

THE ESTABLISHMENT OF THE NATIONAL STATISTICS SYSTEM IN ISRAEL

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I BACKGROUND

The state of Israel was founded in 1948 after the British Government of Palestine decided to terminate its Mandate over Palestine. This was after a century in which the legitimacy and desirability of the nation-state, existing to provide a sovereign territory to a particular nation, led to the establishment of such states in Europe and throughout much of the world. Since the beginning of the century the Jewish community had organized itself and consolidated its identity as a ‘state underway’. Independent Jewish institutions functioned and thrived throughout the British Mandate period, hence, the institutional infrastructure in 1948 was already in an advanced stage of development, which enabled a relatively rapid transition from the governance of the British Mandate to the national organization of Israel as a state.

The government departments of the British Mandate produced statistics as part of their administrative functions since 1919. The education department compiled administrative data on schools and students, the health department accumulated data on births and deaths etc. In 1935 the statistical activities were anchored in the ‘1935 Statistics Ordinance’ and a Statistical Department was set up. The establishment of this department marked the centralization of statistics production until 1948 and thereafter. Parallel to these activities, the Jewish Agency for Palestine established its own statistics department in 1924, to provide statistics relevant to the development of a Jewish homeland: population estimates, legal and illegal immigration, construction, prices, agriculture and industry.

The ‘state underway’ already had the organizational infrastructure and the human capital required for a national statistics system, when in 1947 the first Government Statistician to be, Professor Bachi, was asked by the leaders of the Jewish Settlement to draft a proposal for the establishment of the Statistical Service in the forthcoming State, a proposal that was adopted and implemented in 1948 upon the establishment of the State.

¹ The author benefited from information and some internal documents on the history and developments of the CBS provided by Prof. Moshe Sicron, former director of the CBS.

II FOUNDING THE CENTRAL BUREAU OF STATISTICS²

The declaration of independence of the State of Israel was made on the last day of the British Mandate (May 14th 1948) amidst the War of Independence. A temporary state board was nominated and the Central Bureau of Statistics (CBS) was established as part of the governmental organization. This action was an assertion of the importance of statistical information in the establishment of a nation state.

Statistical information was an immediate and acute need in the demographic and socio-economic circumstances, prevailing in the new state. The last population census had been conducted 17 years earlier, in the midst of a period of rapid Jewish population growth since 1931, from 84,000 in 1922 to 650,000 in 1948. The establishment of the state as a safe-heaven for Jews around the world meant that substantial demographic change was anticipated due to mass immigration within a short period of time. This would present unique and difficult challenges to the evolving society that had to absorb the individual immigrant in its small and limited economy. Moreover, the War of Independence had already changed the local demographic structure as the Arab population left the country. Hence, up to date information was necessary for the functioning, management and the very existence of the state, its institutions and its people.

From a functional viewpoint, the structure of the CBS and its first statistical actions and products aimed to serve and reflect state goals, no different in an emerging society than in mature ones: Demographic changes, election to the first Israeli parliament (January 25, 1949), the need to defend the population from surrounding enemies, to take care of its health and education, and the need to develop a stable economy that could sustain the growing population over time. Within a very short period, by mid 1949, the CBS comprised ten specialized departments: Demography & Immigration, Health & Education, Agriculture & Settlement, Finance, Prices, Industry & Construction, Commerce, Work, Legal & Welfare, and Traffic & Transportation. The legal basis for statistical activity was the 1947 Statistical Ordinance enacted by the British mandatory government.

Three *infrastructure censuses* were conducted: population, agriculture, and industry.

Despite the hurdles, an administrative census of population was conducted six months after the declaration of independence, under a special ordinance of residents' registration. The data were used for developing the Central Population Register, maintained by the Ministry of Interior, which is updated continuously and has served the same central purposes ever since: demographic estimates, political elections and recruitment to the Israeli Defense Forces.

Statistics of agriculture were also an acute need, which was intensified in the following decade as immigration waves flooded the country. Feeding the growing population was a strategic goal that required information-based planning. The first census of agriculture was conducted early on, in 1949/50.

The first industry census was conducted in 1952/53. All the large and mid-size factories were counted.

² See also: Central Bureau of Statistics (1963, 1966) "Development of Statistics in the Country" in Official Statistics in Israel, Jerusalem, Israel.

