From"Stove Pipe" data producer to"Information service" provider.
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Official statistics as an integrated system of surveys and accounts. Experiences from Statistics Norway.

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1. Introduction. The stove pipe - the ghost from the past.

The last years there have been an observable international activity labelled "standardisation" focused on IT solutions and the production of official statistics. As this conference there is a reference to the "stove pipe" as a model for organising work in NSOs.

As I see it there is no precise definition of The Stove Pipe model in the literature – but it seems as this is an organisational model for an NSO where each statistical survey is performed to a large extent in an independent and isolated way. To some extent this model has similarities with a decentralised model for official statistics – each survey is conducted by independent government bodies.

There are many ways of organising official statistics. The advantages with a Stove Pipe model may be that it can be combined with a simple organisational model, simple management solutions and combined with simple cost estimation and cost control for every subject matter statistics. The Stove pipe model may be an extreme version of a subject matter organisational model for the NSO. On the other side it is clear that the Stove Pipe model will be in conflict with common and important visions for an integrated statistical output. The stove pipe model will also reduce the possibilities for gaining the obvious large scale benefits that may appear from a functional organisational model.

Since a common advice for official statistics is to work with the aim of producing an integrated system for official statistics there are no international recommendations in favour of Stove Pipe solutions. I can here refer to the three editions of UN Handbooks of Statistical Organisations (1954, 1980, and 2003). Already in the 1954 version the need for an integrated national statistical system to achieve coordinated statistical services is underlined.

It may be a conclusion that the stove pipe solution has never been a recommended model – but even so it may still exist.

Many activities and strategies have been taken on board in NSOs to avoid the stove pipe solution. I will in this paper refer to some examples from Statistics Norway. How to build an integrated statistical system?

2. Visions for official statistics – quality dimensions

In the last 20 years many documents from national and international statistical organisations have developed the concept of quality. Quality is not only about accuracy but also about relevance, timeliness, comparability (international and national) cost efficiency, best methods and independency. Perhaps the most important aspect for the discussion of stove pipe and standardisation is consistency and coherence. These underlines that quality of statistics is not only described by the quality of each independent survey but by examining the official statistics as a system of statistics which are linked to each other by common data, common concepts, common classification and common units and population of units. Empirical consistency is difficult to obtain and statistical differences may

appear, this quality dimension is perhaps one of the most important characteristics for official statistics compared to other statistics. Other may produce high quality independent surveys, perhaps even more cost efficient than the NSO, but it is only the system of official statistics where the ambition of totality and consistence is so clear expressed.

To further develop the vision of consistence the ideas on accounts as a part of official statistics has been developed. Most important, successful and data demanding will be the National Accounts. The history of National Accounts is more than 60 years. Energy balances and energy accounts are another relevant example and these statistics have a history back to the energy crisis in the 1970s.
The ideas of SEEA (System of environmental- economic accounts) is also close to 20 years old – and a new version will be on the agenda for UN Statistical Commission 2012. The vision for social accounting   is also rather old (40 years) but this part seems still to struggle to get a breakthrough.

Another important element is the professional and scientific working methods. Gradually this vision has been developed in a direction with strong emphasis on independency. Examples of this are obvious in the European Statistical System (ESS).

To be useful or user relevant is important for all official statistics. A variety of user groups are identified. Our vision is to be useful and one saying is that we should create a basis for evidence based decisions. New methods for electronic communication have been taken on board – both for collection of data and for dissemination of statistics. The new electronic world has improved our activities to a large extent – but also improved the common distribution of information from other sources. We may feel that official statistics are old fashioned and slow compared to many elements -   that you may find by googling around. We are struggling with costly data capture while free data are all over at the www. We may try to copy this world or we may try to further cultivate our product of official statistics.

3. National accounts
The history of National Accounts (NA) in NSOs and Statistics Norway (SN) started just after the Second World War. In Norway the first organisational unit for National Accounts was established in 1946 and the first publication with results came also in 1946. The ideas and the theoretical work go back   to the years from around 1936.

Since then the NA have plaid an extremely important role for SN in several manners. In economic understanding, in setting the agenda for economic political debate, by introducing new concepts and definitions that today are common language. NA is an extremely important product of SN.

