Heterogeneity of the Farm Sector

A serious discussion of farm policy needs to recognize the heterogeneity of the sector; there is no representative farm (Kuhn and Offutt, 1999). Farm households and firms differ along a variety of dimensions. ERS has developed two ways to capture this diversity—a new denotation of regions based on resources, and a farm typology. Using these farm classification schemes, we compare four alternative safety-net scenarios in terms of cost, distribution of farm household benefits, and rate of qualification for assistance. We then contrast the scenarios with the amount and distribution of actual direct government payments to farms in 1997. In the next section, we use these two classification schemes to assess the distributional impacts of alternative safety net measures.

Farm Typology

The farm typology distinguishes farms and farm households based on sales volume, occupational choice, and in some cases, level of assets (see "Farm Typology"). This typology identifies eight categories, five of which distinguish among farms with gross sales below $250,000 (the Small Farm Commission's definition of "small farms" (Hoppe, Perry, and Banker, 1999)). *Residential lifestyle* farms, the largest group with more than 800,000 households, are small farms where the operator's primary occupation is something other than farming. The category defined as *farming, low sales* (around 400,000 households) are farms with sales of $100,000 or less where farming is the primary occupation of the operator. *Large family* farms have annual gross sales between $250,000 and $500,000. *Very large family* farms have gross sales of more than $500,000. The latter two typology groups accounted for more than 40 percent of the total value of agricultural production in 1997.

By definition, *very large family* farms had the highest mean household income ($205,323) in 1997 (table 1).[4] The next highest income groups were *large family* farms ($79,693) and *residential lifestyle* farms ($65,758). The farm type with by far the lowest average household incomes were *limited resource* farms ($8,605). Their average income was over $25,000 less than that of the next lowest farm type. For our safety net calculations below, we further adjust farm house-

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[4] See appendix A for our definition of income.

Table 1—Average farm household income and poverty rates by farm typology, 1997

	Household income	Farm business source	Off-farm sources	Depreciation	Adjusted income
	Dollars				
All farm households	52,562	6,204	46,357	6,577	64,171
	(3.29)	(2.53)	(4.17)	(3.49)	(2.53)
Households in					
Limited resource farms	8,605	-3,229	11,833	897	13,045
	(12.76)	(17.19)	(9.32)	(17.66)	(9.46)
Retirement farms	40,515	1,157	39,358	2,124	46,275
	(6.16)	(88.93)	(7.23)	(12.69)	(5.45)
Residential lifestyle farms	65,758	-3,668	69,426	2,291	73,089
	(6.39)	(14.24)	(6.08)	(7.99)	(5.54)
Farming, low sales farms	34,132	1,216	32,917	5,843	45,963
	(6.07)	(125.14)	(5.83)	(3.89)	(4.62)
Farming, high sales farms	50,964	22,048	28,916	16,652	73,082
	(10.13)	(10.25)	(17.82)	(4.67)	(7.19)
Large family farms	79,693	45,233	34,460	30,238	116,733
	(5.11)	(6.86)	(7.88)	(5.18)	(3.64)
Very large family farms	205,323	169,034	36,289	62,616	275,428
	(10.66)	(11.97)	(8.17)	(3.24)	(7.34)

Note: The Relative Standard Error (RSE) is in parentheses. Relative standard error (RSE) is defined as the standard error divided by the estimate expressed as a percentage. Column 5 reflects an adjustment of household income such that: (a) depreciation was not deducted from farm businesses, and (b) negative farm business earnings were set to zero.

Source: Calculated by ERS using data from the 1997 Agricultural Resource Management Study (ARMS).

hold income by not deducting depreciation from farm income and by setting farm business earnings to zero when they were negative. We make these adjustments under the assumption that safety nets should not be reimbursing households for depreciation or providing households more income than the chosen safety net threshold. This income adjustment, shown in column 5, does not change the ordering of farm types. For example, *very large* farms still had the highest average adjusted incomes at $275,323 and *limited resource* farms had the lowest average adjusted incomes at $13,045. The greater average income of larger farms is also reflected in the distribution of income: 91.9 percent of limited resource farms have incomes between $0 and $25,000 while 70.6 percent of *very large* farms have incomes greater than $100,000 (table 2).