The main source of current data, which eventually were used for statistical time series, was the *administrative data* generated by the different government offices. Most of these data sources are still relevant, almost 60 years later. The Demography and Immigration Department based its estimates on flows of births, deaths, marriages, divorces and international and intra-national migration. Administrative data of health, education and transportation served the corresponding statistics departments and when the generation of statistics in other domains, like foreign trade, was transferred to the CBS, the use of administrative data was expanded.

The first *field surveys* came to address the economic issues that could not rely on administrative data. The burning issues were the supply and demand of the labor force and the standard of living. The availability of professional workers, who worked in the British institutions and in the Jewish organizations in the pre-state era, enabled the planning of the Labor Force Survey (LFS) and Family Expenditure Survey (FEX) early on; the data collection stage was carried out in 1951. The LFS became an ongoing sample survey in 1954, and was conducted under the careful scrutiny of some users who were exposed, for the first time, to the idea of a sample survey. The FEX survey that was used for calculating the CPI weights was carried out twice more in the first decade of the state.

Another aspect of the Israeli economy, which was examined, was the structure and processes of the industry. Indices of employment and production were used as indicators for effective planning and evaluation of the emerging economy. Two years after the 1952 infrastructure census, the CBS launched an annual Industry Sample Survey.

The role of the CBS was temporarily expanded to include economic research when it was merged with the economic research department in the Prime Minister's office, in 1951. A few years later, the Bank of Israel (the central bank) accepted responsibility for economic research when its research department was established.

The CBS went through other structural changes in the first decade of its existence, due to centralization and specialization processes in the production of statistics in Israel. Foreign trade statistics were transferred from the Treasury to the CBS in 1952 and the Balance of Payments in 1956. Labor statistics were transferred from the Labor Office in 1955. In addition, a Surveys unit and a Planning unit were added to the organization in 1956 and 1958 respectively, two service units that facilitated the specialization both of the subject matter units as well as of the operational units (see also chapter IV below).

III THE STATISTICS SYSTEM IN ISRAEL

The main operating principles guiding the statistics system in Israel are centralization and professionalism, independence and objectivity, and confidentiality.

A. Centralization and professionalism

The CBS has always been the central producer of official statistics in Israel. This was already reflected in the name the national statistics institution adopted in 1948, the Central Bureau of Statistics, and from the outset processes aiming at centralization that were put in place. These were perceived as functional to the integration of official statistics in the new state. Nevertheless, at the same time and ever since, government offices themselves gathered, produced and used

administrative data as part of their daily activities and statistics were generated as a means to fulfill their national duties.

The relations between the CBS and these offices are of customer-supplier and also of partners: The first type of cooperation is based on the government offices being the suppliers of administrative data to be processed and published as official statistics by the CBS.

Some projects of official statistics are carried out as joint ventures. This occurs when the government office has an interest in statistics that can be designated as official statistics. For example, the Ministry of Interior partners several projects with the CBS, among which are the financial statistics of the municipal authorities in Israel, the physical data of the municipal authorities and the characterization and classification of local authorities by the socioeconomic level of their population.

When the required statistics are not defined as official statistics, the interaction between the government office and the CBS is of a customer-supplier where the CBS is the supplier. The Ministry of Transportation, for example, orders a designated sample survey of transportation congestion. The statistics produced are given to the customer who ordered the survey, i.e. the Ministry of Transportation, and are not published by the CBS as official statistics.

The underlying assumption in these patterns of interaction is that the CBS, as a professional statistics organization, has an advantage with regard to the accumulated human capital in the organization. This applies to the level of its professional personnel and to the number of professionals in the organization; The CBS specializes in official statistics, its workers are experts in the different fields of official statistics, and the breadth of its operations enhances the accumulated experience of a large group of workers.

Nevertheless, integration is still needed to meet quality standards, to standardize as much as possible the definitions and classifications used for comparison, to avoid duplications and to meet international requirements. The integration mechanisms were anchored in the 1947 Statistical Ordinance, which was updated in 1972.

The ongoing need to guide the producers of statistics and to coordinate their production, along with the obligation to meet users' needs, led to the establishment of a statutory advisory council already in 1963. The Ordinance states that the goals of the Public Advisory Council for Statistics (PACS) include, inter alia, the coordination among public institutions that plan statistical activities, and the function of advising the government bodies in issues connected with statistical activities.