IT is fair to say that NA gives the best description of structure and trends in the whole Norwegian Economy.

NA may bee seen as one system for yearly accounts and then in addition procedures for quarterly national accounts. The quarterly accounts are   based the yearly accounts and a projection model for these linked to a set of short term economic indicators.

NA is used as data for the macro econometric models which are used for macro economic planning (Ministry of Finance) and research.

NA need data for all parts of economy including the private households. The full set of data comes from various surveys and administrative data sources.

The data claims and the influence from NA to basic statistics is important in the SN traditions. Every new survey will be discussed in relation to relevance for NA.   The surveys should cover the whole economy and no double counting, Relations to abroad have to be included. NA cover the traditional

economy, services and financial sector and concepts. The data claims are relevant both for yearly business statistics (Structure statistics) and short term indicators.

There is a need for business accounts and activity data, employment, production, turnover, use of intermediate consumption investment. Basically the product should be in value, prices and volume data are essential. Basically the same principles should be followed for all industries in the primary.

I think it is important to bear in mind that the coordinating role of data claims from NA is a positive aspect. If the system of surveys are built up to meet the data need from NA – then the system in general will have high quality and the basic statistics will be relevant and consistent – even if you don't produce NA.

But of course the most important is the results from the NA. For each industry this may bee seen as a lack of consistency. Statistics and information about each industry may then be possible to extract both from NA (Yearly and quarterly) and from basic statistics (yearly and short term statistics). In NA there will be a full harmonisation of the concepts e.g. Between industries. We will have equal definitions of e.g. wage and working hours for all industries (sectors). In primary statistics it is also a wish to have as far as possible consistence and harmonisation – but not with the same strong binding claim for full harmonisation. Data for the primary statistics have for practical reasons to be close to concepts and traditions used in practice within each sector. Detailed data for working hours and wage rates may accordingly not be equal between education sector and health sector. We may say that we keep some sector specific details in the basic statistics but establish full harmonisation by transforming primary data into the system of NA. This approach will combine detailed and precise information sector by sector with a full consistent picture of the economy in NA. The documentation of data and variables is important and should cover both basic statistics and NA.

Short term and yearly statistics and NA will to some extent overlap and we may not always observe full consistence in statistics. One general impression is that the basic concepts are measured in yearly statistics while the short term statistics to some extent is based on indicators that hopefully catch the business cycle in a relevant manner. Short term statistics are timelier but the concepts or variables that are measured may not be perfect.

Over time the importance of the business registers for this system has been more and clearer. The statistical version in SN goes back to 1953 but the complete and consistent administrative system used by both administration (e.g. . tax) and statistics was ready in 1995. From this year we have a unique and commonly used identifier for all economic entities. Based on this SN has one statistical version of a Business Register that includes both enterprise and establishment level. This common population frame is obligatory to use for all surveys/ statistics. This guarantees full counting of all units and no double counting.

Another important example of integration in practice is the centralised procedure for coding of industrial classification. This code is implemented in the Business register and extraction of this code in all surveys guarantees a full consistent coding of industrial classification.

Some of the variables in business statistics and NA are extracted from external data sources (administrative). This may be data extracted from the enterprise accounts. One set of accounts is sent to taxation office and SN has access to these data. We collect them in bulk and store them in a common database that is linked to all business surveys in SN. Another variable that is extracted from administrative sources is employment. A system for data registration of all employees for social security are used as a source for employment data. These data is copied to SN and are then used as a common data source for employment in all structural business statistics. In Norway we are now working with a further development of government collection of data on employment and wages/labour income and taxes. This will further develop the value of administrative data for economic statistics.

4. The archive statistical system.

The vision and ideas about the archive statistical system goes back to around the year 1960. It is one important element in strong Nordic tradition in official statistics and important papers were presented at Nordic Statistical Meetings. One important contributor was Svein Nordbotten (who also participated as key note speaker at the IAOS Seminar in Shanghai in 2008, the title of his paper was; *Use of administrative data*, *in the past*, *present and future*. Svein Nordbotten was director and Head of Department at Statistics Norway from the 1950s to 1972.

