Use of Administrative Data in Agricultural Production Statistics Compiled By Turkish Statistical Institute

Fethi Şaban ÖZBEK[a], İrfan UZUNPINAR

Turkish Statistical Institute[1], Ankara/TURKEY

[a] Corresponding author: fethi.ozbek@tuik.gov.tr

ABSTRACT

Agricultural production data have been mainly compiled by Turkish Statistical Institute (TurkStat) through regional offices of Ministry of Food, Agriculture and Livestock (MFAL) in district detail. Many administrative sources are used in data collection for crop and animal production statistics by the agricultural engineers, veterinarians, and technicians in the province and district offices of MFAL. Current study presents information about the administrative data, and the statistical data network used for data compilation, the scope of the administrative data, and the data analyze methods used in producing agricultural statistics compiled by TurkStat.

Keywords: Administrative data, Agricultural production, Statistics, Turkish Statistical Institute

1. Introduction

It is needed to produce reliable and timely agricultural production statistics in order to monitor the developments of agricultural production sector, and to develop agricultural policies. In Turkish Statistical Institute (TurkStat), there are two kinds of data source used in agricultural production statistics (i) administrative data (e.g. yearly crop and animal production statistics) and (ii) vey data (e.g. monthly poultry statistics, milk and milk products statistics).

'Administrative data' is defined as the set of units and data derived from an administrative source (OECD, 2002). And, it is collected for administrative purposes by administrative sources, and not primarily intended for research or statistical purposes (Smith et al., 2004, ADLS, 2016). The administrative data has intensely used, and has ensured important advantages in producing agricultural statistics in Turkey.

Many data on animal production, crop production, production under protective cover area, organic farming, pesticides use, and fertilizer use are based on administrative records and agricultural technician's regional observations through Province and District Offices of the Ministry of Food, Agriculture and Livestock (MFAL) in Turkey.

---

[1] The opinions and contents of the article remains the responsibility of the author, not of the Turkish Statistical Institute.

Current study presents information about the administrative data, and the statistical data network (SDN) used for data compilation, the scope of the administrative data, and the data analyze methods used in producing agricultural statistics.

2. Scope and Method

Agricultural production data have been mainly compiled by TurkStat through regional offices of MFAL in district detail. Many administrative sources are used in data collection for crop and animal production statistics by the agricultural engineers, veterinarians, and technicians in the province and district offices of MFAL. These sources are Farm Registration System (FRS), Turkish Veterinary Information System (TURKVET), National Milk Recording System, National Red Meat Recording System, Agricultural Information System, Land Parcel Identification System, Greenhouse Registration System, Organic Farming Information System, Agricultural Fertilizer Register System, Agricultural Pesticides Register System, Ornamental Plants Register System, Sea Products Information System, Apiculture Registration System, Sheep and Goat Registration System, National Sheep and Goat Information System, Pedigree and Pre-pedigree Registration System.

FRS and TURKVET are the most comprehensive administrative sources in MFAL. FRS is an agricultural database, which the farms are registered by MFAL. The farmers should present requested documents to register to the system. The government promotes the farmers to register to the system (e.g. subsidies, grain purchases etc.)

TURKVET is a database based on the ear tags of animals. The system is formed by MFAL regional offices, and ensures to monitor the animals from birth to death.

Animal production statistics compiled by TurkStat consist of data on number of bovine animals, sheep and goats, poultry, meat, egg, milk, wool, hair and mohair production, apiculture, and sericulture. These data except for sericulture have been compiled via SDN system through regional offices of MFAL in district detail. Data on sericulture is compiled from Bursa Silk Cocoon Association of Agriculture Sales Cooperatives.

The data on crop production (sown area, harvested area, production, yield, number of fruit trees, fallow land), production under protective cover area have been compiled via SDN system through regional offices of MFAL in district detail same as in animal production. Moreover, organic farming and fertilizer use data have been compiled from MFAL through Organic Farming Information System and Fertilizer Sales data, respectively. Sugar beets production data has been compiled from Turkish Sugar Authority, tobacco production data has been compiled from Tobacco and Alcohol Market Regulatory Authority, and poppy (capsule and seed) data has been compiled from Turkish Grain Board (TurkStat, 2015).

Agricultural production statistics by theme compiled by TurkStat and administrative data used are presented in Table 1.

