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Topic (v) of the provisional agenda

**INFORMATION ON MIGRANTS IN REGISTER-BASED CENSUSES**

**Migration data in the Danish register-based statistical system**

Note by the Statistics Denmark\*

**I. MIGRATION DATA IN THE DANISH REGISTER-BASED STATISTICAL SYSTEM**

1. How can registers be used to produce data on migrants for the censuses? What are the main problems and how are we planning to solve them?
2. Statistics on migrants and migration for the Danish Census on Population and Housing is generated from the Danish statistical information system. The system covers the whole population of residents in Denmark and it will be briefly described in order to create an understanding for the manifold possibilities for deriving migration data from the system.

**II. THE REGISTER-BASED STATISTICAL SYSTEM IN DENMARK**

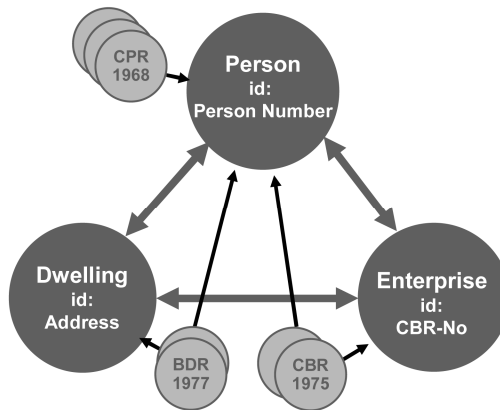
3. Denmark introduced the Personal Identification Number (PIN) in 1968 and it was used in a census for the first time at the Population and Housing Census in 1970. Accordingly, this became the first Danish register using the Person Number as an identification key. During the 1970s, the first attempts were made to base the production of statistics on registers. In 1976 a register-based population census was conducted as a pilot project, but the registers were not sufficiently comprehensive and well-established until 1981, when a proper register-based population census was conducted containing most of the conventional population and housing census information. In Denmark, like in the other Nordic countries, registers based on administrative data cover a very substantial part of the production of statistics. The content of the registers cover many fields of social statistics such as population, education, labour market, income and welfare. The strength of

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the system is that the identification keys (person number, address, central business register number and property title number) make it possible to link data on individual level, both within a specific year and longitudinally across several years.

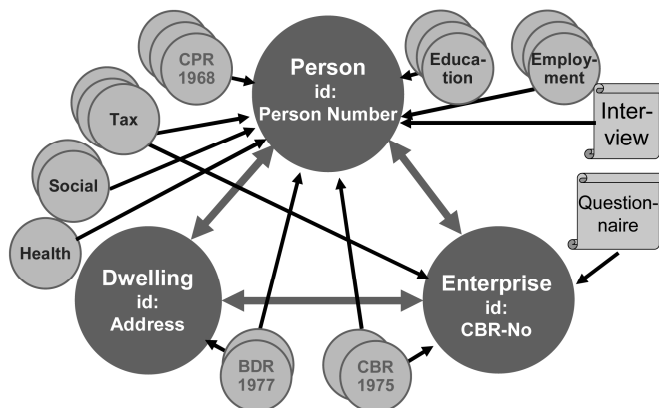
**Figure 1. The basic registers in the Danish statistical information system**



4. The most important sources for the statistical system are three administrative registers: The Central Population Register (CPR), The Central Business Register (CBR) and the Dwelling Register (BDR). These administrative registers contain the total population of people, businesses and dwellings, and are updated on a daily basis. Statistics Denmark receives copies of these registers and the quality of these registers is crucial for the quality of the statistics produced since these registers define the total population.

5. As shown in figure 2, Statistics Denmark uses a range of different registers to produce statistics, and interviews and questionnaires are also used where register information is not available. The registers are linked by various keys for individuals, families, dwellings, workplaces and enterprises.

