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**Bilag 1. Arbejdstidsmodel og sammenhænge mellem variable i arbejdstidsregnskabet**

|                                | Primære job                                     | Sekundære job |   | Arbejdstimer<br>(inkl. betalte overtimer<br>og fravær) | Fraværstimer                                      | F               |
|--------------------------------|---|---------------|---|--|---|-----------------|
| Fuldtidspersoner               |   |               |   |  |   | Præ:<br>fulc    |
| Antal timer pr.<br>fuldtidsjob |   |               |   |  |   | Ge<br>præ<br>pr |
| Antal timer i alt              |   |               |   | Arbejdstimer<br>i alt<br>H                             | Fravær<br>i alt<br>HABS                           | Al<br>Præ       |
| Antal timer pr. job            |   |               |   | =  | =   |                 |
|                                |   |               |   | Gennemsnitlig<br>arbejdstimer<br>pr. job<br>AH         | Gennemsnitlig<br>fraværstimer<br>pr. job<br>AHABS | Ge<br>præ       |
|                                |   |               |   | *  | *   |                 |
| Antal job                      | Gennemsnitlig<br>antal<br>primære job<br>AJOB 1 | +             | Gennemsnitlig<br>antal<br>sekundære job<br>AJOB 2 | =  | Gennemsnitlig antal jo<br>AJOB                    |                 |
| Løn                            |   |               |   | *  | H*  | Ge              |
|                                |   |               |   | Gennemsnitlig<br>løn<br>pr. job<br>AWJOB               | Gennemsnitlig<br>løn<br>pr. time<br>AWH           | pr:             |
|                                |   |               |   | =  | =   |                 |
| Lønsum                         | Totale lønsum (inkl. overtid)                   |               |   |  |   | WSUM            |

| Variabel   | Sammenhæng til andre variable  | Beskrivelse   |
|--|--|---|
| <b>Variable dannet på basis af Basisregistret</b>  |  |   |
| APRIM  |  | Gnsntl. primære job uden AMFORA-orlov, men med barselsorlov   |
| ASEK   |  | Gnsntl. sekundære job uden AMFORA-orlov, men med barselsorlov |
| AJOB1  | = APRIM + ABARSEL  | Gnsntl. besatte primære stillinger                            |
| AJOB2  | = ASEK - ABARSEL2  | Gnsntl. besatte sekundære stillinger                          |
| AORLOV1  |  | Gnsntl. primære job besat af personer på AMFORA-orlov         |
| AORLOV2  |  | Gnsntl. sekundære job besat af personer på AMFORA-orlov       |
| ABARSEL1   |  | Gnsntl. primære job besat af personer på barselsorlov         |
| ABARSEL2   |  | Gnsntl. sekundære job besat af personer på barselsorlov       |
| AJOB15   |  | Gnsntl. job besat af personer under 15 år                     |
| ABESK  | = AJOB1 + AORLOV1 + ABARSEL1   | Beskæftigelsen  |
| AJOB   | = AJOB1 + AJOB2  | Gnsntl. job i året  |
| LOENBLB  |  | Erhvervsbeskæftigelses lønsum for personer over 15 år         |
| <b>Variable dannet på basis af lønstatistikken</b> |  |   |
| AH   | $= \frac{\sum_{job=1}^n (HAC + HABS)_{job}}{n}$                                  | Gnsntl. betalte arbejdstimer pr. job                          |
| H  | = AH - AJOB  | Betalte arbejdstimer i alt                                    |
| AHABS  | = AH - AHAC  | Gnsntl. betalt fravær pr. job                                 |
| HABS   | = AHABS - AJOB   | Fravær i alt  |
| AHAC   |  | Gnsntl. præsterede timer pr. job                              |
| HAC  | = AHAC - AJOB  | Præsterede timer i alt  |
| AHO  | = AH - AHCE  | Gnsntl. betalt overarbejde pr. job                            |
| HO   | = AHO - AJOB   | Betalt overarbejde i alt                                      |
| AHCE   | $= \frac{\sum_{job=1}^n (H - HO)_{job}}{n}$                                      | Gnsntl. ordinære timer pr. job                                |
| HCE  | = AHCE - AJOB  | Ordinære timer i alt  |
| AHACFJOB   |  | Gnsntl. præsterede timer pr. fuldtidsjob                      |
| AHCEFJOB   |  | Gnsntl. ordinære timer pr. fuldtidsjob                        |
| <b>Variable til justering af lønsum</b>            |  |   |
| PERSGODE   |  | Personalegoder inkl. fri bil og fri avis                      |
| BILTLF   |  | Den skattemæssige værdi af fri bil og fri avis                |
| ARBSKADF   |  | Præmier til arbejdsskadeforsikring                            |
| REFSYGD  |  | Refusion for sygedagpenge                                     |
| REFBARSD   |  | Refusion for barseldagpenge                                   |
| FORSPENS   |  | Pensioner med løbende udbetaling                              |
| FELT69   |  | Jubilæumsgratiale, fratrædelsesgodtgørelse og gaver           |
| TJPENSOF   |  | Tjenestemandspension  |
| ATPIALT  |  | Samlede ATP-beløb   |
| JUSSUM   | = ARBSKADF<br>- BILTLF + PERSGODE<br>+ FELT69<br>+ ATPIALT + FORSPENS + TJPENSOF | Summen af lønsumsjusteringerne                                |
| WSUM   | = LOENBLB + JUSSUM   | Justeret lønsum for personer over 15 år                       |

| Variabel   | Sammenhæng til andre variable | Beskrivelse                                 |
|--|-------------------------------|---|
| <b>Variable til kobling af Basisregistret og lønstatistikken</b> |                               |   |
| HDTID  |                               | Arbejdsomfang                               |
| DBN130   |                               | Nationalregnskabet's 130-erhvervsgruppering |
| SEX  |                               | Køn   |
| <b>Variable, der beregnes i arbejdstidsmodellen</b>              |                               |   |
| AWJOB  | = WSUM/AJOB                   | Gnsntl. løn pr. job                         |
| AWH  | = WSUM/H                      | Gnsntl. løn pr. betalt time                 |
| AWHAC  | = WSUM/HAC                    | Gnsntl. løn pr. præsteret time              |
| FEAC   | = HAC/AHACFJOB                | Præsterede timer i fuldtidspersoner         |
| FECE   | = HCE/AHCEFJOB                | Ordinære timer i fuldtidspersoner           |

## Bilag 2. Ordforklaringer

**Aflønning af ansatte:** nationalregnskabet betegnelse for lønsum.

**Ansættelsesforhold:** en kontraktlig aftale mellem en arbejdsgiver og en lønmodtager om udførelse af en række arbejdsopgaver.

**Arbejdsgiver:** arbejdsgiveren er entydigt identificeret ved et SE-nummer.

**Arbejdsindsats:** den mængde arbejde, der er tilgået en given produktion. Måles ved det præsterede antal timer.

### Arbejdsklassifikationsmodulet

**(AKM):** AKM klassificerer den enkelte person efter væsentligste beskæftigelse (beskæftigelsesstatus, stilling og branche for vigtigste arbejdssted) i løbet af et kalenderår.

### Arbejdskraftundersøgelsen

**(AKU):** hvert kvartal udarbejder Danmarks Statistik en interview-baseret arbejdskraftundersøgelse (AKU) på grundlag af en stikprøve svarende til ca. ½ pct. af arbejdsstyrken dvs. ca. 15.000 personer pr. kvartal.

**Arbejdsløs:** personer klassificeres som arbejdsløse, hvis de i referencerperioden ikke er i arbejde, men står til rådighed for arbejdsmarkedet og samtidig søger arbejde.

### Arbejdsløshedsstatistikken

**(CRAM):** til belysning af arbejdsløshedens udvikling og sammensætning udarbejdes månedlig, kvartalsvis og årlig statistik på basis af Arbejdsmarkedsstyrelsens centrale register for arbejdsmarkedsstatistik (CRAM). I CRAM beregnes en persons ledighed ud fra antal ledige timer i ugen, mens antallet af arbejdsløse i RAS opgøres som de personer, der ifølge CRAM var fuldt ledige i sidste uge af november.

### Arbejdspladsstatistikregistret:

arbejdspladsstatistikregistret ajourføres en gang om året i samarbejde med Told- og Skattestyrelsen. Arbejdsgiveren skal oplyse om arbejdsstederne under det pågældende SE-nummer, hvis der er flere arbejdssteder.

**Arbejdssted:** arbejdsstedet er den lokalfaglige enhed, der lokalt og fagligt er en afgrænset del af et firma. Entydigt identificeret ved arbejdsstedskoden.

**Arbejdsstyrken:** de beskæftigede (lønmodtagere, selvstændige og medarbejdende ægtefæller) og de ledige udgør tilsammen arbejdsstyrken.

**ATP-statistikken:** ATP-statistikken beskriver korttidsudviklingen i beskæftigelsen på baggrund af indbetalingerne til Arbejdsmarkedets Tillægspension (ATP).

**Beskæftigelse:** de beskæftigede består af lønmodtagere, selvstændige og medarbejdende ægtefæller. For at blive klassificeret som beskæftiget skal man være i arbejde, dvs. udføre et arbejde mod en form for betaling i mindst en time i referenceperioden. Endvidere vil personer, der i referenceperioden er midlertidigt fraværende (pga. sygdom, ferie, orlov e.l.), blive betragtet som beskæftigede. En lønmodtager skal have en fast tilknytning til en arbejdsgiver for at blive betragtet som midlertidigt fraværende.

### Centrale Erhvervsregister

**(CER):** registret indeholder blandt andet oplysninger om juridiske erhvervsenheder og om eventuelle arbejdssteder.

**Centrale oplysningssedelregister (COR):** registret har til formål at opsamle årlige oplysninger om udbetaling af arbejds- og overførselsindkomster med henblik på opdatering af grundlaget for beregning af indkomstskat for den enkelte person. Ydelserne er identificeret ved modtagers personnummer og udbetalers SE-nummer samt kode for arbejdsstedet, hvis modtageren er lønmodtager og arbejdsgiveren har flere arbejdssteder.

**Deltagelsesgrad:** deltagelsesgraden i AMFORA udregnes som forholdet mellem de dage i perioden en person deltager i en foranstaltning og periodens dage ganget med forholdet mellem det ugent-

lige antal timer i foranstaltningen og det mulige antal ugentlige timer.

**Dominerende ydelse:** begreb fra socialstatistikken, der dækker den ydelse personen har modtaget længst tid i løbet af året.

**Erhverv:** grupperingerne af erhvervene følger Dansk Branche-kode 1993 (DB93), der bygger på definitioner og inddelinger i EU's erhvervsgrupperingskode fra 1990 (NACE, rev. 1). Se bilag 4.

**Erhvervsstatistik:** de statistikker, der har virksomheder af forskellige typer som observationsenhed (eksempelvis erhvervsbeskæftigelsen og bygge- og anlægsstatistikken).

**European System of Accounts (ESA):** European System of Accounts (ESA) er EU's retningslinier for, hvordan de enkelte lande skal udforme nationalregnskaberne.