The CBS, according to the Ordinance, has the leading role in the statistics system of the State. It is expected "to cooperate with State agencies in performing statistical acts and publishing their results; to prepare, in consultation with the PACS, multi-annual general schemes for the statistical acts of State agencies; to prescribe, in consultation with the PACS and the agencies concerned, uniform statistical classifications for the use of government agencies; and to assemble and publish information on statistical acts which are performed or planned by or for the CBS or the State agencies" (1972 Statistical Ordinance, clause 3).

Furthermore, the Statistical Ordinance designates that the Government Statistician is both the head of the CBS and is responsible for guiding the statistical apparatus of the State agencies.

The Statistical Ordinance has been implemented only partially, in response to changing budgetary constraints and the availability of relevant staff, as well as to the policies adopted by

the officials in the organizational bodies concerned (the government offices and the CBS). Nevertheless, the statistics system in Israel has remained centralized and even more so lately, with the growing consumption of heterogeneous statistical information and the growing complexity of the reality measured. There is a need for professionals of varying expertise for the production of official statistics, and the CBS, as a specialised statistics organization, is better equipped to cope with the challenges faced.

The globalization processes reinforces the tendency of centralization and professionalism in the statistics system in Israel. The requirements of the international organizations with regard to standardized official statistics are perceived as obligatory, in order to serve national interests. These organizations function as redistribution centers that tax and subsidize countries. This is the case with the OECD that relies on statistical indicators of the observed economy for decision-making with regard to the economic policy. Moreover, an assessment of the quality of the statistical data is used to evaluate the profitability of international investment in a country. The IMF, for example, has developed assessment standards as part of its efforts to strengthen the international financial system and to improve its efficiency in avoiding and solving crises. Israel has adopted standards and invited reviews of its statistics system. These reviews call for better cooperation between the statistics producers and for more professional consultations with the CBS. As a result, joint working groups are formed to carry out statistics projects and a designated budget is allocated to the CBS to compile data and develop statistics required by international organizations.

B. Independence and objectivity

The CBS was established as a scientific organization that measures phenomena and publishes impartial statistics. In the opening speech of the Public Advisory Council, Professor Bachi stated that 'the house principle' is that no statistical datum is absolutely perfect; yet, objectivity and scientific integrity can be guaranteed.

When the Israeli economy was just taking shape and still unstable, attempts were made to influence the measurement of economic indices, like unemployment and price index. The directors of the CBS rejected the intervention forcefully and set the principle by which the CBS has been acting ever since; the independence and objectivity of the Bureau is not to be compromised.

This principle is also reflected in the Statistical Ordinance that requires of the Government Statistician to carry out his functions and to act on the basis of scientific considerations only.

Moreover, there is a structural manifestation of the independence of the CBS, in its affiliation to the Prime Minister Office, which can be perceived as less subject to political pressures than other offices.

C. Confidentiality

Confidentiality is perceived as the central pillar in the social contract between the suppliers of the data and the statistics institution. The underlying reasoning is both ethical and practical;

Individual information given for statistical purposes is to be used according to the uses, which were declared when it was collected. The mandate given to the Bureau by the person or the business is limited, and stipulated by the verbal or printed social contract, which was created during the interaction, and by the Statistical Ordinance, which guided the interaction.

From a practical viewpoint, direct or indirect disclosure of individual information is an impediment to future cooperation between the statistics institution and the data suppliers. Obtaining information and assuring its quality can become an impossible challenge.

The confidentiality principle has served the CBS since its establishment. The methods used over time have evolved mainly with the development of technology and the expansion of computerization. Statistical methods are called for to prevent disclosure on a macro level, since record linkage between datasets, made possible by the technology, creates records with unique profiles. In Israel this problem is intensified since each person has a record in the population-register with a unique personal identification number, which is used by government offices, banks and other organizations. Possible linkage with these PINs has to be a working assumption when deciding how to publish statistical information.

IV EVOLUTION OVER TIME

In the 59 years since the establishment of the State and the establishment of the Israeli Central Bureau of Statistics, the surrounding reality has been constantly changing at an accelerated pace, and the statistics system has followed suit in its production processes, products and organizational structure. The uncertainty created by the changes has obliged the CBS, as a leading statistical institution, to cope with contingencies and to make development and adjustment its modus operandi.