**Figure 2. The statistical information system**



6. The statistical registers, which are based on administrative registers, have the following characteristics:

- they contain high-quality data used in the administration
- they often comprise the entire population

- they cover several years
- they can be linked through a set of keys
- they are updated regularly: daily, weekly, monthly and at least yearly

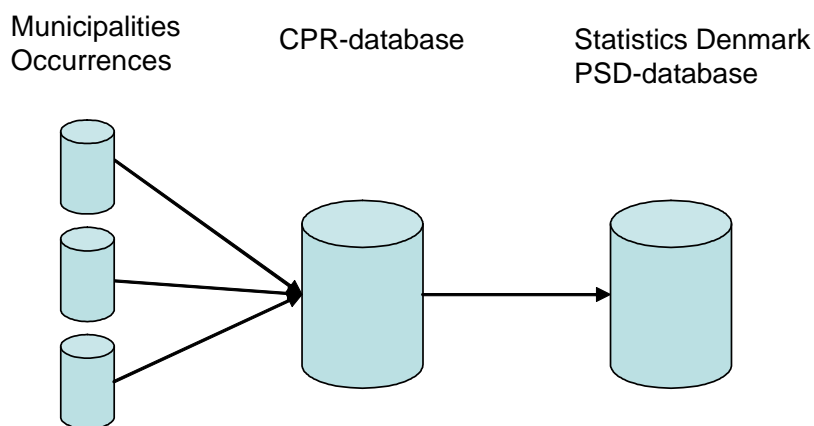
### III. POPULATION DATA FROM THE CENTRAL POPULATION REGISTER

7. Statistics on migrants and international migration in the Danish register-based statistical system is entirely generated from data in the Central Population Register (CPR). Statistics Denmark has a direct link to the CPR and gets all the updates on a daily basis. All persons are uniquely identified via a PIN in the CPR-system. Persons are given a PIN when they are born or immigrate to the country for the first time.

8. The PIN is constructed of the person's birth date plus a four digit number which also indicates the gender of the person. For all persons ever registered in the CPR there is data on place of birth, addresses, migrations, civil statuses and citizenships, as well as links to children's, parents' and spouse(s)' PIN and name.

9. The Central Person Register is updated by the 98 municipalities in Denmark as soon as an occurrence happens. An occurrence could be a birth, death, marriage, divorce, change of address, immigration, emigration, changes of citizenship or change of name.

### IV. DATAFLOW FROM MUNICIPALITIES TO PSD



10. All residents of Denmark are registered in the CPR and are obliged to report to the local registration when they change address within or outside the national borders. Important variables such as country of residence prior to immigration and destination country after emigration are also included in the CPR. Other occurrences are in most cases reported directly via the involved authorities. E.g. via the municipality if change of marital status, via the health sector in case of births and deaths etc.

11. Immigrants who intend to stay in Denmark for more than three months are required to have a residence permit and to register as residents with the local authorities. Immigrants with a citizenship from one of the other Nordic countries Sweden, Norway, Iceland and Finland do not need a residence permit. However they are also required to register if they intend to work or study in Denmark. Citizens of EU or EEA can freely stay for three months in Denmark or six months if they are applying for work during their stay without registering. Residents who leave the country with the intention of staying away for more than six months are required to report their migration to the local authorities. This means that immigrants registered in the CPR normally have an intention of staying at least 3 months.

## **V. PSD – DATABASE ON SOCIAL STATISTICS**

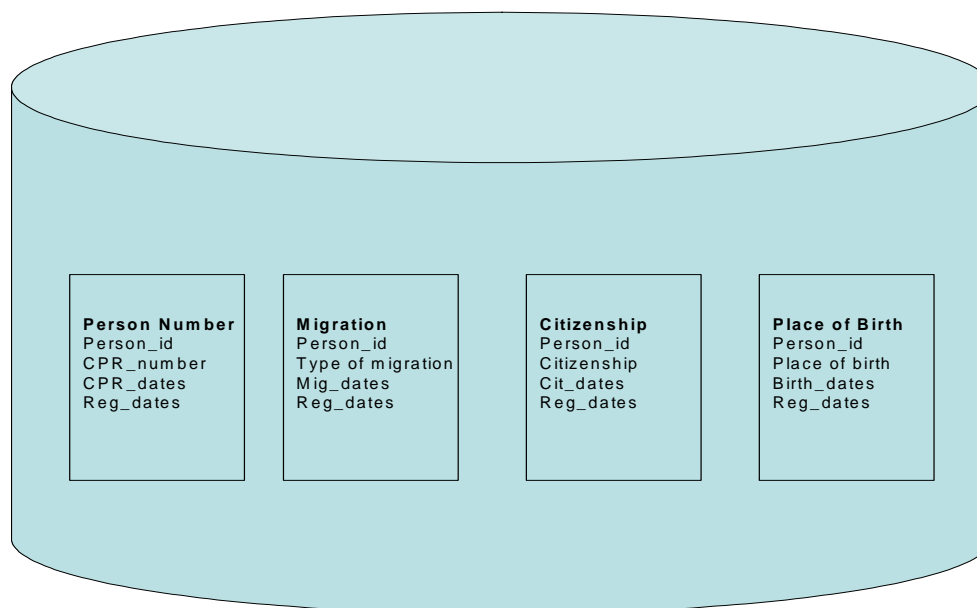
12. All updates on occurrences in the CPR are on a daily basis loaded into the database on social statistics – PSD - in Statistics Denmark. The database contains occurrences from 1986 and on. Occurrences are registered by date in the CPR, i.e. a civil status as married would start with the date of the marriage and end with the date of divorce or death of the spouse. The length of stay of an immigrant would likewise be delimited by the date of immigration and the date of emigration.