**Faktisk arbejdstid:** se præsteret arbejdstid.

**Fastlønnede:** fastlønnede er ansatte, hvis løn ikke er beregnet på baggrund af en timeopgørelse.

**Firma:** se juridisk erhvervsenhed.

**Fortjeneste:** lønbegreb i lønstatistikken, der dækker lønmodtagernes fortjeneste i alt. Er inkl. betaling for fravær i forbindelse med sygdom, ferie mv. mens smalfortjeneste er ekskl. betaling for fravær. Smalfortjenesten er med andre ord betaling for den tid lønmodtageren har været på arbejde.

**Fuldtidspersoner:** begrebet fuldtidspersoner udtrykker, hvor mange, der ville være beskæftiget, hvis alle beskæftigede var beskæftiget på fuld tid og havde samme produktivitet. I ATR bliver den præsterede arbejdstid i fuldtidspersoner beregnet på baggrund af de samlede præsterede timer i branchen samt en branchespecifik værdi for den præsterede arbejdstid for en fuldtidsperson.

**Gennemsnitlig ledighedsgrad:** ledighedsgraden er for forsikrede baseret på oplysninger for de en-

kelte personer om forholdet mellem det samlede antal ledige timer i perioden og antallet af forsikrede (mulige arbejdstimer i samme periode). For ikke-forsikrede anvendes ledighedsgraden 1 for alle uger med ledighed. En persons ledighedsgrad er således udtryk for personens gennemsnitsledighed i perioden.

**Gennemsnitlige antal deltagere:** for AMFORA er det gennemsnitlige antal deltagere i en periode beregnet som summen af deltagelsesgraderne indenfor gruppen.

**Gennemsnitlige antal ledige:** i arbejdsløshedsstatistikken (CRAM) benyttes hovedsageligt begrebet det gennemsnitlige antal ledige. Det gennemsnitlige antal ledige er et udtryk for antallet af fuldtidsledige i en periode. Den beregnes ved at sammentælle alle de ledige personers ledighedsgrader.

**Helårspersoner:** i AMR anvendes helårspersoner og en person, der er tilknyttet arbejdsmarkedet på fuld tid, tæller som en helårsperson. En person kan således i AMR højst tælle som en og kun en helårsperson.

**Horisontal integration:** samkørsel af flere registre indenfor samme referenceperiode.

**Ikke-markedsmæssig produktion:** ikke-markedsmæssig produktion omfatter den produktion, der sker i offentlig forvaltning og service samt anden ikke-markedsmæssig produktion, hvor produktionsværdien opgøres fra omkostningssiden. Pga. de aktivitetsopdelte brancher i nationalregnskabet, har man opdelt 3 brancher ('Forskning og udvikling', 'Voksenundervisning mv.' samt 'Forlystelser, kultur og sport') i en markedsmæssig del og en ikke-markedsmæssig del.

**Integration:** integration af forskellige kilder omfatter match på mikroniveau med eksempelvis personnummer eller SE-nummer som nøgle samt match på makroniveau, hvor man sammenkæder aggregerede oplysninger (i ATR sammenkædes oplysninger, der er

aggregeret på erhverv, køn og arbejdsomfang).

**Internationale arbejdsorganisation (ILO):** ILO er en del af de Forenede Nationer. Formålet er varetagelse af arbejdsmarkedsproblemer, herunder fastlæggelse af standarder for produktion af arbejdsmarkedsstatistik.

**Juridisk erhvervsenhed:** er det samme som den økonomiske enhed (firmaet), undtagen i visse, forholdsvis få tilfælde, hvor en opdeling i flere juridiske enheder ikke afspejler en reel arbejdsdeling.

**Justeringer:** i ATR justeres primærkilderne for at opnå overensstemmelser i definitioner, referenceperiode samt population.

**Justeringstabel:** justeringerne opstilles i justeringstabeller, der viser, hvordan primærkilderne behandles inden de anvendes som input i ATR.

**Konjunkturstatistik:** hurtige statistikker, der viser udviklingen på et forholdsvist aggregeret niveau, eksempelvis ATP-statistikken.

**Ledig:** se arbejdsløs.

**Ledighedsgrad:** udtrykker, hvor stor en del af referenceperioden, personen har været berørt af ledighed.

**Ledighedsprocent:** ledighedsprocenten for registrerede ledige beregnes ved at sætte det gennemsnitlige antal ledige i forhold til arbejdsstyrken beregnet i RAS (aldersbegrænsningen er 16-66 år og personer på efterløn og overgangsydelse medtages ikke).

**Lønstatistik:** lønmodtagernes fortjeneste belyses efter arbejdsfunktion, branche og uddannelsesniveau.

**Lønsum:** lønsummen i ATR omfatter enhver form for udbetalt løn, lønmodtagernes og arbejdsgiveres bidrag til sociale ordninger samt værdien af naturalieydelse, som udbetales i Danmark.

**Medarbejdende ægtefælle:** medarbejdende ægtefæller, som primær beskæftigelse, omfatter de personer, der ifølge AKM har deres eneste indkomst i løbet af året som medarbejdende ægtefælle

og er gift med en person, der indgår i bruttobestanden af selvstændige.

**Mellemformer på arbejdsmarkedet:** grænsetilfælde mellem den traditionelle klassifikation af befolkningen, hvor man enten er beskæftiget, ledig eller udenfor arbejdsstyrken.

**Metadata:** dokumentation og data om de anvendte data.

**Midlertidigt fravær:** under midlertidigt fravær hører: sygdom, helligdage eller ferie, strejke eller lockout, uddannelses-, sabbat-, børnepasnings- eller barselsorlov fra beskæftigelse, midlertidig hjemsendelse samt andet kortere fravær med eller uden orlov.

**Normal arbejdstid:** normal arbejdstid er den sædvanlige ugentlige arbejdstid, inklusiv evt. normalt overarbejde.

**Normeret arbejdstid:** se normal arbejdstid.

**Offentlig forvaltning og service:** i nationalregnskabet afgrænses offentlig forvaltning og service til den sektor, der producerer offentlige ydelser samt foretager indkomstfordeling. De offentlige ydelser er bestemt for offentlig forbrug og er ikke-markedsmæssige. Finansieringen skal tilvejebringes ved skatter for mindst halvdelen af vedkommende, hvis der skal være tale om offentlige ydelser, men der kan godt være tale om delvis finansiering via salg af ydelser.

**Oplysnings sedlen:** Told- og Skat-testyrelsens oplysningssedler indeholder oplysninger om løn, pension, honorarer, uddelinger fra fonde mv. for den enkelte lønmodtager eller modtager af offentlig ydelse og udfyldes af henholdsvis arbejdsgiveren eller den offentlige myndighed. For lønmodtagere er der oplysninger om ansættelsesperiode samt lønoplysninger.

**Orlov:** der skelnes mellem to forskellige slags orlov: arbejdsmarkedspolitisk orlov og barselsorlov. Arbejdsmarkedspolitisk orlov i forbindelse med Lov om orlov drejer sig om uddannelses-, sabbat- og børnepasningsorlov.

Barselsorlov er den lovgaranterede periode mænd og kvinder kan afholde i forbindelse med fødsel

**Overførselsindkomster:** overførselsindkomster omfatter bl.a. Statens Uddannelsesstøtte, arbejdsløshedsdagpenge, kontanthjælp ved ledighed, ydelser modtaget i forb. med arbejdsmarkedspolitiske tiltag, efterløn, overgangsydelse, førtidspension samt folkepension.

**Personnummer:** entydig identifikation af en person.

**Personstatistik:** de statistikker, der har personer, familier samt husstande som observationsenhed (eksempelvis uddannelsesstatistikken og arbejdsstyrkestatistikken).

**Præsteret arbejdstid:** præsteret arbejdstid er det antal timer, den beskæftigede rent faktisk har arbejdet i referenceperioden, dvs. uden fravær, men med overarbejde.

**Referenceperiode:** den periode den pågældende tælling refererer til.

**Registerbaseret arbejdsstyrkestatistik (RAS):** RAS udarbejdes årligt på grundlag af en række administrative og statistiske registre. Statistikken belyser forholdene i en enkelt uge i november ud fra talmateriale om hele befolkningen.

**Regnskabsmæssige relationer:** udgangspunktet for ATR er, at der eksisterer regnskabsmæssige relationer mellem job, arbejdstid og aflønning på arbejdsmarkedet, som skyldes de logiske og

definitoriske strukturer mellem disse variable.

**Selvstændige:** omfatter arbejdsgivere og selvstændige uden ansatte.

**SE-nummer:** entydig identifikation af en arbejdsgiver. Suppleres gennem Arbejdspladsstatistikregistret af en kode for arbejdsstedet, hvis arbejdsgiveren har flere arbejdssteder.

**Standardiseret livsløb:** anvendes i Arbejdsmarkedsregnskabet til at analysere tilknytningen til arbejdsmarkedet. Udtrykker det traditionelle forløb på arbejdsmarkedet, der starter med en uddannelse, der fører til fuldtidserhvervsbeskæftigelse, hvorfra man pensioneres.

**Statistik over arbejdsmarkedspolitiske foranstaltninger (AMFORA):** på grundlag af oplysninger fra bl.a. kommuner og Arbejdsmarkedsstyrelsen udarbejdes en kvartalsvis og en årlig statistik over arbejdsmarkedspolitiske foranstaltninger (AMFORA). Statistikken omfatter orlovsordninger, aktiveringsordninger, der tager sigte på at bringe deltagerne fra passiv forsørgelse til understøttet beskæftigelse, samt tilbagetrækningsordninger.

**Strukturstatistik:** statistikker med detaljeret belysning af strukturerne på arbejdsmarkedet, eksempelvis den registerbaserede arbejdsstyrkestatistik.

**Tidlønnede:** tidlønnede er ansatte, hvis løn er afhængig af en timeopgørelse.

**Tilknytning til arbejdsmarkedet:** i AMR defineres tilknytning til arbejdsmarkedet som beskæftigelse, ledighed, underbeskæftigelse, midlertidigt fravær fra arbejde eller ledighed (ikke uddannelse) eller erhvervsrettet voksen- og efteruddannelse.

**Uddannelsesklassifikationsmodulet (UKM):** UKM anvendes til klassificering af personer efter højest afsluttede almene uddannelse, evt. afsluttet erhvervsuddannelse og evt. igangværende uddannelse.

**Underbeskæftigelse:** ILO definerer underbeskæftigelse som deltidsbeskæftigede personer, der arbejder mindre end de gerne vil.

**Vertikal integration:** samkørsel af flere versioner af registre fra forskellige referenceperioder.

**Virksomhed:** se juridisk erhvervsenhed.

**Økonomisk enhed:** som hovedregel har juridiske enheder så stor økonomisk selvstændighed, at den juridiske enhed vil være sammenfaldende med den økonomiske enhed.