A. The international perspective

The international perspective of the evolution over time is based on processes of international support, cooperation and requirements:

American and UN experts accompanied the development of official statistics in Israel; the development of Labor Force Survey, National Accounts, the 1961 Census of Population and Housing, publication of statistics and more. CBS statisticians were also trained in statistics offices abroad, mainly in the US and Canada. All Government Statisticians; have adopted and implemented a policy of international exposure and learning.

The CBS has been an active part of the professional international community all along. CBS experts have been involved in conferences, working groups and task forces as part of the activities of international organizations, such as the UN, IMF and OECD, and also as part of the activities of international scientific associations, like the ISI. Furthermore, Israel has signed statistical agreements as part of comprehensive agreements in which the statistical organization is asked to supply reliable data. The Barcelona Declaration and the Euro-Mediterranean Association Agreement call for economic cooperation based, in part, on regular exchange of information, transfer of advice, expertise and training, technical, administrative and regulatory assistance and more.

Partnerships and cooperation has also been applied in international projects as in the development of statistics aimed at closing the gap between R&D data and National Accounts, triggered by the substantial size of civilian R&D in Israel, and in the development of a common online database on statistics of education. In technological projects, like the optical data entry systems in the last round of censuses, CBS experts provided consultation services to countries around the world.

As for the international requirements, the CBS adheres to action plans like the European Neighborhood Policy that calls for the increase of awareness of international statistical methods, and for further harmonization. Israel is continuously developing and producing statistics to meet requirements and standards agreed upon in the OECD countries, the IMF and the UN different organizations like the ILO.

B. The intra-national perspective

The intra-national perspective of the evolution of the CBS is based on five formative phases: Foundation, modernization, stabilization, computerization and the new age (Sicron, 1998).

1- The foundation phase (1948-1954) characterized by a vibrant process of demarcation of the operating principles of the CBS, as reflected in the Statistical Ordinance: an independent, professional, and objective central bureau, guided by statistical goals to be achieved by means of scientific methods. The main activities in this era came to lay down the infrastructure of the national statistics institution:

- Structural organization of ten specialized departments, in 1949: Demography & Immigration, Health & Education, Agriculture & Settlement, Finance, Prices, Industry & Construction, Commerce, Work, Legal & Welfare, and Traffic & Transportation.
- Administrative data, generated by different government offices, were used for ongoing estimates.
- Three infrastructure censuses were conducted: population registration in 1948, agriculture in 1949/50, and industry in 1952/53.
- A Labor Force Survey and Family Expenditure Survey were conducted in 1951, as a one-time operation. The FEX survey used food stamps as a sampling frame, since food was rationed and food stamps were allocated to the population according to demographic criteria.
- The first Monthly Bulletin of Statistics was published in 1949.
- The production of foreign trade statistics was transferred from the Treasury to the CBS in 1952 to mark the beginning of the centralization process of official statistics in Israel.

2- The modernization phase (mid 1950s to mid 1960s) brought about the use of modern statistical methods to expand the scope of official statistics and to carry out sample surveys and modern population censuses. This phase was supported by international aid by the US and the UN. The main activities in this era came to set high professional standards to the work of the CBS and to better answer users' needs. To this end, professional statisticians were recruited and trained:

- Reorganization of the Bureau took place at the beginning of the 1960s, to allow the specialization of functional units apart from the subject matter units. The new functional units were Statistical methods, Surveys (including decentralized operational centers), Automatic data processing, Publications and public relations, and a Mapping unit. Administrative support units were also created.
- Transferring the production of unemployment statistics from the Labor Office in 1955, the balance of payments from the Treasury in 1956 and the input-output tables from the Bank of Israel enabled further centralization of the statistics system.
- The development of national accounts was facilitated by easier accessibility to the relevant administrative data, facilitated by the centralization processes.
- The establishment of the Public Advisory Council for Statistics in 1963 came to better answer user's needs and to coordinate the activities connected with government statistics.

- The first modern Census of Population and Housing that used demographic and socio-economic questionnaires, was carried out in 1961.
- The Labor Force Survey has been conducted as an ongoing sample survey since 1954.
- A large sample was used in the 1955 Family Expenditure Survey to form a solid basis for the consumer price index.
- An annual Industry Sample Survey was launched in 1955.