It may be relevant to remind that Official statistics have a very long tradition for use of administrative data. This tradition was modernised by the visions of Nordbotten. Fundamental for the archive statistical system was the introduction of a unique ID number for individuals in 1964, with full coverage. This ID number was introduced for use both in public administration, private sector (e.g. banks and life insurance) and official statistics.

The visions was possible to realise as a result of the introduction of electronic data processing in this period. When looking back at the history it is impressive that the pioneers at this early stage was able to foresee the potentials and that they became so inspired of the IT machines they could work with. The potentials of the new technology was anticipated to be in storage, linking of information, processing and research and analysis.

The principles for the archive statistical system were:
- All units are identified with a unique ID number - and ID registers (individuals and economic entities) are continuously updated

- All statistical information is stored based on the ID number. Statistical information may come from administrative sources or from statistical surveys.

- The information   identifies the object, the time of the incident (or time period if that is relevant) and the attribute (if it is an incidence e.g. vital incidence, or school examination, or like account information like income per year, assets and wealth and so on.

It is an important principle that the NSO store all information that they receive. They should store both administrative data and data collected from own surveys.   Based on linking of information NSO may create cross sectional information. The 2011 Census for Norway is 100 percent based on the archive statistical method. It is important to store the incidents with type and time. Then all situation files may be restored.

In addition to cross sectional data it is possible to link individual over time to create individual longitudinal data files. These individual time series are of grate value for statistics and social research.

Since 1960 the potentials for the archive statistical model has been improved. Electronic data processing and cost of storage has improved. More data are in general available. More and more data are electronic accessible and the use of the ID numbers have increased.

5. The way forward

There are many concerns about the future of official statistics. I will mention:
- Access to data – non response and cost of data collection.
- Lack of relevance - welfare and quality of life including subjective measurement
- Cost increases and budget cut for NSOs
- Cost of IT

- Increased competition for other electronic sources – the Google world
- Old fashioned dissemination

The initiative – shifting from stove pipe data producer to "information service" provider – have ambitions to solve several of these challenges in combination.

This may be challenging and it may be important to discuss isolated some of the topics.
It may be extremely important for official statistics to build the future on integration of statistics and consistency and accounts.

It is possible to improve efficiency in the work process (IT but also other functions) by increased standardisation of the IT work. This standardisation may make it easier to improve also harmonisation of the official statistics. It is however also important to stress that the process of IT harmonisation has to be based on the visions of the archive statistical system and the NA solution. IT harmonisation should be evaluated based on the effects on cost efficiency. Cost efficient IT solutions for the Archive Statistical system should be given priority.

It may be a paradox that while NSO are struggling with costly data capture and increasing non response; it is observed that electronic data are floating around in the electronic world. Electronic traces are everywhere. Should we work smarter? Yes and there are many examples of smart data capturing solutions? (Bar code data extractions for prices used in CPI, is a good Norwegian example)

There are however some restrictions and limitations for a NSO to benefit from al these free data. It may be relevant to remind about the two fundamental approaches for official statistics – institutional approach and the functional approach. Institutional is the dominating type in official statistics. The statistical units and population are defined and then we examine/measure variables for each unit, all or a sample of units. The functional approach is based on observations of happenings/incidents in the society without a population frame of units as a tool. Traffic on a road is best measured by an observation point and counting of cars passing by for a time period. Export and import statistics based on customs declarations is a typical example of functional data capture in official statistics.

A lot of electronic data are generated and to be observed on internet – but may if a id number is non existing be difficulty to include in an integrated system of official statistics. Better statistical methods may make it easier to integrate such functional data sources.

If the ambitions on IT standardisation are too high - it may take time before it is possible to observe improved cost efficiency. This may be difficult to manage in a world of budget cuts. The standardisation process has to combine It- standardisation and subject matter harmonisation together with the Archive statistical model. "Information service" which is in the title for this Seminar, is an open concept and if this is the objective for the NSOs, it is crucial that we can combine this vision with consistency and integration of official statistics. It is not obvious that this is easy or possible.