## Bilag 3.

## Erhvervsgrupperinger

| Grupperinger |              |        |     | Dansk<br>branchekode<br>1993 (DB93) |   |  |
|--------------|--------------|--------|-----|-------------------------------------|---|--|
| 9            | 27           | 53     | 130 |                                     |   |  |
| <b>1</b>     |              |        |     |                                     | <b>Landbrug, fiskeri og råstofudvinding</b>                                 | <b>Agriculture, fishing and quarrying</b>                  |
| <b>0109</b>  |              |        |     |                                     | <b>Landbrug, gartneri og skovbrug</b>                                       | <b>Agriculture, horticulture and forestry</b>              |
|              | <b>01109</b> | 011009 |     | 53-standard                         | <b>Landbrug</b>   | <b>Agriculture</b>   |
|              | <b>01129</b> | 011209 |     | 53-standard                         | <b>Gartnerier, planteskoler og frugtplantager af fisk og fiskeprodukter</b> | <b>Horticulture, orchards etc.</b>                         |
|              | <b>01400</b> | 014000 |     | 53-standard                         | <b>Maskinstationer, anlægsgartnere mv.</b>                                  | <b>Agricultural services; landscape gardeners etc.</b>     |
|              | <b>02000</b> | 020000 |     | 53-standard                         | <b>Skovbrug mv.</b>   | <b>Forestry</b>  |
| <b>0500</b>  | <b>05000</b> | 050000 |     | 27-standard                         | <b>Fiskeri mv.</b>  | <b>Fishing</b>   |
| <b>1009</b>  |              |        |     |                                     | <b>Råstofudvinding</b>  | <b>Mining and quarrying</b>                                |
|              | <b>11000</b> | 110000 |     | 53-standard                         | <b>Udvinding af råolier og naturgas mv.</b>                                 | <b>Extr. of crude petroleum, natural gas etc.</b>          |
|              | <b>14009</b> | 140009 |     | 53-standard                         | <b>Udvinding af grus, ler, sten, salt mv.</b>                               | <b>Extr. of gravel, clay, stone and salt etc.</b>          |
| <b>2</b>     |              |        |     |                                     | <b>Fremstillingsvirksomhed</b>  | <b>Manufacturing</b>                                       |
| <b>1509</b>  | <b>15009</b> |        |     |                                     | <b>Nærings- og nydelsesmiddelindustri</b>                                   | <b>Mfr. of food, beverages and tobacco</b>                 |
|              |              | 151000 |     | 111-standard                        | Slagterier mv.  | Production etc. of meat and meat products                  |
|              |              | 152000 |     | 152010-30                           | Forarbejdning og konservering af fisk og fiskeprodukter                     | Processing etc. of fish and fish products                  |
|              |              | 153000 |     | 153100-153300                       | Forarbejdning og konservering af frugt og grøntsager                        | Processing etc. of fruit and vegetables                    |
|              |              | 154000 |     | 154100-154300                       | Fremstilling af vegetabiliske og animalske olier samt fedtstoffer           | Mfr. of vegetable and animal oils and fats                 |
|              |              | 155000 |     | 111-standard                        | Mejerier og isfabrikker   | Mfr. of dairy products                                     |
|              |              | 156009 |     | 156-157, 1584-89                    | Fremstilling af stivelsesprodukter, chokolade- og sukkervarer mv.           | Mfr. of starch, chocolate and sugar products               |
|              |              | 158109 |     | 158110, 158200                      | Fremstilling af brød, kager og kiks   | Mfr. of bread, cakes and biscuits                          |
|              |              | 158120 |     | 111-standard                        | Bagerforretninger   | Bakers' shops  |
|              |              | 158300 |     | 158300                              | Sukkerfabrikker og -raffinaderier   | Manufacture of sugar                                       |
|              |              | 159000 |     | 111-standard                        | Drikkevarerindustri   | Mfr. of beverages  |
|              |              | 160000 |     | 111-standard                        | Tobaksindustri  | Manufacture of tobacco products                            |
| <b>1709</b>  | <b>17009</b> |        |     |                                     | <b>Tekstil-, beklædnings- og læderindustri</b>                              | <b>Mfr. of textiles, wearing apparel, leather</b>          |
|              |              | 170000 |     | 111-standard                        | Tekstilindustri   | Mfr. of textiles and textile products                      |
|              |              | 180000 |     | 111-standard                        | Beklædningsindustri   | Mfr. of wearing apparel; dressing etc. of fur              |
|              |              | 190000 |     | 111-standard                        | Læder- og fodtøjsindustri   | Mfr. of leather and leather products                       |
| <b>2009</b>  |              |        |     |                                     | <b>Træ-, papir- og grafisk industri</b>                                     | <b>Mfr. of wood products, printing and publ.</b>           |
|              | <b>20000</b> | 200000 |     | 53-standard                         | <b>Træindustri</b>  | <b>Mfr. of wood and wood products</b>                      |
|              | <b>21009</b> |        |     |                                     | <b>Papir og grafisk industri</b>  | <b>Mfr. of paper prod.; printing and publish.</b>          |
|              |              | 210000 |     | 111-standard                        | Papirindustri   | Mfr. of pulp, paper and paper products                     |
|              |              | 221200 |     | 111-standard                        | Udgivelse af dagblade   | Publishing of newspapers                                   |
|              |              | 221309 |     | 111-standard                        | Udgiver- og forlagsvirksomhed ekskl. dagblade                               | Publishing activities, excluding newspapers                |
|              |              | 222009 |     | 111-standard                        | Trykkerier  | Printing activities etc.                                   |
| <b>2309</b>  |              |        |     |                                     | <b>Mineralolie-, kemisk- og plastindustri. mv.</b>                          | <b>Mfr. of chemicals, plastic products etc.</b>            |
|              | <b>23000</b> | 230000 |     | 53-standard                         | <b>Mineralolieindustri mv.</b>  | <b>Mfr. of refined petroleum products etc.</b>             |
|              | <b>24000</b> |        |     |                                     | <b>Kemisk industri</b>  | <b>Mfr. of chemicals and man-made fibres etc.</b>          |
|              |              | 241109 |     | 241100, 241300                      | Fremstilling af industrigasser og uorganiske basiskemikalier                | Mfr. of industrial gases and inorganic basic chemicals     |
|              |              | 241209 |     | 241200, 241400                      | Fremstilling af farvestoffer, pigmenter samt organiske basiskemikalier      | Mfr. of dyes, pigments and organic basic chemicals         |
|              |              | 241500 |     | 241500                              | Fremstilling af kunstgødning  | Manufacture of fertilizers etc.                            |
|              |              | 241617 |     | 241600-241700                       | Fremstilling af basisplast og syntetisk gummi                               | Mfr. of plastics and synthetic rubber                      |
|              |              | 242000 |     | 242000                              | Fremstilling af pesticider og andre agrokemiske produkter                   | Manufacture of pesticides and other agro-chemical products |
|              |              | 243000 |     | 243000                              | Fremstilling af maling, lak, trykfarver mv. samt tætningsmaterialer         | Mfr. of paints, printing ink and mastics                   |
|              |              | 244000 |     | 111-standard                        | Medicinalindustri   | Mfr. of pharmaceuticals etc.                               |
|              |              | 245070 |     | 245110-247000                       | Fremstilling af rengøringsmidler samt øvrige kemiske produkter              | Mfr. of detergents and other chemical products             |



## Bilag 3. (fortsat)

## Erhvervsgrupperinger

| Grupperinger |              |              |  | Dansk<br>branchekode<br>1993 (DB93) |   |
|--------------|--------------|--------------|--|-------------------------------------|---|
| 9            | 27           | 53           | 130  |                                     |   |
|              | <b>25000</b> |              | <b>Gummi- og plastindustri</b>                                     |                                     | <b>Mfr. of rubber and plastic products</b>                      |
|              | 251122       |              | Fremstilling af gummiprodukter<br>samt plastemballage mv.          | 251100-252200                       | Mfr. of rubber products and plastic packing goods<br>etc.       |
|              | 252300       |              | Fremstilling af bygningsartikler af plast                          | 252310-252390                       | Mfr. of builders' ware of plastic                               |
|              | 252400       |              | Fremstilling af andre plastprodukter                               | 252410-252490                       | Manufacture of other plastic products n.e.c.                    |
| <b>2600</b>  | <b>26000</b> |              | <b>Sten-, ler- og glasindustri mv.</b>                             |                                     | <b>Mfr. of other non-metallic mineral products</b>              |
|              | 261126       |              | Glas- og keramisk industri   | 261100-262600                       | Mfr. of glass and ceramic goods etc.                            |
|              | 263053       |              | Fremstilling af cement, mursten,<br>tagsten, fliser, kakler mv.    | 263000-265300                       | Mfr. of cement, bricks, tiles, flags etc.                       |
|              | 266080       |              | Fremstilling af produkter af beton,<br>cement, asfalt, stenuld mv. | 266110-268290                       | Mfr. of concrete, cement, asphalt and rockwool<br>products      |
| <b>2709</b>  |              |              | <b>Jern- og metalindustri</b>                                      |                                     | <b>Mfr. of basic metals and fabr. metal prod.</b>               |
|              | <b>27009</b> |              | <b>Fremstilling og forarbejdning af metal</b>                      |                                     | <b>Mfr. and processing of basic metals</b>                      |
|              | 271000       |              | Jern- og stålværker  | 271000                              | Mfr. of basic ferrous metals                                    |
|              | 272030       |              | Forarbejdning af jern og stål                                      | 272100-273500                       | First processing of iron and steel                              |
|              | 274000       |              | Fremstilling af ikke-jernholdige metaller                          | 274100-274500                       | Mfr. of basic non-ferrous metals                                |
|              | 275000       |              | Støbning af metalprodukter   | 275100-275400                       | Casting of metal products                                       |
|              | 281009       |              | Fremstilling af byggematerialer af metal                           | 111-standard                        | Mfr. of construct. materials of metal etc.                      |
|              | 286009       |              | Fremstilling af håndværktøj, metalemballage mv.                    | 111-standard                        | Mfr. of hand tools, metal packaging etc.                        |
|              | <b>29000</b> |              | <b>Maskinindustri</b>  |                                     | <b>Mfr. of machinery and equipment n.e.c.</b>                   |
|              | 291000       |              | Fremstilling af skibsmotorer, kompressorer mv.                     | 111-standard                        | Mfr. of marine engines, compressors etc.                        |
|              | 292000       |              | Fremstilling af maskiner til generelle formål                      | 111-standard                        | Mfr. of other general purpose machinery                         |
|              | 293000       |              | Fremstilling af landbrugsmaskiner                                  | 111-standard                        | Mfr. of agricultural and forestry machinery                     |
|              | 294009       |              | Fremstilling af maskiner til industri mv.                          | 111-standard                        | Mfr. of machinery for industries etc.                           |
|              | 297000       |              | Fremstilling af husholdningsapparater                              | 111-standard                        | Mfr. of domestic appliances n.e.c.                              |
|              | <b>30009</b> |              | <b>Elektronikindustri</b>  |                                     | <b>Mfr. of electrical and optical equipment</b>                 |
|              | 300000       |              | Fremstilling af kontormaskiner og edb-udstyr                       | 300100-300200                       | Mfr. of office machinery and computers                          |
|              | 310000       |              | Fremstilling af andre elektriske maskiner og apparater             | 311010-316290                       | Mfr. of other electrical machinery and apparatus                |
|              | 320000       |              | Fremstilling af telemateriel mv.                                   | 111-standard                        | Mfr. of radio and communicat. equipm. etc.                      |
|              | 330000       |              | Fremstilling af medicinsk udstyr, instrumenter, ure mv.            | 111-standard                        | Mfr. of medical and optical instrum. etc.                       |
|              | <b>35009</b> |              | <b>Transportmiddelindustri</b>                                     |                                     | <b>Mfr. of transport equipment</b>                              |
|              | 340000       |              | Fremstilling af biler mv.  | 341000-343000                       | Manufacture of motor vehicles etc.                              |
|              | 351000       |              | Skibsværfter og bådebyggerier                                      | 111-standard                        | Building and repairing of ships and boats                       |
|              | 352050       |              | Fremstilling af transportmidler<br>ekskl. skibe og biler mv.       | 352000-355000                       | Mfr. of transport equipment<br>excl. ships, motor vehicles etc. |
| <b>3600</b>  | <b>36000</b> |              | <b>Møbelindustri og anden industri</b>                             |                                     | <b>Mfr. of furniture; manufacturing n.e.c.</b>                  |
|              | 361000       |              | Møbelindustri  | 111-standard                        | Mfr. of furniture   |
|              | 362060       |              | Fremstilling af legetøj, guld- og sølvvarer mv.                    | 362100-366390                       | Mfr. of toys, gold and silver articles etc.                     |
|              | 370000       |              | Genbrug af affaldsprodukter  | 371000-372000                       | Recycling of waste and scrap                                    |
| <b>3</b>     | <b>4009</b>  | <b>40009</b> | <b>Energi- og vandforsyning</b>                                    |                                     | <b>Electricity, gas and water supply</b>                        |
|              | 401000       |              | Elforsyning  | 111-standard                        | Production and distribution of electricity                      |
|              | 402000       |              | Gasforsyning   | 111-standard                        | Manufacture and distribution of gas                             |
|              | 403000       |              | Varmeforsyning   | 111-standard                        | Steam and hot water supply                                      |
|              | 410000       |              | Vandforsyning  | 111-standard                        | Collection and distribution of water                            |
| <b>4</b>     | <b>4500</b>  | <b>45000</b> | <b>Bygge- og anlægsvirksomhed</b>                                  |                                     | <b>Construction</b>   |
|              | 450001       |              | Nybyggeri  | NR-definition                       | Construction of new buildings                                   |
|              | 450002       |              | Reparation og vedligeholdelse af bygninger                         | NR-definition                       | Repair and maintenance of buildings                             |
|              | 450003       |              | Anlægsvirksomhed   | NR-definition                       | Civil engineering   |
|              | 450004       |              | Materialer   | NR-definition                       | Construction materials  |

