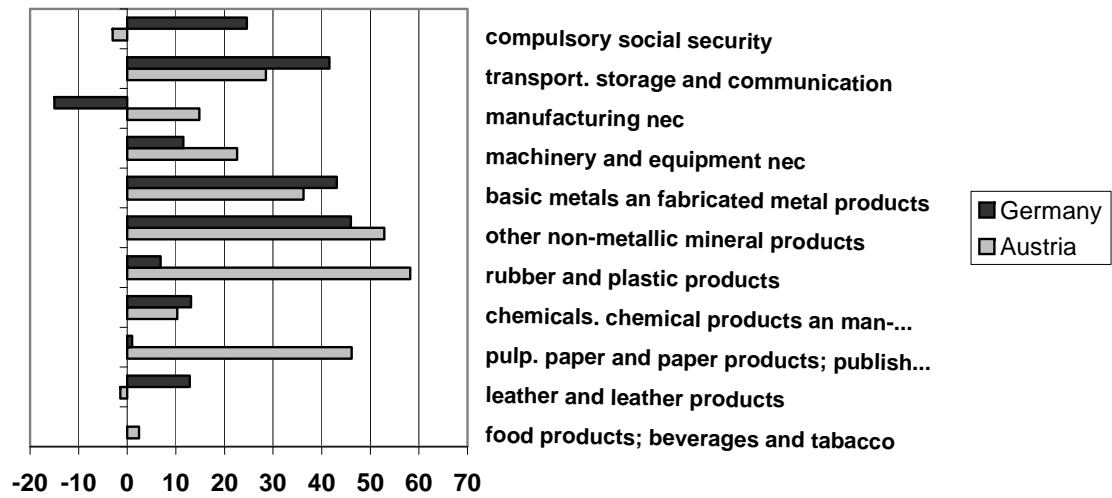


Figure 3: Economic sectors (NACE) with more than 10% deviation in sickness absence due to mental CVD

### Duration of sickness absence due to cardiovascular disease



Percent deviation from average days/1000 employees

## Appendix

Table A1: Sickness absence due to mental disorders according to NACE codes in Germany and Austria 2005.

NACE code	Sector german	Sector english	Austria			Germany (BKK)		
			Days /1000	Spells /1000	Days / spell	Days/1000	Spells/1000	Days / spell
A	Land- und Forstwirtschaft	agriculture. hunting and forestry	183.4	5.7	32.4	729	22.8	32.0
DA	Nahrung und Genuss	manufacture of food products; beverages and tobacco	412.4	12.3	33.5	845	29.0	29.2
DBDC	Textil. Bekleidung. Leder	manufacture of leather and leather products	401.8	21.1	19.1	989	37.4	26.5
DD	Holzgewerbe	manufacture of wood and wood products	288.6	10.7	27.1	574	22.1	26.0
DE	Holz. Papier. Druck. Verlage	manufacture of pulp. paper and paper products; publishing and printing	298.4	13.2	22.7	903	32.8	27.5
DG	Chemische Industrie	manufacture of chemicals. chemical products an man-made fibres	368.3	11.7	31.6	819	31.8	25.8
DH	Gummi- und Kunststoffwaren	manufacture of rubber and plastic products	412.4	15.4	26.8	774	30.0	25.8
DI	Glas. Keramik. Steinen/Erden	manufacture of other non-metallic mineral products	233.4	10.1	23.1	762	28.9	26.4
DJ	Metallerzeugung	manufacture of basic metals an fabricated metal products	274.5	9.9	27.8	714	27.0	26.4
DK	Metallverarbeitung	manufacture of machinery and equipment nec	157.9	14.4	11.0	783	29.3	26.7
DN	Möbel und Sonstige Erzeugnisse	manufacturing nec	81.8	7.4	11.0	582	28.0	20.8
E	Energie- und Wasserversorgung	electricity. gas and water supply	23.8	3.4	7.0	692	27.3	25.3
F	Baugewerbe	construction wholesale and retail trade; repair of motor vehicles. motorcycles and personal and	226.0	8.5	26.6	577	19.6	29.4

