Changing Farm Structure and its Potential Impact on Ag-Census Disclosure Analysis

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- For the Census of Agriculture USDA National Agricultural Statistics Service (NASS) conducts comprehensive disclosure review to withheld any total that would reveal an individual’s information.

- Cell suppression is used to protect the cells that were determined to be sensitive to a disclosure of information

- Based on agency standards, data cells were determined to be sensitive to a disclosure of information if they failed either of the two rules:
  - The threshold rule failed if the data cell contained less than three operations.
  - The dominance rule failed if the distribution of data within the cell allowed a data user to estimate any respondent’s data too closely. (p-Percent Rule)
  - Additional cell suppression (i.e. complementary suppression) in a linear relations is made to protect the primary.

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\text{p-Percent primary suppression Rule:}
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To decide if a cell is a primary suppression, we need to define the following terms:
- TOT = the cell total
- R1 = The value for the largest respondent
- R2 = The value for the second largest respondent
- REM = The remainder of the cell
- REM = TOT – R1 – R2

Suppress the cell if REM \leq (R1)*(P) / 100
The above table shows cattle and calves inventory for selected counties in Texas based on Ag-Census 2017. Note total farms with cattle and calves (inventory) in El Paso were reduced from 84 to 70 between 2012 and 2017. However, total number of cattle and calves increased from 3592 to 5667. Number of cell suppressions also increased.
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- Economic factors are driving farms to have larger cropland area and livestock inventories per farm for economies of scale. As number of farms decrease we may observe more cell suppressions because of failure of either threshold rule or dominance rule.

- We will be interested to see if researchers can propose some plausible solution to this issue which might be applicable to establishment survey/census in general.

THANKS