13. In the PSD all PIN-numbers are converted to a de-identified identification key which is used for linking data on a personal level from the different registers on social statistics in PSD. The de-identification serves a dual purpose. Basically it is a method to protect the PIN from being misused. But it also serves as a quality control since some persons actually have changed PIN due to mistakes in the date of birth or gender indication in the PIN. With the `person_id` it is possible to link to the same person even though the person has had more than one PIN.

14. Tables in PSD are structured around the `person_id`, a `from_date` and `to_date` and at least one variable type. In the migration table a record e.g. contains `person_id`, `in_date`, `out_date`, `to_country` and `from_country`. When generating statistics from the database it is hence possible to link the registers on a personal level while selecting the periods of interest in each register. This could e.g. be used to analyse how soon the immigrants who immigrated in specific periods of time were integrated in the labour market.

PSD – Database on Social Statistics

PSD – Personal Statistics Database



## VI. CENSUS DATA ON MIGRATION IN THE PSD

14. Migration data for the census is generated via the person\_id, place or country of birth, citizenship and migration-dates. The person\_id can be linked to other registers in the database to derive data on e.g. employment status and health.

15. The basic topics on migration in the census are citizenship, country/place of birth: (place of usual residence of mother), ever resided abroad and year of arrival.

16. **Citizenship:** Data is derived from the passport or other official papers stating the person's citizenship when registering as resident in Denmark. If a resident changes citizenship, date and country of citizenship is registered by date in the CPR. It is not possible to be registered with more than one citizenship in the CPR. If a person has a Danish citizenship and a citizenship from another country only the Danish citizenship will be registered. For persons with citizenship from the former Yugoslavia, Czechoslovakia and the Soviet Union it is not possible to apply citizenship (L) but possible to apply for M and S. By 1 January 2010 there were 5.500 immigrants with a Yugoslavian citizenship, 200 with a Soviet citizenship and 140 with a Czechoslovakian citizenship residing in Denmark. 4 percent of the immigrants are born in a different country than their country of citizenship. In these cases we would consider using their country of birth for citizenship for the census data.

17. **Country/place of birth:** Data derives from birth certificates where place of birth possibly is equal to place of usual residence of the mother. In some cases it could be the place of birth, but it is assumed that in most cases place of birth would be equal to place of usual residence of the mother.

For residents of Denmark place of birth would be the actual place of birth for person born before 1976 but since then place of birth has been place of usual residence of mother.

18. For persons born in former Yugoslavia, Czechoslovakia and the Soviet Union it is not possible to apply country of birth (L) but possible to apply for M and S. By 1 January 2010 there were 10.500 immigrants with Yugoslavia as country of birth, 1.000 born in Soviet Union and 750 born in Czechoslovakia residing in Denmark. 7 percent of the immigrants born in these countries have another citizenship than their country of birth or from Denmark. In these cases we would consider using their citizenship as country of birth for the census data.

### **Immigrants by country of birth and citizenship – former country codes selected. 2010**

Country of birth	Citizenship					
	Yugoslavia	Sovjet Union	Czechoslovakia	Denmark	Other	All
<b>Yugoslavia</b>	5.252	0	1	4.534	682	10.469
<b>Sovjet Union</b>	0	192	1	758	89	1.040
<b>Czechoslovakia</b>	0	1	130	564	55	750
<b>Other</b>	224	30	7	124.266	277.636	402.163
<b>All</b>	5.476	223	139	130.122	278.462	414.422

### **Ever resided abroad and year of arrival**

19. Data derives from the dates on in- and out-migration in the CPR. As mentioned earlier the PSD contains records on occurrences back to 1986. It is however possible to link to stored data on migration dates from 1973 and on. It is therefore possible to comply with the request for data on migration back to 1979.