Consistent with their lower incomes, *limited resource* farms have a higher than average percentage of household heads without a high school degree (31 percent versus 15.3 percent) (table 2). With the exception of *retirement* farms, age of household head also tends to be correlated with lower average incomes since *limited resource* and *farming, low sales* farms have a higher percentage of household heads older than 65 than *farming, high sales, large family*, and *very large family* farms. The number of hours worked on the farm also correlates with lower average incomes—the combined average annual hours of the household head and spouse are about 3,500 for *farming, high sales, large family,* and *very large family* farms and less than 1,200 for *limited resource* farms. The latter result probably reflects the far greater reliance on off-farm income for *limited resource* farms.

Resource Regions

The resource regions merge information about characteristics of land areas and commodity emphasis to generate geographic areas that are more homogeneous with

Table 2—Demographic characteristics of farm households by farm typology, 1997

	All farm households	Limited resource	Retirement	Residential lifestyle	Farming, low sales	Farming, high sales	Large family	Very large family
Age of household head								
Under 45 years (%)	26.5	21.3	--	34.9	23.8	37.3	37.0	34.6
Between 45 and 65 years (%)	44.0	26.6	21.6	57.2	48.1	48.5	52.7	53.1
Over 65 years (%)	27.2	52.0	78.3	7.7	28.0	14.1	10.1	12.2
Education of household head								
Without high school degree (%)	15.3	31.0	28.5	8.2	18.2	9.8	6.8	7.0
With high school degree (%)	65.4	60.9	54.3	67.5	67.2	74.4	73.0	63.5
With college degree (%)	19.3	6.2	17.2	24.3	14.6	15.8	20.3	29.5
Average number of household members	2.7	2.4	2.1	3.2	2.3	3.1	3.3	3.0
Average annual hours worked by household head and spouse	1,771	1,135	1,015	1,019	2,765	3,726	3,488	3,527
Adjusted income								
≤$0 (%)	4.7	7.7	2.8	1.0	9.0	9.0	8.5	9.1
$1 - $25,000 (%)	26.3	91.9	31.4	12.0	32.0	14.3	3.8	1.9
$25,001 - $50,000 (%)	30.4	0.0	40.5	37.5	33.4	22.4	10.4	5.1
$50,001 - $100,000 (%)	26.0	0.0	16.2	38.0	18.2	34.9	31.2	13.1
>$100,000 (%)	12.4	0.0	8.9	11.3	7.2	19.2	46.0	70.6

Source: Calculated by ERS using data from the 1997 Agricultural Resource Management Study (ARMS).

regard to both resource and production activities (see fig. 1). This classification identifies nine regions. The Heartland region has more than 20 percent of farms and the largest concentration of corn and soybean acreage. The Northern Great Plains has the largest farms on average and a relatively high proportion of wheat, oats, and barley acreage. The noncontiguous Fruitful Rim region accounts for the largest share of vegetable, fruit, and other specialty crops acreage. The Basin and Range region has the largest share of nonfamily farms and the smallest share of U.S. cropland. The Northern Crescent is primarily composed of dairy, general crop, and cash grain farms. The Prairie Gateway is the second largest region in terms of wheat, oat, barley, rice, and cotton production. Compared with other regions, the Mississippi Portal has a higher proportion of both small and larger farms. The Southern Seaboard has many part-time cattle, general field crop, and poultry farms and the Eastern Uplands has the most small farms of any region. (See *<http://www.ers.usda.gov/whatsnew/issues/regions/>* for more on U.S. farm resource regions.)

The Fruitful Rim was by far the wealthiest region in 1997 with an average farm household income of $73,140.[5] Average farm income in this region was over $17,000 higher than in the next wealthiest region, the Heartland. The Northern Great Plains had the lowest average household income—$39,702. The income adjustment described above is shown in column 5 of table 3. The Fruitful Rim was still by far the wealthiest region with an average adjusted income of $90,091. After this adjustment, however, the Northern Great Plains ($57,992) was wealthier than the Southern Seaboard ($56,122) and the Eastern Uplands, which fell to the lowest income region ($50,531). Farm demographic characteristics are more similar across resource regions than they are across farm typologies (table 4).