## Bilag 3. (fortsat)

## Erhvervsgrupperinger

| Grupperinger |              |        |     | Dansk<br>branchekode<br>1993 (DB93) |  |  |
|--------------|--------------|--------|-----|-------------------------------------|--|--|
| 9            | 27           | 53     | 130 |                                     |  |  |
| <b>5</b>     |              |        |     |                                     | <b>Handel, hotel- og restaurationsvirks. mv.</b>             | <b>Wholesale and retail trade; hotels, restaurants</b> |
| <b>5000</b>  | <b>50000</b> |        |     |                                     | <b>Handel m. biler, autorep., servicestationer</b>           | <b>Sale and repair of motor vehicles etc.</b>          |
|              |              | 501009 |     | 111-standard                        | Handel med biler, motorcykler mv.                            | Sale of motor vehicles, motorcycles etc.               |
|              |              | 502000 |     | 111-standard                        | Autoreparation   | Repair and maintenance of motor vehicles               |
|              |              | 505000 |     | 111-standard                        | Servicestationer   | Service stations                                       |
| <b>5100</b>  | <b>51000</b> | 510000 |     | 27-standard                         | <b>Engros- og agenturhandel undt. m. biler</b>               | <b>Ws. and commis. trade, exc. of m. vehicles</b>      |
| <b>5200</b>  |              |        |     |                                     | <b>Detailh. og reparationsvirks. undt. biler</b>             | <b>Re. trade and repair work exc. of m. vehicles</b>   |
|              | <b>52109</b> | 521090 |     | 53-standard                         | <b>Detailhandel med fødevarer mv.</b>                        | <b>Retail trade of food etc.</b>                       |
|              | <b>52299</b> | 522990 |     | 53-standard                         | <b>Varehuse og stormagasiner</b>                             | <b>Department stores</b>                               |
|              | <b>52300</b> | 523000 |     | 53-standard                         | <b>Apoteker, parfumerier og materialister mv.</b>            | <b>Re. sale of phar. goods, cosmetic art. etc.</b>     |
|              | <b>52419</b> | 524190 |     | 53-standard                         | <b>Detailhandel m. beklædning og fodtøj</b>                  | <b>Re. sale of clothing, footwear etc.</b>             |
|              | <b>52449</b> | 524490 |     | 53-standard                         | <b>Detailhandel i øvrigt, reparationsvirksomhed mv.</b>      | <b>Other retail sale, repair work</b>                  |
| <b>5500</b>  | <b>55000</b> |        |     |                                     | <b>Hotel- og restaurationsvirksomhed mv.</b>                 | <b>Hotels and restaurants</b>                          |
|              |              | 551009 |     | 111-standard                        | Hoteller mv.   | Hotels etc.  |
|              |              | 553009 |     | 111-standard                        | Restauranter mv.   | Restaurants etc.                                       |
| <b>6</b>     |              |        |     |                                     | <b>Transportvirksomhed, post og telekommunikation</b>        | <b>Transport, storage and communication</b>            |
| <b>6009</b>  |              |        |     |                                     | <b>Transportvirksomhed</b>                                   | <b>Transport</b>                                       |
|              | <b>60000</b> |        |     |                                     | <b>Landtransport, rørtransport</b>                           | <b>Land transport; transport via pipelines</b>         |
|              |              | 601000 |     | 601000                              | Jernbaner  | Transport via railways                                 |
|              |              | 602100 |     | 602100                              | Bustrafik mv., rutefart                                      | Other scheduled passenger land transport               |
|              |              | 602223 |     | 602200-602300                       | Taxi- og turistvognmænd                                      | Taxi operation and coach services                      |
|              |              | 602409 |     | 111-standard                        | Fragtvognmænd mv., rørtransport                              | Freight transport by road and via pipelines            |
|              | <b>61000</b> | 610000 |     | 53-standard                         | <b>Skibsfart</b>   | <b>Water transport</b>                                 |
|              | <b>62000</b> | 620000 |     | 53-standard                         | <b>Lufttransport</b>   | <b>Air transport</b>                                   |
|              | <b>63000</b> |        |     |                                     | <b>Godsbehandling, havne mv., rejsebureauer</b>              | <b>Support. trans. activities; travel agencies</b>     |
|              |              | 631130 |     | 631100-633040                       | Hjælpevirksomhed i forb. m. transport, rejsebureauvirksomhed | Cargo handling, harbours etc. travel agencies          |
|              |              | 634000 |     | 634010-634090                       | Anden transportformidling                                    | Activities of other transport agencies                 |
| <b>6400</b>  | <b>64000</b> | 640000 |     | 27-standard                         | <b>Post og telekommunikation</b>                             | <b>Post and telecommunications</b>                     |
| <b>7</b>     |              |        |     |                                     | <b>Finansieringsvirksomhed mv., forretningsservice</b>       | <b>Financial intermediation, business activities</b>   |
| <b>6509</b>  |              |        |     |                                     | <b>Finansierings- og forsikringsvirksomhed</b>               | <b>Financial intermediation and insurance etc.</b>     |
|              | <b>65000</b> |        |     |                                     | <b>Finansieringsvirksomhed</b>                               | <b>Financial intermediation</b>                        |
|              |              | 651000 |     | 111-standard                        | Pengeinstitutter   | Monetary intermediation                                |
|              |              | 652000 |     | 111-standard                        | Realkreditinstitutter mv.                                    | Other financial intermediation                         |
|              | <b>66000</b> |        |     |                                     | <b>Forsikringsvirksomhed</b>                                 | <b>Insurance and pension funding</b>                   |
|              |              | 660102 |     | 660100-660290                       | Livs- og pensionsforsikring                                  | Life insurance and pension funding                     |
|              |              | 660300 |     | 660310-660390                       | Anden forsikringsvirksomhed                                  | Non-life insurance                                     |
|              | <b>67000</b> | 670000 |     | 53-standard                         | <b>Servicevirksomhed for finanssektoren mv.</b>              | <b>Activities auxiliary to finan. intermediat.</b>     |
| <b>7009</b>  |              |        |     |                                     | <b>Udlejning og ejendomsformidling</b>                       | <b>Real estate and renting activities</b>              |
|              | <b>70000</b> |        |     |                                     | <b>Ejendomsudlejning og -formidling</b>                      | <b>Real estate activities</b>                          |
|              |              | 701109 |     | 7011;7012;7031;<br>703210           | Ejendomsrådgivervirksomhed mv.                               | Real estate agents etc.                                |
|              |              | 702009 |     | 702010-702030;<br>703220            | Boliger  | Dwellings  |
|              |              | 702040 |     | 702040                              | Udlejning af erhvervsjendomme mv.                            | Letting of non-residential buildings                   |
|              | <b>71000</b> | 710000 |     |                                     | <b>Udlejning undtagen af fast ejendom</b>                    | <b>Renting of machinery and equipment etc.</b>         |