Table 1. *Agricultural production statistics by theme compiled by TurkStat, and administrative data used*

Agricultural production statistics by theme	Data source	Administrative data used
Agricultural Land and Forest Area	Ministry of Food, Agriculture and Livestock (MFAL)	• Farm Registration System • Agricultural Information System • Land Parcel Identification System
Production and Area of Crop Products	MFAL, Turkish Sugar Authority, Tobacco and Alcohol Market Regulatory Authority	• Farm Registration System
Crop Products Balance Sheets	Various	• Farm Registration System • Turkish Feed Manufacturers' Association Registers • Agricultural Cooperatives' Registers
Production for Land Under Protective Cover	MFAL	• Greenhouse Registration System
Organic Agriculture Statistics	MFAL	• Organic Farming Information System
Ornamental Plants	MFAL	• Farm Registration System • Ornamental Plants Register System
Agricultural Fertilizer Statistics	MFAL	• Agricultural Fertilizer Register System
Agricultural Pesticide Statistics	MFAL	• Agricultural Pesticides Register System
Number of Animals by Type	MFAL	• Turkish Veterinary Information System (TURKVET) • National Sheep and Goat Information System • Pedigree and Pre-pedigree Registration System.
Monthly Production of Milk and Milk Products	Survey	-
Number of Hen Eggs	Survey	-
Number of Animals Slaughtered and Production Quantity of Red & Poultry Meat	Survey	-
Animal Products (other)	MFAL	• Turkish Veterinary Information System (TURKVET) • National Milk Recording System • National Red Meat Recording System • Apiculture Registration System
Apiculture		• Apiculture Registration System
Sericulture	Bursa Silk Cocoon Association of Agriculture Sales Cooperatives	• Bursa Silk Cocoon Association of Agriculture Sales Cooperatives' Registers
Sea Products	Survey	• Sea Products Information System
Inland Water Products	MFAL	• Sea Products Information System
Aquaculture	MFAL	• Sea Products Information System

SDN is a data entry system, where the data are entered by the agricultural engineers, veterinarians, and technicians in the province and district offices of MFAL via electronic media. The MFAL technical personals use above-mentioned administrative records of MFAL in data entry.

In analysis of data in SDN, firstly the data provided by MFAL regional offices have been controlled by MFAL Central Office. And then TurkStat analyzed the data by using change ratios, consistency analysis, confidence intervals, and outlier detection. Then, TurkStat forms the list of suspected data, and re-sends to the MFAL in order to control suspected data (Fig. 1). After the data analyze process, the statistics have been published via Press Releases and statistical tables through web media.
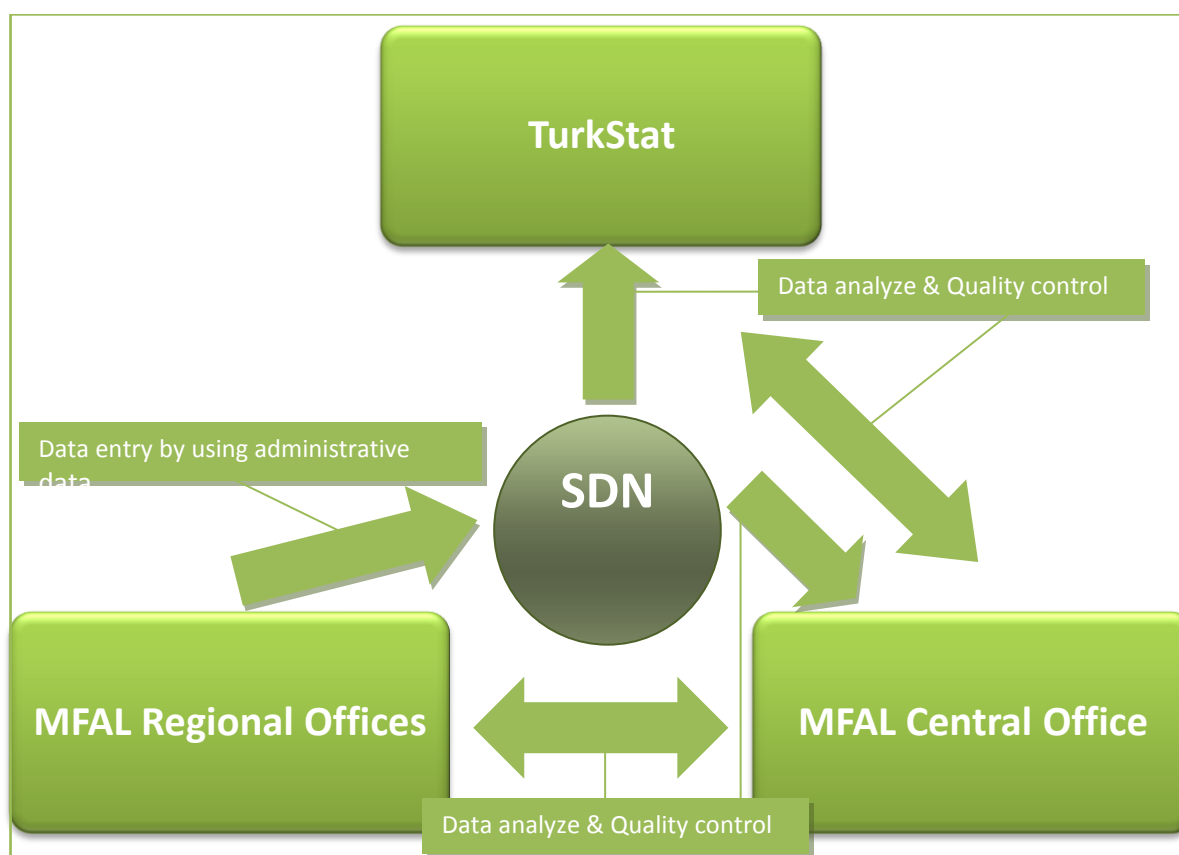