### **Illegal immigrants and asylum seekers**

20. Illegal immigrants are naturally not part of the CPR-system and there is no official count of the number of illegal immigrants in Denmark. The border police and migration researchers consider illegal immigrants as a growing problem. Some estimates are from 1.000 to 5.000 where other researchers would say that this is only the top of the iceberg. Statistics Denmark has no intention of trying to estimate the number.

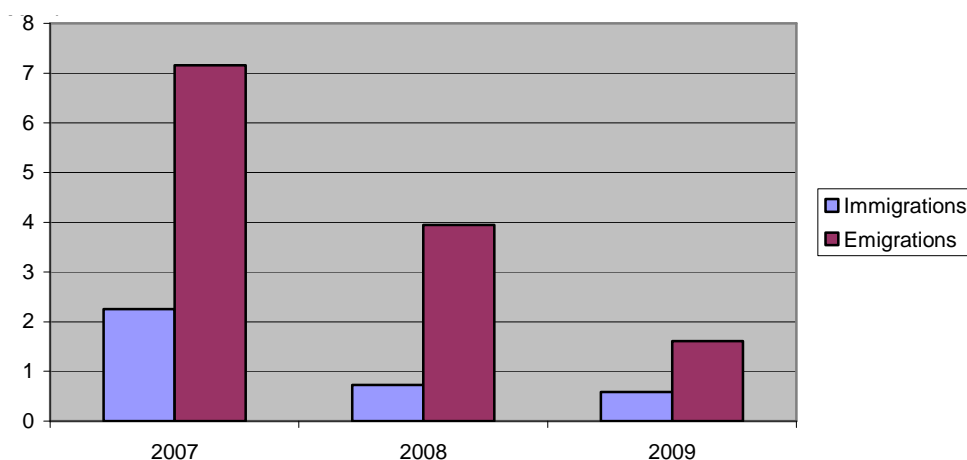
### **Over- and undercoverage of immigrants**

21. The register system has a problem related to delay in registration of emigrations. Emigrants are required to register their migration if they leave the country for more than 6 months. Reasons for not registering emigration can be many. For Danish citizens and persons with a permanent residence permit there are economic and health insurance reasons since you are not covered by the free health insurance if you are not a resident of Denmark. However there are also economic incentives to register the emigration since you need to pay taxes of your earnings if you have an address in Denmark. For immigrants who resided in Denmark for work or study there is no real incentive to report the emigration to the authorities. In many cases persons do not register simply because they are not aware that this is statutory. For immigrations there is a different setting. In order to rent an apartment, have a bank account, work, study, receive free medical care and other it is necessary to

be registered as resident in Denmark. As such there are plenty of incentives to register as soon as possible when planning to live in Denmark.

22. The figure below shows the average number of months between a migration and the registration date in PSD. Obviously the average time between occurrences and registration dates is shorter the closer we get to the present. But when we look at immigrations and emigrations it is quite clear that there is an extensive delay in registrations of emigrations whereas the delay concerning immigrations is quite short. It should be noted that some of the registrations are corrections to earlier registrations on the same migration, e.g. on country of migration, and as such not delays in registration.

### Months between migration and registration in PSD by 21 April 2010



23. Emigrants who have not reported their leave will in most cases be discovered by the tax authorities after a year or two if there is no response to the income tax demand or if there is suddenly no income or other activity of a person who used to be a tax payer. Registrations of emigrations can occur many years after emigration. It is not possible to know how many emigrations that are actually missing but it is assumed that it is a fairly small share which is not known after one to two years.

24. Statistics Denmark waits one month after a year is completed before extraction of data on occurrences as well as the registered population in order to wait for the short-termed delays in registrations in the PSD. As the register population is an extraction of all persons registered in the PSD on a specific date it is indirectly affected by the delay in registration in the PSD. However as the possible over- and under representation would concern less than one per cent of the immigrant population per year it is not considered a problem for the registered population in the census.

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