## Bilag 3. (fortsat)

## Erhvervsgrupperinger

| Grupperinger |              |  |  | Dansk<br>branchekode<br>1993 (DB93) |  |
|--------------|--------------|--|--|-------------------------------------|--|
| 9            | 27           | 53   | 130  |                                     |  |
| <b>7209</b>  |              | <b>Forretningsservice mv.</b>  |  |                                     | <b>Business activities etc.</b>  |
|              | <b>72000</b> | <b>Databehandlingsvirksomhed</b>                                       |  |                                     | <b>Computer and related activities</b>                                 |
|              |              | 721009 Databehandlingsvirksomhed bortset fra levering af software mv.  |  | 721,723-726                         | Computer activities exc. software consultancy and supply               |
|              |              | 722000 Levering af programmel og konsulentbistand i.forb. med software |  | 722000                              | Software consultancy and supply  |
|              | <b>73000</b> | <b>Forskning og udvikling</b>  |  |                                     | <b>Research and development</b>  |
|              |              | 730001 Forskning og udvikling (markedsræssig)                          |  | NR-definition                       | Research and development (market)                                      |
|              |              | 730002 Forskning og udvikling (anden ikke-markedsræssig)               |  | NR-definition                       | Research and development (other non-market)                            |
|              | <b>74000</b> | <b>Rådgivningsvirks. mv., rengøringsvirks.</b>                         |  |                                     | <b>Consultancy etc. and cleaning activities</b>                        |
|              |              | 741100 Advokatvirksomhed   |  | 111-standard                        | Legal activities   |
|              |              | 741200 Revisions- og bogføringsvirksomhed                              |  | 111-standard                        | Accounting, book-keeping, auditing etc.                                |
|              |              | 742009 Rådgivende ingeniører, arkitekter mv.                           |  | 111-standard                        | Consulting engineers, architects etc.                                  |
|              |              | 744000 Reklame og markedsføring  |  | 111-standard                        | Advertising  |
|              |              | 747000 Rengøringsvirksomhed  |  | 111-standard                        | Industrial cleaning  |
|              |              | 748009 Anden forretningsservice  |  | 111-standard                        | Other business activities  |
| <b>8</b>     |              | <b>Offentlige og personlige tjenesteydelser</b>                        |  |                                     | <b>Public and personal services</b>                                    |
|              | <b>7500</b>  | <b>75000</b>   | <b>Offentlig administration mv.</b>  |                                     | <b>Public administration etc.</b>                                      |
|              |              |  | 751100 Generel offentlig administration                                    | 111-standard                        | General (overall) public service activities                            |
|              |              |  | 751209 Offentlig sektoradm. bortset fra vedr. erhverv og infrastruktur mv. | 7512;7514;7530                      | Regulation of public service activities exc. for business              |
|              |              |  | 751300 Offentlig administration vedrørende erhverv, infrastruktur mv.      | 751300                              | Regulation of and contribution to more efficient operation of business |
|              |              |  | 752000 Forsvar, politi og retsvæsen  | 111-standard                        | Provision of services to the community                                 |
|              | <b>8000</b>  | <b>80000</b>   | <b>Undervisning</b>  |                                     | <b>Education</b>   |
|              |              |  | 801000 Folkeskoler   | 111-standard                        | Primary education  |
|              |              |  | 802000 Gymnasier, erhvervsfaglige skoler                                   | 111-standard                        | Secondary education  |
|              |              |  | 803000 Videregående uddannelsesinstitutioner                               | 111-standard                        | Higher education   |
|              |              |  | 804001 Voksenundervisning mv. (markedsræssig)                              | NR-definition                       | Adult and other education (market)                                     |
|              |              |  | 804002 Voksenundervisning mv. (anden ikke-markedsræssig)                   | NR-definition                       | Adult and other education (other non-market)                           |
|              | <b>8519</b>  | <b>85109</b>   | <b>Sundhedsvæsen mv.</b>   |                                     | <b>Health care activities</b>  |
|              |              |  | 851100 Hospitaler  | 111-standard                        | Hospital activities  |
|              |              |  | 851209 Læger, tandlæger, dyrlæger mv.                                      | 111-standard                        | Medical, dental, veterinary activities etc.                            |
|              | <b>8539</b>  |  | <b>Sociale institutioner mv.</b>   |                                     | <b>Social work activities</b>  |
|              |              | <b>85319</b>   | <b>853109 Sociale institutioner mv. for børn og unge</b>                   | 53-standard                         | <b>Social institutions etc. for children</b>                           |
|              |              | <b>85329</b>   | <b>853209 Sociale institutioner mv. for voksne</b>                         | 53-standard                         | <b>Social institutions etc. for adults</b>                             |
|              | <b>9009</b>  |  | <b>Renovation, foreninger og forlystelser mv.</b>                          |                                     | <b>Other community, social and personal act.</b>                       |
|              |              | <b>90000</b>   | <b>Renovationsvæsen</b>  |                                     | <b>Sewage and refuse disp. and similar act.</b>                        |
|              |              |  | 900010 Kloakvæsen og rensningsanlæg  | 900010                              | Sewage removal and disposal  |
|              |              |  | 900020 Renovation og renholdelse   | 900020                              | Refuse collection and sanitation                                       |
|              |              |  | 900030 Lossepladser og forbrændingsanstalter                               | 900030                              | Refuse dumps and refuse disposal plants                                |
|              |              | <b>91000</b>   | <b>910000 Organisationer og foreninger</b>                                 | 53-standard                         | <b>Activities of membership organiza. n.e.c.</b>                       |
|              |              | <b>92000</b>   | <b>Forlystelser, kultur og sport</b>                                       |                                     | <b>Recreational, cultural, sporting activities</b>                     |
|              |              |  | 920001 Forlystelser, kultur og sport (markedsræssig)                       | NR-definition                       | Recreational, cultural, sporting activities (market)                   |
|              |              |  | 920002 Forlystelser, kultur og sport (anden ikke-markedsræssig)            | NR-definition                       | Recreational, cultural, sporting activities (other non-market)         |
|              |              | <b>93009</b>   | <b>Anden servicevirksomhed</b>   |                                     | <b>Other service activities</b>  |
|              |              |  | 930009 Servicevirksomhed i øvrigt  | 9300                                | Service activities n.e.c   |
|              |              |  | 950000 Private husholdninger med ansat medhjælp                            | 950000                              | Private households with employed persons                               |

**Bilag 4. DEVELOPING LABOUR ACCOUNT ESTIMATES: ISSUES AND APPROACHES**

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 International Labour Office

**A: Introduction and background**

1. This note tries to provide an overview of the main concepts and principles of *Labour Accounting Systems (LAS)* and present the national work with developing estimates for coordinated LAS in four countries: Denmark, the Netherlands, Norway and Switzerland. Similar activities may be under way also in other countries, but documentation was easily available to the author only for these four, one of which, the Netherlands, is widely recognized to be the leading country in this field.

2. The term "labour accounts" or "labour accounting system" emerged from discussions which started in the early '80s, between representatives of some national statistical offices and of the statistical secretariats of some international organisations, concerning the objectives, principles and mechanisms for pulling together in an effective manner the fragmented statistics available on labour markets. This concern was related to statistics on employment, unemployment, wages and income from employment as such, as well as to the coherence between these respective areas of labour statistics, and between them and other areas of statistics, both economic statistics, in particular as organized by the *System of National Accounts (SNA)*, and social and demographic statistics. The concern applied to statistics both for a particular reference period and for the changes which take place between reference periods, and both in respect of the net changes for groups and the gross changes for individuals. The discussants felt that users as well as producers of labour market statistics would benefit from the creation of a framework which could assist in the production of comprehensive and coherent statistics with improved precision for the said areas, and in the use of fragmented, incomplete and partly overlapping primary statistics which also might be less precise than required by users. By using the term *Labour Accounting System (LAS)* for this framework it was intended to signal (a) the intention to make use of any relevant definitional relationships between central concepts and units; and (b) the conviction that a useful LAS framework would serve as a coordinating tool for all labour statistics, in the same way as SNA serves as a coordinating tool for economic and financial statistics.

3. Having participated actively in the discussions from the start the Bureau of Statistics of the International Labour Office presented *ILO (1992)* for discussion at the 15th International Conference of Labour Statisticians, see *ILO (1993)* paragraphs 98-108. Both the outline and the discussion observed that the difficult problems in preparing labour accounts would be related to the use of available data to generate the actual estimates, and that only the experience with the preparation and use of such estimates would lead to further progress in respect of developing a coherent and agreed LAS. In addition to presenting the main concepts and principles of LAS, the objective of this paper is therefore to review the LAS work of the four countries mentioned, with respect to similarities and differences in the approaches taken to the establishment of labour accounts, and to see whether conclusions can be made with respect to the direction of future work. The presentation of the national approaches is based mainly on *Poulsen et al (1996)*, *Statistics Denmark (1997)*, *Sølling (1997)*, *Leunis & Altena (1996)*, *Hansen & Skoglund (1997)*, *Buhmann et al (1995)*, *Ackermann et al (1997)* and *Vuille (1997)*.

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**B: User areas**

4. In the discussion of an LAS one has to distinguish between two sets of issues: (1) those concerning the logical and definitional structure; and (2) those concerning the observation and estimation of the corresponding data (parameters). This distinction is necessary, as the issue of inconsistency in primary statistics has tended to get confused with that of ensuring logical consistency within the LAS. The problem of how best to use the primary statistics to estimate the "data cells" defined by the structure of an LAS is basically no different from that faced by national accountants and other secondary users of statistical data, and in seeking its solution one may, in the same way as the national accountants, benefit from the requirement that estimates be consistent within the logical framework of the LAS structure, and in particular from the "accounting relationships" in the system. Thus one basic use of the LAS is to provide a logical framework for obtaining internally consistent estimates of key labour market variables and their distribution over the population. Such consistent estimates are in turn necessary for the description and analysis of the state and dynamics of the labour market and its interaction with the rest of the economy. In addition to "accounting relationships", the logical framework will require the consistent use of units of observation and measurement, time references, definitions and classifications.

5. More specifically, "description and analysis of the state and dynamics of the labour market and its interaction with the rest of the economy" refers to the following main areas for statistical description and analysis:

- (a) obtaining an overall picture of the employment status of the population and its distribution over the various variables of interest for economic, labour market and educational policies and planning, as well as estimates of net changes which can be derived from successive situation descriptions, *Gouriev (1984)* and *Neubourg (1983)*;
- (b) studies of the total amount of human resources, their change and allocation between different activities, including productivity studies which require consistency between labour input data, on the one hand, and production or national accounts data, on the other, see *Harildstad (1989)*;
- (c) studies of the relationship between the cost of labour and the demand for it, on the one hand, and the remuneration of labour and the supply of it, on the other, see *Altena et al (1991)*;
- (d) studies of "gross" changes ("flows") in the number of jobs and persons and in their activity situation, see *Neubourg (1983)*.

6. There are very real differences in the requirements of these different user areas in terms of units of observation, units of measurement, reference period and periodicity - core elements of any LAS. User areas such as (a) and (d) focus mainly on Persons, both as units of observation and units of measurement, but will often differ with respect to desired periodicity and reference period. User areas such as (b) and (c) are mainly interested in the flow of productive services and how they are generated, allocated and rewarded, and may focus on hours as a unit of observation and some quality indicator (e.g. value or "money") as a unit of measurement, even if the reference period and the periodicity is the same as those for (a) or (d).

**C: Periodicity and reference periods**

7. The reference periods required for user areas such as (b) and (c) will depend on the accounting periods used. A calendar year or a quarter are most frequently used. Productivity studies require data on the "amount" of productive services rendered by labour during the reference periods. User areas (a) and (c) will be interested in certain stocks, such as:

- (a) the average number of persons (or posts) that have had certain status characteristics during the reference period; or
- (b) the number of persons with certain characteristics present at the end of the reference period; or will focus on various changes, such as:

- (c) the net changes in the number of persons in each status category;
- (d) the total number of changes occurring in the reference period;
- (e) the total number of persons who experience at least one change within a reference period; and/or
- (f) the number of persons who have changed status from one period (or one reference date) to the next.

8. The numbers for (c)-(f) are equal only for very short reference periods, periods which are too short for a post or a person to experience more than one change. We must expect that in practice "labour accounts" will be mostly concerned with type (c) and (f) changes for reasons relating to the availability of data. However, data from administrative records may tend to be of type (d) while some users may prove to have a preference for type (e) data. (It may be worth noting that whereas changes of types (d) and (e) recorded for each of, for example, four quarters add up to the total which would be recorded if the reference period was one year, the adding up of quarterly changes to obtain changes over one year is not possible with type (c) and (f) data.

#### **D: Units and other structural elements**

9. This section describes the basic units which serve as the building blocks of the logical LAS structure and how they are related. (Note that the use of a specific reference period is implicit in what follows.)

10. Posts and persons are the main objects (or units of observation) of an LAS because these are the units which are counted in (part of) the LAS as well as observed in much in the underlying statistics. When "persons" and "posts" are linked, there exists a job (and vice versa: it takes a "job" to link a "post" and a "person"):

- (a) a person requires no further comment at this stage;
- (b) post should be defined as a set of tasks which are (designed to be) carried out by one "person";
- (c) a job should be defined as an implicit or explicit contractual relationship between a specific "person" and a specific "post". Each "job" represents the link between an employed person and a filled post. (This includes the "self-employed" person who fills a "post" with himself/herself as "employer".)

