المملكة الأردنية الهاشمية

SAE(Small Area Estimation) in HEIS(Household Expenditure and Income Surveys)

Small Area Estimation

- The technique of small area estimation generally existed to solve the low representation of the sample surveys of small areas of the country, by combining survey data with external sources (general census, administrative registers, etc.) in order to extract the required statistical estimates with higher accuracy than possible with survey data alone, The main objective of the production of these estimates is to assist in the planning, monitoring and evaluation of economic and social programs.
- Jordan's Department of Statistics experience in small area estimation is very modest, it Started in 2018 conducting the Government's request for

Small Area Estimation

- The Household Expenditure and Income Survey is the main database that measures and tracks poverty and level of living standards in Jordan.
- The level of geographical representation in the Household Expenditure and Income Survey from 2002 to 2013 was at the district level, However, the sample experts' assessment indicated that the sample size in these years was insufficient to provide reliable estimates of poverty statistics at this geographical level, We need about 100,000 households for proper representation for the district. Because of the difficulty of implementing a survey of this size and the fear of increasing non-sampling errors and rising budget, the level of representation in the survey has become from 2017 at the level of large statistical regions(the twelve governorate in Jordan, rural and urban areas), As the survey lacked a large enough sample size to create accurate direct small area estimations within the country, there was a need to

Small Area Estimation

The Department of Statistics, in collaboration with the World Bank, has implemented the Small Areas Estimation Technique to calculate district-level poverty (89 districts) by using:

- Household expenditure and income survey data for 2018/2017.
- Data from the 2015 General Population and Housing Census.

- The welfare model has been assessed on survey data and applied to census data for forecasting purposes.

Small Area Estimation

- The Small Area Estimation has been implemented through the following stages:

1. confine all common questions between the expenditure survey and the general population and housing census, compare their distribution and identify the candidate variables to be included in the statistical model for forecasting.
2. Adoption of the World Bank's ELL methodology for estimating poverty indicators in small areas; Per-Capita Welfare Model is prepared on household expenditure and income survey data, Where the left variable in the equation is logarithm for the individual's expenditure variable. On the

Small Area Estimation

3. Simulation of expenditure in census data in the sense of calculating per capita expenditure in census data (Where this information is missing) using parameters model obtained from household expenditure and income survey data, this phase will build on the parameters' estimates (β parameters) taken from the above-mentioned second step and applied to census data to obtain poverty estimates in small areas.

Small Area Estimation

- It is worth mentioning that work has been done to extract poverty indicators within the Small Areas Estimations Technique based on the statistical program (STATA) Version (15). A dofile is prepared to document all work phases.

Challenges

- lack of technical expertise within the personnel of DoS on the subject of small area estimation in general.
- lack of technical expertise within the personnel of DoS in the field of statistical modelling, which is the basis of the technique of small area estimation.
- Limited number of staff able to work with STATA.
- The estimation of small areas in DoS is limited to poverty indicators only.

Expectations

- Developing the expertise of the DoS staff in the subject of small area estimation in general.
- Development of the expertise of DoS staff in the field of statistical modelling, which is the basis for the small area.
- Expand the methodology of small-area technology to include various statistical areas in DoS.
- Study what external administrative data is required and available to support the small area estimation.
- Agreements with the administrative authorities concerned to provide data to support the small area estimations to facilitate access to data.

Thank you for listening