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

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Ag-Census Disclosure Analysis

- 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.

p-Percent primary suppression Rule :

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 $REM \leq (R1)*(P) / 100$

Table 11. **Cattle and Calves - Inventory and Sales: 2017 and 2012** (continued)

[For meaning of abbreviations and symbols, see introductory text.]

Item			Ellis	El Paso	Erath	Falls	Fannin
INVENTORY							
Cattle and calves	farms,	2017	1,500	70	1,759	729	1,346
		2012	1,403	84	1,518	861	1,445
	number,	2017	50,563	5,667	183,469	115,649	75,049
		2012	43,888	3,592	120,843	86,515	71,809
Farms by inventory:							
1 to 9	farms,	2017	605	44	530	145	364
		2012	513	44	456	179	411
	number,	2017	3,041	163	2,695	794	1,816
		2012	2,504	165	2,220	957	1,995
10 to 19	farms,	2017	315	12	397	118	265
		2012	385	15	374	191	316
	number,	2017	4,156	160	5,520	1,651	3,608
		2012	5,281	220	5,183	2,643	4,233
20 to 49	farms,	2017	342	4	419	228	419
		2012	317	7	364	237	439
	number,	2017	9,528	100	12,740	7,161	13,383
		2012	9,275	242	10,954	7,077	13,091
50 to 99	farms,	2017	118	3	153	96	163
		2012	122	6	168	115	147
	number,	2017	7,997	(D)	10,086	6,281	11,415
		2012	7,863	406	11,573	7,761	10,196
100 to 199	farms,	2017	76	5	119	61	68
		2012	40	7	77	66	75
	number,	2017	9,439	747	16,008	8,489	9,090
		2012	5,471	1,024	10,855	8,647	10,433
200 to 499	farms,	2017	35	1	67	26	42
		2012	18	5	34	43	41
	number,	2017	9,450	(D)	19,256	7,298	12,949
		2012	5,081	1,535	10,326	12,832	12,374
500 or more	farms,	2017	9	1	74	55	25
		2012	8	-	45	30	16
	number,	2017	6,952	(D)	117,164	83,975	22,788
		2012	8,413	-	69,732	46,598	19,487

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