11. The primary units "posts", "persons" and "jobs" are carriers of characteristics (variable values) which are of interest to the users of an LAS. Some of these characteristics are derived from other units of observation, i.e. employers and households:

- (a) a household is an important part of the context for a person's participation in the labour market. Characteristics of households therefore are important in much analysis and description of labour supply;
- (b) an employer may be a corporation, a government unit, a non-profit institution or a person in his/her capacity as owner of an unincorporated enterprise.<sup>74</sup> In addition to being important in the definition of posts", "employers" are primary carriers of characteristics which are important when describing "posts" and, through them, also "jobs" and/or "persons".

12. In an LAS we want to distinguish between those characteristics of "posts" and "persons" which describe their relation to the labour market, (i.e. those describing "activity situations"), and other characteristics

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<sup>74</sup> Because some employed persons are self-employed, we must use the counter-intuitive convention that a person may have a "job" and a "post" with herself/himself as "employer". Logically this should not present any problems, nor should it be problematic from a data-collection point of view.

("distribution variables") which are used to describe the structure of the primary units in the different activity situations. The following activity situations seem most important:

- (i) for posts:
  - (a) filled posts
  - (b) vacant posts
- (ii) for persons:
  - (a) employed persons
  - (b) unemployed persons
  - (c) persons outside the labour force

13. While initially the number of activity-descriptive classes can be limited to these three for "persons" and two for "posts", the number of classes can be expanded if required, e.g. with "training" and "education".

14. The international recommendations concerning the definition of activity situations for persons are presented in the resolution concerning statistics of the economically active population, employment, unemployment and underemployment, adopted by the 13th ICLS in 1982<sup>75</sup>. Corresponding recommendations do not exist for "posts" or "jobs", but some elements of future definitions would seem to follow from the logic of their inclusion in the LAS:

- (a) Since a "filled post" should correspond to (at least) one "employed person", there will be (at least) one "Post" whenever we have an "employed person". As "employed persons" may be "temporarily absent from work" we may also have a "filled post temporarily inactive" because of such absence (however, since some workers can be engaged on a temporary basis as substitutes for some of the workers who are absent, there cannot be a one-to-one relationship between the number of "employed persons temporarily absent" and the number of "filled posts temporarily inactive");
- (b) there has not been much international discussion of the concept and measurement of vacancies. However, it has been suggested, e.g. in *Hoffmann (1995)*, that it is fairly straightforward to develop a definition of a "vacant post" which parallels the definition of an "unemployed person":

*"A "vacant post" can be said to exist if an employer before or during the reference period has taken concrete steps to find a suitable person to carry out a specific set of tasks and would have taken on (entered into a job contract with) such a person if she/he had been available during the reference period."*

Definitions which are close to this have been used as the basis for surveys, e.g. in Canada, Hong Kong, Netherlands, United States. The available experience does indicate, however, that it is virtually impossible to design surveys which can cover all "vacancies" to which "unemployed persons" may apply. (See also *Verhage et al (1997)*.)

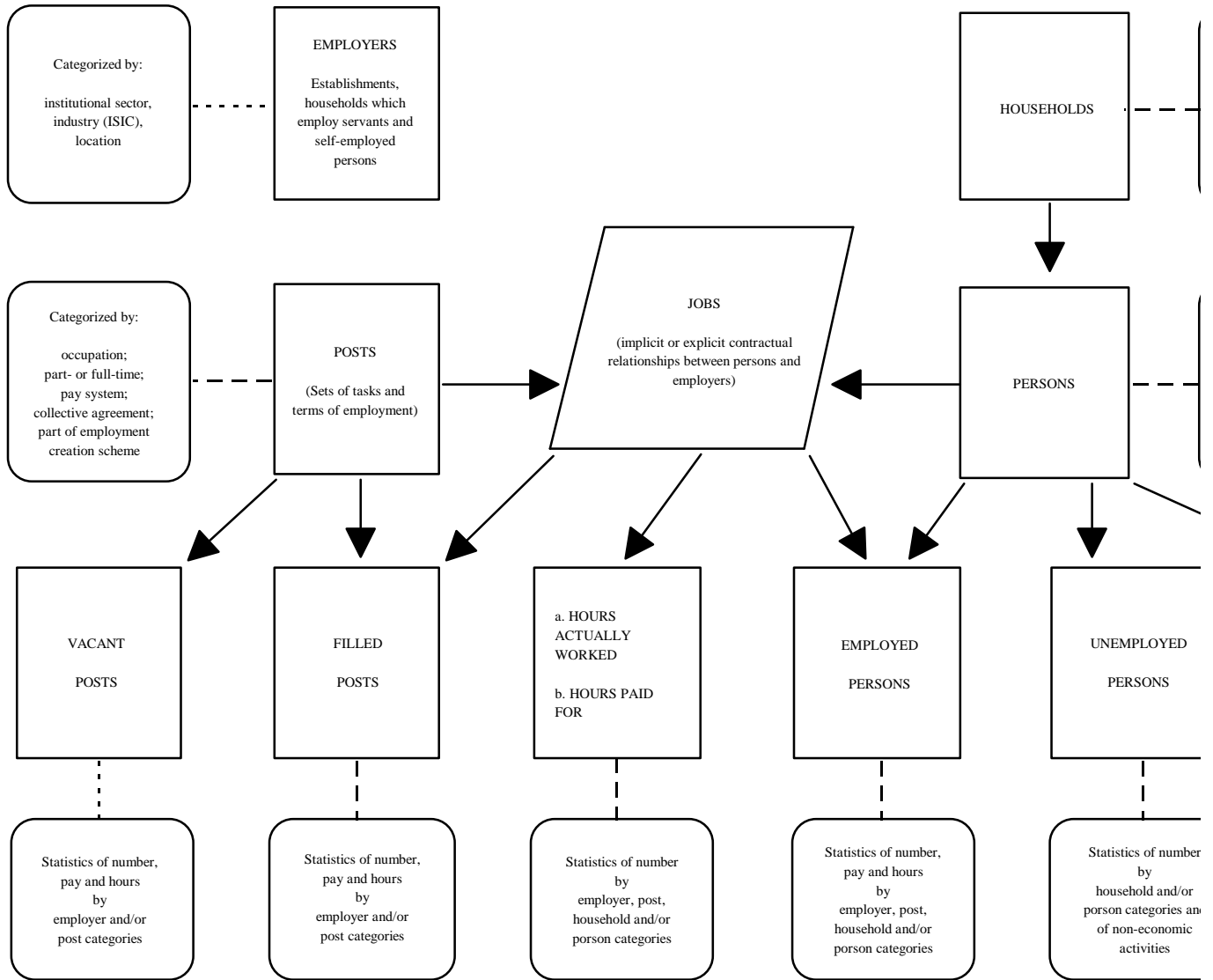
15. Chart I describes how the units discussed above are related. It has been drawn to emphasise the parallel between "persons" and "posts", respectively representing the supply side and the demand side of the labour market. However, this should not lead one to forget a fundamental difference between these two types of units: "persons" can exist independently of the labour market - thus the need for the category "persons outside the labour force" - while it has no meaning to speak of "posts outside the labour market". Consequently, "the total number of posts" cannot be defined independently of its components "filled posts" and "vacant posts".

16. In addition to making it possible to define "vacant posts", the term "designed to be" in the definition of "post" given in paragraph 12(b), will allow the definition of "posts" to cover the situations of the "shared post" (or "shared job" which is the more common expression). "Shared post" is the situation where a "post" has been designed by the employer to be filled by one "person" but, for various reasons, two or more "persons" have

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<sup>75</sup> See *Husmanns et al (1990)* for further discussion of these recommendations.

Conceptual Framework for a Labour Accounting System



Note: "Numbers" means stock at a point in time, average over a time period or total over a period (for flows, e.g. hours actually worked or paid for). The statistics on total compensation by institutional sector and by industry provides links to the system of national accounts.



been engaged to carry out its tasks. In other words, one "post" can be linked to more than one "person". This parallels the situation of one "employed person" being linked to more than one "post". Difficulties which arise from this can probably best be dealt with through appropriate characteristics of "jobs", e.g. as "part-time/full-time", "principal/substitute", "shared/not shared" post.

17. One function of the "job" concept is to represent the link between one particular "filled post" and one particular "employed person". The "job" is the unit observed in most establishment-based employment statistics, and it is also the link which makes it possible to associate person-specific characteristics (e.g. age, sex, education, work-history) with "posts", and post-specific characteristics (e.g. the occupation and status-in-employment of the post as well as the industry of the employer) with "employed persons".

18. There is a clear parallel between "jobs" in an LAS and "transactions" in the national accounts. In fact, "jobs" should be seen as reflecting a specific sub-set of the transactions described by the national accounts. This provides the main basis for overlap between the two systems.

19. Chart I includes "hours actually worked" and "hours paid for" as two special sets of units linked to "jobs". Both types of unit are of central interest to users of an LAS, both in themselves and because they provide the basis for productivity calculations ("hours actually worked"), for definitional links with the SNA ("hours paid for") and for defining "accounting relationships" within the LAS (see section G below).

#### **E: The measurement of quantities**

20. The main quantities asked for in an LAS will be:

- (a) number of units, i.e. number of posts, jobs and persons;
- (b) amount of productive services rendered by employed persons/used in filled posts;
- (c) value of productive services rendered by employed persons/used in filled posts.

21. When describing the number of persons, it should be possible for the LAS to have direct links with the demographic accounts, including educational accounts, which are part of the *Framework for Social and Demographic Statistics (FSDS)* described in *United Nations (1979)*, i.e. common conventions, definitions and classifications. Similarly, information on "hours actually worked" should be linked to a "time use" component of the FSDS. When describing the value of productive services it should be possible for the LAS to have direct links to the system of national accounts (SNA), particularly as one of the satellite tables to the national accounts is designed to display the amount of productive services provided by labour.

22. While standard conventions specify how to measure the number of persons and the value of labour services, no agreement has been reached concerning the measurement of the amount of services provided by labour. Four different measurement methods can be said to exist (or to have been proposed):

- (a) number of "Persons at work" (a sub-set of "persons employed");
- (b) number of "work-years" ("man-years");
- (c) number of "actual hours of work";
- (d) "value of wage bill at constant wages".

23. Measurement method (a) is generally thought by most users to be too crude to be satisfactory, as persons' differences in intensity of work during the reference period are not taken into account. Method (b) is currently the most commonly used in the national accounts satellite tables mentioned above, and is often thought of as equivalent to "number of jobs on a full-time basis". It uses a reference to the "normal work-year" when

converting from "persons employed" to "work-years", and the estimation is usually based on a classification of "persons employed" as either "full-time" or "part-time" workers. Several countries now seem to find that "normal work year" and "part-time work" are concepts which are too imprecise and variable, both over time and between industries, and they therefore would prefer to use measurement method (c). Method (d) has been proposed as the best method to make adjustments both for intensity of work during the reference period and for differences in the amount of productive services rendered by different types of labour due to differences in qualifications and other factors, but no examples of its use in official statistics has been found.

24. It seems likely that measurement methods (a) and (b) will continue to be the most widely used in the near future, as they require less (or simpler) information than methods (c) and (d), which may be preferable in principle for certain types of analysis. To collect good data which can serve as a basis for measurement methods (c) and (d) is not easy, and especially difficult for persons working for profit or family gain and not for pay.