			Austria			Germany (BKK)		
NACE code	Sector german	Sector english	Days /1000	Spells /1000	Days / spell	Days/1000	Spells/1000	Days / spell
G	Handel	household goods	354.2	12.6	28.2	902	32.6	27.6
H	Gastgewerbe	hotels and restaurants	386.5	12.8	30.3	969	33.6	28.8
I	Verkehr; Post und Telekommunikation	transport. storage and communication	464.9	12.0	38.8	1568	48.9	32.1
J	Kredit- und Versicherungsgewerbe	financial intermediation	314.1	10.2	30.9	952	35.7	26.7
K	Dienstleistungen	real estate. renting and business activities public administration and defence	446.9	11.1	40.2	981	34.9	28.1
L	Öfentliche Verwaltung. Sozialversicherung	compulsory social security	576.0	17.2	33.5	1515	57.2	26.5
M	Erziehung und Unterricht	education	563.3	17.6	32.0	1311	51.5	25.5
N	Gesundheits- und Sozialwesen	health and social work	579.1	18.3	31.6	1508	49.5	30.5
Durchschnittswert	Alle Wirtschaftsklassen		357.15	12.15	28.64	934.32	34.23	27.24

Table A2: Sickness absence due to cardiovascular diseases according to NACE codes in Germany and Austria 2005.

NACE code	Sector german	Sector english	Austria			Germany (BKK)		
			Days /1000	Spells /1000	Days / spell	Days/1000	Spells/1000	Days / spell
A	Land- und Forstwirtschaft	agriculture. hunting and forestry	212.0	8.1	26.1	587	26.7	22.0
DA	Nahrung und Genuss	manufacture of food products; beverages and tobacco	377.8	21.6	17.5	588	28.9	20.4
DBDC	Textil. Bekleidung. Leder	manufacture of leather and leather products	477.2	36.6	13.0	664	31.1	21.3
DD	Holzgewerbe	manufacture of wood and wood products	268.5	18.0	14.9	478	25.2	18.9
DE	Holz. Papier. Druck. Verlage	manufacture of pulp. paper and paper products; publishing and printing	329.8	17.8	18.5	594	30.2	19.7
DG	Chemische Industrie	manufacture of chemicals. chemical products an man-made fibres	407.0	21.4	19.0	665	35.4	18.8
DH	Gummi- und Kunststoffwaren	manufaxture of rubber and plastic products	583.5	25.9	22.6	629	32.6	19.3
DI	Glas. Keramik. Steinen/Erden	manufacture of other non-metallic mineral products	563.9	23.4	24.1	859	36.2	23.7
DJ	Metallerzeugung	manufacture of basic metals an fabricated metal products	364.0	20.1	18.1	842	37.3	22.5
DK	Metallverarbeitung	manufacture of machinery and equipment nec	119.6	9.6	12.5	656	33.7	19.5
DN	Möbel und Sonstige Erzeugnisse	manufacturing nec	108.6	13.4	8.1	500	28.2	17.7
E	Energie- und Wasserversorgung	electricity. gas and water supply	44.2	6.8	6.5	568	32.0	17.7
F	Baugewerbe	construction wholesale and retail trade; repair of motor vehicles. motorcycles and personal and	367.2	15.3	24.0	598	25.3	23.6
G	Handel	household goods	293.0	16.8	17.4	456	25.8	17.7
H	Gastgewerbe	hotels and restaurants	244.3	14.0	17.4	403	22.2	18.2



NACE code	Sector german	Sector english	Austria			Germany (BKK)		
			Days /1000	Spells /1000	Days / spell	Days/1000	Spells/1000	Days / spell
I	Verkehr; Post und Telekommunikation	transport. storage and communication	473.9	17.0	27.8	833	39.5	21.1
J	Kredit- und Versicherungsgewerbe	financial intermediation	356.4	18.0	19.8	366	24.8	14.7
K	Dienstleistungen	real estate. renting and business activities public administration and defence	386.9	14.4	26.8	458	25.6	17.9
L	Öffentliche Verwaltung. Sozialversicherung	compulsory social security	358.0	17.5	20.5	733	42.0	17.5
M	Erziehung und Unterricht	education	213.4	15.3	13.9	464	31.6	14.7
N	Gesundheits- und Sozialwesen	health and social work	315.1	17.6	17.9	470	26.5	17.7
Durchschnittswert	Alle Wirtschaftsklassen		368.89	18.53	19.78	588.23	30.60	19.14

Figure A1: Percent deviation from national average in duration of sickness absence due to mental disorders in Germany and Austria.