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[5] Farm household income includes both farm and nonfarm earnings. In addition, it includes cash income received through government assistance programs (e.g., TANF).

Figure 1
Farm Resource Regions

Basin and Range
- Largest share of nonfamily farms, smallest share of U.S. cropland.
- 4% of farms, 4% of value of production, 4% of cropland.
- Cattle, wheat, and sorghum farms.

Northern Great Plains
- Largest farms and smallest population.
- 5% of farms, 6% of value of production, 17% of cropland.
- Wheat, cattle, and sheep farms.

Heartland
- Most farms (22%), highest value of production, (23%), and most cropland (27%).
- Cash grain and cattle farms.

Northern Crescent
- Most populous region.
- 15% of farms, 15% of value of production, 9% of cropland.
- Dairy, general crop, and cash grain farms.
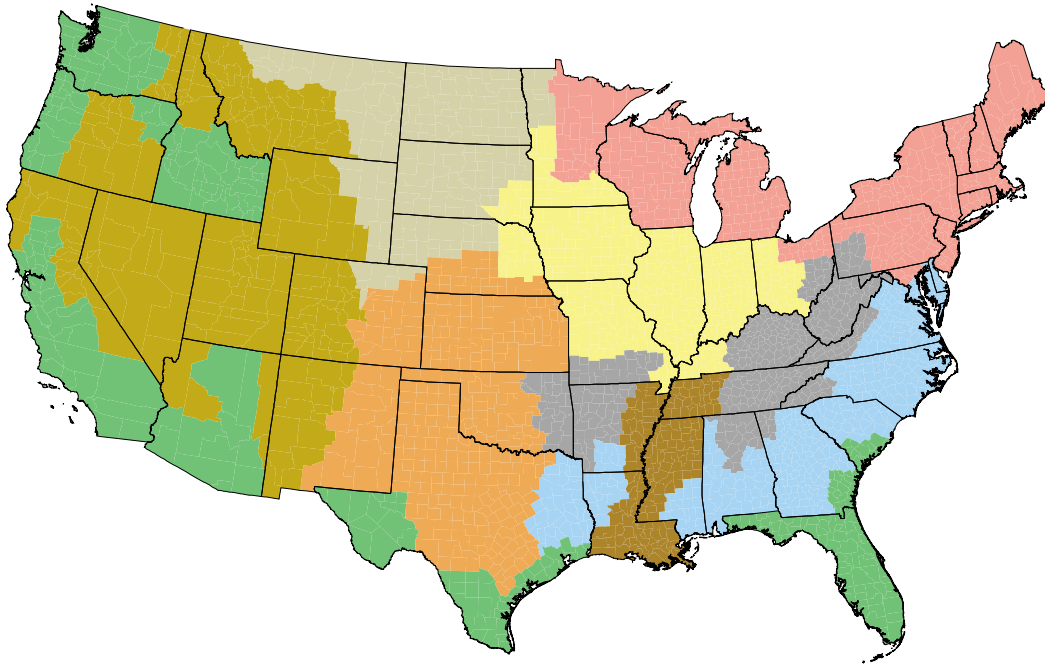
Fruitful Rim
- Largest share of large and very large family farms and nonfamily farms.
- 10% of farms, 22% of value of production, 8% of cropland.
- Fruit, vegetable, nursery, and cotton farms.

Prairie Gateway
- Second in wheat, oat, barley, rice, and cotton production.
- 13% of farms, 12% of value of production, 17% of cropland.
- Cattle, wheat, sorghum, cotton, and rice farms.

Mississippi Portal
- Higher proportions of both small and lager farms than elsewhere.
- 5% of farms, 4% of value of production, 5% of cropland.
- Cotton, rice, poultry, and hog farms.

Southern Seaboard
- Mix of small and larger farms.
- 11% of farms, 9% of value of production, 6% of cropland.
- Part-time cattle, general field crop, and poultry farms.