25. A time-accounting approach to the measurement of time actually worked has been outlined, see e.g. *Hoffmann (1981)*, which, based on later studies from Finland, for example, seems to give better estimates of hours worked by self-employed groups than the standard approach used in labour force surveys. If "hours of work" are obtained for quality-relevant categories of employed persons (as defined by e.g. occupation or education), then we can apply some weighting scheme to arrive at a quality-adjusted measure of "amount of services rendered". The difficulty, of course, is to determine the basis for such weights.

26. Most of the weighting systems which have been proposed are related either to the cost of increasing the quality and productivity of workers (e.g. years of schooling and special vocational preparation, costs of education and training) or to the results of their productive activity (e.g. relative wages). The problem with cost-related weights is that there is no way of knowing the degree to which the cost of training received is related to the resulting capacity to render productive services. (Available evidence seems to indicate that cross-section correlations are positive but weak, and that they probably are not stable over time.) One problem with result-related weights, such as wages, is that they only reflect results under rather strict assumptions about the markets in which they are determined. These assumptions are not satisfied in real labour or goods markets, and we have no way of knowing how important this is for the ability of, say, relative wages to reflect relative productivities. This problem is compounded when we remember that the remuneration of many employed persons is determined not directly in a labour market, but indirectly in goods and services markets with a combined remuneration of both labour and capital. Consequently, "wage bill at constant wages" is also a problematic basis for measuring the amount of productive services rendered, even if we do not take into account the difficulties of estimating a "wage equivalent" component of the incomes of "self-employed" persons.

## **F: Classifications**

27. The "distribution variables" referred to in paragraph 11 above have two important functions in the LAS. The most obvious one is to describe important characteristics of the units "accounted for" by the LAS, i.e. the stock of persons and posts in the different activity situations, the changes in these stocks or the amount or value of services provided in/by the units during a reference period. Gross transition of "persons" or "posts" between classes in the "distribution variables" should not be seen as part of the LAS, but they may be included in other parts of a socio-demographic accounting system. The second function is related to the estimation of cells in the LAS tables. The data sources which can be used as a basis for LAS estimates will frequently be incomplete, in particular with respect to units covered, and different sources will be truncated differently. Identification of the holes in coverage of the different sources and their degree of overlap in terms of the distribution variables will provide a basis for making necessary estimates and/or improving the database.

**Table 1. Distribution variables in the labour accounting system by primary units**

1. Employers
  - Ownership
  - Industry\*
  - Size
  - Location
  
2. Posts
  - Status in employment\*
  - Occupation\*
  - Contractual working hours
  - Shift system
  - Pay system
  - Collective agreement
  
3. Jobs
  - Income from employment\*
  - Amount of labour costs\*
  - Amount of compensation of employees\*
  - Amount of net operating surplus for self-employed persons (of unincorporated enterprises)\*
  - Normal or usual hours worked\*
  - Hours paid for
  
4. Persons
  - Sex
  - Age\*
  - Nationality
  - Ethnic group
  - Union membership
  - Education obtained\*
  - Actual hours worked\*
  - Past occupation (and other life history variables)
  - Work desires
  - Activities (other than those defining status)
  
5. Households
  - Domicile (location)
  - Type of household\*

\* Indicates that there exists some type of international recommendation concerning the definition and classification of this variable. They are not necessarily coordinated with each other or with the SNA recommendations.

28. It is useful - at least from a data collection point of view - to recognise the primary unit for each distribution variable. Other units may also be described by these variables, but only if they have a recognised relationship to the primary unit, i.e. they are sub-units or they are linked in a defined way to the primary units, e.g. in the way 'persons' are classified by 'industry' by being linked to a 'post' at an employer (i.e. an establishment) through a "job". Table 1 indicates the main distribution variables of interest to users of LAS based statistics and how they are allocated among primary units. The table also indicates whether some type of international recommendation exists concerning the definition and classification (value set) of the variables.

### **G: Accounting relationships in the labour accounting system**

29. "Accounting relationships" in an LAS will relate to stocks of "persons" (for the supply side) and "posts" (for the demand side), to changes in these units, and to flows of hours and income/costs. The elaboration of these relationships are important both because describing the structure of the LAS will make explicit the logical and definitional interdependence of various elements in the LAS, and because they can facilitate the identification of inconsistencies in the available data used to make LAS estimates and the necessity of adjustments and/or supplementary data. Wherever relevant the design of these accounting relationships must be coordinated with corresponding parts of the *System of National Accounts (SNA)*<sup>76</sup> and the *Framework for Social and Demographic Statistics (FSDS)*, for the same reasons, although in practice the coordination between a LAS and the SNA and FSDS systems depends more on the coordination of scope, units, reference periods and classifications.

30. Accounting for the stocks of persons should take the total population as the point of departure, making sure that in this context "total population" is delineated in a way which is consistent with the SNA guidelines for the delineation of the (national) production boundary, as well as the FSDS guidelines.<sup>77</sup> Depending on the main uses of the data there will be a need to account for the average number of persons in each of the groups defined by cross-classification of the activity variables and the distribution variables, as well as for the "closing stocks" at the end of each reference period. The former stock concept is the one most closely related to the flow accounts for hours and income (see paragraphs 29 and 30 below). The latter stock concept is the one most directly relevant for the change accounts (see paragraph 28 below). The basic relationship to be satisfied by these accounts are:

$$\text{total population} = \text{employed persons} + \text{unemployed persons} + \text{persons outside the labour force}$$

31. In paragraph 13 it was underlined that the total number of "posts" cannot be defined or observed independently of its components - "filled" and "vacant" posts"; and in paragraph 11(b) the observation was made that in practice it is virtually impossible to observe all vacancies. Most accounts of the stock of "posts" will therefore be limited to "filled posts" and an observable sub-set of "vacant posts" with groups defined by distribution variables. Consistency issues with the SNA concern the delineation of activities which belong to the national economy. The same considerations as for "persons" will determine the choice of "average" or "closing" stock concept. The basic relationship to be satisfied by these accounts are:

$$\text{total number of posts} = \text{filled posts} + \text{vacant posts}$$

32. In early discussions about an LAS, much attention was paid to gross changes from one closing date to the next (see paragraph 7(e) above). Making sure that all possible forms of such changes have been identified and estimated, given the periodicity and reference periods, is one type of "accounting relationship" that is necessary within a complete LAS, well illustrated in *Denton et al (1976)*. Such "change accounts" must account for, and therefore define, "births" and "deaths" of "posts" and "persons" respectively, in addition to the transfer from one

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<sup>76</sup> As "jobs" represent the link between "filled posts" and "employed persons", there is no need to have separate accounts for "jobs", even though they play an important conceptual role in the LAS. Also in this respect they can be seen as the parallel of "transactions" in the SNA.

<sup>77</sup> The most difficult issue, of importance only for some countries, will be the treatment of persons living in one country and working in another.

activity situation to another. There is no problem in principle in defining "activity transfers" or "births" and "deaths" of persons (where the latter would cover migrants as well as real deaths and entries and exits to/from any lower and upper age limits), and such data will often be available and of interest. More problematic are the "status transfers", "births" and "deaths" of "posts", as they can only be defined on the basis of recruitment activities (i.e. "vacant posts") or observed "jobs" (i.e. "filled posts"). Most employers are likely to find it difficult to give information about activity changes of "posts", i.e. about whether a newly hired person has entered into a formerly "vacant post" or into a "new post", and whether the departure of a person has created a "vacant post" or has led to the loss ("death") of a "post", even though there in public discussions frequently are references to and considerable interest on the "loss" and "creation" of "jobs", i.e. "post" in the terminology of this paper. The latter distinction must be tied to a decision to replace the departed worker.

33. A complete "time accounting" system has been outlined in *Denton (1986)*. This can serve as a basis for defining a third type of LAS "accounting relationships" which will make use of the convention that "time used for work" by "employed persons" must be "absorbed" by "filled posts". Tying the two sides together are the "jobs", which can link information from employers and workers about "hours paid for", "hours actually worked" and "paid hours absent from work". To ensure equivalent coverage of the data sources used to estimate the two "sides" will, however, pose a major practical problem. The accounting for "hours actually worked" should be developed in a way which is consistent with the conventions developed for time use studies, which account for the total use of time over a short reference period<sup>78</sup>, as well as with the development of yearly estimates of "hours actually worked" linked to the SNA. The basic relationship to be satisfied by these accounts are:

$$\begin{aligned}
 &\text{total number of hours actually worked by employed persons} \\
 &= \text{total hours paid for} \\
 &- \text{total hours of paid absence and resting time} \\
 &+ \text{total hours of unpaid work} \\
 &= \text{total hours used by filled posts.}
 \end{aligned}$$

34. The monetary accounts of the LAS should link together the income to employed persons and the cost of employing them. This is conceptually much easier to do for income and cost of "paid employment" (e.g. work of "employees") than for "self-employment". For the former the basic relationship to be satisfied by these accounts are:

$$\begin{aligned}
 &\text{total income from "paid employment"} \\
 &+/- \text{various components} = \text{total cost of paid labour.}
 \end{aligned}$$

35. The starting point for further specifications should be the ICLS resolutions and SNA conventions regarding the corresponding income and cost concepts, see e.g. *ILO (1997a)*.

## **H: The data sources for a LAS - weaknesses and strengths**

36. Estimates in a LAS will be based on information provided by individuals or by establishments, directly to the statistical agency through household and establishment surveys or indirectly through using information stored in the records of various administrative agencies.<sup>79</sup>

37. The advantages of **household surveys (HS)** are (i) they provide complete coverage of the resident, non-institutional population of the country; (ii) employment and unemployment estimates will be consistent; (iii) the estimation procedures used normally will try to compensate for biases due to selective non-response rates within the target population; and (iv) they are flexible and can be made to measure desired concepts. Disadvantages are

<sup>78</sup> See e.g. *UN Statistics Division (1997)* as well as *Hoffmann & Mata (1997)*.

<sup>79</sup> Information collected through establishment surveys will normally be provided on the basis of (interpretations of) the administrative records kept by the establishments in their own interest and for their own use.

(i) the need to adjust for the institutional and non-resident population of workers in the national economy, e.g. those who commute to neighbouring countries for work, to ensure consistency with the geographic scope of the national accounts; (ii) the low level of precision in many of the estimates of interest, due to the use of sampling<sup>80</sup>; and (iii) the reliance on the knowledge and memories of the respondents may result in inaccurate information.

38. The advantages of **establishment surveys (ES)**, or an **establishment census (EC)**, are (i) that they provide fairly precise estimates for the covered population and variables; and (ii) that the employment estimates will be consistent with those for production and factor income made within the framework of the national accounts. Disadvantages are the need to adjust for (i) inadequate coverage of small establishments, in particular those in the "informal sector" and in certain activities<sup>81</sup>; and (ii) the observation of (characteristics of) "jobs" rather than (of) persons. In addition ESs normally will provide only a the limited range of characteristics of workers.

39. The advantages of using **administrative records (AR)**, in addition to those related to the data collection costs of the statistical agency, are (i) that the estimates made from them will not suffer from sampling imprecision; and (ii) that some variables (important to the administrative process) may be measured very reliably. Disadvantages are that (i) the measurement of certain other variables may have very low reliability; (ii) that the information may concern "cases" and "jobs", rather than persons, depending on whether the information originated with persons or establishments, unless individual registrations for the same person can be linked, i.e. by the use of unique personal identification numbers of the Scandinavian type. Important concerns are also the lack of stability in coverage and definitions due to changes in administrative rules and capacities as well as in public behaviour relative to the administrative institutions and regulations.