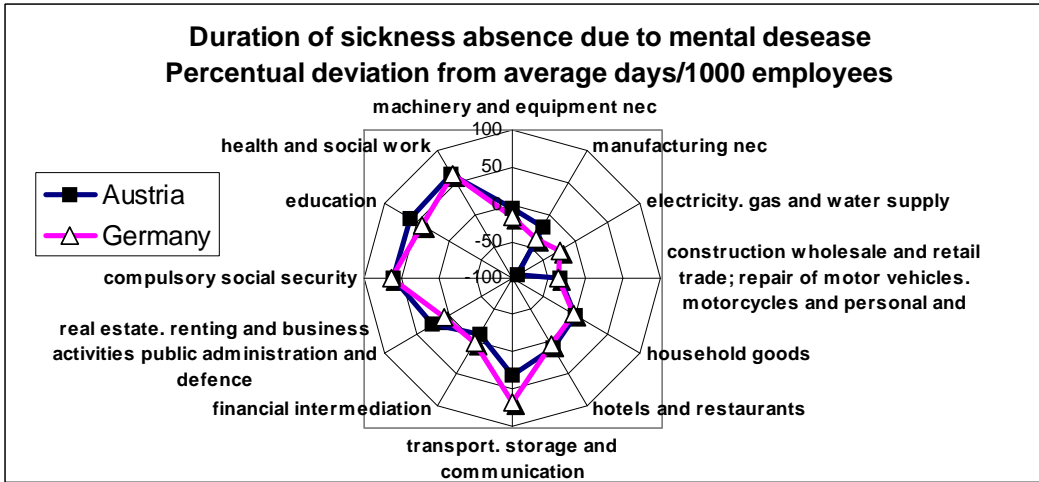
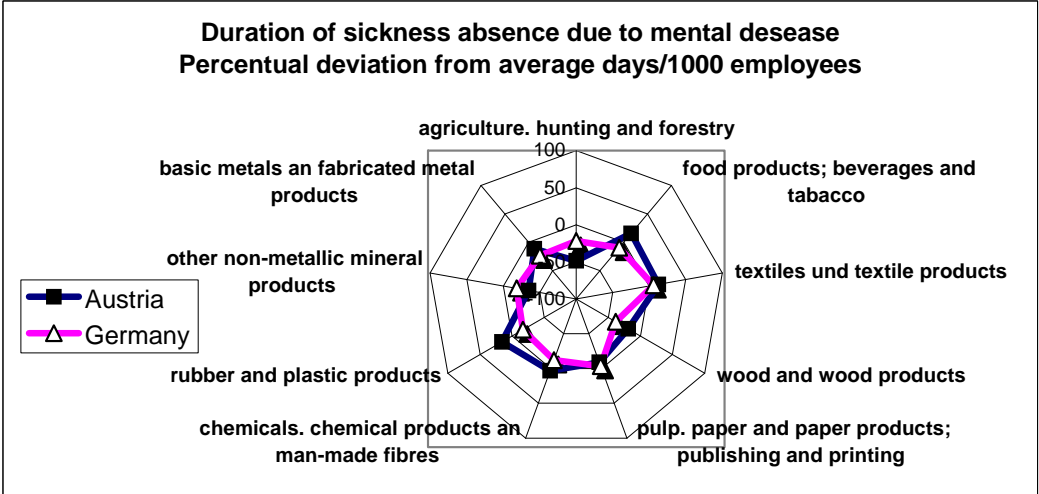


Figure A2: Percent deviation from national average in frequency of sickness absence due to mental disorders in Germany and Austria.