Figure 1. Data flow in Statistical Data Network (SDN)

TurkStat: Turkish Statistical Institute; MFAL: Ministry of Food, Agriculture and Livestock; SDN: Statistical Data Network

3. Conclusion

When the high number of farms in Turkey, about 2,2 million (MFAL, 2014), is considered, administrative data has an important role in agricultural production statistics. The use of administrative data ensures following advantages in producing statistics: simplicity, speed and frequency of updating; lower costs; wider coverage, completeness and disaggregation; and low-response burden (ADB, 2010). Administrative data has widely used in agricultural production statistics in Turkish Agricultural Statistics System because of these advantages. However, there are

some disadvantages of using administrative data. Smith et al. (2004) summarized the disadvantages of administrative data as follows;

- Information collected is restricted to data required for administrative purposes

- Lack of researcher control over content

- Proxy indicators sometimes have to be used

- May lack contextual/background information

- Changes to administrative procedures could change definitions and make comparison over time problematic

- Missing or erroneous data

- Quality issues with variables less important to the administrator e.g. address details may well not be updated

- Metadata issues (may be lacking or of poor quality)

- Data protection issues

- Access for researchers is dependent on support of data providers

- Underdeveloped theory and methods

There are some of above-mentioned disadvantages in administrative data used in Turkish Agricultural Statistics System. Particularly, missing use of classification and of national address codes in the administrative registers, and lack of coverage in the administrative register systems. Development of these issues in administrative data is important to increase the quality of agricultural statistics. For the development of agricultural registers in Turkey, some additional works have been started since 2014 in the scope of establishing Agricultural Production Register System (APRS). In APRS, which uses quantified agricultural land parcel information, the main variables (agricultural production, land use, animal production, agricultural equipment etc.) of agricultural holdings have been obtained for the production year, and it is planned to revise the system annually (MFAL, 2016).

REFERENCES

Asian Developmen Bank (ADB). 2010. Administrative data sources for compiling Millennium Development Goals and related indicators, ADB.

ADLS. 2016. Guidance to apply for and use administrative data. http://www.adls.ac.uk/adls-resources/guidance/introduction/.

MFAL. 2014. International year of family farming study report, MFAL.

MFAL. 2016. Agricultural Production Register System. http://www.tarim.gov.tr/Konular/Cografi-Bilgi-Sistemleri/Faaliyetler

Smith, G., Noble, M., Anttilla, C., Gill, L., Zaidi, A., Wright, G., Dibben, C and Barnes, H. 2004.

The Value of Linked Administrative Records for Longitudinal Analysis, Report to the ESRC National Longitudinal Strategy Committee.

TurkStat. 2015. Crop production statistics. http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=16020.

OECD. 2002. Measuring the Non-Observed Economy A Handbook, OECD.