## **I. The use made of the different sources in the countries studied**

40. The relative importance of the different types of sources are different in the four countries, as is the strategy for using them. In the Netherlands and Norway the focus seem to be on providing estimates of employment which are consistent with the estimated national accounts production and incomes estimates. The main starting point for the Dutch estimates is a ES where information on both employment and earnings are collected, whereas the Norwegians have to cope with a more splintered collection of not particularly well coordinated ESs, although most of them seem to cover the same variables. In both countries the results from the main HS, the *Labour Force Survey (LFS)*, is used to fill in the most of the elements which are missing from complete coverage according to national accounts conventions. The LFS is based on relatively large samples and continuous in both the Netherlands and Norway, thus providing a good basis for estimates of year estimates of totals and averages for the population and the variables covered.

41. The Swiss team has prepared parallel investigations of the consequence of starting from each of their three main sources for the chosen reference date 1 January 1991: the December 1990 population census, the September 1991 establishment census (PC and EC respectively) and the second quarter 1991 LFS. Adjustments were made to the three sources to bring their results into line with the those required by the LAS framework. The resulting estimates of total employment from these adjustments were very similar for the latter two sources, a difference of about one percent, while the estimate arrived at from the PC was 7-8 percent lower than the other two.

42. The Danish work starts from the register-based labour force statistics (RAS) supplemented with data from sources not already used in the construction of RAS to make the adjustments necessary to change the population from persons to jobs and the reference period from November of the reference year to the average for

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<sup>80</sup> The Swiss work is the only serious discussion of *Population Census* results in the context of the LAS system. The LAS framework is used for an analysis of weaknesses in the employment estimates from the 1990 census.

<sup>81</sup> Such under coverage is relatively more important for LAS estimates than for national accounts estimates because it normally relates to establishments with lower than average productivity. This implies that when linking to NA estimates represents a major reason for the use of ES data in LAS work, care should be made not to make such coverage adjustments in the LAS estimates which go beyond those (to be) made in the corresponding national accounts estimates.

the year. Included among those 'other' sources is also the annual LFS, the only source which is not based on administrative registrations.

43. In all four countries adjustments are made to compensate for "shortcomings" in the primary data sources or differences between the sources and between the sources and the general framework used for the LAS. The Dutch talk about three types of such shortcomings or differences<sup>82</sup>, related respectively to

- (a) differences in definitions, classifications and amount of detail<sup>83</sup>: the adjustment for which is "harmonization";
- (b) differences in population coverage: the adjustment for which is "achievement of full coverage";
- (c) measurement errors; which one seek to "minimize"<sup>84</sup>.

44. The elimination of remaining minor differences is said to constitute "balancing".

45. In the part of the LAS which concerns employment it is very important to distinguish between the different types of units (which can be) counted. "Jobs" are being counted in an ES and an EC, "persons" are counted in a LFS and a PC, while the coordination with national accounts data for e.g. productivity analysis often will require the use of "full time equivalent work-years" or "total number of work-hours". The difference between the first two is the result of some persons holding more than one job during the reference period. The conversion from the number of jobs or persons on the one side and the number of work-years or work-hours on the other is designed to adjust as much as possible for differences between sectors and over time in the amount of work, i.e. in the incidence of overtime and part-time work as well as differences in "normal" working hours<sup>85</sup>. It is not clear whether such adjustments can be regarded as "harmonization" in the typology above, but the adjustment to achieve consistency in reference periods would seem to be.

## **J: The scope of the national LAS estimates**

46. There are several dimensions to the question of scope or coverage of a LAS: (i) geographic; (ii) type of workers, (iii) topical and (iv) whether the focus is on situations and corresponding net changes, or on gross flows into and out of the stock of persons in these situations:

47. Relevant geographic scope will be determined by whether the objective is to coordinate with SNA and economic statistics or to coordinate with social and demographic statistics. Coordination with statistics on production requires that the national LAS should cover all *jobs* located in a country according to the national accounts, and only these jobs (see the discussion in chapter XIV, sections B and C, and chapter XVII, section B of *Inter-Secretariat Working Group on National Accounts (1993)*). Coordination with social and demographic statistics requires that the national LAS should cover all *persons* either legally residing in the country (*de jure*) or present there (*de facto*). The fact that people may work in a country different from where they normally (or actually) reside means that adjustments must be made to make sure that the geographic coverage of statistics on jobs, normally from establishment based reports, and on persons, normally from household surveys, have the same geographic scope. Such adjustments are made most explicitly by the Dutch and the Swiss, presumably

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<sup>82</sup> These types of adjustments are also relevant when creating consistent time series, even when the source is said to be "the same".

<sup>83</sup> The reference to "amount of detail" is unexplained, but one may assume that it refers to the use of information from a secondary source to estimate the distribution over categories for a variable not covered by the primary source, or not covered with a value set which is sufficiently detailed.

<sup>84</sup> The Dutch include "sampling errors" among the "measurement errors". This is an unfortunate and misleading terminology, as sampling does not lead to errors in the resulting statistics, but to imprecision. Such imprecision can be reduced by the use of supplementary information, and it seems that this is what the Dutch do, and why they talk about "minimisation of measurement errors". One would expect adjustments necessitated by "untreated" sampling imprecision to be part of the balancing.

<sup>85</sup> Using "hours" as unit of account will make it easier to prepare coordinated estimates which include education and training activities, as well as make possible relevant distinctions between "productive", "economic" and "market" activities in the sense discussed in *UN Statistics Division (1997)* and *Hoffmann & Mata (1997)*.

reflecting the respective relative importance of transborder commuting by workers. The Norwegians adjust only for foreigners working on Norwegian registered ships, but not for transborder commuting, e.g. with Sweden. The Danes do not say whether they make such adjustments, although commuting must be of some importance across the borders with Germany and Sweden.

48. Topically the scope of LAS can be divided into several modules: (a) Employment; (b) Income from employment; (c) Labour costs; (d) Unemployment; and (e) Vacancies. Within a module the work to develop coherent LAS estimates will tend to focus on the categories which are considered to be most important, either numerically or from a policy perspective; or for which the available data sources are seen as most adequate. Consequently the LAS work in all four countries has started with the first of these modules, with separate procedures for workers in paid and workers in self employment, because different data sources and adjustments have to be used. In the Danish, Dutch and Norwegian work estimates for (b) and (c) have also been developed which are consistent with those for (a) at the macro level, but only as concerns workers in paid employment. No efforts have been described concerning the corresponding rewards and costs for persons in self employment<sup>86</sup>.

49. Modules (d) and (e) were included in the framework presented in *ILO, 1992*, as are issue related to dimension (iv) above, but the national sources reviewed for this paper only mention these aspects of the LAS and do not present any concrete efforts to include estimates related to these elements into the LAS work. With respect to (d) unemployment this is surprising, given that in all countries this is a major policy concern for which uncoordinated statistics from different sources exist, with different strengths and weaknesses. It is less surprising for (e) vacancies as only the Dutch seem to have regular ESs on this. The other countries only have ARs as basis for statistics on vacancies, and they are recognized to cover a relatively small proportion of all vacancies.

50. To extend the LAS framework to include (e) Persons in training is a possibility mentioned in *ILO (1992)*. This element is also mentioned in the Danish work, but limited to adult education. To do so would tie the LAS work closer to the, fairly loose, FSDS. However, no work to do has been described in the sources reviewed. For each of these modules estimates can be made for the situation of a (sequence of) particular year(s), i.e. "stock" estimates and estimates of net changes. The extension of the work to include estimates of "flows", i.e. gross changes for one or two modules, is mentioned by the Danes and the Swiss as a stated intention as one gains experience and/or new or improved statistics becomes available.

## **K: Concluding remarks**

51. The efforts to develop LAS estimates reviewed for this note demonstrate that work on LAS in some national statistical offices now has advanced from conceptual discussions to partial estimations. The focus of these estimations is on (i) making optimal use of statistics from different sources, giving priority to paid employment and using the LFS results as an overall reference for coverage; and (ii) ensuring coordination with corresponding national accounts estimates for production and income. One may speculate that the preference for (ii) rather than for preparing e.g. overall integrated estimates for gross flows between labour market situations, or to the labour supply and demand imbalances, may be motivated partly by the prestige and importance of the national accounts in the national statistical programmes, and partly by the availability of suitable data. The result is, therefore, that it is the inclusion of a more complete description of the labour market which seems to be the most urgent extension of LAS estimates. This may seem slightly ironic, given that the early attention of the LAS discussions were more on the latter concerns than on the former.

52. That work on what is now called "labour accounts" has a fairly long history is not surprising given that the LAS focus is on the most important resource of any society, its mobilization and allocation among different uses, how it is costed and rewarded. Furthermore, these elements also go a long way in determining our welfare: before, during and after our participation in the labour markets. What is surprising is that efforts to make

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<sup>86</sup> The SNA only defines a combined reward to labour and capital for the self-employed. The ILO has prepared proposals concerning the measurement of income from employment for the self-employed as well as for those in paid employment, discussed at a meeting of experts in October 1997 and, in modified form, at the 16th *International Conference of Labour Statisticians* in October 1998, see *ILO (1997a)* and *ILO (1997b)*.



systematic use of the splintered statistics for these markets have not been given higher priority much earlier than is in fact the case<sup>87</sup>; and among the efforts referred to in this note only the Dutch seems to have the "critical mass" and perseverance needed to make work on LAS estimates as central to the production and use of labour market statistics as national accounts estimates are for economic statistics and empirical analysis. That the labour market and labour "issues" thus belongs to both the economic and social spheres in our society, and are analyzed both by economists and by other social scientists does seem to have prevented rather than supported the development of integrated and consistent data systems. The descriptive needs and analytical perspectives have been too diverse to promote the creation of a strong core of integrated data. Only time will show whether the current relatively stronger political and analytical concern with micro rather than macro economic and social issues will lead to wider support and more for resources LAS related work.

#### **L. Postscript, December 1997**

53. The above presentation was finalized before the First Meeting of the "Paris Group" on Labour Statistics; Paris, 27-28 November 1997. At this meeting representatives from the national statistical offices in Australia, Finland, France and the United Kingdom presented short, informal papers on work in their organizations which is similar to that presented above, partly under the heading of "reconciliation of labour market statistics from different sources" and partly as "labour accounting". (A note from Canada presented to the same session only concerned the reconciliation of unemployment statistics from different sources.) The objectives of the work and nature of the problems encountered are similar to those discussed above, but with little reference to the reconciliation with national accounts concepts and estimates. The work undertaken in Australia and the United Kingdom is, however, concerned with statistics on earnings, wages and salaries in addition to those on employment and unemployment. For further information, see *INSEE (1997)*.

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<sup>87</sup> The so-called "balance sheets of labour resources" routinely prepared in the former centrally controlled economies of central and eastern Europe and in the former Soviet Union represent an exception to this, see e.g. *Gouriev (1984)*. The conceptual scope of the LAS is, however, much broader than it was for these balances, although, so far, the same cannot be said of most of the national estimates prepared under the LAS heading.

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