3- In the stabilization phase (mid 1960s to the end of the 1980s) the Bureau became a sound statistics organization and was able to answer to increasing demand for statistics, at times of economic and political crises. Israel went through wars with its neighboring countries in 1967 and 1973 and a war of attrition in between. It enjoyed prosperity at the end of the 1960s, a recession in the 1970s (instigated by the global oil crises in 1973 and 1979), and hyperinflation at the beginning of the 1980s. Special statistical activities took place during this period:

- In the wake of the 1967 war, the Bureau conducted a census in the territories that had previously been under Jordanian rule (East Jerusalem and the West Bank) and Egyptian rule (the Gaza Strip). In addition, it carried on regular statistical activity in these territories regarding both households and commercial activity, up until the time of they were passed over to the Palestinian Authority.
- The 1972 and 1983 censuses of population and housing advanced the use of computers and computerized applications (The first PC arrived in 1985).
- Post-censal surveys, which used census data to draw an efficient sampling frame were: Survey of Persons with High Education, Survey of Persons Aged 60 and over, and Traveling Habits Survey.
- Emergency reports were supplied during the 1973 war.
- The CBS produced a biweekly, instead of a monthly, consumer price index during the hyperinflation years of the 1980s.
- Transportation statistics were further developed during the oil crises: Surveys of Patterns of Traveling to Work were conducted in 1976 and 1980. Surveys of Trucks (transport by trucks) were conducted in 1961, 1966, 1970 and 1977.

4- The computerization phase (of the 1990s) brought about changes in the working conditions, working patterns and in the scope and substance of the statistics demanded and supplied. 'A computer to each worker' not only started processes toward a paperless office but also utilized all stages of the production line of official statistics. Computer-assisted data collection, data transmission, macro editing, automatic coding, record-linkage, relational databases and digital publications, to name just few, altered the mostly manual processes exercised in previous years. Information security became a central issue in the planning, developing and activating computerized systems.

These technological changes altered the profile of the required workers of the CBS; people were asked to be computer oriented in order to be able to exploit the technological advantages provided by the new working environment. Since using computers was a shift in the language used and also in patterns of thought, recruitments of new workers were mainly of young people, while old workers had to adjust or to become redundant. At the same time, computerization in the society at large accelerated the increase in the consumption of statistical information, and although production processes could be shorter, the variety and complexity of the statistical products increased, and the amount of workers needed increased as well.

Milestones in the computerization phase:

- Providing the workers with computers and related accessories;
- Launching the website of the CBS in 1994;
- Developing the geographic information system for mapping, data integration, analysis and presentation, and management of fieldwork operations;
- Development of the optical data entry system for the 1995 Census of Population and Housing, including record linkage with the National Population Register, micro editing, coding, and archiving;
- Introducing CATI to the Survey of Industry Indicators.
- Using handheld computers to collect price data.
- Coping with "the Y2K" computer problem;
- Expanding the use of administrative files like the National Insurance datafiles of the self-employed and of benefits, the datafiles of the schools, teachers and students at the different levels of education etc.
- Reorganization of sample surveys (1997): The sample of the Family Expenditure Survey was re-designed as an ongoing survey, and coordinated with the Income Survey in order to supplement its income information.

5- The new age, since the turn of the century, is technology intensive, directed by globalization processes, and carried out during continuous budget cuts. The international statistics institutions act as integrators and coordinators of world statistics. Information concerning methods and tools, together with agreed upon standards and codes, serve the parallel development of statistics in many statistical organizations. Moreover, the intensive international interactions, which are made possible in the global village, formed a community that started sharing values and promoted statistics of mutual interest. In due course, the main statistical activities in the CBS were directed to meet international requirements, at a pace dictated by the allocated resources.

Another development was the growing involvement in socio-economic research and the development of social statistics. The perception of the CBS as a 'measuring authority' as stated by the first Government Statistician in 1963, was expanded to include the interpretation of the findings and the analysis of subjective phenomena.

The milestones listed below lack the perspective that long years allow, yet, they seem to be meaningful to the forthcoming years:

- Continuous development of statistics to meet the IMF, the OECD and other international organizations' standards, especially in the field of national accounts;
- Development of social statistics based on an annual Social Survey since 2002, social indicators since 1998, and Health Surveys (international and national);
- The establishment of a Business Register to support business demography and to supply a sampling frame for business surveys.
- Development of statistics of the environment, an issue of growing concern;
- The continuous development and use of advanced technology for data collection (CAPI), storage (data warehouse), retrieving and processing (tables generators);
- Methodological development of the integrated census that combines administrative files with field surveys.