Eastern Uplands
- Most small farms of any region.
- 15% of farms, 5% of value of production, and 6% of cropland.
- Part-time cattle, tobacco, and poultry farms.

Table 3—Average farm household income and poverty rates by resource region, 1997

	Household income	Farm business source	Off-farm sources	Depreciation	Adjusted income
			Dollars		
All farm households	52,562	6,205	46,358	6,578	64,171
	(3.29)	(2.53)	(4.17)	(3.49)	(2.53)
Farm households in					
Heartland	55,189	9,148	46,040	8,173	67,383
	(9.04)	(13.09)	(12.52)	(7.01)	(6.80)
Northern Crescent	49,372	3,318	46,053	6,610	61,457
	(13.65)	(38.05)	(15.01)	(7.65)	(11.70)
Northern Great Plains	39,702	9,357	30,345	11,352	57,991
	(8.97)	(32.18)	(4.51)	(7.76)	(4.92)
Prairie Gateway	54,489	4,315	50,174	6,423	66,032
	(9.63)	(38.60)	(9.83)	(12.59)	(7.66)
Eastern Uplands	43,475	787	42,688	2,816	50,530
	(9.89)	(289.29)	(10.85)	(10.86)	(9.29)
Southern Seaboard	47,266	4,897	42,369	4,393	56,121
	(9.29)	(49.58)	(8.54)	(7.55)	(8.17)
Fruitful Rim	73,140	15,852	57,288	9,676	90,091
	(6.43)	(15.73)	(7.26)	(12.14)	(4.97)
Basin and Range	51,271	3,277	47,994	6,518	63,004
	(6.71)	(161.72)	(17.36)	(43.63)	(3.88)
Mississippi Portal	54,895	6,673	48,222	5,519	65,647
	(26.76)	(45.42)	(32.89)	(15.96)	(22.47)

Note: The Relative Standard Error (RSE) is in parentheses. Relative standard error (RSE) is defined as the standard error divided by the estimate expressed as a percentage. Column 5 reflects an adjustment of household income such that: (a) depreciation was not deducted from farm businesses, and (b) negative farm business earnings were set to zero.

Source: Calculated by ERS using data from the 1997 Agricultural Resource Management Study (ARMS).

Table 4—Demographic characteristics of farm households by resource region, 1997

	Heartland	Northern Crescent	Northern Great Plains	Prairie Gateway	Eastern Uplands	Southern Seaboard	Fruitful Rim	Basin and Range	MS Portal
Age of household head									
Under 45 years (%)	31.8	27.7	33.4	24.0	25.8	18.3	25.4	29.3	20.3
Between 45 and 65 years (%)	44.1	45.6	42.8	47.1	46.6	51.2	51.2	36.1	44.1
Over 65 years (%)	24.1	26.8	23.8	28.9	27.6	30.5	23.4	34.6	35.6
Education of household head									
Without high school degree (%)	11.1	13.9	13.5	10.2	24.8	20.0	9.9	18.9	23.6
With high school degree (%)	73.2	72.6	71.5	65.8	60.5	55.6	56.4	62.9	58.2
With college degree (%)	15.7	13.5	10.1	23.9	14.6	24.4	33.7	18.2	18.1
Average number of household members	2.9	2.9	2.8	2.5	2.6	2.5	2.4	2.8	2.7
Average annual hours worked by household head and spouse	1,824	2,086	2,543	1,785	1,549	1,594	1,519	1,847	1,379
Adjusted income									
≤$0 (%)	4.3	4.5	9.3	4.1	3.8	5.0	4.8	4.1	7.1
$1 - $25,000 (%)	20.7	31.4	26.6	23.6	29.9	34.7	23.9	17.8	26.7
$25,001 - $50,000 (%)	29.0	29.9	25.5	31.9	37.7	21.1	22.8	42.2	40.9
$50,001 - $100,000 (%)	29.9	23.4	26.7	28.8	23.2	29.2	28.9	12.5	15.6
>$100,000 (%)	15.9	10.6	11.8	11.4	5.2	9.8	19.4	23.2	9.4

Source: Calculated by ERS using data from the 1997 Agricultural Resource Management Study (ARMS).