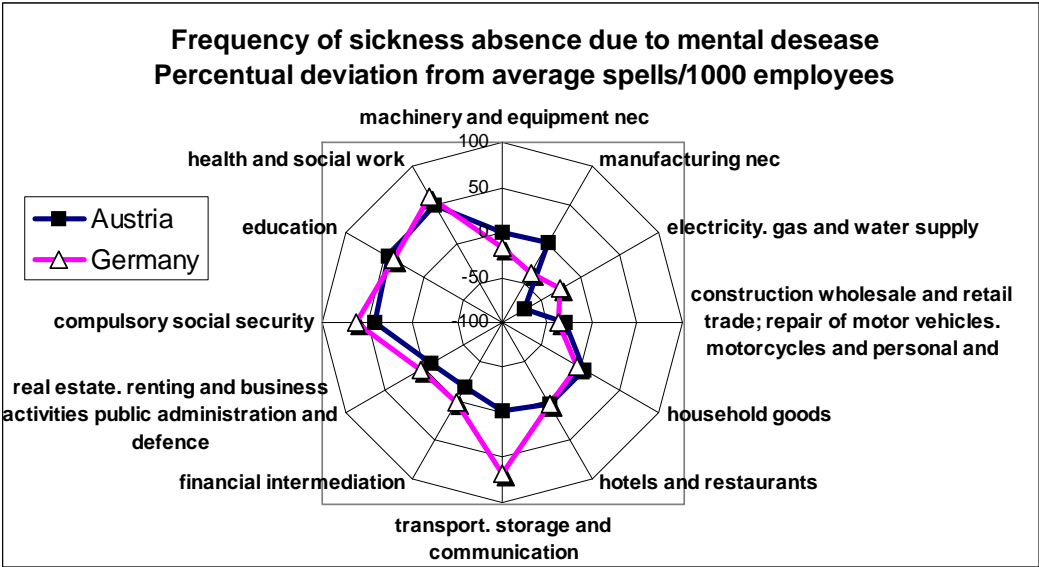
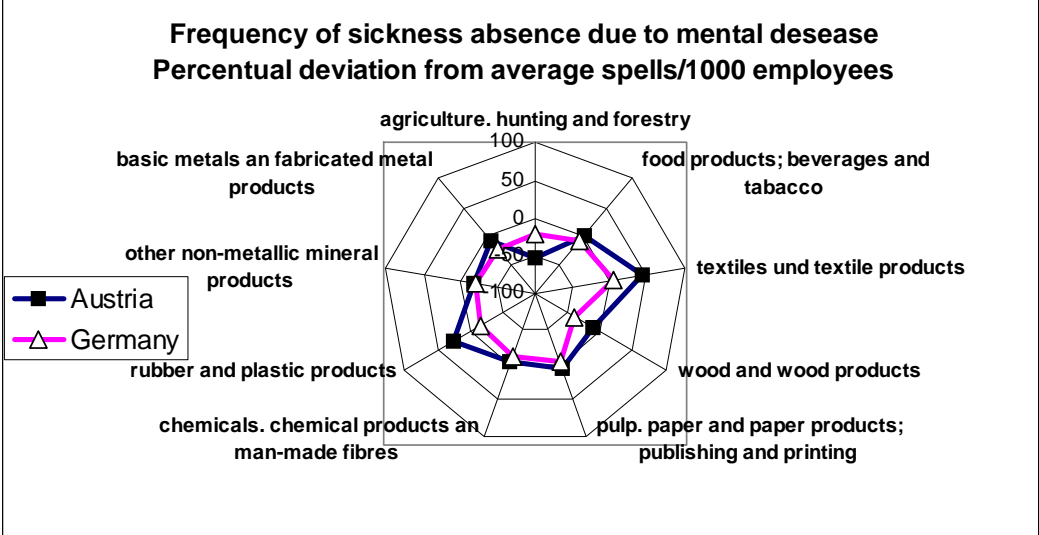


Figure A3: Percent deviation from national average in duration of sickness absence due to circulatory diseases in Germany and Austria.

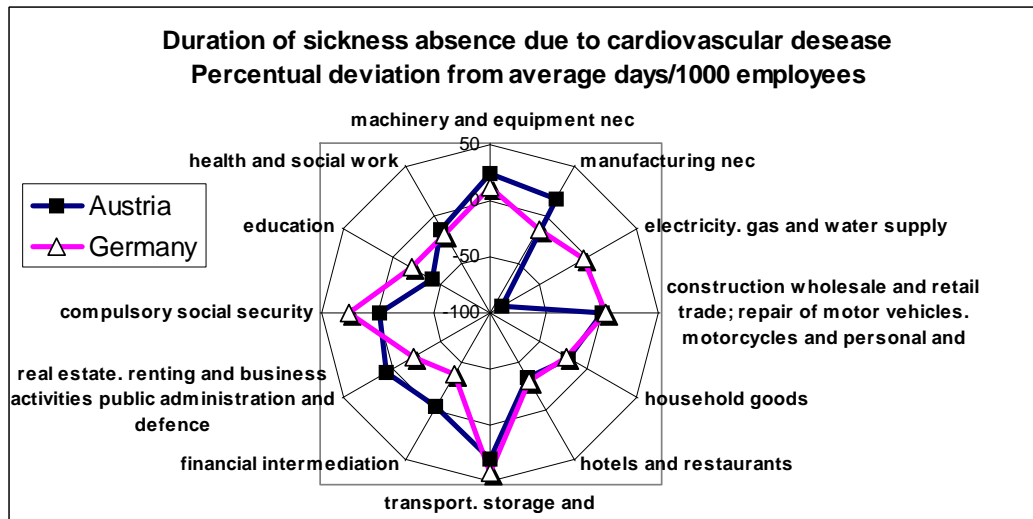
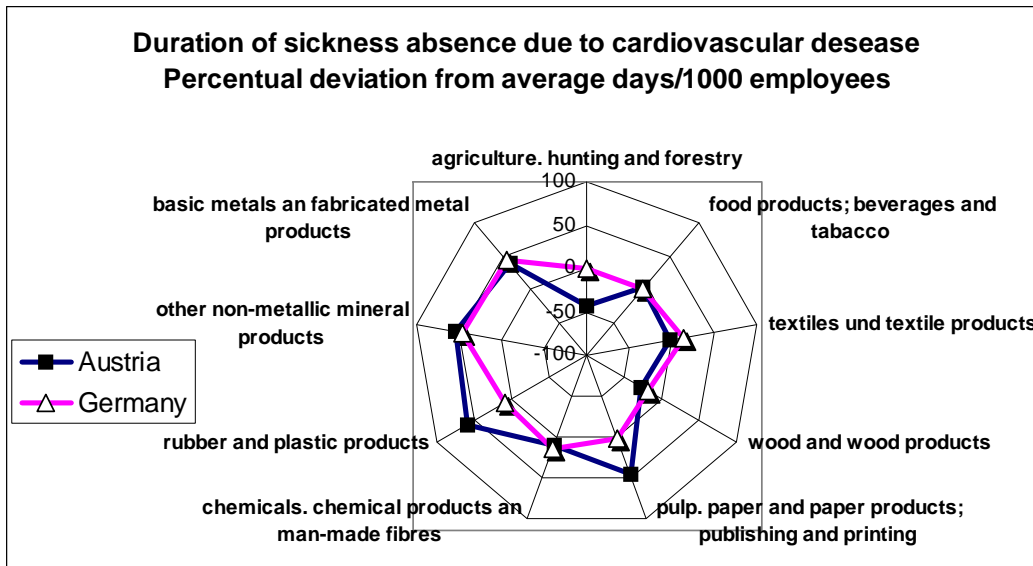


Figure A4: Percent deviation from national average in frequency of sickness absence due to circulatory diseases in Germany and Austria.

